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Prepared For U.S. Department of Veterans Affairs
As Required By the Veterans Access, Choice, and Accountability
Act of 2014
Section 201

Independent Assessment of the Health Care Delivery Systems and Management Processes of the Department of Veterans Affairs

Volume I: Integrated Report

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Preface

Congress enacted and President Obama signed into law the Veterans Access, Choice, and Accountability Act of 2014 (Public Law 113-146) ("Veterans Choice Act"), as amended by the Department of Veterans Affairs (VA) Expiring Authorities Act of 2014 (Public Law 113-175), to improve access to timely, high-quality health care for Veterans. Under "Title II – Health Care Administrative Matters," Section 201 calls for an Independent Assessment of 12 areas of VA's health care delivery systems and management processes.

VA engaged the Institute of Medicine of the National Academies to prepare an assessment of access standards and engaged the Centers for Medicare & Medicaid Services (CMS) Alliance to Modernize Healthcare (CAMH)[1] to serve as the program integrator and as primary developer of the remaining 11 Veterans Choice Act independent assessments. CAMH subcontracted with Grant Thornton LLP, McKinsey & Company, and the RAND Corporation to conduct 10 independent assessments as specified in Section 201, with MITRE conducting the 11th assessment. Drawing on the results of the 12 assessments, CAMH also produced the Integrated Report in this volume, which contains key findings and recommendations. CAMH is furnishing the complete set of reports to the Secretary of Veterans Affairs, the Committee on Veterans' Affairs of the Senate, the Committee on Veterans' Affairs of the House of Representatives, and the Commission on Care.

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[1] The CMS Alliance to Modernize Healthcare (CAMH), sponsored by the Centers for Medicare & Medicaid Services (CMS), is a federally funded research and development center (FFRDC) operated by The MITRE Corporation, a not-for-profit company chartered to work in the public interest. For additional information, see the CMS Alliance to Modernize Healthcare (CAMH) website (http://www.mitre.org/centers/cms-alliances-to-modernize-healthcare/who-we-are/the-camh-difference).

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Acknowledgments

Conducting this assessment on behalf of our nation's Veterans has been an honor. A common theme emerged as we explored data, interviewed staff, reviewed prior assessments, and assembled this report—Americans take the care of our Veterans seriously.

We would like to acknowledge those who have enabled us to complete this assessment, which carries the promise of improving Veterans health care.

First and foremost, we want to thank the leadership and staff of the Department of Veterans Affairs (VA) who routinely and unselfishly shared their time, insights, perspectives, and data. Our assessment teams visited 87 Veterans Health Administration facilities, including VA Medical Centers, Veterans Integrated Service Network headquarters, acquisition centers, construction and facilities management offices, and pharmacies, where we observed staff working diligently to provide the best possible clinical care to Veterans. During these visits, assessment teams conducted multiple interviews of VA employees, including providers, clinicians, administrators, and senior leaders. VA also provided 560 requested data sets.

Second, we are grateful to the Blue Ribbon Panel members who served as our advisers. This panel brought together individuals with years of experience in successfully transforming and running health care systems. We turned to these experts for advice and to determine if our ideas were aligned with current industry wisdom and emerging health care trends. The panel meticulously examined the materials we presented, applied their experience and industry knowledge, and shared candid recommendations. They are identified in Appendix Q.

Third, we appreciate the support of the Veterans Service Organizations (VSOs) listed in Appendix M that shared their data, reports, and surveys and their understanding of their constituents' health care needs. They provided the invaluable "Voice of the Veteran."

Fourth, we engaged with U.S. health care industry leaders who gave their time and provided access to their organizations and senior leadership teams. They shared their experience, perspectives, health initiatives, and viewpoints of best practices in health care that could be adopted by the Veterans health care system. Several also supported on-site visits to examine their clinical and administrative operations. These organizations are listed in Appendix M.

Finally, on behalf of the CMS Alliance to Modernize Healthcare, we would like to thank the team members from The MITRE Corporation, McKinsey & Company, RAND Corporation, Grant Thornton LLP, the Institute of Medicine of the National Academies, and numerous smaller companies and consultants who dedicated their time and energy to gather data, conduct analyses, and develop the materials that have been assembled in these Assessments and the Integrated Report. Throughout the process, it was clear that every team member shared a common commitment—to improve the health care for Veterans "who shall have borne the battle."[2]

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[2] Lincoln, A. (1865, March 4). Second inaugural address. Washington, D.C. Retrieved from http://www.va.gov/opa/publications/celebrate/vamotto.pdf.

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September 1, 2015

The Honorable Robert A. McDonald
Secretary
U.S. Department of Veterans Affairs
810 Vermont Avenue, N.W.
Washington, D.C. 20420-0002

Dear Secretary McDonald:

To support the Independent Assessment required by Section 201 of the Veterans Choice Act, The MITRE Corporation created a Blue Ribbon Panel, composed of experts from diverse health care and stakeholder backgrounds, to fully engage with MITRE in producing the Integrated Report and its findings and recommendations. Although the Panel was not specifically required by the Veterans Choice Act, we were fully involved by MITRE from the onset of the study, with complete access to raw data, subcontractor consulting teams, and MITRE subject matter experts and senior management.

MITRE assured the Panel of our complete independence, meaning that there would be full disclosure of data and assessments; that the Panel could meet in executive session as often as necessary; that the Panel would provide candid feedback and advice on the final findings and recommendations submitted by MITRE; and that the Panel was under no obligation to endorse the final Integrated Report. In addition, following public submission of the report to Congress and the VA, Panel members would be free to independently express their personal opinions regarding the process or findings, while protecting the confidentiality and propriety of the information.

With independence and transparency, the Panel pursued this study with extraordinary energy and commitment, because we—like everyone involved—were passionate about improving the health and quality of care for our Veterans. Over the past months, we reviewed thousands of pages of drafts, engaged in numerous conference calls, and spent four 2-day sessions in lively meetings at MITRE headquarters near Washington, D.C. We facilitated data collection, provided frequent and timely feedback, and worked collaboratively with MITRE to develop final priorities and recommendations. MITRE was consistently responsive to the Panel, and incorporated our advice at all stages.

Now, we the members of the Panel unanimously endorse the Integrated Report and its findings and recommendations. The report provides not only operational, near-term strategies to improve clinical care for Veterans, but also details remedies for root-cause problems that must be addressed both by Congress and the VA before any long term, sustained improvement can be realized. Among these root issues are the need to prospectively and clearly define the role of the VHA within the modern health care ecosystem, including whether the VHA should become a comprehensive health care system for all health needs, or focus on specific areas of service-related conditions. In addition, the Congress and the VA must solve the VHA crises in leadership and culture, establish and empower the governance structure, and provide the VHA with core tools essential for any modern continuously-improving, value-based, health care system.

Finally, the Panel would like to express our appreciation to the hundreds of experts who have contributed to this report, and to the literally thousands of contributing Veterans and VHA employees who believed that this report would become a roadmap to achieve the highest quality of care for Veterans, at a cost we can afford, and in a culture that would be the envy of any health care system in the nation.

Sincerely,

Katrina Armstrong, MD, MSCE
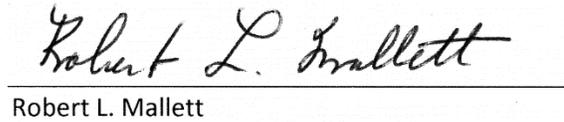
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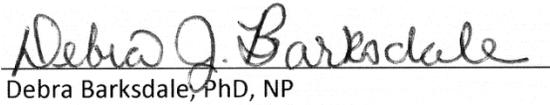
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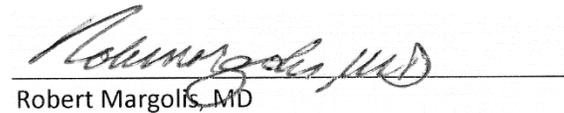
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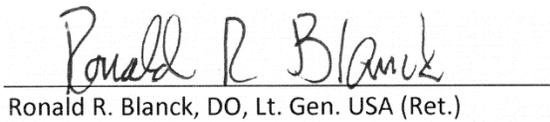
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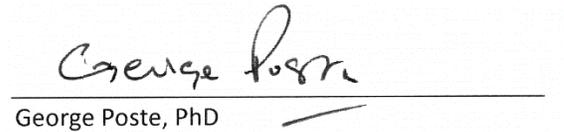
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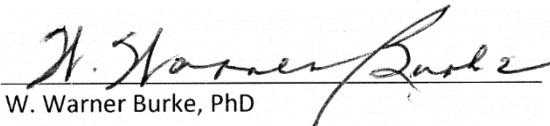
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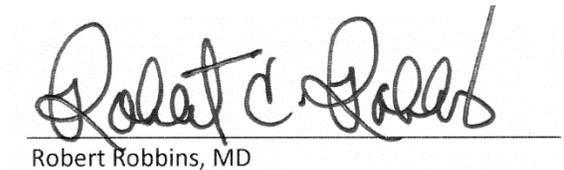
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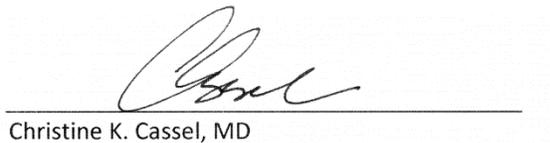
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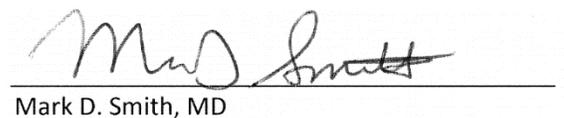
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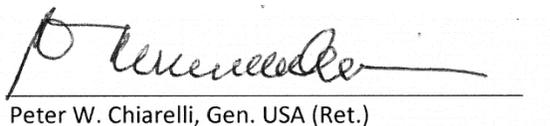
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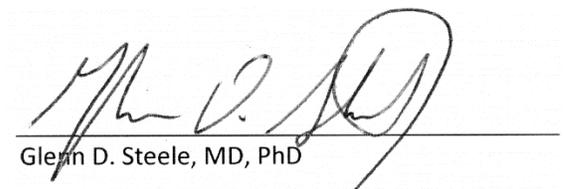
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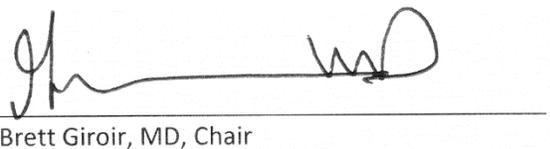
Brett Giroir, MD, Chair

Beth Ann Swan, PhD, CRNP, FAAN

George Halvorson
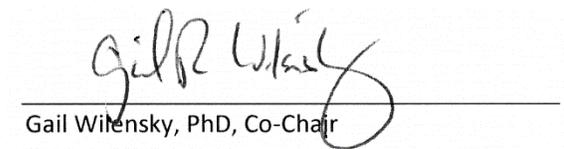
Gail Wilensky, PhD, Co-Chair

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Executive Summary

Background: Section 201 of the Veterans Access, Choice, and Accountability Act of 2014 required an Independent Assessment of the hospital care, medical services, and other health care furnished in medical facilities of the Department of Veterans Affairs (VA). The Act specifically directed that assessments be conducted in 12 areas, covering a broad spectrum of Veterans Health Administration (VHA) services, operations, and support (Figure ES-1). The findings and recommendations from these assessments revealed interrelationships that demand a holistic understanding of VHA.

VHA's health care delivery system is challenged by a unique combination of factors including its significant scale and scope, unique patient population, and congressionally mandated funding, governance, and oversight. VHA operates one of the country's largest and most complex organizations, with 1,600 care sites (including 167 medical centers) across 50 states, currently staffed by approximately 300,000 employees who cared for nearly six million Veterans last fiscal year. VHA is a major research and teaching organization, with a $1.2 billion annual research budget. Its health professional education program is the nation's largest, clinically training nearly 120,000 individuals each year via affiliations with more than 1,800 educational institutions.

ES-1. Veterans Choice Act Assessments

A. Demographics

B. Health Care Capabilities
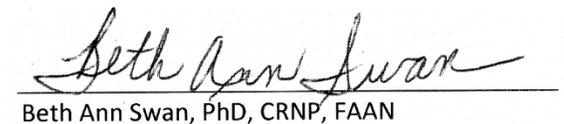
C. Care Authorities

D. Access Standards

E. Workflow – Scheduling

F. Workflow – Clinical

G. Staffing/Productivity

H. Health Information Technology

I. Business Processes

J. Supplies

K. Facilities

L. Leadership

Approach: The Independent Assessment was performed by interviewing VA employees and outside observers, visiting 87 VA sites, conducting multiple surveys, analyzing 560 data sets provided by VHA and data from other sources, and performing literature reviews. In addition, best practices were gathered from the private sector through interviews with top health care executives, site visits to high-performing health care organizations, and consultation with an independent advisory panel of nationally recognized health executives and stakeholders (Appendix Q: Blue Ribbon Panel). This approach not only provided deep understanding of the 12 assessment areas, but additionally provided a comprehensive view of VHA. It is VHA's interdependent system that is the focus of the findings and recommendations in the Integrated Report.

The Independent Assessment: The Independent Assessment includes this Integrated Report and the 12 major assessment reports for the areas designated in ES-1. Each area is addressed in a separate assessment report that includes findings and evidence-based recommendations (Appendices A–L and Volume II). The Integrated Report builds upon the findings and recommendations of those reports and identifies the four systemic findings that must be addressed to enable a sustained transformation of VHA.

Significant Flaws: While VHA exhibits a deep commitment to serving Veterans, many of the assessment teams consistently found that VHA's health care facilities deliver strikingly different patient experiences, apply inconsistent business processes, and differ widely on key measures of performance and efficiency. The assessments also provided evidence that the organization is plagued by many problems: growing bureaucracy, leadership and staffing challenges, and an unsustainable trajectory of capital costs. Other reports and assessments have pointed to local failures of access and quality. On the other hand, there are bright spots throughout VHA that illuminate best practices that work effectively within the VHA environment. Understanding the various aspects of these differences sets a context that can allow VHA to identify and act on opportunities for continuous sustained improvement.

Systems Approach: VHA must adopt systems thinking to address its most challenging problems, including access, quality, cost, and patient experience.[3] Systems thinking is a framework for solving problems based on the premise that a component part of an entity can best be understood in the context of its relationships with the other components of the entity, rather than in isolation. It takes into account the interdependencies of the parts to find the best combination of strategies that meet the needs of the whole. This approach is required to address the interdependent nature of the people, processes, and technologies supporting VHA. This approach has been well established in many industries, including health care, and often enables leaders to reframe the problem into opportunities based on an appreciation of how components of the program should be working together, as opposed to how they are currently interacting. Systems thinking does not promote tackling individual problems independently because the solutions—more often than not—will be sub-optimal, non-scalable, and non-sustainable.

While complex problems benefit greatly by reframing problems in creative ways, systems solutions also work well for improving existing processes and motivating people to believe they can successfully change. Continuous improvement is one such approach that often uses a Plan-Do-Study-Act cycle that identifies, reduces, and eliminates suboptimal processes for continuous incremental or breakthrough improvements. This approach relies heavily on measuring, analyzing, and experimenting for successful innovations. The current culture in VHA would benefit greatly from instituting continuous improvement more effectively so that everyone participates, sees progress, and can build on the pride they have in being part of VHA. Some of VHA's best performers already focus on continuous improvement, but it is not widely adopted as a standard way of operating. Transforming any organization, especially one the size of VHA, requires that everyone understands, feels accountable for, and acts daily on how to continuously improve the organization. It is as much about engaging the people as it is about fixing the processes.

Four Systemic Findings: A review of the extensive evidence, findings, and recommendations in the assessment reports—informed by an analysis of industry benchmarks and best practices, insights from health care executives and high-performing health care systems, and interactions

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[3] This information is informed by the Institute of Medicine Assessment D (Access Standards) in Volume II.

with Veterans Service Organizations—enabled the identification of four systemic findings that impact mission execution.

- A disconnect in the alignment of demand, resources, and authorities
- Uneven bureaucratic operations and processes
- Non-integrated variations in clinical and business data and tools
- Leaders are not fully empowered due to a lack of clear authority, priorities, and goals.

The recommendations that will enable VHA to address these findings are discussed below. These recommendations are interdependent and must be coordinated and implemented via a systems approach to improve the VHA system overall.

Finding 1: A disconnect in the alignment of demand, resources, and authorities

VHA's mission—"Honor America's Veterans by providing exceptional health care that improves their health and well-being"[4]—is inspirational and widely accepted by VHA staff, but there are significant geographic variations with respect to how the mission is translated into action for individual Veterans. Complex eligibility rules make determining which Veterans are covered and which services those Veterans receive a challenge, and navigating VHA is often difficult for Veterans—a problem exacerbated by incomplete guidance and non-standardized business processes. Furthermore, the growing role of outside providers has not been effectively integrated into VHA's operating model, which is based on providing direct care within VHA facilities.

At present, VHA is over-committed in some geographic areas, given its broad mission, an expanding list of automatic eligibility criteria, and limited resources. Matching supply and demand at the local level is challenging because supply is relatively fixed each year once service projection models allocate resources to each facility through the appropriation and budgeting process.

Although the population of Veterans is expected to decline by 19 percent over the next decade,[5] the demand for health care services is expected to rise before it levels off in five years, based on demographic factors (primarily aging)—and likely will rise even more if access to VHA health care is improved (Assessment B [Health Care Capabilities]). On the other hand, in some areas and for some health conditions, VHA may not have a sufficient population of patients to sustain highly specialized service lines with enough volume to achieve and maintain clinical excellence.

Recommendation 1—GOVERNANCE: Align demand, resources, and authorities.

Congress, the Commission on Care, and VA leadership should address the misalignment of demand with available resources both overall and locally. They should align VHA's goal to

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[4] U.S. Department of Veterans Affairs. Veterans Health Administration. "About VHA." [Website]. Retrieved from http://www.va.gov/health/aboutVHA.asp

[5] This information is presented in RAND Corporation Assessment A (Demographics) in Volume II.

provide comprehensive health care to Veterans with VHA's capacity by adjusting capacity or reshaping the expected benefit—that is, the Veteran population to be served (eligibility) on the one hand, and the health care those Veterans will be provided (service lines) both by VHA and by community resources on the other.

Supporting Recommendations

- **Establish a governance board to develop fundamental policy, define the strategic path, insulate VHA leadership from direct political interaction, and ensure accountability for the achievement of established performance measures.**
  Congress should consider the following alternatives for such a governance board:
  - Charter a commission modeled after the 1955 U.S. President's Commission on Veterans' Pensions.
  - Empower a board or commission to reshape geographic service areas and optimize facilities resourcing and lines of service (along the lines of the Defense Base Realignment and Closure Commission process used for military installations).
  - Assign the definition of the governance board as a mission for the Commission on Care, established under Section 202 of the Veterans Choice Act.
  - Whatever approach is selected, ensure that the solution focuses on governance, that members have sufficient longevity of term, and that the authorities of the board are fully endorsed by Congress.

- **Require a patient-centered demand model that forecasts resources needed by geographic location to improve access and to make informed resourcing decisions.**
  VHA should:
  - Effectively explore predictive tools to continually forecast local demand and fine-tune estimates of required resources.
  - Reallocate and manage resources flexibly to meet national, regional, and local variations in patient-centered demand.

- **Clarify and simplify the rules for purchased care to provide the best value for patients.[6]**
  VHA should:
  - Develop a stronger management structure for purchased care and allocate responsibility and authority to the most appropriate levels.
  - Establish an ongoing process for evaluating third-party administrator performance.
  - Develop clear and consistent guidance and training on VA's authority to purchase care.
  - Ensure that both new and existing purchased care contracts with outside providers and third-party administrators include appropriate requirements for data sharing, quality-of-care reporting, and care coordination.

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[6] This information is derived from RAND Corporation Assessment C (Care Authorities) in Volume II.

Finding 2—Uneven bureaucratic operations and processes

Several centralized operational and support functions appear to have lost customer focus and do not adequately support the needs of the medical centers. In response, individual VA Medical Centers (VAMCs) have adopted local implementations of certain processes, but many of these were found to be unnecessarily complex and, not surprisingly, inconsistent across VHA. In many cases, these centralized and local process issues have become inefficient or bureaucratic and have had a direct and negative impact on the overall Veteran experience and timely access to care.

These widely varying processes highlight the complexity of VHA within the larger, equally complex VA organization. Severe problems may manifest themselves at one facility, while another constantly receives tributes from Veterans and health care experts. The oft-quoted reminder, "if you've seen one VA hospital, you've seen ONE VA hospital," captures this reality.

Recommendation 2—OPERATIONS: Develop a patient-centered operations model that balances local autonomy with appropriate standardization and employs best practices for high-quality health care.

As Assessment L (Leadership) suggests, VA and VHA should streamline their Central Offices and strengthen poor-performing support functions. VHA should adopt systemic means to identify, assess, disseminate, adapt, and scale best practices throughout the system—whether these practices originate inside or outside of VHA.

Supporting Recommendations

- **Right size and reorient the VHA Central Office to focus on support to the field in its delivery of care to Veterans.** This implies a series of actions to include reassessing all VHA Central Office-directed metrics and policies to ensure that they add sufficient value to patient outcomes and eliminate those that do not.

- **Fix substandard processes that impede the quality of care provided to the Veteran.** This is clearly dependent on, among other efforts, implementing an operating model that provides medical centers with the autonomy and flexibility to innovate and address local needs while also providing standardization across the system.

- **Design and implement a systematic approach to identify best practices and disseminate them appropriately across the enterprise.** This approach would include defining the role of the Veterans Integrated Service Network (VISN) to lead the best-practice identification and to share ideas within and across the enterprise, working collaboratively with VAMC leaders and staff.

Finding 3—Non-integrated variations in clinical and business data and tools

A lack of common, integrated VHA enterprise systems and tools negatively impacts VHA's operations and resulting data. Inconsistent and ineffective data collection and analysis undermines rapid, evidence-based assessment and improvement of quality and customer satisfaction. VHA lacks a holistic, enterprise approach to collecting and leveraging its data. Data interchange with the Department of Defense (DoD) and external health care providers is

limited, which creates unnecessary clinical risk. Since newly discharged Veterans often become VA patients, interoperability with DoD is necessary and expected. These shortfalls hinder using available data to support effective decision making and performance management.

Recommendation 3—DATA AND TOOLS: Develop and deploy a standardized and common set of data and tools for transparency, learning, and evidence-based decisions.

Supporting Recommendations

- **Use standardized clinical and administrative data for accuracy and interoperability.**

- **Implement a single, integrated set of system-wide tools centered on a common electronic health record (EHR) that is interoperable across VHA and with DoD and community providers.[7]**
  Specifically, VHA should implement and integrate one system-wide:
  - EHR system that is interoperable across the entire system and with DoD and community providers
  - Electronic claims payment system to pay for outside services
  - Billing system to collect from other payers
  - Patient-friendly scheduling system with modern, single toll-free-number call-center support
  - Set of electronic clinical decision-support tools describing standard work, protocols, and guidelines housed in an electronic medical library.

- **Transparently share performance metrics for leadership, clinical, and business functions across VHA to identify and adopt best practices for continuous improvement.**

Finding 4—Leaders are not fully empowered due to a lack of clear authority, priorities, and goals

As Assessment L indicates, VHA leaders operate within a challenging and disempowering environment that discourages emerging leaders from seeking promotion within the organization. While VHA has seen a 160-percent growth in headquarters program office staff in the past five years, key field leadership positions throughout the organization sit vacant or are staffed with acting leaders, and more than half of executives are eligible for retirement, potentially creating a larger number of vacant positions. Further, a misalignment of accountability and authority exists within a broader VHA culture characterized by risk aversion and lack of trust. Those leaders who are effective too often achieve outcomes despite the challenges of the organization within which they operate.

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[7] This information is derived from The MITRE Corporation Assessment H (Health Information Technology) in Volume II.

Recommendation 4—LEADERSHIP: Stabilize, grow, and empower leaders; galvanize them around clear priorities; and build a healthy culture of collaboration, ownership, and accountability.[8]

VHA must resolve the leadership crisis by putting the right leaders in the right jobs with the right skills under an appropriate governance model for the appropriate amount of time.

Supporting Recommendations

- **Push decision rights, authorities, and responsibilities to the lowest appropriate level throughout the organization.**

- **Build on Veteran-centered behaviors to drive a culture of service excellence, trust, continuous improvement, and healthy accountability.**

- **Revitalize the leadership pipeline through establishment of enterprise-wide, comprehensive succession-management and leadership-development functions.**

- **Strengthen the appeal of senior leadership positions by pursuing flexibilities in hiring and compensation.**

- **Establish sustained leadership continuity by extending tenure for key positions.**

A Call for System-Wide Change: The Independent Assessment highlighted systemic, critical problems and confirmed the need for change that has been voiced by Veterans and their families, the American public, Congress, and VHA staff. Solving these problems will demand far-reaching and complex changes that, when taken together, amount to no less than a system-wide reworking of VHA.

Several high-performing health care organizations were examined by the study team, including Kaiser Permanente, Virginia Mason, Geisinger Health System, and the Cleveland Clinic. Although all of these are of a differing scale than VHA, all overcame significant clinical or economic troubles by making consistent, organization-wide changes that enabled them to transform themselves into organizations that now excel at their specific missions. Similarly, during 1994 to 1999, sustained leadership within VHA deployed system-wide changes that effected a major transformation of the agency's operations. VHA should once again commit to that level of systemic change.

A system-wide transformation is required, based on an integrated systems approach that acknowledges the interdependence of the four systems recommendations:

1) **Governance**: Align demand, resources, and authorities.
2) **Operations**: Develop a patient-centered operations model that balances local autonomy with appropriate standardization and employs best practices for high-quality health care.
3) **Data and Tools**: Develop and deploy a standardized and common set of data and tools for transparency, learning, and evidence-based decisions.

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[8] This recommendation and the ideas expressed in the supporting recommendations reflect information provided in McKinsey & Company Assessment L (Leadership) in Volume II.

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4) **Leadership**: Stabilize, grow, and empower leaders; galvanize them around clear priorities; and build a healthy culture of collaboration, ownership, and accountability.

These four recommendations create the integrated systems cornerstones, as shown in Figure ES-2.

With these four interdependent systems components successfully in place, VHA will have the opportunity to achieve a place among the highest performing health care systems in the world. As an example of the value of this systems approach, consider the challenges that VA faces in managing its capital program in facilities management. As Assessment K (Facilities) highlights, provided that average funding levels remain consistent over the next 10 years, the $51 billion capital requirement would significantly exceed the anticipated funding level of $16–26 billion.[9] Not only would this shortfall jeopardize the capital program, it would also threaten the financial integrity of the entire VHA health care delivery system and, in turn, significantly impact the quality of health care provided to Veterans. Viewing this primarily as a funding problem would be shortsighted. Rather there are interdependent findings in each of the four cornerstones that need to be addressed in an integrated fashion to achieve a sustainable solution. In terms of governance, external constraints limit VHA's ability to deliver and operate medical facilities at the level of private-sector benchmarks; investments in facilities are not effectively linked to workload growth; existing space is not being used at its highest efficiency; and expected funding levels do not support identified capital needs.

ES-2. Integrated Systems Cornerstones
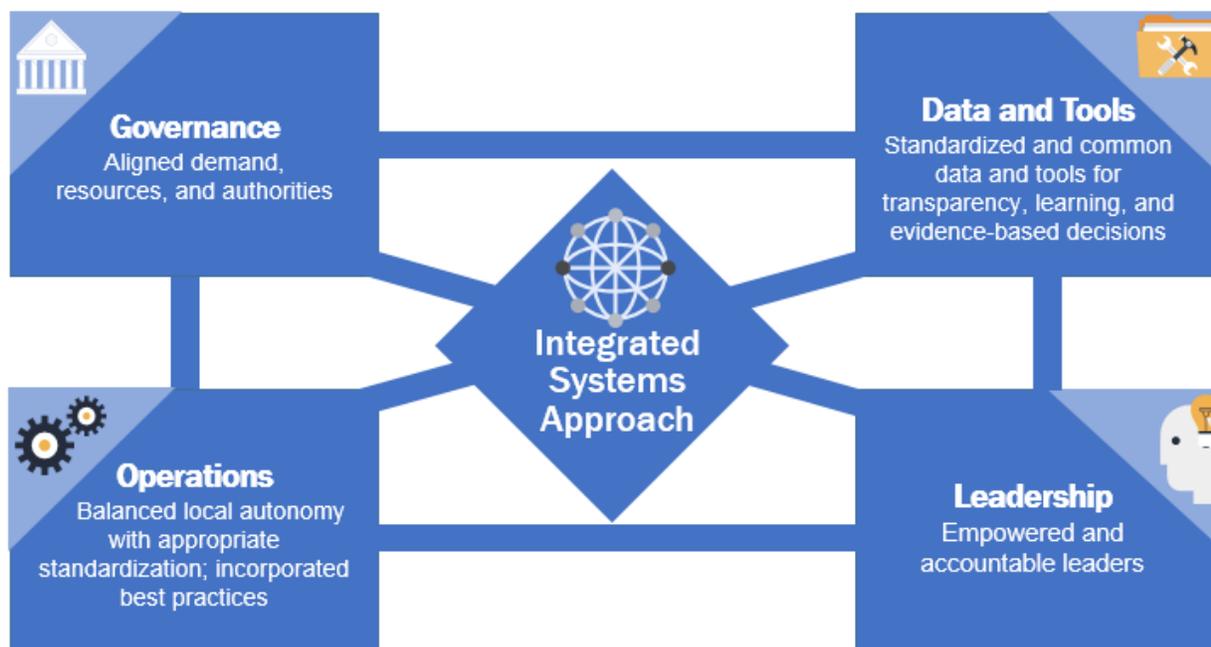
As Assessment K also reveals, for operations, total cost of ownership is not calculated or integrated into capital planning decisions; VHA has no integrated system to manage the entire

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[9] This information comes from McKinsey & Company Assessment K (Facilities) in Volume II.

leasing process; comprehensive tracking or measurement of the leasing program and its outcomes is precluded; and a large majority of facilities noted challenges in hiring staff and filling vacant positions. For data and tools, data capture occurs at multiple levels and through multiple tools, generating multiple sources of truth about the status of the capital program; tools for developing Strategic Capital Investment Plan business cases rely on user creativity and capabilities to consider creative alternatives to capital solutions; and systems do not consistently capture key performance indicators, and the metrics are not standardized across all stakeholders. And for leadership, there are recognized shortfalls in overall accountability, role clarity, personal ownership, internal communication, and proactive problem-solving approaches that limit VA's and VHA's ability to deliver the correct projects on time and on budget; the broader culture of facilities functions is characterized by silos and risk aversion, resulting in an inability to consistently advance projects in an efficient manner; and competition for limited funds has led leaders to make a range of choices in developing projects that favor approval strategies over efficient project delivery.

Viewing these facilities challenges through the lens of the integrated systems approach begins to reveal the complexity of the problem, the integrated nature of the required transformation, and the opportunity to reframe the facilities challenges as part of a larger set of interdependent pieces of VHA's overall health care system. Facility challenges can be significantly mitigated by a transformative realignment throughout the capital program deploying best practices in leasing and contracting; realigning the strategy of the capital program to improve project selection, optimize the infrastructure portfolio, implement innovative care delivery models, understand demand-based needs, and explore and partner with purchased-care opportunities; and reevaluating funding requirements. In short, employing the systems view could help reframe the vision for future health delivery and significantly reduce VHA's current and future capital investment issues. It also positions VHA not to be burdened long term with hospital overcapacity as the nature of health care delivery trends toward smaller inpatient facilities, increasing outpatient care, and more virtualized health care delivery.

The richness of the systems approach extends not just to facilities, but across many of VHA's biggest challenges. Patient access to clinician appointments cannot be sustainably addressed by only focusing on increasing overtime in the near term without looking at demand modeling, improving scheduling processes and tools, and a number of other dependencies. Choice Card funding is critical to increase purchased care access, but will not succeed without strong Veteran navigational aids, clearer rules of use, and a number of other cultural and leadership changes to promote using health care services outside of VHA. Prioritizing these findings and then solving them individually is tempting, but such an approach would not guarantee a sustainable solution. As H.L. Mencken stated, "For every complex problem there is an answer that is clear, simple, and wrong."

There are clear obstacles. As the assessment reports reveal, the number of issues VHA currently faces appears overwhelming. In its current state, VHA is not well positioned to succeed in the transformation that this analysis suggests. Three essential actions are required to realize the recommendations inherent in this transformation. VHA must:

- Recognize that the four cornerstones are interdependent and the success of any one of the four overarching recommendations hinges on the implementation of the other three. These solutions must be coordinated and implemented via a systems approach to improve VHA overall.

- Establish a transformation program management office with authority and funding (redirected from current central and local funding mechanisms) to implement the system-wide reworking of VHA. This will include establishing priorities, defining timelines for execution, allocating resources, and instituting appropriate metrics for success. It should merge relevant components of MyVA, the *Blueprint for Excellence*, and other ongoing initiatives into one coherent, focused transformational approach.

- Require evidence-based systems models to inform and implement integrated solutions that balance governance, operations, data and tools, and leadership.

It will be the charge of Congress, the Commission on Care, and VA leadership to see that these recommendations and resulting transformation efforts are given the necessary attention and support that they—and our nation's Veterans—deserve.

Table 1. Assessment Areas

	TOPIC	FOCUS	ORGANIZATION
A	Demographics	Current and projected demographics and unique health care needs of the patient population served by the Department.	RAND Corporation
B	Health Care Capabilities	Current and projected health care capabilities and resources of the Department, including hospital care, medical services, and other health care furnished by non-Department facilities under contract with the Department, to provide timely and accessible care to Veterans.	RAND Corporation
C	Care Authorities	The authorities and mechanisms under which the Secretary may furnish hospital care, medical services, and other health care at non-Department facilities, including whether the Secretary should have the authority to furnish such care and services at such facilities through the completion of episodes of care.	RAND Corporation
D	Access Standards	The appropriate system-wide access standard applicable to hospital care, medical services, and other health care furnished by and through the Department, including an identification of appropriate access standards for each individual specialty and post-care rehabilitation.	Institute of Medicine
E	Workflow – Scheduling	The workflow process at each medical facility of the Department for scheduling appointments for Veterans to receive hospital care, medical services, or other health care from the Department.	McKinsey & Company
F	Workflow – Clinical	The organization, workflow processes, and tools used by the Department to support clinical staffing, access to care, effective length-of-stay management and care transitions, positive patient experience, accurate documentation, and subsequent coding of inpatient services.	McKinsey & Company
G	Staffing/ Productivity	The staffing level at each medical facility of the Department and the productivity of each health care provider at such medical facility, compared with health care industry performance metrics.	Grant Thornton LLP
H	Health Information Technology	The information technology strategies of the Department with respect to furnishing and managing health care, including an identification of any weaknesses and opportunities with respect to the technology used by the Department.	The MITRE Corporation
I	Business Processes	Business processes of VHA, including processes relating to furnishing non-Department health care, insurance identification, third party revenue collection, and vendor reimbursement.	Grant Thornton LLP
J	Supplies	The purchasing, distribution, and use of pharmaceuticals, medical and surgical supplies, medical devices, and health care related services by the Department.	McKinsey & Company
K	Facilities	The process of the Department for carrying out construction and maintenance projects at medical facilities of the Department and the medical facility leasing program of the Department.	McKinsey & Company
L	Leadership	The competency of leadership with respect to culture, accountability, reform readiness, leadership development, physician alignment, employee engagement, succession planning, and performance management.	McKinsey & Company

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1   Introduction

Requirements: Several congressional hearings in the spring and summer of 2014 attempted to explore the potential uneven access and quality in the Veterans Health Administration (VHA) health care system and to identify the sources of the problems that were dominating the press. In August 2014, Congress passed the Veterans Access, Choice, and Accountability Act of 2014 (Pub. L. No.113–146, 128 Stat. 1754), also known as the Veterans Choice Act. Section 201 of the Veterans Choice Act, Independent Assessment of the Health Care Delivery Systems and Management Processes of the Department of Veterans Affairs—hereafter called the Independent Assessment—calls for a private-sector entity or entities to "conduct an independent assessment of the hospital care, medical services, and other health care furnished in medical facilities of the Department."[10] The Act specifically directed that the assessments be conducted in 12 areas, covering a broad spectrum of VHA services, operations, and support. Eleven of these assessments were conducted under the auspices of the CMS Alliance to Modernize Healthcare (CAMH), a federally funded research and development center sponsored by the Centers for Medicare & Medicaid Services (CMS) and operated by The MITRE Corporation. MITRE entered into contracts with three organizations to help execute the required assessments, with the exception of Assessment D (Access Standards), which VHA separately contracted to the Institute of Medicine (IOM). Table 1 identifies the specific assessment areas and the organizations conducting the assessments.

Activities: For the 11 CAMH assessments, the assessment teams conducted numerous activities to better understand VHA processes, functions, and operations. As Table 2 illustrates, they captured and utilized a vast amount of information gathered through site visits, surveys, data requests, and focused interviews. All of the individual assessment reports, summarized in Appendices A through L and contained in Volume II, provide a comprehensive discussion of the analytical techniques that each team used to conduct its assessment. This Integrated Report was created by applying an integrated systems perspective across all of the individual assessments' activities, findings, and recommendations.

Table 2. Data Collection, Assessment, and Integration Activities

Conducted 87 site visits to 38 VAMCs, 16 primary care community-based outpatient clinics, 7 multi-specialty community-based outpatient clinics, 1 health care center, 13 VISN headquarters, 4 construction and facilities management offices, 2 acquisition centers, 2 consolidated mail outpatient pharmacies, 3 consolidated patient account centers, 1 health administration center, and 6 active major construction sites.
Conducted numerous interviews and workshops with VA and VHA leadership, staff, and union representatives.
Conducted extensive literature reviews that included 137 previous assessments of the Veterans health care system.

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[10] United States. Congress. Veterans Access, Choice, Accountability, and Transparency Act, 38 U.S.C. § 1701 (2014) (Pub. L. No.113–146, 128 Stat. 1754).

Met with 27 leading private health care organizations and obtained information from 10 Veteran Service Organizations (VSOs). Visited four health care systems that have undergone successful major transformations in the last 10 years.
Conducted 5 individual-level surveys to include leaders at VA administrative parent organizations, schedulers, providers and administrators, inpatient clinical staff members at all VAMCs, and VHA employees about its leadership beliefs and practices.
Received 560 data sets from VHA; received and analyzed more than 20,000 files.
Created an independent Blue Ribbon Panel consisting of 16 preeminent health care industry leaders to leverage their expertise in health care industry best practices and innovative practices. The panel members (listed in Appendix Q) remained engaged throughout the assessment process and provided advice and feedback on the integrated assessment approach and this Integrated Report.

Limitations: These efforts had certain limitations:

- The assessment teams assumed that the quality, reliability, and accuracy of the data provided by VHA were acceptable. Sometimes data were unavailable, used non-standard definitions, or appeared to have inconsistencies. Conducting audits was beyond the scope of this effort.

- The assessments did not include a survey of Veterans' experiences or perceptions. The defined time frame did not permit the design and implementation of a formal survey. We engaged Veterans Services Organizations (VSOs) to gain their perspective on the viewpoints of their membership.

- The assessments did not compare costs of VA and non-VA care because the Veterans Choice Act did not require cost comparisons. The Congressional Budget Office (CBO) has previously reported to Congress on the challenges of comparing the costs of VA and non-VA care, citing the scarcity of cost-accounting data for Veterans' care and the complete absence of data on non-VA care received by Veterans who are also treated by VA.[11] We do recognize that the value of Veterans' health care, defined as health care outcomes relative to costs, should inform efforts for improvement.

- Due to time constraints, the assessment teams did not visit every Veterans Affairs Medical Center (VAMC). Rather, the assessment team implemented a process that defined an appropriate sample of medical facilities to visit and used data calls and surveys to cover the remaining facilities that could not be visited. The sample included representation across all (Veterans Integrated Service Networks (VISNs); satisfied assessment requirements; and 87 site visits, including visits to 38 VAMCs, were conducted. To ensure consistency across each site visit, we also ensured that the same

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[11] Congressional Budget Office. (2014, December). *Comparing the Costs of the Veterans' Health Care System with Private-Sector Costs*. Washington, D.C.: Congressional Budget Office. Retrieved from https://www.cbo.gov/publication/49763

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population (i.e., roles and units) were used for observation and focus-group participation.

Organization: The results of these efforts are captured in two volumes:

- Volume I contains this Integrated Report and one appendix for each assessment, summarizing that assessment's findings and recommendations.
- Volume II contains the detailed and complete assessment reports.

Table 3 provides the major elements of this Integrated Report:

- Sections 1–3 include the Introduction, Context, and Systems and are intended to enable readers to understand the purpose of the effort, to capture VHA's state at the time of the assessment, and to introduce the need for an integrated system-level perspective to resolve identified systemic findings.
- Sections 4–7 discuss the four interrelated systemic findings of concern and respective system-wide recommendations.
- Section 8 describes the transformational journey that VHA must embark upon to become a high-performing health care system.

This Integrated Report provides an integrating perspective based on the findings and recommendations from across the independent assessment reports. It does not provide a summary of the individual findings or recommendations of the assessments; rather, readers are strongly encouraged to study those assessments in detail.

The findings and recommendations from all of the independent assessment reports revealed four systemic findings, defined in Section 3, that are clearly interrelated and underlie many of VHA's recurring problems. This Integrated Report concludes that solving VHA's more challenging problems requires VA leadership to adopt systems thinking, a framework for solving problems based on the premise that a component part of an entity can best be understood in the context of its relationships with the other components of the entity, rather than in isolation. This approach takes into account the interdependencies of the parts to find the best combination of strategies that meet the needs of the whole. Systems thinking has been well established in many industries, including health care, and requires leaders to understand how components of the system should be working together, as opposed to how they are currently interacting. Systems thinking does not promote tackling individual problems independently because the solutions, more often than not, will be sub-optimal, non-scalable, and non-sustainable. This Integrated Report also concludes that VHA should establish a transformation program management office with authority and funding necessary to effectively implement a system-wide reworking of VHA based on systems thinking and that VHA should exploit evidence-based systems models to enable informed decisions about integrated solutions.

Table 3. Integrated Report Directory

SECTION	PURPOSE	PAGE NO.
I. Introduction	Explains the purpose, scope, and structure of the report	1
2. Context	Describes VHA	7
3. Systems	Introduces the systems approach to enabling transformation and identifies the four systemic findings that emerge from this assessment	13
4. Governance	Provides recommendations on how to align demand, resources, and authorities within VHA	23
5. Operations	Addresses variance in the execution of business operations across VHA, defines the need to identify and share best practices and to develop a patient centered operating model	31
6. Data and Tools	Motivates the need for common, transparent, accurate, and timely system-wide data and tools	41
7. Leadership	Discusses the impact of and solutions to the current leadership challenges	51
8. Transformation	Describes the transformation journey upon which VHA must embark	59
Appendices A–L	Provide a short synopsis of assessment reports contained in Volume II	A-1
Appendix M	Highlights the outreach efforts that were conducted with Veterans Service Organizations, high-performing health care systems, and health care executives	M-1
Appendix N	Provides the list of references that support this effort	N-1
Appendix O	Provides the list of acronyms used in the Integrated Report	O-1
Appendix P	States Section 201 of the Veterans Choice Act	P-1
Appendix Q	Identifies the Blue Ribbon Panel members	Q-1
VOLUME II	Provides background information, analytic approach, findings, conclusions, and recommendations prepared by each of the 12 assessment teams	CD

The views, opinions, and/or findings contained in this report are those of The MITRE Corporation and should not be construed as an official government position, policy, or decision.

Figure 1. Veterans' Health Care Key Metrics

The VHA Mission: "Honor America's Veterans by providing exceptional health care that improves their health and well-being"

Veteran Population

Legend: Veterans, Enrollees, Patients

	FY2014	FY2024 (Projected)
Veterans	21,619,731	17,494,154
Enrollees	9,086,547	9,802,247
Patients	5,814,463	6,069,411

- 2% Asian
- 1% Other
- 6% Hispanic
- 11% Black
- 80% Caucasian

- 8% females
- 92% males

VHA Budget

Billions

Fiscal Year	2010	2011	2012	2013	2014	2015
VA Budget	127	126	127	140	154	164
VHA Budget (Discretionary Funds)	47	51	53	56	57	59

2015: $59B   2010-2015: $323B

- **70%** of U.S. physicians have trained at VA
- In AY13-14 **118,000** students in more than **40** professions received clinical traineeships or fellowships from VA
- VA maintains more than **8,000** individual affiliations with more than **1,800** educational institutions

VHA Medical Facilities
(as of 6/2015)

VA Medical Center: **167**
Primary Care CBOC: **566**
Multi-Specialty CBOC: **187**
Health Care Center: **14**

Veterans Per Square Mile
- 0.0 - 1.0
- 1.1 - 5.0
- 5.1 - 10.0
- 10.1 - 15.0
- 15.1 - 25.0
- 25.1 - 50.0
- 50.1 - 100.0
- 100.1 - 150.0
- 150.1 - 300.0
- VISN

Alaska   Hawaii   Puerto Rico / VI

Demographic plot provided by RAND Assessment B

People & Places: A Comparison of Health Care Systems
An Approximate Number of Patients, Staff, and Facilities

	Employees	Physicians	Patients	Facilities	States
VHA (as of 9/30/2014)	288,000	20,208	5,814,463	1,600	50
Kaiser Permanente (as of 12/31/2013))	174,400	17,400	9,100,000	646	10*
Hospital Corp of America (as of 12/31/2014)	225,000	37,000	1,795,300	280	21**
Ascension (as of 6/30/2014)	155,000	40,000	1,515,500	161	23
Geisinger (as of 6/30/2014)	23,500	1,200	3,000,000	104	1
NYC Health & Hospitals Corp (as of 9/30/2014)	35,000	3,270	1,400,000	92	1

*Includes Washington, D.C.   **Includes the United Kingdom   Data sources for this infographic are listed in Appendix N

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2 Context

The assessments focused on the care provided under the auspices of the U.S. Department of Veterans Affairs (VA). This care is primarily provided through the medical facilities operated by the Veterans Health Administration (VHA)—the VA organization directed by the Under Secretary for Health—and through health care funded by VA and provided outside of VHA facilities (i.e., purchased care or community care). Veterans also receive health care outside of VHA facilities that is not funded by VHA. Our focus excludes care that is not directly provided by or paid for by VHA.[12]

VHA is a multifaceted organization with several dynamics that impact how it operates. These include its mission, funding, size and scale, organizational construct, and an evolving patient population influenced by complex eligibility rules and multiple care options.

VHA Mission and Vision: VHA's stated mission is "Honor America's Veterans by providing exceptional health care that improves their health and well-being."[13] VHA aspires to the following vision:

> VHA will continue to be the benchmark of excellence and value in health care and benefits by providing exemplary services that are both patient-centered and evidence-based.

> This care will be delivered by engaged, collaborative teams in an integrated environment that supports learning, discovery and continuous improvement.

> It will emphasize prevention and population health and contribute to the Nation's well-being through education, research and service in national emergencies.[14]

Fiscal Resources: VHA estimates that its funding for fiscal year (FY) 2015 will total $59 billion, including $3 billion in third-party collections.[15] Currently, VHA's budget request is based on estimates developed two years prior and is constrained by overall federal budget growth. Thus, VHA may be limited in its ability to respond quickly to unexpected demand for health care, especially after changes in eligibility. This happened several times in the past: for example, after eligibility reform in 1996 and when certain diagnoses were designated presumptively service connected for Veterans who served in Vietnam, the Gulf War, and other situations.

Size and Scale: VHA has an extensive geographic presence across the United States and its territories and manages a significantly large number of facilities. It provides health care through 21 Veterans Integrated Service Networks (VISNs). In each VISN, hospitals known as VA Medical

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[12] The terms VA and VHA are not interchangeable. Throughout this report, VA refers to the department and VHA refers to the administration within the department.

[13] U.S. Department of Veterans Affairs. Veterans Health Administration. VHA Strategic Plan FY2013-2018, pg. 1. Retrieved from http://www.va.gov/health/docs/VHA_STRATEGIC_PLAN_FY2013-2018.pdf

[14] U.S. Department of Veterans Affairs. (2014, September 21). *Blueprint for excellence: Veterans Health Administration*. Retrieved from http://www.va.gov/HEALTH/docs/VHA_Blueprint_for_Excellence.pdf

[15] U. S. Department of Veterans Affairs. Volume II: Medical programs and information technology programs; Congressional submission, FY 2016 funding and FY 2017 advance appropriations, pg. VHA-3. Retrieved from http://www.va.gov/budget/docs/summary/Fy2016-VolumeII-MedicalProgramsAndInformationTechnology.pdf

Centers (VAMCs) coordinate with smaller clinical sites known as community-based outpatient clinics (CBOCs) to care for Veterans in a specified geographic area. In addition to providing direct patient care to Veterans, VHA also provides medical education for physicians and other health care providers (it has been estimated that 70 percent of all U.S. physicians received some of their training from VHA),[16] and conducts critical clinical, basic, and health services research.

Figure 2. U.S. Department of Veterans Affairs Organization Chart
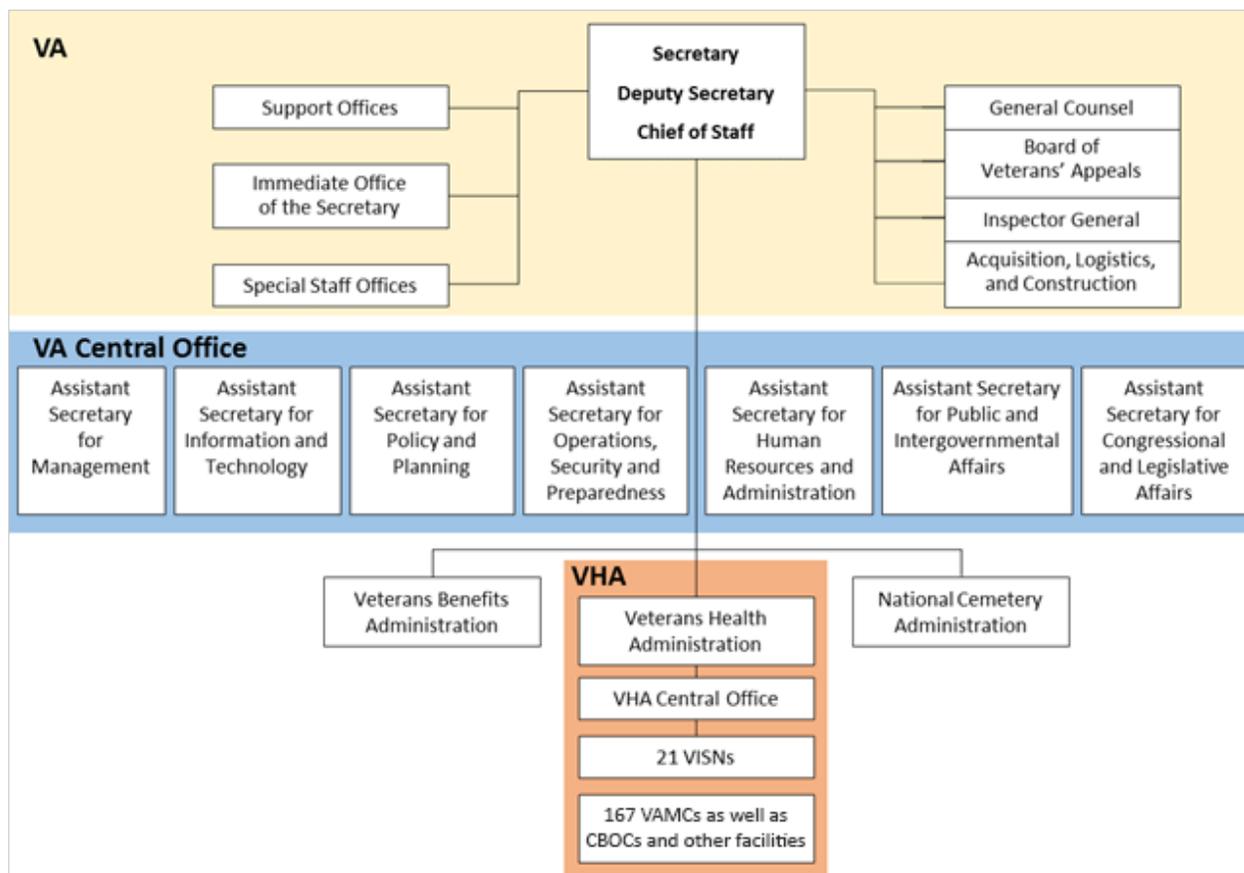
Organization: As Figure 2 indicates, Veterans Health Administration is one of three administrations under the Secretary of Veterans Affairs. It is by far the largest administration, with 89 percent of the full-time equivalent (FTE)[17] staff employed by VA and 87 percent of the fiscal year (FY) 2016 VA discretionary budget.

- All three administrations rely on the VA Central Office (VACO) to provide Information Technology (IT), Human Resources (HR), Contracting, Administration, Acquisition, Logistics, and Construction Services, among others.

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[16] U.S. Department of Veterans Affairs. (2015, April 14-15). MyVA Advisory Committee: Inaugural meeting [PowerPoint slides].

[17] U.S. Department of Veterans Affairs. (2015, February 3). Office of Budget: President's Budget Request Fiscal Year 2016. [Website]. Retrieved from: http://www.va.gov/budget/products.asp

- VHA also has a Central Office (VHACO) that includes offices for Operations and Management, Policy and Services, Nursing Services, Academic Affiliations, Business, Medical Inspector and Quality, Safety, and Value.
- The 167 VA Medical Centers (VAMCs) are distributed across 21 Veterans Integrated Service Networks (VISNs). These VAMCs and VISNs are nested within VHA under the direction of VHACO. VHA and VHACO are, in turn, nested under VA and the VA Central Office.

Evolving Population of Veterans:[18] Figure 3 illustrates trends in the total Veteran population, enrollment, and use of VA care. In 2014, the Veteran population totaled 21.6 million who had served on active duty in the military; of these, 9.1 million were enrolled for VHA health care coverage. Among those enrolled, about 5.9 million Veterans used a VHA hospital or clinic at least once during the year. Historical data show that the number of Veterans peaked around 1980 at 30 million and has steadily declined since then, but the number of VHA health care enrollees and users has steadily increased over the 20 years for which data are available.

The Veteran population is projected to continue to decline over the next decade by an additional 19 percent to 17.5 million. The number of enrollees and patients is estimated to reach its peak level in 2019 before plateauing or possibly declining in future years, as the population decline begins to overtake the upward trend in use of VHA health care by eligible Veterans. Changes in access to VHA in-house or purchased care, enrollment eligibility, or external factors could result in a resumption of the upward trend or a more rapid decline.

Figure 3. Trends in the Veteran Population, Enrollment, and Use of VA Care
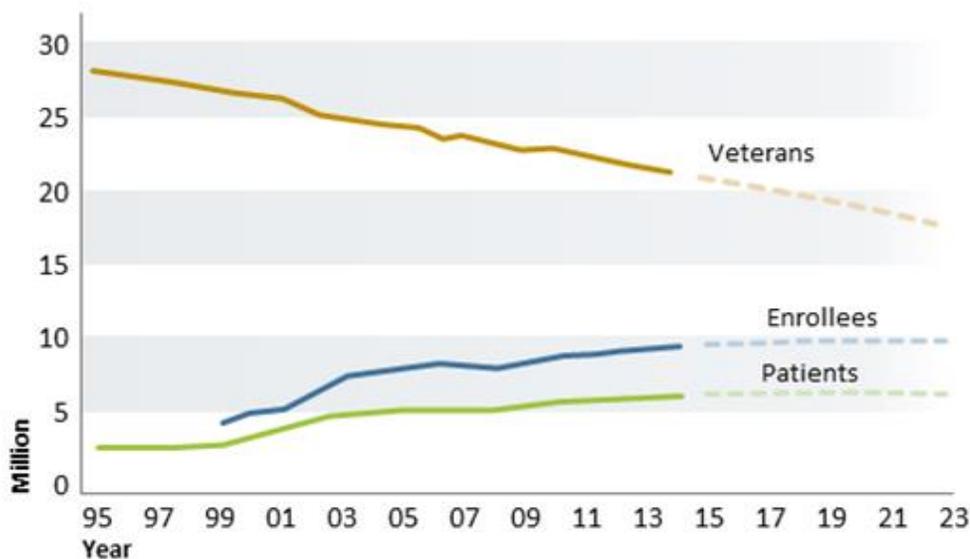
Source: Congressional Research Service, Assessment A Projections

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[18] This information is presented in RAND Corporation Assessment A (Demographics) in Volume II.

In terms of geographic distribution, over the next decade, the Veteran population will become more concentrated in urban areas, and the relative share of the Veteran population in the Ohio River Valley region will diminish. However, migration is less frequent among Veterans than non-Veterans and will not play a substantial role in the geographic distribution of Veterans between 2014 and 2024. While migration rates vary with a range of demographic characteristics, the overall trend is one of slow decline in migration rates generally.

Health Conditions:[19] Veterans are substantially older and therefore face more chronic conditions than the general civilian population. Approximately 50 percent of all Veterans are age 65 or older, compared to only 17 percent of the civilian population. Veterans report more health problems than civilians. Compared to Veterans who do not use VHA health care, VHA patients are older, less socio-economically well off, and experience a higher prevalence of common chronic conditions (such as diabetes and cancer). The prevalence of these conditions is expected to increase over the next 10 years.

The overall prevalence of mental health conditions is 56 percent higher among VHA patients than other Veterans. Twenty-five percent of all patients seen at VHA have a mental health condition, and the prevalence of post-traumatic stress disorder (PTSD) among VHA patients (at four percent) is 11 to 14 times the prevalence among Veterans not using VHA care. When combined with the otherwise rare conditions related to combat—amputation, traumatic brain injury, blindness, and severe burns—VHA handles a patient mix that is distinct from what civilian community providers typically treat. VHA also faces challenges, as do civilian providers, in treating patients who are homeless or have unstable living arrangements. An estimated 50,000 Veterans were homeless in 2014, and while overall homelessness among Veterans is declining, some areas still serve a large homeless population.

Complex Eligibility Rules: The Veterans Health Care Eligibility Reform Act of 1996 established the foundation for today's eligibility rules for Veterans' health care. The Act defined eligibility priority groups while mandating care for Veterans with service-connected health conditions, service-connected disabilities, exposure-related health conditions, and those without other means to pay for their care. However, health care for these Veterans is not an entitlement because it is limited by "the amount provided in advance in appropriations Acts for such purposes."[20] It is worth noting that VHA has discretion in the law over how to provide care, but it is required to maintain specialized treatment and rehabilitation programs for spinal injuries, blindness, amputations, mental illness, and other serious service-connected health conditions.

The threshold for enrollment eligibility has changed several times since 1996. After Congress expanded health care eligibility to all Veterans, the number of enrollees increased rapidly. By 2003, VHA found itself "unable to provide all enrolled Veterans with appointments within a reasonable time."[21] To ensure quality and timeliness of care for higher priority Veterans, VHA

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[19] This information is presented in RAND Corporation Assessment A (Demographics) in Volume II.

[20] United States. Congress. H.R. 3118. Bill Summary and Status, 104th Congress 1995–1996, Veterans' Health Care Eligibility and Reform Act of 1996. Retrieved from http://thomas.loc.gov/cgi-bin/bdquery/z?d104:H.R.3118

[21] Enrollment-Provision of Hospital and Outpatient Care to Veterans Subpriorities of Priority Categories 7 and 8 and Annual Enrollment Level Decision, 38 CFR 17 (2003)

terminated the enrollment of Veterans who do not have a compensable service-connected disability and do not have incomes below the threshold used to determine which Veterans cannot pay for their care. The income threshold was relaxed in 2009, opening enrollment to Veterans whose incomes are within 10 percent of the threshold. Finally, Veterans who deployed to a combat theater after November 2009 are automatically eligible to enroll for up to five years after leaving the military without having to first establish their priority group.

Multiple Sources of Health Coverage for Veterans: Health care planning for VHA must also consider the fact that most Veterans have at least one source of health insurance coverage other than VHA health care, and Veterans with other coverage have markedly different VHA use rates than Veterans without other sources of coverage. Slightly more than half of Veterans reporting to non-VA sources of coverage have used VA health care services in the past, and 43 percent report using VA health care services in the past six months. Only eight percent of Veterans using private coverage alone report using VA health care in the past six months.

Purchased Care:[22] Historically, VHA treated Veterans almost exclusively in its own facilities. In recent years, the use of purchased care has increased rapidly and now accounts for about 10 percent of expenditures. The Veterans Choice Act guaranteed purchased care for enrolled Veterans who, under certain parameters, are unable to access care in VHA facilities. VHA has begun to develop a more robust purchased-care program, relying on a network of community providers who have agreed to treat Veterans and provide information about the care provided.

Quality of Care:[23] Although Congress did not specify quality of care as a specific assessment area, one assessment did characterize current VA quality of care by including a review of previous studies and new analyses that compared VA's quality with non-VA providers on a published set of quality measures. After a careful examination of many published, peer-reviewed studies, Assessment B (Health Care Capabilities) concludes that VHA health care quality is better on many measures than non-VA providers' care, while similar or worse on other measures. In new analyses comparing VHA's quality with non-VA providers, VHA performed the same or significantly better on average than the non-VA provider organizations on 12 of 14 effectiveness measures (providing recommended care) in the inpatient setting, and worse on two measures. On average, VHA performed significantly better on 16 outpatient Healthcare Effectiveness Data and Information Set® (HEDIS) measures of effectiveness compared with commercial health maintenance organizations (HMOs); on the 15 outpatient HEDIS measures of effectiveness that were available for Medicaid HMOs; and on 14 of 16 outpatient effectiveness measures compared with Medicare HMOs. On 6 of 10 patient-centeredness measures, on average, patients in VA hospitals reported significantly less favorable experiences with the care they received than did patients in non-VA hospitals. Assessment B observed marked differences between highest and lowest performing VA facilities for most quality measures—indicative of the uneven quality of care suggested in Section 1.

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[22] This information is presented in RAND Corporation Assessment C (Care Authorities) in Volume II.

[23] This information is presented in RAND Corporation Assessment B (Health Care Capabilities) in Volume II.

Shift from Inpatient to Outpatient Care: U.S. health care has been transforming from hospital-centric sick care to an outpatient model that emphasizes primary and preventive care. Data from the American Hospital Association reveals a decline in inpatient admissions since 2008, dropping from 35.8 million community hospital admissions to 34.4 million. Outpatient visits over the same period grew from 624 million visits in 2008 to 675 million visits in 2012 (Figure 4[24]). These trends are traced to health care reform changes and the adoption of new models of care that accommodate more patients in an outpatient setting. More hospitals are establishing medical home programs. "In 2013, 20.4% of hospitals had a medical home program compared with 14.5% in 2011."[25] A review of Medicare data from 2004 to 2011 reveals that inpatient admissions per Fee for Service (FFS) beneficiary declined by 7.8 percent while the number of outpatient services per FFS beneficiary increased by 33.6 percent across all types of insurance.[26] Within VHA, outpatient visits are increasing while inpatient Bed Days of Care has declined, with some VISNs experiencing more dramatic swings than others. These trends will eventually impact the number, size, and configuration of the health care facilities required to provide support to Veterans.

Figure 4. U.S. Inpatient Admissions vs. Outpatient Visits
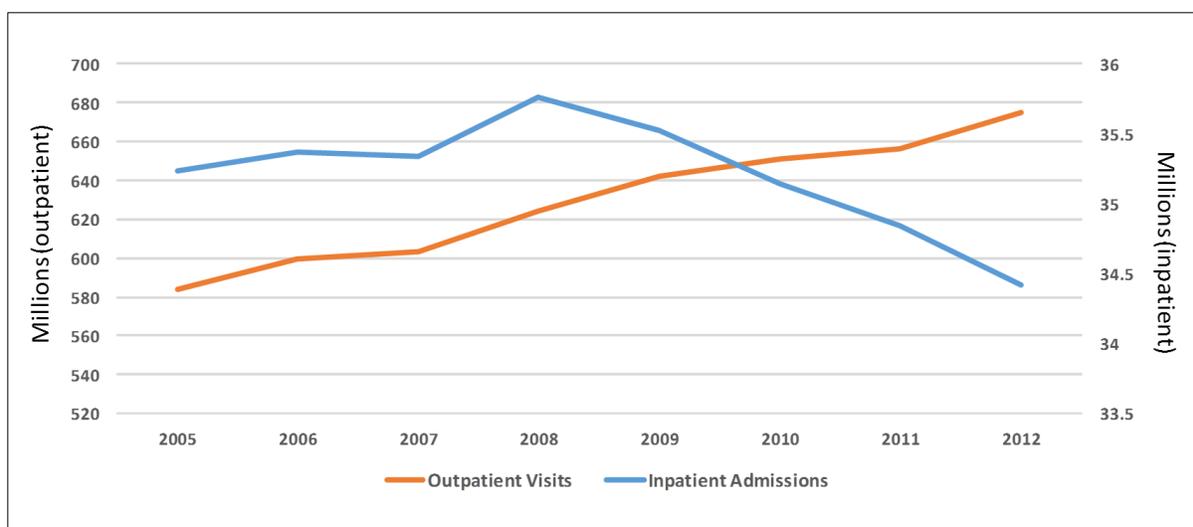
[24] American Hospital Association. (n.d.). Utilization and Volume. *Trendwatch Chartbook 2014*. Retrieved from http://www.aha.org/research/reports/tw/chartbook/ch3.shtml

[25] Robeznieks, A. (2015, January 27). Hospitals saw fewer admissions, more outpatients in 2013. *Modern Healthcare*. Retrieved from http://www.modernhealthcare.com/article/20150127/NEWS/301279903

[26] Medicare Payment Advisory Commission. (2013, March). Report to the Congress: Medicare payment policy. Retrieved from http://www.medpac.gov/documents/reports/mar13_ch03.pdf?sfvrsn=0

3 Systems

Systems Thinking: A review of the findings included in the assessment reports indicates that each finding has an impact on patient care, and many findings have been recognized by previous studies.[27] Over the last 10 years, more than 15 studies and assessments have addressed scheduling issues alone. Prioritizing these findings and then solving them individually is tempting, but such an approach would not guarantee a sustainable solution. While focusing on one simple metric and attacking that measure is tempting, doing so may be transient and may fail to address the underlying problems. As H.L. Mencken stated, "For every complex problem, there is an answer that is clear, simple, and wrong." Often, the simple answer is not sustainable, is not scalable, and can even create unintended consequences.

An analysis of the Veterans' access issue illustrates this conclusion. Using wait times as the one metric for patient access, Assessment D (Access Standards) reports an average wait time of 43 days for new primary care appointments, with a range of 2–122 days across all VA facilities, based on an October 2014 VHA report. Comparison data from a review of Massachusetts physicians in the civilian sector showed average wait times of 50 days for internal medicine and 39 days for family medicine appointments. This suggests that, on average, VHA was not that different from the civilian sector. Assessment B (Health Care Capabilities) also "did not find evidence of a system-wide crisis in access to VA care." But looking only at overall averages can mask troubling instances of poor access and can preclude the investigation of the underlying causes of those instances. Assessment D asserts that achieving sustainable access improvements requires a systems approach, incorporating multiple factors: systems strategies, supply and demand alignment, reframing the type of patient encounter, the need for standards, the need for evidence-based best practices, and leadership. Each of these will require its own evidence-based metrics and benchmarks. Taken together, they will provide a much more comprehensive and accurate assessment of access. Creating a locally tailored model of these pieces gives VHA the ability to understand how access varies from location to location. Local models can then be aggregated to provide understanding of overall system performance while still retaining local granularity to uncover previously hidden issues.

VHA must adopt a systems perspective to address its most challenging problems, including access. Systems thinking views problems within the context of the overall system and avoids isolated solutions to specific problems. It takes into account the interdependencies of the parts to find the best combination of strategies that meet the need of the whole.[28] This approach has

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[27] This team reviewed 137 previous assessments of VHA, including reports by the Government Accountability Office, Veterans Administration Office of the Inspector General, and multiple other organizations. These assessments were conducted between 1998 and 2015. (Seventy-seven percent of the reports were conducted in the last five years.) They contain 790 findings about the state of VHA health care, many of which are overlapping. About 80 percent of the findings identified in this Integrated Report are aligned with or reflect those previous findings. The unique value of this report is not in the list of findings but in the recognition of the need for an integrated systems approach to address the underlying causes of those findings.

[28] Frank, M. (2000, March 31). Engineering systems thinking and systems thinking. *Systems Engineering, 3(3),* 163–168.

been well established in many industries, including health care. This approach often enables leaders to exploit identified strengths and to reframe problems into opportunities based on an appreciation of how components of the program should be working together, as opposed to how they are currently interacting. As was stated in a recent Senate hearing on VHA, the tendency to chase "shiny objects"[29] must be avoided and replaced by focusing on an integrated process executed at the enterprise level. The Government Accountability Office (GAO) has also encouraged VA to address those systemic findings that will enhance the ability of VHA to provide high-quality health care to Veterans.[30]

Systemic Findings: To understand the interdependence of issues and the potential causes of systemic problems in VHA, multiple reviews of all the findings across the assessment reports were conducted. Through an analysis of industry benchmarks and best practices, insights from health care executives and high-performing health care organizations, the perspective of our Blue Ribbon Panel, and interactions with Veterans Service Organizations, four systemic findings repeatedly emerged. Each of these systemic findings then motivates a cornerstone recommendation that should be integrated into a VHA systems approach.

Finding 1—A disconnect in the alignment of demand, resources, and authorities

VHA's mission is inspirational and widely accepted by employees, but there are significant geographic variations with respect to how the mission is translated into action for individual Veterans. Complex eligibility rules make determining which Veterans are covered and what services they receive a challenge, and navigating VHA is often difficult for Veterans—a problem exacerbated by incomplete guidance and non-standardized business processes. Furthermore, the growing role of outside providers has not been integrated effectively into VHA's operating model, which is based on providing direct care within VHA facilities.

At present, VHA is over-committed in some geographic areas, given its broad mission, an expanding list of automatic eligibility criteria, and limited resources. Matching supply and demand at the local level is challenging because supply is relatively fixed each year once service projection models allocate resources to each facility through the appropriation and budgeting process.

Recommendation 1—GOVERNANCE: Align demand, resources, and authorities.

Finding 2—Uneven bureaucratic operations and processes

Several centralized operational and support functions appear to have lost customer focus and do not adequately support the needs of the medical centers. Individual VAMCs have adopted

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[29] Clark, C. (2015, April 30). Senators propose acting as "Board of Directors" for VA. Government Executive. Retrieved from: http://www.govexec.com/management/2015/04/senators-propose-acting-board-directors-va/111613/

[30] U.S. Government Accountability Office. (2015, February 11). *High-risk series: An update. (GAO Publication No. 15-290)*. Washington, D.C.: U.S. Government Publishing Office. Retrieved from http://www.gao.gov/assets/670/668415.pdf

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local implementations of certain processes, but many of these were found to be unnecessarily complex and, not surprisingly, inconsistent across VHA. In many cases, these centralized and local process issues have become inefficient and bureaucratic, creating a direct negative impact on the overall Veteran experience and timely access to care.

These widely varying processes highlight VHA's complexity. Severe problems may manifest themselves at one facility, while another constantly receives tributes from Veterans and health care experts. The oft-quoted reminder, "if you've seen one VA hospital, you've seen ONE VA hospital," captures this reality.

Recommendation 2—OPERATIONS: Develop a patient-centered operations model that balances local autonomy with appropriate standardization and employs best practices for high-quality health care.

Finding 3—Non-integrated variations in clinical and business data and tools

A lack of common, integrated VHA enterprise systems and tools negatively impact VHA's operations and resulting data. Inconsistent and ineffective data collection and analysis undermines rapid, evidence-based assessment and improvement of quality and customer satisfaction. VHA lacks a holistic, enterprise approach to collecting and leveraging its data. Data interchange with the Department of Defense (DoD) and external health care providers is limited, which creates unnecessary clinical risk. Since newly discharged Veterans often become VA patients, interoperability with DoD is necessary and expected. These shortfalls hinder using available data to support effective decision making and performance management.

Recommendation 3—DATA AND TOOLS: Develop and deploy a standardized and common set of data and tools for transparency, learning, and evidence-based decisions.

Finding 4—Leaders are not fully empowered due to lack of clear authority, priorities, and roles

VHA leaders operate within a challenging and disempowering environment that discourages emerging leaders from seeking promotion within VHA. Key leadership positions remain vacant or are staffed with acting leaders, and more than half of executives are eligible for retirement, potentially creating a larger number of vacant positions. A misalignment of accountability and authority exists within a broader VHA culture that is characterized by risk aversion and lack of trust. Those leaders who are effective too often achieve positive outcomes despite the challenges of the organization within which they operate.

Recommendation 4—LEADERSHIP: Stabilize, grow, and empower leaders; galvanize them around clear priorities; and build a healthy culture of collaboration, ownership, and accountability.[31]

Integrated Systems Cornerstones: These four systemic findings in governance, operations, data and tools, and leadership all contribute to the critical problems that plague VHA. It should not

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[31] This information comes from McKinsey & Company Assessment L (Leadership) in Volume II.

be surprising, then, that when addressing any one problem, the solution must integrate all of these systems cornerstones as part of a sustained solution. For example, improving access in a scalable and sustainable manner is more than just authorizing and funding temporary overtime to create more appointments; improving access must also include forecasting demand, streamlining scheduling processes, improving the efficiencies of existing hospital capacities, changing the way health delivery occurs to include telehealth, and having clarity and authority for using purchased care options. Similarly, even funding $10 billion for Choice Cards without addressing the other parts of the system such as educating Veterans about their new options and changing the culture to embrace non-VHA providers can lead to poor results. Figure 5 illustrates the four integrated systems cornerstones that must be addressed together to enable enduring solutions in VHA.

Figure 5. Integrated Systems Cornerstones
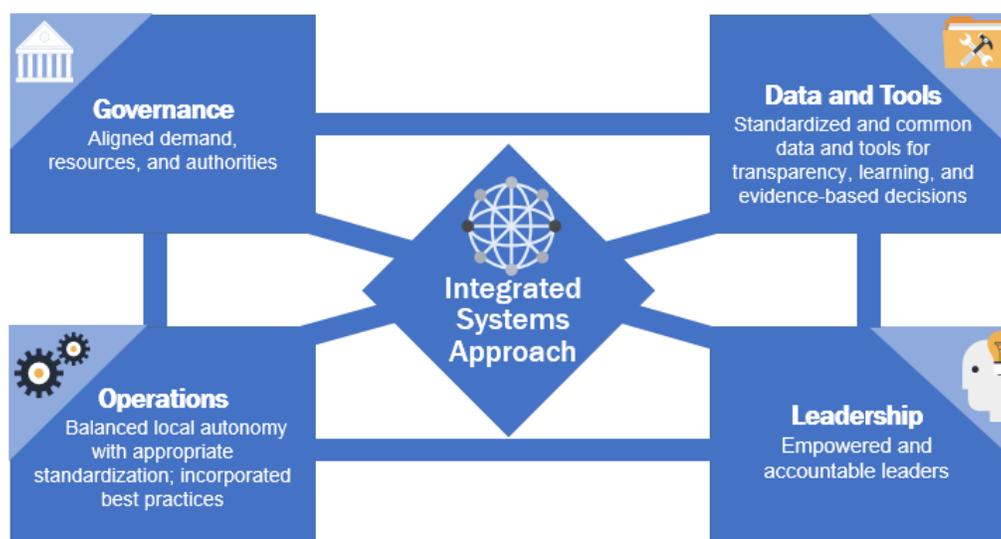
Applications of the Integrated Systems Approach: Three examples emerge that demonstrate the value of the systems approach in addressing the significant challenges facing VA. These examples deal with facilities management, Veteran patient access, and health information technology.

Facilities[32]: Consider the challenges that VA must resolve in managing its capital program in facilities management. Provided that average funding levels remain consistent over the next 10 years, the $51 billion capital requirement would significantly exceed the anticipated funding level of $16–26 billion.[33] Not only would this shortfall jeopardize the capital program, it would also threaten the financial integrity of the entire VHA health care delivery system and, in turn, significantly impact the quality of health care provided to Veterans. Viewing this primarily as a funding problem would be shortsighted. Rather, interdependent findings exist in each of the

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[32] This information comes from McKinsey & Company Assessment K (Facilities) in Volume II.

[33] This information comes from McKinsey & Company Assessment K (Facilities) in Volume II.

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four cornerstones that need to be addressed in an integrated fashion to achieve a sustainable solution, as shown in Table 4.

Table 4. Facilities Challenges Through the Lens of the Systems Approach

Governance
External and internal constraints limit VHA's ability to deliver and operate medical facilities at the level of private-sector benchmarks; to appropriately rebalance inpatient and outpatient facilities; and to accommodate future trends, including telehealth.
Investments in facilities are not effectively linked to workload growth; existing space is not being used at its highest efficiency; eliminating underutilized space is difficult.
Expected funding levels do not support identified capital needs.
Operations
Lengthy approval and funding timelines hinder VHA's ability to meet the identified space requirements to keep up with Veteran demand and invest in facilities updates that align with changing models of care.
VHA has no integrated system to manage the entire leasing process timelines, comprehensive tracking, or measurement of the impact of the leasing program.
A large majority of facilities noted challenges in hiring staff and filling vacant positions that were open and for which budget had been allocated.
Scope and design criteria for major projects are frequently subjected to major changes, especially during the design phase, affecting overall cost and schedule.
Data and Tools
Data capture occurs at multiple levels and through multiple tools, generating multiple sources of truth about the status of the capital program.
Tools for developing Strategic Capital Investment Plan business cases rely on individual effort versus a systematic process to consider creative alternatives to capital solutions.
Systems do not consistently capture key performance indicators. The metrics are not standardized across all stakeholders.
Leadership
There are recognized shortfalls in overall accountability, role clarity, personal ownership, internal communication, and proactive problem-solving approaches that limit VA's and VHA's ability to deliver the correct projects on time and on budget.
The broader culture of facilities functions is characterized by silos, risk aversion, and role ambiguity, resulting in an inability to consistently advance projects in an efficient manner.
Competition for limited funds has led leaders to make a range of choices in developing projects that favor approval strategies over efficient project delivery.

Viewing these facilities challenges through the lens of the integrated systems approach reveals the complexity of the problem; the integrated nature of the required transformation; and the

opportunity to reframe the facilities challenges as part of a larger set of interdependent pieces of VHA's overall health care system. Facility challenges can be significantly mitigated by a transformative realignment throughout the capital program deploying best practices in leasing and contracting; realigning the strategy of the capital program to improve project selection, optimize the infrastructure portfolio, implement innovative care delivery models, understand demand-based needs, and explore and partner with purchased-care opportunities; and reevaluating funding requirements. Closing or resizing facilities to match local demand and resizing to take into account inpatient and telehealth trends will avoid significant costs. Understanding local demand can lead to a smaller facility need with overflow arrangements with local private-sector options. Other key opportunities include improving contracting and leasing processes as well as considering when to outsource construction. In short, employing the systems view could help reframe the vision for future health delivery and significantly reduce VHA's current and future capital investment issues. It also enables VHA to avoid being burdened in the long term with hospital overcapacity as the nature of health care delivery trends toward smaller inpatient facilities, increasing outpatient care, and more virtualized health care delivery.

Access: As introduced earlier in Section 3, current VHA access challenges can be viewed through a systems perspective, as shown in Table 5. Multiple findings contribute to the access problem, and they are distributed among all four cornerstones, with clear interdependencies. Taken together, they provide a much more comprehensive understanding of the access problem, and demonstrate why point solutions will fail. Initial efforts to shorten wait times focused on a long-standing shortage of physicians.[34] However, this addresses only one issue in an integrated set of issues. A sustainable solution depends on a systems approach to the access challenge.

Table 5. Access Challenges Through the Lens of the Systems Approach[35]

Governance
Congress stipulates appointment wait times as the access metric
Lack of governance commitment on basic access principles
Lack of governance to ensure system-wide standards are developed, proposed, tested and appropriately applied based on local conditions
Operations
Lack of identification and use of evidence-based best practices
Approaches do not balance supply and demand, limited ability to modulate capacity, or implement surge contingencies to include technology-based alternatives to in-person visits

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[34] Voorhees, J. (2014, November 12). Less firing, more hiring. Slate.com. Retrieved from http://www.slate.com/articles/news_and_politics/politics/2014/11/veterans_affairs_overhaul_the_va_should_ worry_less_about_cleaning_house.html

[35] This information comes from the Institute of Medicine Assessment D (Access Standards) and McKinsey & Company Assessment E (Workflow – Scheduling) in Volume II.

Substandard processes in patient scheduling; lack of centralized call centers
Data and Tools
Lack of patient access metrics, including data on patient and family experience, scheduling practices, patterns and wait times, cycle times, and effective care continuity
Lack of real-time capacity data
Definition of a patient encounter precludes exploiting alternative engagement approaches, including non-physician clinicians and technology mediated consultations
Leadership
Lack of employment of and commitment to systems approach
Lack of accountability that would ensure delays in access are addressed by all relevant stakeholders across care continuum, rather than with piecemeal, independent process changes
Lack of facility leadership focused on continuous assessment and adjustment at each care site

Health IT: As another example of the value of the systems approach, Assessment H (Health Information Technology) discovered that few major improvements have been implemented to the primary health care software system (VistA) in the past 10 years. Many problems undermine deployment of new capabilities. Viewed through the lens of a system approach in Table 6, issues with governance, operations, data and tools, and leadership all contribute to the inability of VA to successfully implement and modernize VistA.

Table 6. Health IT Challenges Through the Lens of the Systems Approach

Governance
Inadequate collaboration between VA's centralized IT organization and VHA results in failure to prioritize IT capabilities that will support VHA health care needs
Lack of a robust, detailed strategy and roadmap for scheduling initiatives across VA to integrate Veteran scheduling via all modalities
Lack of dedicated VHA IT executives
Operations
Document-centric, schedule-focused project management and execution processes that preclude delivery of needed capabilities
Challenges in building and maintaining a skilled health informatics workforce
Lack of technical support to Veterans for home telehealth

Data and Tools
Lack of standard clinical documentation impedes clinical research and electronic health record exchange with DoD and private sector health care providers
Inconsistent and ineffective data collection within and across VA medical facilities prevents evidence-based assessment and improvement of quality and customer satisfaction
Overly complex processes for system development impede cost-effective delivery of new health IT capabilities and limit VA's ability to measure the value of IT investments

Leadership
Internal project-focused central IT service management philosophy vice customer focused
Turnover in the VA CIO position (four in the last 10 years) has precluded an enduring focus on a coherent approach to consolidate new infrastructure technologies, resulting in even greater software complexity
Lack of organization and staffing in the VistA Evolution program preclude successful management, development, and integration of a large complex software program

Continuous Improvement: The richness of the systems approach extends not just to facilities, access, and IT, but across many of VHA's biggest challenges. While complex problems benefit greatly by reframing problems in creative ways, systems solutions also work well for improving existing processes and motivating people to believe they can successfully change. Continuous improvement is one such approach that often uses a Plan-Do-Study-Act cycle[36] that identifies, reduces, and eliminates suboptimal processes for continuous incremental or breakthrough improvements. This relies heavily on measuring, analyzing, and experimenting for successful innovations. VHA's current culture would benefit greatly from instituting continuous improvement more aggressively so that everyone participates, can see progress, and can build on the pride they have in being part of VHA. Some of VHA's best performers already focus on continuous improvement, but it is not widely adopted as a standard way of operating. Transforming any organization, especially one the size of VHA, requires that everyone understands, feels accountable for, and acts daily on how to continuously improve the organization. It is as much about engaging the people as it is about fixing the processes.

In summary, Table 7 shows each systemic finding, the associated recommendations to address each finding, and a short list of early actions to turn each weakness into a strength.

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[36] Taylor, M.J., et al. (2013, August 12). Systematic Review of the Application of the Plan-Do-Study-Act Method to Improve Quality in Healthcare. BMJ Qual Saf 0:1-9. doi:10.1136/bmjqs-2013-001862

Table 7. Systemic Findings and Recommendations

Finding 1: A disconnect in the alignment of demand, resources, and authorities
Recommendation 1—GOVERNANCE: Align demand, resources, and authorities
Establish a governance board to develop fundamental policy, define the strategic direction, insulate VHA leadership from direct political intervention, and ensure accountability for the achievement of established performance measures.
Require a patient-centered demand model that forecasts resources needed by geographic location to improve access and to make informed resourcing decisions.
Clarify and simplify the rules for purchased care to provide the best value for patients.
Finding 2: Uneven bureaucratic operations and processes
Recommendation 2—OPERATIONS: Develop a patient-centered operations model that balances local autonomy with appropriate standardization and employs best practices for high-quality health care
Right size and reorient the VHA Central Office to focus on support to the field in its delivery of care to Veterans.
Fix substandard processes that impede the quality of care provided to the Veteran.
Design and implement a systematic approach to identify best practices and disseminate them appropriately across the enterprise.
Finding 3: Non-integrated variations in clinical and business data and tools
Recommendation 3—DATA and TOOLS: Develop and deploy a standardized and common set of data and tools for transparency, learning, and evidence-based decisions
Use standardized clinical and administrative data for accuracy and interoperability.
Implement a single, integrated set of system-wide tools centered on a common electronic health record (EHR) that is interoperable across VHA and with DoD and community provider systems.
Transparently share performance metrics for leadership, clinical, and business functions across VHA to identify and adopt best practices for continuous improvement.
Finding 4: Leaders are not fully empowered due to a lack of clear authority, priorities, and goals
Recommendation 4—LEADERSHIP: Stabilize, grow, and empower leaders; galvanize them around clear priorities; and build a healthy culture of collaboration, ownership, and accountability
Push decision rights, authorities, and responsibilities to the lowest appropriate level throughout the organization.
Build on Veteran-centered behaviors to drive a culture of service excellence, trust, continuous improvement, and healthy accountability.
Revitalize the leadership pipeline through establishment of enterprise-wide, comprehensive succession management and leadership development functions.
Strengthen the appeal of senior leadership positions by pursuing flexibilities in hiring and compensation.
Establish sustained leadership continuity by extending tenure for key positions.

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4   Governance

Finding 1: A disconnect in the alignment of demand, resources, and authorities
Recommendation 1—GOVERNANCE: Align demand, resources, and authorities
Establish a governance board to develop fundamental policy, define the strategic direction, insulate VHA leadership from direct political intervention, and ensure accountability for the achievement of established performance measures.
Require a patient-centered demand model that forecasts resources needed by geographic location to improve access and to make informed resourcing decisions.
Clarify and simplify the rules for purchased care to provide the best value for patients.

CURRENT STATE

VHA's primary function is clearly defined in Title 38 of the U.S. Code—to "provide a complete medical and hospital service for the medical care and treatment of Veterans."[37] To implement that function, VHA has defined its mission as "Honor America's Veterans by providing exceptional health care that improves their health and well-being."[38]

While this mission inspires and motivates VHA staff, it also creates a dilemma for those same individuals who are committed to its successful execution. It holds out the promise of unconstrained health care to all Veterans when, in reality, the capacity of VHA to meet that promise is constrained by the appropriated funding. While the mission captures the intent of comprehensive health care for all Veterans, VHA's authorities, resources, and flexibility are less comprehensive. This dilemma was fueled in part by congressional actions, including the Veterans' Health Care Eligibility Reform Act of 1996. This act mandates that VHA provides a broadly defined set of services for groups of prioritized Veteran populations, based on their eligibility, but "only to the extent and in the amount provided in advance in appropriations acts for such purposes."[39]

This prioritization approach was intended to provide VHA leadership with the flexibility to match the extent of care to annual budgets, and it has done just that. It has created a situation under which the organization manages to the budget, regardless of the level of demand envisioned by the aspirational mission statement. In addition, Congress appropriates VA's budget as a nondefense discretionary program; thus, congressional priorities can influence both the level of money available and the way VA can spend the money once allocated. Funding for other large federal health programs differs in important ways. Medicare is considered an

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[37] Title 38—United States Code Veterans' Benefits and the Servicemembers Civil Relief Act, 38 U.S.C. § (2011) (Pub. L. No.112-7), Chapter 73, Subchapter 1, Section 7301.

[38] U.S. Department of Veterans Affairs. Veterans Health Administration. VHA Strategic Plan FY2013-2018, pg. 1. Retrieved from http://www.va.gov/health/docs/VHA_STRATEGIC_PLAN_FY2013-2018.pdf

[39] United States. Congress. H.R. 3118. Bill Summary and Status, 104th Congress 1995–1996, Veterans' Health Care Eligibility and Reform Act of 1996. Retrieved from http://thomas.loc.gov/cgi-bin/bdquery/z?d104:H.R.3118

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entitlement program; funding is provided from the Medicare Trust Fund, spending is mandatory, and the program's annual cost has no formal budget constraint. TRICARE funding is included in the U.S. Department of Defense (DoD) appropriation and is therefore discretionary, but the benefit is well defined, and DoD must cover any costs incurred beyond the appropriated funding. For VHA, congressional priorities can also direct money away from the overall budget for patient care toward specific programs through the special purpose funds. According to interviewees at VA medical facilities, these silos of money can make it difficult for facilities to efficiently and effectively use their entire budgets in any given year.[40] When demand exceeds capacity to deliver care within the budget, the inevitable result is a decrease in access to care and unmet demand for some Veterans. As this report is written, VHA is facing a potential crisis in its ability to provide care as the demand for Hepatitis C therapy grows.[41]

> "It appears that the culture of leadership, management, and accountability is focused on making the funding fit at every level. Leadership at every level must have the confidence that if they have a need, they can ask for that need to be addressed. VA, the Administration, and Congress must resolve to make the true need the priority, not the need to make budget lines fit."
>
> *Deputy Director*
> *Veterans of Foreign Wars*
> *Before the U.S. Senate*
> *May 15, 2014*

This approach for funding VA complicates the development of a coherent strategic direction and has hindered a consistent interpretation of the mission across the enterprise. Local organizations interpret their expectations locally, leading at least one VAMC to promise excellent care to "every Veteran, every time!"[42] In an interview, one VAMC leader described the challenge in terms of "double messaging" around "managing to a budget" and "managing to the need." At present, VHA is over-committed in some geographic areas. Matching supply and demand at the local level is challenging because supply is relatively fixed each year once service projection models allocate resources to each facility through the appropriation and budgeting process.

Although the population of Veterans is expected to decline by 19 percent over the next decade, the demand for health care services is expected to rise before it levels off in five years, based on demographic factors (primarily aging)—and likely will rise even more if access to VHA health care is improved (Assessment B [Health Care Capabilities]). On the other hand, despite this possible growth in demand, in some areas and for some health conditions, VHA may not have a sufficient population of patients to sustain highly specialized service lines with enough volume to achieve and maintain clinical excellence.

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[40] This information is presented in RAND Corporation Assessment B (Health Care Capabilities) in Volume II.

[41] Wagner, D. (2015, June 21). VA to outsource care for 180,000 vets with hepatitis C. *USA Today*. Retrieved from http://www.usatoday.com/story/news/nation/2015/06/21/va-outsource-care-vets-hepatitis/29059755/

[42] U.S. Department of Veterans Affairs. (2015). About the Huntington VA Medical Center. Retrieved from http://www.huntington.va.gov/about/index.asp

Congress and VA leadership must address this challenge. They must work to align VHA's promise to provide comprehensive health care to Veterans with VHA's capacity by defining the expected benefit—that is, the Veteran population to be served and the health care those Veterans will be provided. This will drive the allocation of the funding adequate to meet this demand. VHA must broadly and transparently communicate the strategy for delivering that care to Veterans, VHA employees, other stakeholders, and the public. To start, the following policy questions must be addressed:

- Who will VHA serve? Is it truly all Veterans, or a subset of Veterans whose care is mandated?

- What health care services will VHA provide, and in what settings? Will it provide all care necessary to advance population health and desired outcomes for individual Veterans? How will it address the various social needs (e.g., caring for the homeless) that can complicate the provisioning of services for some Veterans?

- How will VHA provide care? How will VHA determine the appropriate balance between provided care and purchased care? How should this care be customized at the local level to reflect local issues?

The implications of developing answers to these policy questions are significant. All eligible Veterans have not enrolled for health care. The Veteran population is aging and developing conditions and ailments that are not necessarily service related. At the same time, the health care landscape is evolving, changing the manner in which health care is being provided. To address these policy questions and to leverage the answers to those questions, three recommendations are provided.

RECOMMENDATIONS

- Establish a governance board to develop fundamental policy, define the strategic direction, insulate VHA leadership from direct political intervention, and ensure accountability for the achievement of established performance measures.

- Require a patient-centered demand model that forecasts resources needed by geographic location to improve access and to make informed resourcing decisions.

- Clarify and simplify the rules for purchased care to provide the best value for patients.

Establish a governance board to develop fundamental policy, define the strategic direction, insulate VHA leadership from direct political intervention, and ensure accountability for the achievement of established performance measures.

The fundamental policy questions about who is eligible for benefits and for which benefits are truly difficult ones that may engender heated debate and emotional responses. But these issues only represent current critical problems; moving forward, other contentious issues will need to be addressed. For example, attempts to realign resources or close facilities have been met with vehement demands that the "public input needs to carry weight with any changes in the

system."[43] Initiatives to close or eliminate older, often historic, VHA facilities can meet strong resistance from multiple groups. For example, some Veteran Service Organizations have objected to facility closures by suggesting that such closures would reduce the level of care to Veterans.

In the near term, several models could be tailored to address these policy issues in an objective and unbiased manner. Congress could charter a commission modeled after the 1955 U.S. President's Commission on Veterans' Pensions. This Commission studied different benefit packages that had been granted to Veterans, collected extensive information from various government agencies, and also surveyed randomly selected Veterans to develop statistical analyses of the use and effectiveness of various benefit programs. The studies compiled by the Commission were submitted to Congress and influenced subsequent legislative actions. A second model is the Defense Base Realignment and Closure (BRAC) Commission. That Commission was empowered to perform an independent analysis and evaluation of the Defense Department-proposed base closure list and present a report of its findings and its own suggestions to the President and to the American public. Once Congress received the presidentially endorsed report, it had a definitive suspense date to enact a joint resolution rejecting the report in full or the report became law. VA has already introduced this notion "in congressional hearings and has gotten very little pushback from authorizers and appropriators for a BRAC of its own."[44]

But these are short-term models that may not be able to provide the long-term oversight, guidance, and direction that is expected. VHA operates in a complex and dynamic environment, answering to a large number of stakeholders, sometimes with competing demands. It is a health care system managed as a government agency; some have suggested that Congress is VHA's "board of directors."[45] The long-term governance structure of a health care system can influence many aspects of that organization, to include capital investments, operations, staffing, and the definition and implementation of the strategic plan. Alternative governance models do exist. One was introduced by the Commission on the Future for America's Veterans, which proposed that Congress "establish a new entity with characteristics not unlike a federal government 'not for profit' corporation" that would be empowered with "unencumbered" authority to use all the assets of VHA to "maximize benefits to Veterans."[46] A second model, titled the "Independent Non-Taxing Unit of Government," suggests a governance structure

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[43] Woster, Kevin. (2011, December 13). VA proposes Hot Springs medical center closures. *Rapid City Journal*. Retrieved from http://rapidcityjournal.com/news/local/communities/hot-springs/va-proposes-hot-springs-medical-center-closures/article_56b5a98e-2545-11e1-a04d-001871e3ce6c.html

[44] Serbu, J. (2015, March 6). VA calls for its own BRAC process to close outdated facilities. *Federal News Radio*. Retrieved from http://federalnewsradio.com/congress/2015/03/va-calls-for-its-own-brac-process-to-close-outdated-facilities/

[45] Clark, C. (2015, April 30). Senators propose acting as "Board of Directors" for VA. *Government Executive*. Retrieved from http://www.govexec.com/management/2015/04/senators-propose-acting-board-directors-va/111613/

[46] Walters, H. et al. (2009, December). *Commission on the Future for America's Veterans: Preparing for the Next Generation*. Commission on the Future for America's Veterans.

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under which a health care board and administrative leadership "still have accountability to elected officials" but are "much more insulated" from direct political interaction.[47] The New York City Health and Hospitals Corporation (HHC), the largest municipal hospital and health care system in the United States, operates under such a model, as do other municipal and state health care systems. HHC underwent a series of transformative efforts and links the success of those efforts to "a series of successful service and clinical improvements…while also emphasizing continuity of leadership, system wide strategic planning, and board-level accountability for achieving performance objectives."[48]

Congress and VA should charter the Commission on Care to explore and identify the governance model that would best enable VHA to complete the proposed transformative efforts and sustain its ability to provide the highest quality health care to Veterans. The model that is developed should clearly focus on governance. VA currently has 25 advisory committees, some of which are mandated by Congress, to assess specific VA policies or programs. But these committees are, by title, focused on advising, not governing, and should not be considered a solution to this recommendation. Congressional endorsement is perhaps the key enabler to effectively implementing a governance board.

VHA should charter a transformation program office that has the authority and resources to implement a system-wide reworking of VHA. This office should be provided sufficient and dedicated funding to enable the envisioned transformation's execution without having to tax other offices or borrow from other initiatives. The office should act as the "guiding team,"[49] staffed by individuals with the right emotional commitment and core competencies in executing organizational change. The office should coordinate directly with the established governance body and should focus on establishing transformation priorities, defining timelines for execution, implementing both strategic and tactical initiatives, allocating resources, and instituting appropriate metrics and processes to measure progress and success. It should replace any ongoing change initiatives and merge the relevant components of MyVA, the *Blueprint for Excellence*, and other initiatives into one coherent, focused transformational approach.

Require a patient-centered demand model that forecasts resources needed by geographic location to improve access and to make informed resourcing decisions.

Assessment D (Access Standards) states that improvements in health care access will be underpinned by continuous assessment, monitoring, and realigning of supply and demand. The assessment also states that most clinical settings do not take a sufficiently broad view of the

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[47] Bharucha, F., & Oberlin, S. (2009, May). Governance Models among California Public Hospitals. California HealthCare Foundation. Retrieved from http://www.chcf.org/~/media/MEDIA%20LIBRARY%20Files/PDF/G/PDF%20GovernanceModelsCAPublicHospitals.pdf/

[48] McCarthy, D. & Mueller, K. (October 2008). The Commonwealth Fund: Commission on a High Performing Health System. The New York City Health and Hospitals Corporation: Transforming a Public Safety Net Delivery System to Achieve Higher Performance. Issues Research, Inc.

[49] Kotter, J.P. & Cohen, D.S. (2002, November 26). The heart of change. *Harvard Business Review*.

various options to either increase supply or reduce demand, nor do they maintain the analytic capacity to observe, measure, and understand the dynamics involved. Without this information, patterns of variability will be unobserved, alternatives will go untapped, and a supply-demand mismatch—which is often unnecessary—will be inevitable and chronic.[50]

VA data and analytical systems face these challenges. In addition to the need for fundamental policy guidance, VA data systems and U.S. data collection efforts have limitations that hinder planners' ability to assess how demand for VA services might change over time. For example, there has not been a full accounting of the U.S. Veteran population since the 2000 Census. Current VA data collection systems do not assess detailed information on Veterans' health care conditions and health care utilization patterns. Data are often completely unavailable for Veterans who are not currently eligible or enrolled in VHA health programs. Additional data collection would be needed to fully understand Veterans' total health care needs, including use of care currently covered by private insurance or Medicaid.

Assessment A (Demographics) also suggests the importance of developing methods and models that respond with speed and agility to policy changes. Two existing VA models—the Enrollee Health Care Projection model and the Veteran Health Care Scenario Model—can be used to estimate, for instance, how changes in demographic characteristics or economic conditions may affect demand for VA services and related costs. Expanding these models to address changes in the civilian health sector, unanticipated changes in perceptions about health care quality, and groundbreaking new technologies will enable VA to address the types of uncertainties that current models may not address.[51]

Other assessments identify additional demand modeling requirements that would enhance health care provided to Veterans. These requirements would address challenges in facility planning and supply-chain management. These models could answer the need for an enterprise-wide, timely, population-based ambulatory appointment demand modeling capability to forecast appointment demand. They also could provide the basis for staffing models that justify the number of resources needed to meet patient access standards and to proactively identify and forecast staffing needs.

VHA should expand its utilization of dynamic simulation modeling. The fundamental premise of the application for dynamic simulation modeling in health care is that "health care delivery systems are inherently complex, consisting of multiple tiers of interdependent subsystems and processes that are adaptive to changes in the environment and behave in a nonlinear fashion."[52] Traditional analytical methods might neglect the wider health system impacts that can be critical for achieving desired health system goals. VHA leadership could underestimate or ignore the interactions among the leadership, governance, operations, and data and tools. The literature is beginning to highlight the increasing application of dynamic simulation

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[50] This information was presented in Institute of Medicine Assessment D (Access Standards) in Volume II.

[51] This recommendation was derived from RAND Corporation Assessment A (Demographics) in Volume II.

[52] Marshall, D.A. et al. (2015, January). Applying dynamic simulation modeling methods in health care delivery research—The SIMULATE checklist: report of the ISPOR simulation modeling emerging good practices task force. *Value Health*. 18(1):5-16. doi: 10.1016/j.jval.2014.12.001

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modeling methods to health care delivery systems. These tools enable the decision maker to better understand the dynamics and complexities of the system under analysis and the consequences, both intended and unintended, of recommended changes.

In summary, VHA should use predictive tools and dynamic simulation modeling to continually forecast local demand and underpin decisions addressing resource allocation. These patient-centered demand models should enable the management of resources to meet national, regional, and local variations in patient-centered demand.

Two examples of dynamic simulation modeling methods applied to health care delivery:

1) "The Mayo Clinic's Center for the Science of Health Care Delivery applied health care delivery systems thinking to predict the minimum number of beds needed to meet quality standards of care. The model incorporated assumptions about surgery growth and new patient recovery protocols, as well as smoothing surgery schedules and transferring long-stay patients from the ICU. The model predicted 30% lower bed supply requirements than did the traditional bed planning approach. System dynamics modeling was used for high-level planning of primary care staffing; allowing for 'what-if' scenarios to be evaluated, and showing projected access performance measures.

2) "The ReThink Health model simulates the behavior of a health system, tracking changes in health status, utilization, and costs and has been used to evaluate five different health reform policy proposals. The results demonstrated that certain options would improve health status but at higher cost and greater health care inequality. Other options were found to improve health status, reduce inequalities, and lower costs. Such divergent outcomes would be extremely difficult to anticipate or quantify without the aid of a simulation model."

Applying Dynamic Simulation Modeling Methods in Health Care Delivery Research—The SIMULATE Checklist

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Clarify and simplify the rules for purchased care to provide the best value for the patients.[53]
One of VHA's core responsibilities involves providing health care services to eligible Veterans. Although VHA has traditionally carried out its health care role primarily by operating a national network of hospitals and other facilities, the agency also administers a purchased-care function through which it pays for health care services from outside providers (sometimes referred to as purchased care or community care). VHA purchased care has evolved primarily to address situations in which VHA's direct-care resources are unable to offer needed services to Veterans. Although purchased care has accounted for only a small fraction of VHA's health care budget over the past decade, that fraction is growing. In the wake of the recent crises in access to care through VHA facilities, stakeholders and policy makers are revisiting the role and performance of VHA purchased care. Specifically, they are considering whether modifications to VHA's purchased-care approach might be desirable, given broader goals of expanding access to care,

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[53] This information was presented in RAND Corporation Assessment C (Care Authorities) in Volume II.

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enhancing trusted partnerships, and improving VHA operations to deliver seamless and integrated support for Veterans' health.

The purchased care landscape is already in the midst of a transformation. Numerous changes to VHA's authorities and mechanisms for purchasing care are being proposed, planned, or implemented. With so many facets of purchased care authorities and practice in flux, the full landscape of VHA purchase care is not just complicated, but dynamically so. Moreover, while the proposed policy changes aim at addressing many different problems and issues, their sheer multiplicity suggests the drawbacks of a piecemeal approach, absent a guiding orientation and strategy for VHA's purchased care enterprise as a whole. To enhance the availability of purchased care to the patient, VHA should:

- Develop a stronger management structure for purchased care and allocate responsibility and authority to the most appropriate levels. VHA purchased-care activities require improved program management, with responsibilities assigned to organizations at the appropriate level of VHA's administrative hierarchy.

- Establish an ongoing process for evaluating third-party administrator performance. VHA should also assess the adequacy of the provider networks, the efficiency of claims and other processes, and Veteran experiences with the programs.

- Develop clear and consistent guidance and training on VHA's authority to purchase care. Existing VHA guidance pertaining to purchased care is scattered, sometimes outdated, and inconsistent in setting clear standards, leaving local facilities to develop their own policies and procedures.

- Ensure that both new and existing purchased-care contracts with outside providers and third-party administrators include appropriate requirements for data sharing, quality-of-care reporting, and care coordination.

> "Today we have seven different programs for providing community care. Each one has its own exclusions, each one has its own payment options. It's incredibly confusing."
>
> *Secretary Robert A. McDonald*
> *House Veterans Affairs Committee Hearing on VA Health Care Budget*
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> *July 22, 2015*

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5   Operations

Finding 2: Uneven bureaucratic business operations and processes
Recommendation 2—OPERATIONS: Develop a patient-centered operations model that balances local autonomy with appropriate standardization and employs best practices for high-quality health care
Right size and reorient the VHA Central Office to focus on support to the field in its delivery of care to Veterans.
Fix substandard processes that impede the quality of care provided to the Veteran.
Design and implement a systematic approach to identify best practices and disseminate them appropriately across the enterprise.

CURRENT STATE

There is recognized variability in the execution of business operations across VHA. Many VA Medical Centers implement operations differently, resulting in widespread inconsistencies across the organization. Multiple assessments, including Assessments E (Workflow – Scheduling), F (Workflow – Clinical), G (Staffing/Productivity), I (Business Processes), and J (Supplies), found differing approaches to staff management, scheduling, quality measurement, documentation and coding, patient flow, performance management, claims, and purchased care. Multiple assessments also found support functions (e.g., HR, IT, and Contracting) that do not adequately meet the needs of the medical centers in the delivery of patient-centered care. In some cases, the lack of standardization and local variations contribute to the direct and negative impact on the overall Veteran experience and timely access to care. In 2014, the VA OIG reported that a lack of common business rules "has resulted in quality of care deficiencies."[54] In other cases, the assessments found local implementations and best practices that are creating positive outcomes (e.g., shorter length of time to hire); however, when process improvements occur at the local level, they are often not shared or do not scale across other facilities. These widely varying processes also highlight the complexity of the VHA system. Severe problems may manifest themselves at one facility, while another constantly receives tributes from Veterans and health care experts.

To operate effectively and provide the best care to Veterans, VHA needs to increase the empowerment of local leaders while simultaneously increasing the standardization of critical operations and processes. There is a need for greater support and flexibility for those providing care at the local level as well as a need for improved processes to more reliably support Veteran care across the system. Addressing these imperatives simultaneously is not simple. As one senior leader stated, "We can't figure out what to standardize...We tend to standardize everything and nothing at the same time." VHA needs an operating model that will encourage

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[54] U.S. Department of Veterans Affairs. Office of Inspector General. (2014). Part II: Performance section. Major management priorities and challenges. Retrieved from: http://www.va.gov/oig/pubs/VAOIG-2014%20MMC.pdf

both standardization and the appropriate level of local autonomy, focusing on providing Veterans with high-quality health care.

Some observed areas in which the current VHA operating model does not support well-defined, consistent, and standard processes—causing variability in the system and possibly resulting in a negative Veteran experience—include the following:

- The length of the HR-directed hiring process for all VHA staff was cited as a challenge in 100 percent of 19 staffing workshops conducted by Assessment F (Workflow – Clinical). The VHA hiring timeline significantly exceeds private-sector benchmarks, affecting VHA's ability to fill vacancies on patient care teams. VHA targets 60 days from receiving a request for a job posting to making a tentative offer, but it does not include the steps needed and time required to make a final offer. Interviewees and workshop participants consistently reported that hiring exceeds the 60-day target, reaching approximately six months for most clinical occupations.

- As Assessment E (Workflow – Scheduling) found, many private-sector systems have adopted larger, more centralized scheduling call centers that have lower per-unit costs; put less stress on space-constrained care facilities; and are able to offer more coaching, training, and career options to schedulers. Some of these have resulted in significant improvements. Since 2008, for example, Cleveland Clinic's centralized scheduling call center has enabled a 28-percent decrease in abandoned calls, a decreased scheduling error rate, increased physician utilization of scheduling templates, and a 12-percent increase in the number of patient visits. That organization believes it was "able to capitalize on economies of scale," scale that should be available to VHA.[55] But VHA scheduling call centers, where they exist, are operated at the VAMC level to address local needs. These call centers are not tracked or coordinated on a national scale, and there is no centrally available information about VHA's scheduling call centers, including how many call centers exist, what functions they serve, or how many schedulers they employ. As one interviewee suggested, "It would be nice to know where else there are [scheduling] call centers and talk to them." Since these centers are not tracked or coordinated, there is no effort to share best practices. In response to a data call generated by Assessment E, the vast majority of schedulers operate in clinics with only a small percentage actually operating in what VHA considers call centers. The call centers that do exist tend to be fairly small, with a median size of 12 schedulers, compared to most private-sector health systems that have an average of 28 agents. In response to the same data call, VA facilities reported that the average speed of answer (ASA) was 79 seconds and the average abandonment rate was 11 percent. In comparison, average private hospital call centers achieve a 32-second ASA and a 5.15-percent abandonment

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[55] Rodak, S. (2013, August 8). Cleveland Clinic's call center improves care access. *Becker's Hospital Review*. Retrieved from http://www.beckershospitalreview.com/capacity-management/cleveland-clinic-s-call-center-improves-care-access.html

rate.[56] On average, Veterans are waiting longer to reach a VHA scheduler and give up at a greater rate than private-industry patients.

- Assessment J (Supplies) indicates that the organizational structure of VA's supply chain enterprise is unduly complex and duplicative. VA and VHA both contain multiple organizations that play a role in managing VA's medical supply chain and, as a result, there are areas of overlap and tension between involved groups. There is a recognized stovepiped and fragmented structure with a lack of clarity on roles and responsibilities. VA's IT and data systems in the supply management area are also antiquated, not integrated, and they do not meet the needs of a modern health system. There are multiple instantiations of the underlying architecture for VA's clinical, procurement, and inventory management systems, each with its own product nomenclature and numbering system as well as extensive free-text entries. As a result, efficient and effective cross-site comparisons or regional and national rollups are not feasible. VA's current inventory management does not have a feedback loop that links inventory to product utilization, contracting, ordering, and vice versa. This prevents optimal use of the Medical Surgical Prime Vendor program and prohibits more effective volume-based national or regional contracts. VA has not taken full advantage of its scale or potential for product standardization to achieve optimal pricing and efficiency. An analysis of unit prices for facilities across two VISNs showed significant variation in price paid for identical items.[57] For example, the highest price paid for a commonly used disposable blood pressure cuff was more than twice the lowest price. An analysis of purchase order data shows that 38 percent of purchases are made on a government contract, with the remainder through open-market purchasing. VA's supply purchasing systems are not integrated with contract or pricing catalogs, requiring the buyer to research whether an item is on contract and, if so, through which contract a purchase should be made. Several buyers reported that they bypass this step and buy products through the channel that is most familiar and convenient rather than potentially exploiting new contracts and pricing arrangements. VA also has limited ability to monitor and drive compliance with contract requirements because the required data are not captured electronically. More than 60 percent of all clinical supply items do not have a contract number listed.[58] Finally, VA does not have a mechanism to identify products for which central contracts should be established.

Exacerbating these challenges is the recognition that, as Assessment L (Leadership) identifies, VHA Central Office (VHACO)—consisting of a series of individual, highly unintegrated program offices—does not yield the coordination and collaboration required to support the field in its delivery of care to Veterans and adequately address the variability in the system. VHACO has experienced dramatic growth in the number of program offices and staff over the past five years, with VHACO program office full-time equivalent (FTE) growth vastly outpacing the

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[56] Belfiore, B., et al. (2015, January 28). 41 KPI Industry Report: Health Care – Provider/Hospitals. BenchmarkPortal.com. Retrieved from http://www.BenchmarkPortal.com

[57] U S. Department of Veterans Affairs. (2014). IFCAP Purchase Data for Five VISNs.

[58] U.S. Department of Veterans Affairs. (2014). IFCAP Purchase Data for Five VISNs.

growth of total VHA employee population and Veterans served (Figure 6).[59] However, in spite of program office growth, there is little systematic effort to coordinate or integrate efforts and initiatives, and there has been no discernible improvement in business or health outcomes in VHA as a result of this growth.[60] Instead of alleviating the administrative burden on the field, the growth of VHACO has had the inverse effect, creating an environment where the field is serving VHA Central Office.

Figure 6. VHACO Program Office FTE Growth
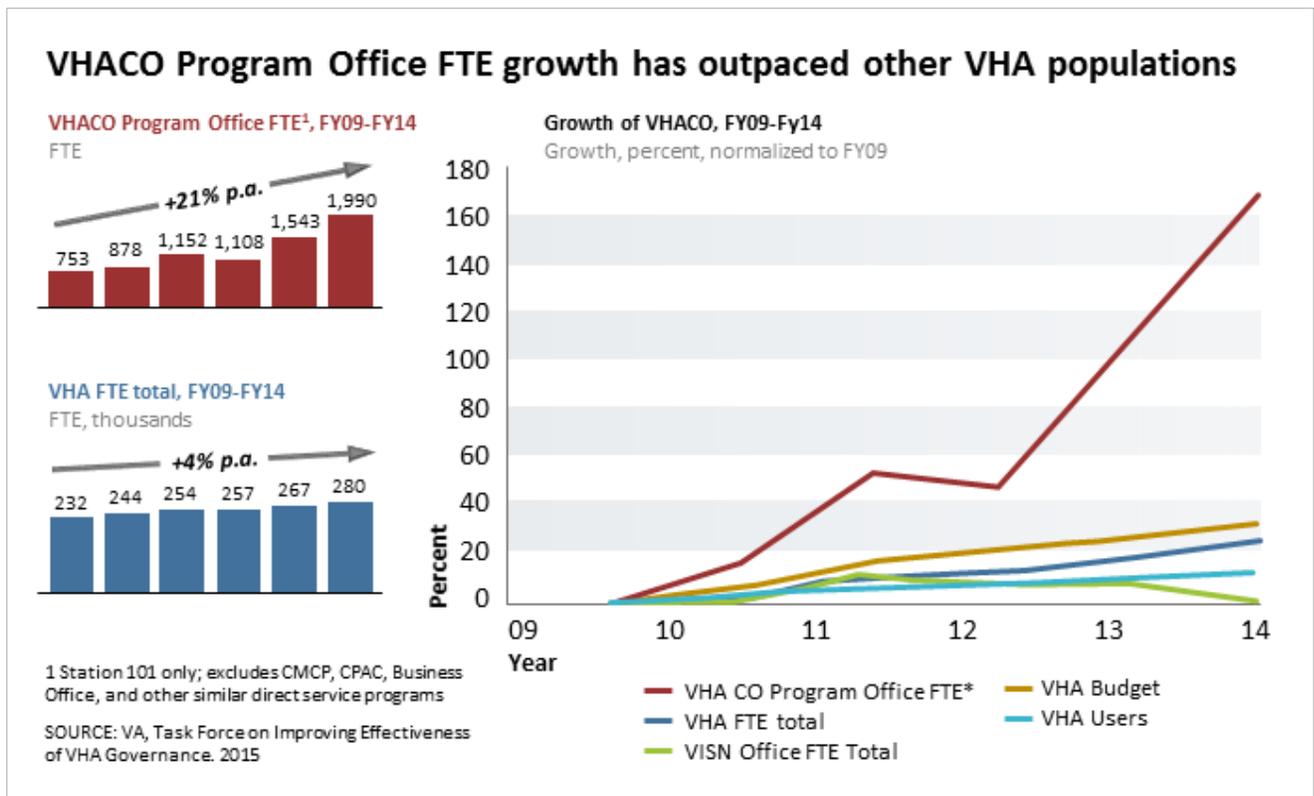
Further, the Central Offices—VACO and VHACO—are not playing a key and necessary integrator role to help spread best practices across the organization. [61] While pockets of best practices and innovation exist, the assessments found the adoption of best practices to be isolated, sometimes even within the same facility. While in many cases local best practices and innovation are allowing specific VAMCs to maximize operational efficiency and positive Veteran experience, these best practices are not systematically shared and adopted across VAMCs.

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[59] U.S. Department of Veterans Affairs (2015, February 28). Task Force on Improving Effectiveness of VHA Governance: Report to the VHA Under Secretary for Health.

[60] U.S. Department of Veterans Affairs (2015, February 28). Task Force on Improving Effectiveness of VHA Governance: Report to the VHA Under Secretary for Health.

[61] The information in this section is derived from McKinsey & Company Assessment L (Leadership) in Volume II

"As best the Task Force could determine, the addition of new program offices occurred on the basis of ad hoc decisions by VHA leadership. There was no systematic review by an internal resource committee or by NLC [National Leadership Council] committees for which they were responsible and there was no systematic review to determine if they had been successful in improving organizational outcomes. Similarly, there was no process for systematically reviewing requests for additional [full-time equivalent] or resources for a given office. Finally, there was no process at the organizational level such as review by the collective senior VHA CO leadership, by the resource committee, or by the NLC itself for formulating clear recommendations on how much funding from the VHA budget was to be set aside for VHA CO program offices versus allocated to the field for providing direct care to Veterans."

Task Force on Improving Effectiveness Of VHA Governance:
Report to the Under Secretary for Health

As one previous assessment of VHA points out, "There is no mechanism for sharing scheduler tips and best practices for using the systems or to improve scheduling activities. Seasoned schedulers share their insight and lessons learned by word-of-mouth."[62] A recently published internal VHA report titled "Task Force on Improving Effectiveness of VHA Governance—Report to the VHA Under Secretary for Health" reached a similar conclusion. As that report suggests, "there has been little or no ongoing effort to share best practices or standardize procedures among either VHACO program offices or VISN offices."[63]

RECOMMENDATIONS

- Right size and reorient the VHA Central Office to focus on support to the field in its delivery of care to Veterans.

- Fix substandard processes that impede the quality of care provided to the Veteran.

- Design and implement a systematic approach to identify best practices and disseminate them appropriately across the enterprise.

"I'm shameless about stealing what works at other places. The problem is, I don't know what other places are doing. We need a way to connect, to learn from each other."

Associate Director of Patient Care Services

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[62] Northern Virginia Technology Council. (2014, October 29). Opportunities to improve the scheduling of medical exams for America's veterans: A report based on a review of VA's scheduling practices by the Northern Virginia Technology Council (NVTC). Retrieved from
http://www.va.gov/opa/choiceact/documents/NVTCFinalReporttoVA-revised3.pdf

[63] U.S. Department of Veterans Affairs. (2015, February 28). Task Force on Improving Effectiveness of VHA Governance: Report to the VHA Under Secretary for Health.

Right size and reorient the VHA Central Office to focus on support to the field in its delivery of care to Veterans.[64] As Assessment L (Leadership) concludes, VHA should adjust the balance of control and empowerment across all levels of the organization by clarifying decision rights, offering greater role clarity, empowering leaders, and encouraging appropriate risk taking. VHA should refocus the role of VHA Central Office to managing outcomes and providing support to the field. Specifically, VHA should clarify the roles and responsibilities of each major operating unit: VHACO, VISNs, VAMCs, community-based outpatient clinics (CBOCs), and other organizational units. Once this clarification is achieved, the VHA Central Office should focus on enhancing collaboration, supporting resource prioritization, executing certain centralized functions, ensuring alignment with strategic direction, and, most importantly, supporting the field. The intent of this is to move from a series of individual program offices issuing independent directives and action items, with few mechanisms to encourage coordination, to a much smaller number of coordinated primary strategic priorities, or lines of business, around which supporting program offices would be organized and through which supporting program office work would be conducted.

> "Program offices should be a consultancy—a small group of people. There should be more oversight of the Program Offices, because there are turf issues that leave the Field constantly answering to everyone."
>
> *VHACO Leader*

In addition, VHA should:

- Reassess all VHA Central Office-directed metrics and policies to ensure that they add sufficient value to patient outcomes and eliminate those that do not.

- Release process guidance on a regular and routine schedule to medical centers to enhance coordination and to minimize the disruptive effect of new, frequent, and duplicative directives on existing guidance.

- Create policy communication standards that require that any new policy includes a clear rationale tied to desired outcomes, recommended approach, suggested local implementation plan, and sufficient time to implement.

- Increase alignment and coordination between the offices responsible for policy and the offices responsible for operations by actively eliminating the "artificial distinction between policy and ops"[65] that exists today.

- Clarify the decision rights of VACO, VHACO, VISN, and the Medical Center, to include clearly articulating decision rights by level, organization, and role and standardizing where appropriate while allowing for local flexibility based on local needs.

- Define the role and responsibilities of the VISN (or any other local structures being considered), the balance between empowerment and support of medical facilities, and

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[64] The information in this section is derived from McKinsey & Company Assessment L (Leadership) in Volume II.

[65] (2015). Choice Act assessment interviews with VHA.

the VISN role in coordinating, translating, communicating, and innovating across the system.

- Coordinate with VACO to select a chief information officer (CIO) for VHA to identify and advocate for health IT needs and to measure the value of IT services and capabilities for health care.

- Implement a more participative management approach that engages leadership at all levels in analyzing problems, developing strategies, implementing solutions, and measuring and tracking outcomes. Doing so would create a greater sense of ownership in VHA; instill a sense of commitment, safety, and pride among VHA leaders; create more receptive conditions for implementing change across the organization; and serve as a breeding ground for future leaders. In addition, as one journal suggests, "creativity and innovation are two important benefits of participative management."[66]

Fix substandard processes that currently impede the quality of care provided to the Veteran. The independent assessments provide substantive and detailed recommendations to address many of the operational challenges that impact VHA's ability to provide timely and consistent patient-centric health care. At an overarching level, VHA needs an operating model that provides medical centers with the autonomy and flexibility to innovate and address local needs while also providing standardization across the system to allow for more consistent and efficient delivery of Veteran care. As one VHA senior leader stated, "We need to identify key business processes that have to be standardized, such as scheduling, and standardize those things ruthlessly. We need fidelity in the system to run the business."

In addition to the need for more consistent and efficient key processes, findings support the need for a fundamental overhaul of the core support functions of HR, IT, and Contracting to increase responsiveness and efficiency and improve customer service. These functions should be aligned with the needs of the VHA organizations delivering care to Veterans and hold those organizations accountable to outcome-based metrics to enable timely and effective care. This is consistent with the recent guidance from the Office of Management and Budget (OMB) in response to the Federal Information Technology Information Reform Act (FITARA), which enhances agency CIO authority while requiring that officer to focus on and be explicitly accountable for assuring that agency IT resources support agency mission and programs (i.e., are aligned with requirements of VHA mission and programs). While the scope of the existing statutory provisions address IT, the intent can be extended to other support functions (e.g., Contracting, HR).[67]

The department has already taken some action to address the current deficiencies in VA support functions. MyVA established as one of its five focus areas "Achieving Support Service Excellence," with a stated mission to "optimize the organization, functions, and activities of VA's core support functions that focus on delivery of world-class services to VA facilities and

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[66] McMillan, A. (n.d.). Participative management. [Website]. Reference for Business. Retrieved from http://www.referenceforbusiness.com/management/Or-Pr/Participative-Management.html

[67] For more information on FITARA, see The MITRE Corporation Assessment H (Health Information Technology) in Volume II.

The views, opinions, and/or findings contained in this report are those of The MITRE Corporation and should not be construed as an official government position, policy, or decision.

organizations that directly serve Veterans." The assessments' findings and recommendations support the following aspects of the "vision of the future" for VA support services as stated in the MyVA Transformational Plan:

- A collaborative process that produces clear business requirements and processes as well as accountable service-level agreements (SLAs) for support services.

- Integrated contracting and supply-chain activities that directly support delivery of Veteran outcomes.

- HR functions aligned to support facility directors with timely hiring, benefits, and employee relations.

- Fully integrated VA-wide information capabilities, supported by IT operational capabilities optimized to meet expectations at point of service.[68]

Design and implement a systematic approach to identify best practices and disseminate them appropriately across the enterprise. To improve overall operational performance, VHA must create a systematic way to identify, share, and scale the solutions and best practices achieved by its top performers and those of other organizations. Coordinated reviews and assessments of identified best practices should be conducted to determine if the practices are scalable across the organization. The VHA Central Office should provide strategic guidance and should support establishing and implementing the approach. It would then be an appropriate role of the VISN to lead the best-practice identification and to share ideas within and across the enterprise, working collaboratively with VAMC leaders and staff. A clear example of the impact of such an approach was observed in VISN 4 as described in Figure 7.

While VHA has numerous assets in place to identify and spread innovation and best practices, these resources have not taken hold. VHA's current culture and organizational structure, which allows for differing VISN business models, do not support standardization or effectively leveraging best practices on an enterprise basis. VHA should strive to standardize when it can and enable variation and innovation when it should. The National Leadership Council, or another identified advisory board, must be empowered by senior leadership to systematically review and consider which best-practice assets support and align to strategic outcomes such as Veteran satisfaction and access. In performing this review, the advisory board should consider the following:

- Integrating best practices with performance management and encouraging collaboration across VAMCs; those medical centers that are not performing as well as others should be encouraged to adjust their processes by leveraging others' approaches.

- Developing an implementation strategy that migrates best practices from high-performing to lower performing facilities.

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[68] U.S. Department of Veterans Affairs. (2015, April 14–15). MyVA Advisory Committee: Inaugural meeting [PowerPoint slides].

- Evaluating the current use and efficacy of the Virtual Learning Center (VA's current online database with shared innovations, best practices, and lessons learned from VAMCs and CBOCs) for capturing and disseminating best practices.

- Developing criteria for rationalizing the best practices that should be performed at a local versus regional or enterprise level. For example, where national economies of scale can be achieved versus where local issues (e.g., demographics) prohibit broader application.

The above recommendations recognize that the best practices found in one facility or VISN will be an excellent source of inspiration and guidance for their peers, but it is important not to expect every best practice to be equally effective or implemented exactly the same way in every location.

Figure 7. VISN 4 Best Practices

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6   Data and Tools

Finding 3: Non-integrated variations in clinical and business data and tools
Recommendation 3—DATA and TOOLS: Develop and deploy a standardized and common set of data and tools for transparency, learning, and evidence-based decisions
Use standardized clinical and administrative data for accuracy and interoperability.
Implement a single, integrated set of system-wide tools centered on a common electronic health record (EHR) that is interoperable across VHA and with DoD and community provider systems.
Transparently share performance metrics for leadership, clinical, and business functions across VHA to identify and adopt best practices for continuous improvement.

CURRENT STATE

Multiple assessment efforts identified challenges in collecting, managing, and effectively using data:

- A lack of standard, interoperable enterprise VHA systems and tools negatively impacts VHA's operations and resulting data.

- The quality of data and multitude of metrics limit VHA's overall performance and continuous improvement efforts.

- VHA lacks a holistic, enterprise approach to managing, collecting, and leveraging its data.

In addition, Assessment H (Health Information Technology) identified several key challenges in VA's use of information technology. Inadequate collaboration between VA's centralized IT organization and VHA has precluded the implementation of capabilities that support VHA health care needs. Due to excessive project management overhead, a complex legacy IT infrastructure that is difficult to modernize, and more than 130 variations of the primary software system deployed across VHA medical facilities, the implementation of improved IT capabilities in the last 10 years has been extremely limited. During that time frame, VA applied the majority of its development resources to HealtheVet and the integrated EHR (iEHR) projects, both of which failed to provide the expected results. This delayed further development and improvement of VistA and CPRS so that they are no longer leading-edge products and are in danger of becoming obsolete. Scheduling, telephone, and billing systems have stagnated, and there is no strategy and roadmap for scheduling initiatives across VA that integrates Veteran access to scheduling via phone, telehealth, and mobile apps. Inconsistent and ineffective data collection across VA medical facilities has prevented evidence-based assessments that would inform capability improvements. VA is falling significantly behind the private sector in using data to improve all aspects of Veterans health care.

Enterprise Data: VHA's operational environment is plagued by a significant level of fragmentation and a lack of standards. Data aggregation across the entire VA system is problematic when each system either lacks standards or conforms to different, local data

standards.[69] This constrains VHA's ability to recognize organizational trends, identify best practices, and assess the effectiveness of health care delivery services across the entire VHA system. Efforts to access data in support of these assessments illustrated some of the issues plaguing the operational environment. Several data discrepancies and data quality issues were noted. Some data routinely maintained by other health care systems were simply not available.[70] Three different VHA sources had to be accessed to obtain lab data. Each source resulted in a different answer, and various groups within VHA did not know how to reconcile these three sources or which source provided the most accurate information.[71]

The impact of these enterprise data issues was evident across various assessments.

- VHA maintains several different systems to manage access and flow; however, a lack of integration across systems, inconsistent methods for tracking data, and gaps in key flow metrics results in highly variable, non-actionable demand and capacity data. While the National Bed Control Database showed that 81 percent of one VAMC's inpatient beds were operational, that facility reported that only 51 percent of its beds were available for patients due to unreported staffing and construction-related bed closures.[72]

- Systems limitations often demand manual processes that can obviously reduce the timeliness and accuracy of data and obscure the true state of VHA's activities. In FY2014, 28.6 percent of claims for non-VHA-provided care were submitted via Electronic Data Interchange, versus a 94-percent benchmark for commercial claims in civilian practice.[73] Significantly relying on manual processes slows collections and payments activities and introduces errors and waste into the process.

- There is a lack of quality, system-wide data for developing predictive models to prospectively match provider availability with patient needs.[74] Such models are built on important inputs (such as aggregated views of provider availability) and allow

> "Greater issue is lack of standardization of code sets. One aspect of data standardization is in lab tests—any given site may name it any number of ways, ex. hemoglobin tests. That site may know what it means. When you roll it up nationally—have a lot of variability. Reference ranges can be different. Different sites use different lab instances."
>
> *Office of Informatics and Analytics Leader*

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[69] This information is presented in The MITRE Corporation Assessment H (Health Information Technology) in Volume II.

[70] This information is presented in McKinsey & Company Assessment F (Workflow – Clinical) in Volume II.

[71] Decision Support System Lab data sets, Medical Statistical Analysis System data sets, and Corporate Data Warehouse inpatient and outpatient sources.

[72] This information is presented in McKinsey & Company Assessment F (Workflow – Clinical) in Volume II.

[73] This information is presented in Grant Thornton Assessment I (Business Processes) in Volume II.

[74] This information is presented in McKinsey & Company Assessment E (Workflow – Scheduling) in Volume II.

for important activities, including assessing the likelihood of patients missing appointments (so that they can be targeted for more proactive individualized appointment reminders or other interventions to increase likelihood of appointment completion); aggregated views of provider availability; and facility-centralized patient reminder systems across multiple modalities. Thus, this lack of data and data management systems compromises the ability to maximize provider availability for treating patients.

- Measuring each health care provider's productivity is challenged by several issues. First, while work Relative Value Units (wRVU) are "the current tool for physician productivity measurement in the clinical arena, a more complete productivity measurement would capture the sum total of a physician's contribution."[75] For example, the wRVU does not reflect patient satisfaction with the encounter or the provider's effectiveness in improving the patient's health outcomes. The accuracy of productivity, when measured by wRVUs, is dependent on accurate and thorough coding and documentation practices; during site visits, assessment teams observed a general lack of local infrastructure to assist providers and nurses in accurately and comprehensively documenting all encounters.[76] VHA does not capture FTE-level information for its fee-based care providers, which limits its ability to systematically track fee-based provider productivity. The proportion of clinical workload generated by fee-based physicians represents 13 percent of all physician workload and may be higher at smaller facilities where fee-based providers can be a greater proportion of specialty care provided. VHA uses multiple standards to measure its primary care panel size that rely on local interpretations of policy and a range of situational factors (for example, whether the panel is a specialized panel such as geriatric or home-based primary care, and adjustments for new providers based on start dates).

- VHA also lacks the data governance to define and implement standards and business rules to ensure consistent data definition, integrity, and documentation. During the course of our assessments, documentation related to VHA's data also presented issues. Dozens of sources of documentation describing the various types of data are scattered throughout VHA. This requires analysts to sift through many different intranet sites and encounter totally different documentation styles with varying levels of usefulness.

Enterprise Tools: Discussions with industry executives identified a number of system capabilities that are essential to operating a high-performing health care system, to include a common electronic health record (EHR) and tools that enable scheduling, billing, claims payment, and patient-centered navigational tools.[77] Standardizing these capabilities and implementing them at an enterprise level results in information and care continuity, cost

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[75] Reddy, V. Seenu & Johnston, Ben. (2012). Surgeon productivity: are RVUs the end all, be all? The Society of Thoracic Surgeons. Retrieved from http://www.sts.org/news/practice-management-pearls-surgeon-productivity-are-rvus-end-all-be-all

[76] This information is presented in Grant Thornton Assessment G (Staffing/Productivity) in Volume II.

[77] Several health executives also highlighted the need for an Electronic Medical Library (EML) that includes a single set of clinical care protocols. VHA's EML was not assessed as part of this effort.

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savings, and consistent care delivery and business processes. The strategy should be standard across the enterprise wherever and whenever possible, and vary locally when needed. The timely and accurate enterprise data produced through these system capabilities are of particular importance as they provide the means to optimize the overall performance of the health care system. In addition, the potential of dynamic simulation modeling to underpin decisions enabling the delivery of health care is increasingly being realized and should be exploited. Our findings related to each of these important components is discussed below.

- **Electronic Health Record**: An EHR represents the core of VHA's VistA system. As outlined in Assessment H (Health Information Technology), customized implementations of VistA at the VAMC level that do not all employ standard data elements and algorithms has resulted in approximately 130 instances of VistA across VHA, leading to a complex, heterogeneous mix of hardware and software, which impedes developing and deploying system changes and new capabilities and raises operations and maintenance (O&M) costs. Those instances are not well documented, further complicating efforts to upgrade and maintain the system and to conduct end-to-end testing outside of the operational environment. VHA's EHR issues stymie interoperability between VHA facilities as well as with DoD and non-VA providers. Multiple assessments noted the lack of interoperability resulted in incomplete patient records with potentially significant implications for the Veteran and VHA. This is not a trivial issue, and multiple solutions have been attempted over the last several years without success. Nevertheless, it remains a crucial issue. Incomplete records introduce unnecessary clinical risk, complicate the transition from DoD to VHA care, and inhibit VHA's ability to bill and collect revenue accurately and timely.[78]

- **Scheduling**: VistA is also VHA's primary scheduling tool. As highlighted in Assessment E (Workflow – Scheduling), VHA scheduling tools do not provide facility staff with the capability to effectively match patient requirements to provider availability. In addition, the tools do not provide information that allows clinic management to improve scheduling performance. For example, because providers operate across multiple and sometimes overlapping clinic schedules, also known as "profiles," calculations of aggregate appointment slot supply and therefore appointment slot utilization rates are not always correct in clinic access reports. VHA has created additional operational processes to address the recognized state of imbalance for supply and demand for appointments. Essentially, staff had to employ additional processes to work around system limitations. Current processes and infrastructure concerning the scheduling systems reduce the ability of clinics to maximize the use of provider time.

- **Billing**: Assessment I (Business Processes) noted significant shortcomings in the systems and tools supporting VHA's billing and collections activities. Technical capabilities typically seen in private health care systems are lacking or absent in VHA. For example,

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[78] On July 29, 2015, the Department of Defense awarded a contract to a commercial team for "an electronic health record off-the-shelf solution, integration activities and deployment across the Military Health System." See http://www.defense.gov/News/Contracts.

automated tools for providing real-time estimates of out-of-pocket expenses, electronic submission of Veteran payment plan forms, and automated first-party claims matching do not exist at VHA. In addition, Assessment I lists more than 10 systems and tools used to support VHA's billing process. Lack of integration and interoperability between billing systems and tools (e.g., VistA and Nuance) slow billing activities and introduce potential errors in data as staff are required to enter redundant data into different systems. In fact, VA billing staff are manually reviewing 100 percent of claims subsequent to automated claim edits. This manual process is typically limited to 10–20 percent for industry.

- **Claims Payment**: VHA's claims payment activities are similarly burdened by lack of automation, multiple systems that are not integrated, and a significant amount of manual work. Specifically, automation is lacking in VHA's primary claims system, Fee Basis Claims System (FBCS), requiring VHA staff to scan the majority of the paper claims into FBCS and manually adjudicate claims. In addition, non-VA providers do not have

  "As a service-disabled Veteran, I know first-hand the challenges women face during military service and when they return home. I, like many women who served, did not understand on leaving military service the benefits and services to which I was entitled, despite the fact that I suffered an injury during my service as an Army medic."

  Disabled American Veterans Deputy National Legislative Director Before the Committee on Veterans' Affairs

  U.S. House of Representatives

  April 30, 2015

  visibility into the status of their claims. FBCS does not support certain types of claims for non-VA care, and these claims must be processed through VistA. Overall, the high reliance on manual processes slows payments activities, introduces potential errors (e.g., lost claims and misrouting of claims), and introduces waste into the process (e.g., providers filing duplicate claims due to delays in payment and a lack of easy visibility into their status). In addition, such reliance on these manual processes reduces the timeliness and accuracy of data and obscures the true state of VHA's financial activities.

- **Patient-Centered Navigational Tools**: The *Voices of Veterans* report, published by VA's Center for Innovation in November 2014, lists two of its key themes as "Many Veterans don't know what benefits are available to them, or how to access them" and "Utilizing VA

  "Almost everything I find out is either from another Vet or by accident."

  2014 Wounded Warrior Project Survey Report of Findings

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technology has severe limitations with some bright spots."[79] The benefits available to the Veteran can be complex and difficult to understand. Making matters worse, the current suite of options and the navigational tools to explore available benefit options have proven challenging. Data presented by the MyVA initiative provide some perspective on the magnitude of this challenge, identifying more than 1,000 VA websites and more than 900 1-800 numbers. Further, Assessment A (Demographics) found that "among respondents of the National Survey of Veterans who report not using VA services, 12.4 percent (1.8 million) report that the barriers to access are a reason for non-use. If these obstacles are addressed, that assessment estimates that an additional 492,000 new patients will use VA for some of their health care needs."[80]

Metrics for Performance Management: VHA lacks a clear strategy to effectively apply its data and metrics to performance improvements, including distilling and prioritizing metrics to drive patient-centered outcomes. As Assessment B (Health Care Capabilities) notes, VHA has more than 500 quality measures to monitor quality of care regionally and locally, concluding that the proliferation of measures creates burdens on staff and resources and can lead to an emphasis on the measures rather than improving areas of care that are more likely to improve patient outcomes. One VACO leader stated, "Our problem is that we're awash in data and don't do anything with it."

The Centers for Medicare & Medicaid Services defines quality measures as "tools that help us measure or quantify healthcare processes, outcomes, patient perceptions, and organizational structure and/or systems that are associated with the ability to provide high-quality health care and/or that relate to one or more quality goals for health care. These goals include: effective, safe, efficient, patient-centered, equitable, and timely care."[81] Among quality metrics, only a subset should be considered performance measures—those quality metrics with attributes rendering them suitable for explicit comparisons of care between institutions or health care providers.[82] Rather than adopting the practice of many high-performing health care systems— where targets are balanced in support of the mission, and a limited number of key metrics are used to measure performance and drive outcomes—VHA has adopted a catch-all approach to performance management. As Assessment L (Leadership) notes, with 382 measures today in its 10-N National Performance Measures Report provided by interviewees, VHA is not setting clear, actionable organizational targets (10N NPRM, 2015). Further, there is widespread recognition of the overabundance of metrics and the need to simplify, with one VAMC director

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[79] U.S. Department of Veterans Affairs. Center for Innovation. (2014, November). *Voices of Veterans: Introducing personas to better understand our customers - Findings report*. Retrieved from http://www.innovation.va.gov/docs/Voices_Of_Veterans_11_12_4.pdf

[80] This information is presented in RAND Corporation Assessment A (Demographics) in Volume II.

[81] Centers for Medicare & Medicaid Services. (2015, April 17). Quality measures. [Website]. Retrieved from https://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/QualityMeasures/index.html?redirect=/QualityMeasures/03_ElectronicSpecifications.asp

[82] Bonow, R. et al. (2008, December 9). ACC/AHA Classification of Care Metrics: Performance Measures and Quality Metrics. *Journal of the American College of Cardiology 52*(24), 2113–2117. doi: 10.1016/j.jacc.2008.10.014

describing his perception of VHA's approach to setting performance measures as, "If 50 metrics are good, 100 must be better."

Ironically, the sheer number of performance measures and the limitations of the current performance management process make effectively tracking performance difficult. One of the VISN's roles is to ensure that performance targets are negotiated with VHACO and are being met at the VAMC level. This leads to regularly scheduled meetings with VAMC leadership to review binders of performance reports and requests for detailed corrective action plans when a measure needs improvement. These progress reviews generally focus on the weakest performance measures, contributing to a commonly held perception that metrics are used to identify weak performers rather than to help drive performance excellence.[83]

"Moving away from blame allows an organization to learn from mistakes and conduct systematic improvement efforts based on that knowledge."

Bringing a Systems Approach to Health

This emphasis on those not meeting performance targets extends to reviews conducted by multiple internal and external organizations. The bureaucratic and highly politicized environment within which VHA operates has led to a dramatic increase in the number of assessments, administrative investigation boards, and root cause analyses of VAMC performance. This focus has led many of those interviewed to describe VHA's culture as "punitive" rather than constructive or incentivizing. While understanding where VAMCs are not working well is important, this focus on poor performers is limiting from a systems perspective because it does not expose the systemic findings or potential solutions. It is equally important to understand where things are going well and the lessons that can be drawn from those high-performing sites, where successful systematic improvements and best practices are taking place.

RECOMMENDATIONS

- Use standardized clinical and administrative data for accuracy and interoperability.
- Implement a single, integrated set of system-wide tools centered on a common EHR that is interoperable across VHA and with DoD and community providers.
- Transparently share performance metrics for leadership, clinical, and business functions across VHA to identify and adopt best practices for continuous improvement.

Use standardized clinical and administrative data for accuracy and interoperability. VHA must take a more comprehensive approach toward managing its data. A key prerequisite for an effective data management strategy is clarifying the demand expectations to inform the direction and priorities of the data strategy. With that direction in place, VHA's data management strategy should include:

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[83] This information is presented in McKinsey & Company Assessment L (Leadership) in Volume II.

- Identifying, rationalizing, and prioritizing VHA's data needs and uses enabled by common definitions and document templates

- Identifying the internal and external data sources and analytical products required to address these needs and assessing the sources and analytical products relative to users' requirements (timeliness, accuracy, completeness, volume)

- Implementing more formal management structures and tools to bring control to VHA's data environment (governance, standards, documentation repositories)

- Identifying potential resources to support the effort (budget, staff, tools)

- Defining an implementation strategy that sets a realistic path toward improving VHA's data environment—acknowledging and working within VHA's current challenges (existing issues with enterprise data).

Implement a single, integrated set of system-wide tools centered on a common electronic health record (EHR) that is interoperable across VHA and with DoD and community providers. Specifically, VHA should implement one-system wide:

- EHR system that is interoperable across the entire system and with DoD and community provider systems, beginning with a cost-versus-benefit analysis performed by VHA between a commercial off-the-shelf (COTS) EHR and the current VistA EHR

- Electronic claims payment system to pay for outside services

- Billing system to collect from other payers

- Patient-friendly scheduling system with modern, single toll-free-number call-center support

- Set of electronic decision support tools describing standard work housed in an electronic medical library.

Along with standardizing VHA processes as discussed in Section 5, a single, integrated set of common system-wide tools centered on an EHR will substantially help address the above issues. In addition, well-designed and developed systems and tools will help VHA enforce and automate business rules, allowing for greater process standardization and reducing variation across VHA. The VA and VHA CIOs should transform the VA IT strategy to a model based on best practices for enterprise IT services that will provide the capabilities that support improved governance, operations, leadership, health care quality, and patient satisfaction. VHA should consider the following recommendations:

- **In partnership with the VA CIO, the VHA CIO should oversee a comprehensive cost-versus-benefit analysis between a COTS EHR and continued in-house custom development of the VistA EHR currently in use**. As Assessment H (Health Information Technology) noted, the analysis should take into account all the complexities of the VistA and CPRS architecture and infrastructure and known issues with performance, scalability, extensibility, interoperability, and security. It should also address full life-cycle costs, including development time (based on recent delivery trends), availability of development resources, maintenance and licensing costs, and infrastructure costs. The VA and VHA CIOs should conduct site visits and review the successful IT practices

implemented at high-performing health care organizations (including VISN 4) to inform their strategies for effective approaches and potential contributions that IT can provide to improve the treatment of Veterans today. Those approaches would address the challenge of providing billing and claims processing capabilities beyond what the existing VistA and CPRS currently provide.

- **Focus on automation, integration, and interoperability for billing and claims.** As outlined in Assessment I (Business Processes), VHA initiated its Health Care Payment System (HCPS) as a replacement for FCBS to serve as VHA's centralized claims processing system and to address many of the issues outlined above. The system is approximately two-thirds complete; however, further development has been stalled by funding issues. VHA should resolve the HCPS funding issue to ensure that this needed functionality is delivered. An effort similar to HCPS is also necessary for VHA's billing process. Assessment I identifies a number of specific capabilities required for VHA's billing system, such as integration across patient intake, medical records, coding, and billing systems; single sign-on capability; automated first-party claims matching; real-time estimate of out-of-pocket patient expenses; and automation to support algorithmic edits and claims correction.

- **Align patient-centered navigation efforts to the MyVA initiative**. In November 2014, VA announced the MyVA initiative to reorganize VA to better serve its Veterans. As stated by Secretary McDonald, "The reorganization, to be known as 'MyVA,' is designed to provide veterans with 'a seamless, integrated and responsive customer service experience—whether they arrive at VA digitally, by phone or in person.'"[84] Central to this theme is enhancing the Veteran experience, approaching the Veteran holistically (e.g., as one VA organization versus three administrations, independent of the channel used) and simplifying and facilitating their use of VA services. From a technology perspective, VHA currently supports its Veterans through a variety of channels, including kiosks located at facilities, call centers, web portals such as My HealtheVet, and mobile applications. VHA must identify and review the tools and channels used to support its Veterans and determine how these tools align with the MyVA initiatives and principles. Based on this assessment, VHA may need to drop, enhance, or expand VHA systems and tools or potentially adopt systems and tools being developed as a part of MyVA.

Transparently share performance metrics for leadership, clinical, and business functions across VHA to identify and adopt best practices for continuous improvement. VHA lacks a clear strategy for its performance measures.[85] As with its enterprise data management strategy, VHA must align its performance management strategy with its clarified mission. As VHA clarifies and focuses its mission, VHA must revisit its performance management approach to ensure that metrics are strategically aligned to the organization's outcomes and that timely and accurate

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[84] Daly, M. (2014, November 10). VA announces "MyVA" plan, largest reorganization in department's history. PBS. Retrieved from http://www.pbs.org/newshour/rundown/va-announces-myva-plan-largest-reorganization-departments-history

[85] These recommendations are derived from McKinsey & Company Assessment L (Leadership) and several other assessments.

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data are available to support those metrics. VHA should consider the following in its performance management strategy:

- Focus and simplify metrics to clarify accountability and mission alignment. VHA should develop an integrated and balanced performance scorecard for VAMCs, focusing on a smaller number of core metrics that roll up to support the broader enterprise view. These metrics should focus on the mission, encourage cross-functional collaboration, and be carefully cascaded. This requires eliminating obsolete metrics while continuing to exploit the progress achieved with the Strategic Analytics for Improvement and Learning (SAIL) initiative.

- Evolve performance management along with enterprise data improvements. Given current data limitations, an effective performance management system will be limited in its ability to support leadership. Performance management relies on data that is trusted by those being measured. As the timeliness, accuracy, and consistency of VHA's data evolves, so can VHA's performance measures.

- Monitor the impact of the performance management strategy and the behaviors it promotes. Unrealistic performance targets may disengage staff or worse—they could result in unintended consequences or undesirable behaviors. At the high-performing health care systems that were visited, the use of performance management metrics that were aggressive and frequently not being met was

> "Performance goes down when there are more measures. We need to get away from the spreadsheet and closer to the action. Facilities need coaches—not just shaking a finger and saying, 'Can't miss this.'"
>
> *VHACO Leader*

discussed. Rather than apply punitive measures, these health care systems focused on achieving an overall trend in increasing organizational performance or operations within a specific range. The organizational performance metrics also served as an effective means of identifying those best practices that were enabling these organizations to demonstrate continuous improvement.

- Review industry standards to provide further transparency. Ultimately, VHA is responsible to the Veterans it serves and the public that funds its operations. In developing its performance management approach, VHA must also consider how it can further its accountability and transparency. VHA's SAIL data are a positive start, as they do align with nationally accepted metrics that provide for facility-level, industry comparisons. However, VHA must go further and should review industry benchmarks with the intent of more fully aligning its metrics with industry standards. This would provide greater transparency and would highlight opportunities to adopt industry best practices.

7   Leadership[86]

Finding 4: Leaders are not fully empowered due to lack of clear authority, priorities, and roles
Recommendation 4—LEADERSHIP: Stabilize, grow, and empower leaders; galvanize them around clear priorities; and build a healthy culture of collaboration, ownership and accountability
Push decision rights, authorities, and responsibilities to the lowest appropriate level throughout the organization.
Build on Veteran-centered behaviors to drive a culture of service excellence, trust, continuous improvement, and healthy accountability.
Revitalize the leadership pipeline through establishment of enterprise-wide, comprehensive succession management and leadership development functions.
Strengthen the appeal of senior leadership positions by pursuing flexibilities in hiring and compensation.
Establish sustained leadership continuity by extending tenure for key positions.

CURRENT STATE

VHA is in the midst of a leadership crisis. Through the course of more than 300 leadership-focused interviews and the analysis of multiple employee survey instruments, Assessment L (Leadership) developed a picture of an environment that is challenging and disempowering for current leaders. (A full treatment of VHA's leadership issues is provided in Assessment L.) This environment discourages emerging leaders from seeking promotion within the system. And while there are many resilient leaders working to make a positive impact on our nation's Veterans, they too often achieve desired outcomes despite the challenges of the system within which they operate. The VA staff assessment of their work environment is reflected in the federal government's "Best Places to Work Survey." Since 2010, both VA and VHA have scored lower than the large agency median and both received particularly low ratings in 2014 during the height of the scheduling crisis. Consider the following:

Mission: The lack of clarity of mission expectations, as discussed in Section 4, has resulted in confusion around leadership priorities and VHA's strategic direction. As one VHACO leader expressed, "We need to first figure out what business we want to be in…[and] choose leaders specifically for the need, change, strategy [we've] decided on." Clarifying the mission and expectations serves as a precursor to many critical leadership decisions.

Misaligned Accountability and Authority: VAMC leaders clearly understand that they are accountable for every aspect of a Medical Center as experienced by patients, employees,

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[86] The information in this section is drawn primarily from McKinsey & Company Assessment L (Leadership) in Volume II.

oversight entities, and external stakeholders; however, they do not feel they have the authority required to fully perform their role in the current environment. A standard VA Medical Center Director position description includes the provision that a Director "operates on a broad

> "It is very much a rule by 'You shall' edicts—I am told the exact number of people I will hire and the jobs that they need to do—even if I don't have a need for the policy or the people."
>
> *Physician Leader*

delegation of authority with independence of action to manage the Medical Center."[87] In both perception and practice, however, this written expectation of delegated authority does not match reality; instead, it is replaced by a fragmented environment with numerous internal and external entities possessing or competing for control. Internally, the VHA organization is viewed as being intensely, unnecessarily complex due to a lack of a clear operating model (as

highlighted in Section 5), limited role clarity, fragmented authority, and overlapping responsibilities. This lack of clarity around operating model, roles, and responsibilities extends across VAMCs, the VISNs, and VHACO.

> "...nobody feels safe, including us. How am I supposed to role model psychological safety when I don't feel safe myself?"
>
> *VAMC Leader*

A complicated external environment exists for VHA, as the organization is treated by oversight entities and external stakeholders as both a hospital system and a traditional government agency, and Congress sees itself in the role of the VHA Board of Directors.[88] An increase in centralized control intended to mitigate risk has in fact constrained leaders' authority. Communications from Congress, VACO, VHACO, and VISNs tend to be overly prescriptive directives governing many aspects of operating a Medical Center. A general lack of clarity around roles and responsibilities contributes to poor coordination across entities and levels, resulting in duplication, communication breakdowns, and functional responses too slow to meet mission needs.

Culture and Environment: Although the broader VHA culture includes a deep commitment to mission at all levels of the organization, it is also characterized by risk aversion and distrust, resulting in an inability to improve performance consistently and fully across the system. At almost every facility visited, at least one leader interviewed mentioned that risk aversion and a reluctance to "speak up" were a significant issue. Three out of every four leaders interviewed at

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[87] U.S. Department of Veterans Affairs. Veterans Health Administration. Job Announcement: Health System Administrator (Medical Center Director) (VA Job Announcement Number: VASES151407823LR). Retrieved from https://www.usajobs.gov/GetJob/ViewDetails/403947600

[88] Clark, C. (2015, April 30). Senators Propose Acting as "Board of Directors" for VA. Government Executive. Retrieved from http://www.govexec.com/management/2015/04/senators-propose-acting-board-directors-va/111613/

VISNs echoed this concern.[89] This culture permeates across all levels—from the front lines to Medical Center leaders to people at the VHA Central Office—and it contributes to a lack of innovation and best-practice dissemination across the organization. VHA's *Blueprint for Excellence* lists *Provide a Psychologically Safe Environment for Employees* as a key transformational action.[90] However, although psychological safety is acknowledged as a challenge, the broader culture of distrust and risk aversion will not improve until leaders themselves feel safe and can actively demonstrate the desired behaviors.

Leader Preparation: Mission focus alone is insufficient to attract top-notch leaders to the organization or motivate high potentials to seek promotion to senior leadership positions in the current environment. In fact, many current VHA leaders perceive the risk of advancing to significantly outweigh the potential reward. The lack of a comprehensive approach to leadership development and a complete lack of formalized succession planning results in an inability to identify potential leaders and prepare them to assume their future roles.

Compensation is clearly a disincentive for many experienced senior medical health leaders to enter the VHA system,[91] and it remains a point of contention among those leaders who are already in VHA. Some leaders spoke freely about their current salary and how it compares to their peers' salaries in medical centers outside VHA. Ironically, there is a perceived disincentive for Chiefs of Staff and other clinical leaders to aspire to VAMC Director or any other Title 5 (non-clinical) leadership positions, as clinical leaders hired under existing Title 38 authority are granted more flexibility in hiring, compensation, and performance evaluation in their current positions.[92] A VAMC Chief of Staff echoed his peers and offered, "If I became the Director, I would take a $100K cut."[93]

> "The salary is $187,000 [sic] for a medical center director. In private industry, a director could get $600,000. They don't do it for the money, but they need some reward for doing well."
>
> *Acting VAMC Associate Director*

All of these factors have contributed to an anemic leadership pipeline that does not support VHA's existing or future needs. Assessment L (Leadership) paints a dire picture of the current vacancy situation:

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[89] This information is derived from McKinsey & Company Assessment L (Leadership) in Volume II.

[90] U.S. Department of Veterans Affairs. (2014, September 21). *Blueprint for Excellence: Veterans Health Administration*. Retrieved from http://www.va.gov/HEALTH/docs/VHA_Blueprint_for_Excellence.pdf

[91] This information is derived from RAND Corporation Assessment B (Health Care Capabilities) and Grant Thornton Assessment G (Staffing/Productivity), both in Volume II.

[92] Under the Title 38 employment system, VA has considerable hiring flexibility. It can hire professional employees directly and has flexibility to remunerate Title 38 employees at levels that are consistent with such staff's professional qualifications. Promotions under the Title 38 system are awarded by review panels comprised principally of clinical peers having similar credentials and experience.

[93] The current salary cap for a VA Medical Center Director paid under the SES pay scale is $183,300. Currently, seven Medical Center Directors are compensated under Title 38.

- 39 percent of Quadrad or Pentad senior leadership teams[94] at VHA Medical Centers have at least one current vacancy
- 43 percent of Network Directors are fulfilling the duties of that position in an "acting" status
- 16 percent of VHA Medical Centers do not have a permanent Director (i.e., Acting, Interim, or vacant).

And VHA has been unable to fill these field leadership gaps in a timely manner. The length of time that these openings have been unfilled stretches for greater than seven months on average, with more than half currently open for longer than six months.[95] The tactical, short-term solution to filling VAMC Director positions has been to fill them with Acting or Interim Directors. However, this revolving door of Acting VAMC Directors prevents sustainable change, hurts employee morale, and compromises delivery of care to Veterans in these facilities. One VAMC leader expressed frustration with this current practice, saying "We've had no consistency at the top. We've had Acting Directors. There is no permanent body. We need that consistency. The Directors come in with new ideas, but they don't have the time to implement anything." Complicating this challenge is the realization that VHA faces a large and widespread number of potential retirements in key field leadership roles. Fifty-seven percent of leaders in key positions are eligible for retirement.[96] More than two thirds of Network Directors, Nurse Executives, and Chiefs of Staff are also eligible for retirement, as well as 47 percent of Medical Center Directors. There are indications that this retirement threat is beginning to be realized; in FY2014, retirements by VHA employees GS-13[97] and higher increased by 37 percent over the previous five-year average.[98]

> "Accountability is tough when the leadership is rotating (i.e., Acting Director is here 90 days to six months)...There's a perception of 'who's the Director today?'"
>
> *VAMC Leader*

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[94] A Quadrad leadership team consists of a Medical Center Director, an Associate Director, an Associate Director for Patient Care Services/Chief Nurse Executive, and a Chief of Staff. A Pentad leadership team consists of a Medical Center Director, an Associate Director, an Associate Director of Clinical Operations, an Associate Director of Patient Care Services, and a Chief of Staff.

[95] (2015). Choice Act assessment interviews with VHA.

[96] "Key positions" are defined as VISN Network Director and Medical Center Quadrad leaders (Medical Center Director, Associate Director, Associate Director for Patient Care Services/Chief Nurse Executive, and Chief of Staff).

[97] The general schedule (GS) is the predominant pay scale within the United States civil service, with 15 levels. GS-15 has the highest base salary.

[98] U.S. Office of Personnel Management (OPM). (2015, March). FedScope database.

RECOMMENDATIONS

As outlined in Assessment L (Leadership), VHA must stabilize, grow, and empower leaders; galvanize them around clear priorities; and build a healthy culture of collaboration, ownership, and accountability.

- Push decision rights, authorities, and responsibilities to the lowest appropriate level throughout the organization.

- Build on Veteran-focused behaviors to drive a culture of service excellence, trust, continuous improvement, and healthy accountability.

- Revitalize the leadership pipeline through establishment of enterprise-wide, comprehensive succession management and leadership development functions.

- Strengthen the appeal of senior leadership positions by pursuing flexibilities in hiring and compensation.

- Establish sustained leadership continuity by extending tenure for key positions.

Push decision rights, authorities, and responsibilities to the lowest appropriate level throughout the organization. Clarifying decision rights is a critical factor in empowering leaders in the field. VHA should articulate decision rights clearly by level, organization, and role, standardizing where appropriate while also allowing for local flexibility based on local needs. Clarifying the role of the VISN is particularly important as this role has become unclear over time. This clarification should define key roles and responsibilities, particularly with the local realignment in progress. It must address the necessary balance between empowerment and support between medical facility leaders and VISN leaders. This must be done in the context of overarching systems and clear standard performance goals and outcomes.[99]

Build on the existing commitment to Veteran-centered care to drive a culture of service excellence, trust, continuous improvement, and healthy accountability. Research suggests that "most people won't change their behaviors until they observe the role models in their organization acting differently, and when they see this new behavior positively recognized and rewarded—a clear promotion, a plum assignment, a change in authority or responsibility, or simply praise from the top of the organization."[100] VHA leaders will need to demonstrate desired behaviors with the understanding that culture change will not occur until employees are motivated and feel supported to act differently.

VHA must reinvigorate its mission-driven culture through greater employee collaboration and ownership and by creating a unified organization in support of mission, strategic direction, and a goal of integrated patient care. To do this, VHA will need to foster a culture of continuous improvement and learning, spur collaboration, encourage innovation (within and across the system, and beyond), and connect all employees to the mission. Communications should make

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[99] See McKinsey & Company Assessment L (Leadership) in Volume II for more detail on the role of the VISN.

[100] The Bridgespan Group. (2011). *Strategies for Changing Organizational Culture*. Retrieved from http://www.bridgespan.org/Publications-and-Tools/Leadership-Effectiveness/Lead-and-Manage-Well/Strategies-for-Changing-Organizations-Culture.aspx

clear how activities performed by employees support the mission and strategic direction and how measures, directives, and requests directed by VHA Central Office align with and advance the mission.

Culture is often described simply as "how things are done around here," and changing the VHA culture will need to happen at all levels—VHACO, VISN, and the VAMC level. VHACO should consider how to integrate its efforts so that the workforce is involved and experiences a coherent set of messages, policies, and support. The VISNs should support the VAMC leaders by sharing best practices, demanding steady improvement, and encouraging innovation. VAMC leaders will need to role model the change, describe why the culture must change, reinforce desired behaviors, and provide leaders and employees alike with the coaching, training, and tools they will need to succeed. As stated in Assessment D (Access Standards), leadership at every level of the health care delivery system is essential to steward and sustain cultural and operational changes needed to reduce wait times. Leadership must be devoted to reflecting, sustaining, and enhancing patient-centered care in scheduling and access, and the results must be continually gathered, assessed, made available, and deployed to drive and reward improvement.

VHA must shift its thinking to acceptance, and in fact encouragement, of risk taking and even smart failures. A cultural and leadership emphasis on healthy risk taking was adopted across all of the high-performing health care systems we studied and should be emulated by VHA. VHA should

> "Cleveland Clinic has always had a high tolerance for renegades—the kind of people who are dissatisfied with the status quo and are always looking for better ways of doing things. Because no organization can be successful unless its people are free to learn from their mistakes, Cleveland Clinic allows ample room for failure."
>
> *Toby Cosgrove*
> *The Cleveland Clinic Way*

strike a risk-reward balance that enhances the organization's ability to reward senior leaders for the risk they assume in this increasingly politicized environment, while also making it easier to usher poor performers out of VHA. Leaders' performance plans should not only focus on compliance requirements, administrative investigation boards, root cause analyses, and peer reviews[101] but should also emphasize trends that are improving, best practices that are shared, risks taken, and accomplishments achieved. VHA must hold leaders accountable for rebuilding a culture of trust that is patient centered, streamlines processes, and expects best practices to be adopted.

Revitalize the leadership pipeline through establishment of enterprise-wide, comprehensive succession management and leadership development functions. As Assessment L (Leadership) concludes, a system as large, complex, and unique as VHA requires an enterprise-wide, highly coordinated succession management function, beyond traditional workforce planning. A comprehensive and enterprise-wide program to identify high-potential candidates, provide

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[101] United States. Congress. Veterans Access, Choice, Accountability, and Transparency Act, 38 U.S.C. § 1701 (2014) (Pub. L. No.113–146, 128 Stat. 1754).

development in core health care administration competency functions, and connect these individuals with leadership opportunities is critical to moving VHA forward. A formal candidate identification, preparation, and placement program is required to identify and promote the next generation of leaders. Policy changes and congressional action, including expanding hiring authorities, should be sought to change or grant temporary exceptions to alleviate any constraints. The succession planning function should be coupled with development programs that strengthen VHA's leadership foundation. Current leadership development offerings should be rationalized, eliminating existing programs that do not reinforce or build on the behaviors expected of VHA leaders. Development programs should provide current and future leaders with the appropriate strategic, operational, and leadership skills to drive and implement change in this complex system and challenging environment. VHA should also attract and recruit leaders from outside the organization with deep health care management expertise who have demonstrated the behaviors and possess the competencies desired within VHA. These leaders would be expected to leverage and share their knowledge gained outside the organization while acting as catalysts for change within VHA.

Strengthen the appeal of senior leadership positions by pursuing flexibilities in hiring and compensation. The role of senior leaders within VHA should be strengthened by pursuing regulatory or legislative changes that expand or create a new federal classification for VHA Pentad leaders and other critically needed and vacant positions. These changes should enable the flexibility that exists in other federal positions (e.g., Title 38,[102] Senior Executive Service, Excepted Service[103]) to address compensation and benefits, hiring decisions, promotion process, and performance management. It should be noted that VA is pursuing a legislative remedy in its most recent federal budget request to expand Title 38 salary flexibility to non-clinical leadership positions, although at the time of this report Congress has yet to act on this request.

Establish sustained leadership continuity by extending tenure for key positions. Building sustained leadership continuity will be critical to successfully transforming culture and will give leaders the authority, accountability, ownership, and time needed to stabilize the organization, strengthen its health and performance, and shepherd change efforts. To build this continuity, VHA and Congress should consider longer terms for critical leadership positions such as the Under Secretary for Health. Extending the tenure of the Under Secretary so that it spans presidential administrations and election cycles would increase leadership stability and resilience in political headwinds. This top leadership position in one of the nation's largest health care systems could be considered akin to the Internal Revenue Service (IRS) Commissioner position. Congress passed the U.S. Internal Revenue Service Reform and Restructuring Act of 1998. That legislation allowed the IRS Commissioner a five-year term that crossed administrations and provided the opportunity to fully implement the IRS

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[102] Title 38 is a federal classification for health care professionals and covers a range of clinical professions at VHA.

[103] There are four schedules (A, B, C, and D) of Excepted Service that fall under OPM regulations. Agencies may make Excepted Service appointments upon specific authorization by OPM.

transformation.[104] Extending the assignments of Medical Center Directors would also increase organizational stability and continuity at the facility level by ensuring that each leader is present long enough to build a rapport with the facility and his or her leadership team and see significant efforts through to completion or sustainable implementation. These extended assignments would reduce the frequency of geographic displacement, a dynamic that is becoming increasingly unattractive to many facility leaders.

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[104] Rainey, H. & Thompson, J. (2006, July–August). Leadership and the Transformation of a Major Institution: Charles Rossotti and the Internal Revenue Service. *Public Administration Review*.

8   Transformation

Taken together, the 12 assessments found numerous, critical shortfalls validating the many calls for change made by Veterans, the American public, Congress, and VHA staff and leaders.[105] These shortfalls should not be viewed as individual anomalies, but rather manifestations of the systemic findings that plague VHA:

- A disconnect in the alignment of demand, resources, and authorities that impacts mission execution
- Uneven bureaucratic business operations and processes
- Non-integrated variations in clinical and business data and tools
- Leaders are not fully empowered due to a lack of clear authority, priorities, and roles; they work in a culture of growing risk aversion and distrust.

To successfully and sustainably address these systemic findings, a system-wide transformation is required[106] based on an approach that acknowledges the interdependency among the four cornerstones as depicted in Figure 5 in Section 3.

Transformation is Hard but Possible. Transformation is not easy, nor is success guaranteed. Successful, sustained transformation requires unwavering persistence, enduring attention, committed leadership, and the sustained cooperation and commitment of those calling for change, as well as new approaches and capabilities. Across many industries, longitudinal research has found that only about 30 percent of attempted transformations succeed for the long term.[107] Employee resistance, a lack of engagement by organization leadership, scarce resources, and other organizational issues (including poor accountability and misalignment between organizational aspirations and individual and team goals and targets) are major reasons why transformational efforts fall short of their goals. Unless VHA makes major changes from its current state, it is unlikely to successfully transform.

As difficult as a major transformation is, it is still achievable. In the course of conducting the assessments and performing research for these assessments, we visited four highly regarded health care institutions that have successfully undergone transformations and emerged as high-

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[105] A Gallup poll from June 9-10, 2014, on Americans' issue priorities found that 87 percent of Americans polled thought that improving the way in which health care services are provided to U.S. military Veterans was extremely/very important, topping the list. Retrieved from: http://www.gallup.com/poll/171596/prioritize-improving-veterans-health.aspx

[106] In his statement before the Senate Committee on Appropriations, Subcommittee on Military Construction, Veterans Affairs, and Related Agencies, on April 21, 2015, Secretary of Veterans Affairs Robert A. McDonald said, "We are implementing an historic department-wide transformation, changing VA's culture, and making the Veteran the center of everything we do." Retrieved from http://www.appropriations.senate.gov/sites/default/files/hearings/042115%20Secretary%20McDonald%20Testimony%20-%20MilCon-VA.pdf

[107] Keller, S. & Price, C. (2011). Beyond Performance: How Great Organizations Build Ultimate Competitive Advantage. Hoboken, NJ: John Wiley & Sons.

performing health care systems (Kaiser Permanente, Cleveland Clinic, Virginia Mason, and Geisinger). We also interviewed more than 27 health care executives and experts from industry, academia, and government. From these experiences, six themes enabling the successful transformations emerged:

- A shared sense of urgency

- Empowered leaders and new mission

- Recognition of the journey through a sustained and time-consuming process

- Patient-centric culture and value system

- Supportive and knowledgeable governance

- Transparent data-driven management system.

These themes reflect the systemic findings and recommendations provided in this report and reinforce the conclusion that a systems approach is essential to a successful VHA transformation.

VHA has also seen major transformation occur from 1994 to 1999. In 1994, care was fragmented and uncoordinated, hospital centric, specialist based, and episodic and reactionary. It was often difficult to access, with long waiting times and long distances to hospitals for some patients. The system was plagued with irregular and unpredictable quality and rapidly rising costs. Management was highly bureaucratic, centralized, and hierarchical. Organizational leadership changed frequently, and governance issues and capital investment decisions were highly politicized. Patients were unsatisfied, and staff demoralized.

After a careful, major transformational effort, there were many quantifiable examples of positive impact at the end of five years. VHA:

- Treated 24 percent more patients

- Implemented universal primary care

- Improved access with 302 new community-based outpatient clinics

- Markedly reduced waiting times

- Closed 29,000 acute-care hospital beds

- Reduced bed days of care per 1,000 patients by 68 percent

- Reduced annual hospital admissions by 350,000

- Merged 52 hospitals into 25 locally integrated multi-campus facilities

- Decreased staffing by 12 percent (25,867 FTE positions) while concomitantly increasing the number of caregivers

- Substantially decreased annual operating costs

- Decreased annual expenditures per patient by more than 25 percent in constant dollars

- Improved patient satisfaction and achieved higher aggregate patient satisfaction ratings than in the private sector (in 1998, 80 percent of patients thought that care was "definitely better" than two years before)

- Markedly improved quality of care according to standardized performance measures for a wide array of conditions.[108]

Transforming VHA to a High-Performing Health Care System: In its *Blueprint for Excellence*, VHA has captured its aspirations and goals citing the IOM's "Six Aims for High Performance Healthcare" as a framework underpinning its "clinical performance improvement and measurement for comparison with non-VA care."[109]

> *"The goal of a learning health care system is to deliver the best care every time, and to learn and improve with each care experience. This goal is attainable only through system-wide changes of the sort that have been successfully undertaken in certain activities of the manufacturing sectors. In these cases significant benefits have been realized through organization wide transformations guided by principles of systems and process engineering and the practices of structured data feedback for process improvement."[110]*

Although the goals of VHA already echo many of the system findings of our assessments, the keys to future success are effective execution and implementation. All leaders and staff must be engaged and empowered to assist overcoming challenges in the transition from strategy to execution. Most transformations take at least 12 to 18 months for initial impact, and transformations of the magnitude needed at VHA may take 5 to 10 years to fully take hold. To avoid change fatigue and loss of focus, VHA leadership must set appropriate expectations with clear milestones, but also make visible early changes to demonstrate commitment and promote front-line acceptance. To this end, as Section 4 recommends, VHA must establish a new Program Management Office staffed by individuals with the right emotional commitment and core competencies in executing organizational change. This office should answer directly to the Office of the Undersecretary for Health. This team should create the strategy and roadmap for the implementation of this transformation, with the requisite

> "Minor tweaks to the current system may incrementally improve health care in the near term, but the monopolistic VHA bureaucracy is likely to return to a standard operating model heavily influenced by the desires and concerns of the institution and its employees. Only fundamental reform will break the cycle and empower Veterans."
>
> *Fixing Veterans Health Care*
> *Concerned Veterans for America*
>
> *February 26, 2015*

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[108] Kizer, K.W. (2012). Commentary 12-1: Lessons learned in transforming the Veterans Health System. In Levy, B. S. & Gaufin, J. R. (Eds.), *Mastering public health: Essential skills for effective practice*. Oxford University Press.

[109] U.S. Department of Veterans Affairs. (2014, September 21). *Blueprint for Excellence: Veterans Health Administration*. Retrieved from http://www.va.gov/HEALTH/docs/VHA_Blueprint_for_Excellence.pdf

[110] Institute of Medicine. (2001). *Crossing the Quality Chasm: A New Health System for the 21st Century*, Committee on Quality of Health Care in America. Washington, D.C.: National Academies Press.

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metrics, milestones, and timelines. This roadmap should set reasonable timelines, strive for early wins, and be willing to wait for major impact. Most importantly, VHA leadership must provide and Congress must endorse funding to enable this transformation—funding that is separate from the annual budget cycle; funding that is protected; and funding that has special rules for allocation. "A best practice is to establish an independent budget that's distributed when—and only when—the kinds of milestones"[111] that measure success have been achieved.

With this multi-dimensional systems approach to complex problems, VHA will be able to successfully tackle its most complex problems in innovative, sustainable ways. Facility challenges can be significantly mitigated by a transformative realignment throughout the capital program deploying best practices in leasing and contracting; realigning the strategy of the capital program to improve project selection, optimize the infrastructure portfolio, implement innovative care delivery models, understand demand-based needs, and explore and partner with purchased-care opportunities; and reevaluating funding requirements. Such an integrated approach would proactively position VHA for the health care delivery model of the future. Similarly, the problems of access addressed by the Choice Card should, as noted in Appendix D, integrate multiple factors—systems strategies, supply and demand alignment, reframing the type of patient encounter, the need for standards, the need for evidence-based best practices, and leadership. This holistic approach is the heart of our proposed systems solution with its four systemic cornerstones. A systems approach to solving large scale health care delivery issues has been suggested by experts at IOM, the National Academy of Engineering, and the President's Council of Advisors on Science and Technology.[112,113,114] Approaching all of the recommendations in the 12 individual assessments with a systems solution that is scalable and sustainable will provide a pathway for enduring transformation.

Conclusion: Veterans, the American public, Congress, and VHA staff and leadership all want to see and support VHA returning to a high-performing health care system. Deputy Secretary Sloan D. Gibson stated, "We know that unacceptable, systemic problems and cultural issues within our health care system prevented some Veterans from receiving timely care." We believe this Integrated Report describes a scalable and sustainable way to create the environment for enduring solutions.

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[111] Harreld, J.B. & Laurie, D.L. (2013, July-August). Six ways to sink a growth initiative. *Harvard Business Review*. Retrieved from https://hbr.org/2013/07/six-ways-to-sink-a-growth-initiative

[112] Kaplan, G. et al. (2013, July 10). *Bringing a systems approach to health*. Retrieved from http://nam.edu/wp-content/uploads/2015/06/systemsapproache

[113] National Academy of Engineering and Institute of Medicine of the National Academies. (2005). *Building a Better Delivery System: A New Engineering/Health Care Partnership*. Washington, D.C.: The National Academies Press. Retrieved from http://www.nap.edu/catalog/11378.html

[114] President's Council of Advisors on Science and Technology. (2014, May). *Better Health Care and Lower Costs: Accelerating Improvement Through Systems Engineering*. Washington, D.C. Retrieved from https://www.whitehouse.gov/sites/default/files/microsites/ostp/PCAST/pcast_systems_engineering_in_healthcare_-_may_2014.pdf

But there are clear obstacles. The number of issues VHA currently faces appears overwhelming. The overlap of our individual assessment recommendations with those of past reports is troubling. The success rate of successful transformations is not encouraging.[115]

In its current state, VHA is not well positioned to succeed in such a transformation. As already discussed in the Integrated Report, three essential actions are required to realize the recommendations inherent in this transformation. VHA must:

> "Implementing systems approaches in health care, including strategies to address scheduling and access issues, requires changes not only in operational processes, but also a fundamental shift in thinking. All members of a health care organization must transition from the siloed, independent, and fragmented mentality of traditional health care culture to a culture of service excellence, an integrated approach with shared accountability in which physicians, employees, and patients treat one another with respect and as partners and patient satisfaction and employee engagement are high."
>
> *Institute of Medicine of the National Academies Assessment D (Access Standards)*

- Implement a systems approach that recognizes and embraces that the four cornerstones are interdependent and the success of any one of the four overarching recommendations hinges on the implementation of the other three. These solutions must be coordinated and implemented via a systems approach to improve VHA overall.

- Establish a transformation program management office with the authority and funding (redirected from current central and local funding mechanisms) to implement the system-wide reworking of VHA. The office should be staffed by individuals with the right emotional commitment and core competencies in executing organizational change. The office should focus on confirming and communicating the aspirational state, establishing transformation priorities, defining timelines for execution, implementing both strategic and tactical initiatives, allocating resources, and instituting appropriate metrics and processes to measure progress and success. It should replace any ongoing change initiatives and merge the relevant components of MyVA, the *Blueprint for Excellence*, and other initiatives into one coherent, focused transformational approach.

- Require evidence-based systems models to inform and implement integrated solutions that balance governance, operations, data and tools, and leadership.

VHA has the opportunity to achieve a place among the highest performing health care systems in the world. It will be the charge of Congress, the Commission on Care, and VA leadership to see that these recommendations and resulting transformation efforts are given the necessary attention and support that they—and our nation's Veterans—deserve.

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[115] Keller, S. & Price, C. (2011). Beyond Performance: How Great Organizations Build Ultimate Competitive Advantage. Hoboken, NJ: John Wiley & Sons.

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**The following sections contain Appendices A through Q
as referenced throughout the Integrated Report.**

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Appendix A   Demographics

Scope

Assessment A examined the "current and projected demographics and unique health care needs of the patient population served by the Department." The assessment described characteristics of the current and projected population of U.S. Veterans and patients of the U.S. Department of Veterans Affairs (VA) health care system. In addition, the assessment examined the characteristics of Veterans who are most likely to rely on VA for their health care, described the unique health care needs of the patient population currently served by VA, and projected the health care needs of Veterans who might become patients in the future. The assessment also examined the potential impact of future policy changes, such as broader eligibility for VA care, and other events, such as a major conflict, on demand for VA health care services.

Findings

The population of U.S. Veterans will decrease by 19 percent over the next 10 years. The Veteran population has been has been decreasing for the past two decades, and this trend will continue. In 1990, there were 27.5 million Veterans; in 2014, there were 21.6 million. Over the next 10 years, our projections, drawing on VA and Department of Defense (DoD) data, show that the Veteran population will decline to 17.5 million, a decrease of 19 percent. Geographically, the Veteran population will shift from the Ohio River Valley and upper Midwest to the Southwest and Mountain regions and concentrate further in urban areas. Over the next 10 years we estimate that the share of female Veterans will increase from 8 to 11 percent, while the share of non-Hispanic white male Veterans will fall from 80 to 75 percent. Mean age will increase slightly as the population will have a higher proportion of both older and younger Veterans.

Veterans generally enjoy favorable socioeconomic outcomes relative to their non-Veteran counterparts. Veterans are more likely to be employed and have health insurance, and also have higher median incomes, than non-Veterans, on average. Despite the overrepresentation of Veterans in the U.S. adult homeless population, the rate of homelessness is still low among Veterans and has been declining over time.

The VA patient population will increase through 2019 and then plateau. While the Veteran population is projected to decline by 19 percent over the next 10 years, we estimate that the number of VA patients will reach its peak level in 2019 before plateauing or possibly declining in future years. The increase in the size of the patient population relative to the Veteran population is related to recent trends in eligibility, enrollment conditional on eligibility, and use of VA health care among those eligible, particularly among younger Veterans.

The number of Veterans who use VA health care is dependent on eligibility criteria, access constraints, and other factors. For example, our scenario analysis found that expanding eligibility for VA health care to currently excluded groups of Veterans could lead to over 4.8 million newly eligible Veterans, and as many as 2.1 million new VA patients, amounting to a 35.1 percent increase in the size of VA's patient population.

Lower income Veterans, those in rural areas, Veterans without other access to health insurance coverage, and Veterans with poorer self-reported health status rely more on the VA than other Veterans. Most Veterans have health care options other than VA, such as employer provided health insurance or Medicare, and use VA for only part of their overall health care needs. Our estimates of the extent to which Veterans rely on VA for health care versus other sources of care are lower than VA estimates. For example, our estimates indicate that VA patients obtain 30 percent of their prescription drugs through the VA. In contrast, VA estimates that enrollees obtain 66 percent of their prescription drugs through VA. Because the VA estimates are in part based on proprietary methods, the reasons for these differences could not be fully determined.

Veterans have higher *unadjusted* rates of many key health conditions than non-Veterans. Unadjusted results show how Veterans differ from non-Veterans at the population level. Some of these differences are related to the fact that Veterans are older and more likely to be male than non-Veteran civilians, and therefore disappear when we adjust for these factors. At the population level, the prevalence of diabetes and gastroesophageal reflux disease (GERD) disorders among Veterans is substantially higher than for non-Veterans. Veterans are more likely than non-Veterans to be diagnosed with cancer, hearing loss, and posttraumatic stress disorder (PTSD). Mental health conditions, however, are equally prevalent in the Veteran and non-Veteran populations.

Veterans have a higher *adjusted* prevalence of key health conditions than non-Veterans. Adjusted results characterize how Veterans differ from non-Veterans with similar demographic characteristics, including age, sex, and race. While Veterans continue to have a higher prevalence of many chronic conditions, most differences are smaller, relative to unadjusted estimates. For example, in the unadjusted models Veterans are almost twice as likely to have diabetes; after adjusting for demographic characteristics, the relative difference is only 13 percent. An important exception is that, after adjusting for demographics, Veterans have higher prevalence of mental health conditions than non-Veterans. Differences between Veterans and non-Veterans are particularly large for PTSD, where Veterans are 13.5 times more likely than non-Veterans to be diagnosed with the condition.

VA patients are typically less healthy than Veterans who do not use VA health care. VA patients—defined as Veterans who obtained care from a VA provider or had any payment by VA for health care services used in the past year—are in poorer health than Veterans who had not used VA health care. Partly these differences in prevalence are inevitable, because Veterans with disabilities and service-connected conditions have prioritized access to VA care relative to other Veterans. Among VA patients, the unadjusted prevalence of common chronic conditions (such as diabetes and cancer) is 51 to 96 percent higher than for Veterans who do not use VA care. Approximately 25 percent of all patients who received care paid for by VA have a mental health condition and three percent have PTSD. When combined with the otherwise rare conditions related to combat—amputation, traumatic brain injury, blindness, and severe burns—VA handles a patient mix that is distinct from what community providers typically see.

The prevalence of many common conditions is projected to increase among Veterans over the next 10 years. As the Veteran population ages, they will face higher rates of conditions such

as hypertension, diabetes, and mental health. VA patients are projected to experience relatively steeper increases in many conditions relatively to the overall Veteran population. As a result, the gap in prevalence rates between VA patients and Veterans who do not use VA health care is projected to increase over time.

In the event of a hypothetical future conflict, even moderate levels of deployment could substantially increase the size of the incoming cohort of VA patients. However, previous cohorts of Veterans, especially the Vietnam cohort, were much larger than recent cohorts, so the difference would be small relative to the entire VA patient population.

Recommendations

Prepare for a changing Veteran landscape. After increasing for decades, the VA patient population is projected to level-off or even begin to decrease after 2019, a trend that is likely to continue over an even longer time horizon. While demand for VA services during this time period will be influenced by utilization patterns, there is a possibility that demand for services will decrease for the first time in several decades once the size of the Veteran population begins to plateau after 2019. The VA has been, and continues to be, responsive to increasing demand for services, but once population growth slows, VA may be left with a larger footprint than needed in the longer-term. Increasing the use of care purchased from the civilian sector may enable VA to meet short-term increases in demand without requiring costly investment in facilities, infrastructure, and personnel that could become less needed in the future.

Anticipate potential shifts in the geographic distribution of Veterans, and align VA facilities and services to meet these needs. Given projected declines in the size of the Veteran population living in the Ohio River Valley and upper Midwest, it may be possible to consolidate relatively proximal VA facilities in those regions. At the same time, some areas of projected Veteran population growth—including Montana, Wyoming, Colorado, and much of the Southwest—are not currently well covered by VA facilities. Some regions, such as Washington D.C., Los Angeles, Dallas, and northern New Jersey, may experience growth in the Veteran population under age 35.

Improve collection of data on Veterans. Because the 2010 Census did not capture information on Veteran status, there has not been a full-scale accounting of the U.S. Veteran population since 2000. Since then, there have been surveys of representative samples of Veterans that provide useful counts and information about the Veteran population, but they are only estimates. An updated census of the Veteran population would enable a definitive count of all Veterans, while also helping to refine the sampling procedures for the yearly surveys of samples of the population.

Improve collection of data on Veteran health care utilization and reliance. To gain a clearer understanding of Veterans' health care use, VA should collect data on all sources of health care that are used by Veterans—including where care is delivered, what diagnoses are recorded and procedures performed, and who pays for the services—as well as what needs for care are unmet, and why. Creating these data would enable an analysis of the extent to which Veterans currently rely on the VA for health care, and how that reliance may change as a result of internal VA policies or external factors. It would also provide insight into where the VA succeeds

in meeting the health care needs of its patient population and what obstacles exist in delivering needed care.

Monitor use of VA health care by younger cohorts and Iraq and Afghanistan Veterans. Iraq and Afghanistan Veterans are more likely to have service-connected disabilities than other Veterans, and are automatically eligible for VA health care for five years after leaving the military. Historically, Veterans have relied less on VA health care as they age, gain access to other health insurance (e.g., through an employer), and start families. However, it is not clear the extent to which these patterns will hold for newer Veterans who have different exposures and enhanced eligibility relative to previous cohorts. Understanding how patterns for these Veterans will evolve may inform future planning.

The complete Assessment A is available in Volume II.

Appendix B   Health Care Capabilities

B.1   Scope

Access to quality health care is a central part of our nation's commitment to Veterans. However, concerns about access to VA care, including long wait times for appointments, lack of available appointments within certain clinical specialties, and problems with care transitions for patients discharged from mental health services, led to the passage of the Veterans Choice Act in 2014. Section 201 of the Veterans Choice Act includes a requirement for an independent assessment of VA health care. Assessment B provided "an independent assessment of the current and projected health care capabilities and resources of the VA, including hospital care, medical services, and other health care furnished by non-VA facilities under contract with the VA, to provide timely and accessible care to Veterans" (Veterans Choice Act, Section 201). Assessment B also explored how selected policies could affect Veterans' access to high-quality care. Volume II contains the full Assessment B report.

B.1.1   Findings

VA operates a unique health care system with broad and deep resources and capabilities. However, VA faces a number of barriers in planning for and using its resources effectively:

- **Fiscal resources:** We identified concerns about the data used for VA's budget planning, inflexibility in budgeting stemming from congressional appropriation processes, and challenges in VA's allocation processes.

- **Workforce and human resources:** VA has an extensive health care workforce, but VA capacity may not be sufficient to provide timely care to Veterans across a number of key specialties as well as primary care. VA faces shortages of physicians in some geographic areas and of certain physician specialists. These constraints are influenced by low salaries, a slow credentialing process, and infrastructure constraints. Variations in coding, inconsistently entered workload data, and incomplete physician encounter data make it difficult to measure productivity.

- **Physical infrastructure**: VA operates one of the most extensive systems of health care infrastructure in the country, but the need for additional physical space is a limiting factor in improving access, and it is sometimes difficult to update the physical space in older buildings to accommodate new technology and equipment.

- **Purchased care:** VA has many outside options for providing care to Veterans, including several programs and various types of payment or contractual arrangements, although managing these overlapping resources can be challenging.

- **Informational resources:** VA has been and continues to be an innovator and leader in IT, although there is room for improvement in some areas, including issues related to the management and planning of its IT systems. VA's electronic health record technologies suffer from aging architecture and 10 years of limited development. However, interviews suggest strong support for renewed investment in a modern, home-grown product rather than transitioning to a commercial alternative.

VA does not currently face an overall crisis in access to care; however, we found considerable variability across the dimensions of access (geographic, timely, financial, digital, and cultural). There is wide variation in access: For example, at 91 top-performing VA facilities, over 96 percent of new primary care patients receive appointments within 30 days of the preferred date. However, 14 VA facilities were far below this benchmark, with less than 84 percent of patients receiving appointments within 30 days of the preferred date. At top-performing VA facilities, more than 60 percent of Veterans report that they "always got urgent care appointments as soon as needed." At the worst-performing VA facility, this rate was closer to 20 percent. On patient surveys, Veterans are substantially less likely than private-sector patients to report getting appointments, care, and information as soon as needed.

Geographic access is another challenge for VA. Veterans are highly dispersed throughout the United States, and ensuring nearby access to needed services is difficult. Many Veterans have access to VA care by a general standard of less than 40 miles distance from any facility (measured either using a straight line or driving distance), not considering the services available. Geographic access is worse when using different types of access standards. Veterans who must rely on public transportation, for example, have much lower levels of access than other Veterans. Geographic access to specialized facilities and providers is also lower.

There is substantial variation in quality measure performance across VA facilities, indicating that Veterans in some areas are not receiving the same high-quality care that other VA facilities are able to provide. For example, there was a 21-percentage-point difference in FY 2014 performance between the lowest- and highest-performing VA facilities on the rate of eye exams in the outpatient setting for patients with diabetes.

VA uses many systems for monitoring quality. On most quality measures for outpatient care, VA outperformed other health care systems, while the performance on quality measures of inpatient care was mixed, with some better and others worse. On average, VA hospitals performed the same or significantly better than non-VA hospitals on 12 inpatient effectiveness measures, all six measures of inpatient safety, and three inpatient mortality measures, but significantly worse than non-VA hospitals on two effectiveness measures and three readmission measures..

Changes in policy can help ensure continued access to VA care. If no substantial changes are made, projections indicate that it could be more difficult in 2019 for VA to provide accessible and timely care for Veterans than it was in 2014. However, we identified several policy options to ensure that Veterans have continued access to care, including formalizing full nursing practice authority, increasing the number of VA physicians, and expanding virtual access to care.

The impact and feasibility of increasing purchased care would be highly dependent on the scope of the change. Shifting a greater share of services from VA to purchased care would require more fundamental changes to VA. We did not find evidence of a current system-wide crisis in access to VA care that would indicate that such a change is necessary, but it is possible that such a reorientation would improve both access and the quality of care. However, our analyses indicate that many Veterans without access to VA health care also face significant barriers to accessing purchased care, including distance and cultural barriers. Thus, the option

to transform VA from a provider to a purchaser of health care would not necessarily have a significant positive impact on access.

B.1.2   Recommendations

Based on the findings of Assessment B, we make several recommendations to improve access to care for Veterans:

Use a systematic, continuous performance improvement process to improve access to care. Although many VA facilities achieve very high levels of performance on key access and quality measures, there is also a great deal of variation across the system. A systematic effort is needed to identify unwarranted variation, identify and develop best practices to improve performance, and embed these practices into routine use across the VA system. Some of the best solutions may be developed locally to reflect local needs and contexts. Solutions should be designed to be responsive to Veterans' preferences, needs, and values.

Consider alternative standards of timely access to care. Timeliness standards should be reexamined. VA should examine the utility of existing alternative benchmarks, such as same-day availability or the third next available appointment. Access standards for other dimensions, such as cultural access, should also be developed and used in performance monitoring and improvement. VA should develop methods to routinely compare the timeliness of VA care with non-VA benchmarks and publish these comparisons for transparency.

Develop and implement more sensitive standards of geographic access to care. VA should compare the "one-size-fits-all" approach of driving distance to alternative standards that are more sensitive to differences between Veteran subgroups, clinical populations, geographic regions, and individual facilities. This assessment highlighted the importance of time spent driving, mode of transportation, traffic, and availability of needed services as key considerations in assessing geographic access to care.

Continue moving toward using a smaller number of quality metrics in quality measurement and improvement activities. VA maintains an extensive set of quality measures. Although use of these measures has led to improvements in care, the proliferation of measures creates burdens on staff and resources and can lead to emphasis on the measures rather than improvement in areas of care that are more likely to improve patient outcomes. VA has already moved toward reporting systems that rely on a smaller number of measures, such as Strategic Analytics for Improvement and Learning (SAIL).[116]

Take significant steps to improve access to VA care. Our projections indicate that increases in both VA resources and the productivity of resources will be necessary to meet increases in demand for health care over the next five years. The options we considered that have the highest estimated potential impact are formalizing full nursing practice authority, increasing physician hiring, and increasing the use of virtual care. These are commonly proposed options for increasing access to VA care. In addition, new models of health care delivery are emerging

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[116] Although SAIL uses fewer measures to simplify reporting, they are composite measures which still incorporate numerous individual performance measures.

rapidly in the U.S. health care system that could improve access to care. VA should seek to be an early adopter of these new models and should build a strategy that enables and supports such innovation.

Establish VA as a leader and innovator in health care redesign. As a large integrated delivery system, VA is well-placed to innovate in comparison with many U.S. health care delivery systems. It should endeavor to maximize this opportunity, given the constraints associated with being a public entity (for example, hiring processes, salaries, budgeting). VA should also endeavor to learn from current leaders in areas where its leadership position has eroded, particularly in health IT, and seek to reestablish its leading position.

Streamline programs for providing access to purchased care and use them strategically to maximize access. Currently available programs are overlapping and confusing to Veterans and VA employees as well as non-VA providers. VA should clearly identify the objectives of purchased care access and streamline programs to meet those objectives.

Systematically study opportunities to improve access to high-quality care through use of purchased care. Some types of care may be more effectively and efficiently delivered by non-VA providers. Identification of these types of care and the impact of shifting care to non-VA providers requires an in-depth systematic analysis that was beyond the scope of this assessment.

Appendix C   Care Authorities

Scope

Assessment C examined the "authorities and mechanisms under which the Secretary may furnish hospital care, medical services, and other health care at non-Department facilities, including whether the Secretary should have the authority to furnish such care and services at such facilities through the completion of episodes of care." The Assessment C team reviewed the history of VA purchased care authorities and the programs through which VA has carried out these activities nationally and at the local level, related challenges and opportunities for VA purchased care in the future, and the ways in which varying definitions of "episodes of care" affect VA authorities and strategies for purchasing health care services.

Findings

VA has a complex set of authorities to purchase care, reflecting tension among implicit aims. Prior to the passage of the Veterans Choice Act in 2014, the Secretary of VA had longstanding authority to furnish purchased care if VHA facilities could not provide the needed services directly. Although the basic grant of authorities to the Secretary is expansive in some respects, it is not unlimited. It involves significant controls on when, how, and for whom medical care may be purchased. These controls implicitly reflect several competing aims beyond simply making outside care available, including restricting costs and maintaining a balance between VA's provider and payer functions. In sum, not only are VA's authorities for furnishing purchased care complex and scattered, but they also embody more than one aim, and those aims may operate partly in tension with each other.

The episode of care defines the "unit" of VA authorization and may help shape purchased care in practice. The authorities for purchasing care tie into "episodes" primarily through program requirements for authorization (for example, as specified under the Veterans Choice Act). However, in principle, an episode conceptually bounds a clinical problem for which a Veteran might require outside services, so it might therefore make sense to outsource care as a coherent "unit." Future refinements in defining episodes of care, and an authority framework that allows the Secretary to adopt such refinements, may be critical to supporting VA's adoption of bundled payment and value-based purchasing mechanisms in the future.

The purchased care landscape is in the midst of transformation. Numerous changes to VA's authorities and mechanisms for purchasing care are being proposed, planned, or implemented. These developments have included new administrative pilots for administering the Choice and Patient-Centered Community Care (PC3) initiatives, modifications to the eligibility criteria under Choice, revisions to VA's procurement authority for purchased care, the extension of the Choice program and reallocation of funding, and the consolidation of existing purchased care mechanisms and initiatives under a unified programmatic umbrella. With these facets of purchased care authorities and practice in flux, the full landscape of VA purchase care is not just complicated, but dynamically so. Moreover, while the proposed policy changes seek to address many different problems and issues, their sheer multiplicity suggests the drawbacks of a piecemeal approach to reform and the lack of guiding orientation and strategy for VA's purchased care enterprise as a whole.

Recommendations

VA and Congress should articulate a clear strategy governing the use of purchased care. Such a strategy should clearly explain how purchased care fits into VA's broader health care mission and establish benchmarks for success in the adoption of purchased care reforms. The strategy should provide structure for purchased care authorities and procedures, as well as flexibility to support surge needs and Veteran-centered care.

VA and Congress should address cost control explicitly and systematically to guide consistent utilization and decision-making. Existing purchased care authorities establish an indirect set of cost controls through a discretionary health benefit funded by annual appropriations. VA should address cost control in purchased care explicitly and directly through a rigorous performance evaluation of existing purchased care contracts, better and more systematic collection of data on purchased care costs, and stronger cost-control mechanisms, such as co-pays, deductibles, and utilization reviews.

VA should collect better data to accurately estimate the demand for and use of purchased care. VA lacks systematic data on various facets of purchased care, particularly at the local facility level. It needs a strong base of data and analysis to monitor purchased care costs and processes and improve outcomes for Veterans.

VA should develop a stronger program management structure for purchased care and allocate responsibility and authority to the most appropriate levels. For example, referrals should be managed locally, while large contracts (such as those under Choice and PC3) should be managed centrally. VA leadership should issue clear policy and procedural requirements while facilitating appropriate flexibility in the field at the local level.

VA should evaluate the third-party contractors administering its managed purchased care programs. As the PC3 and Choice programs are fully implemented and continue to grow, VA should establish an ongoing process for evaluating the performance of third-party administrators. It should also assess the adequacy of the provider networks, the efficiency of claims processing and other activities, and Veterans' experiences with the programs.

VA should develop clear, consistent guidance and training on its authority to purchase care. VA should create a consolidated manual on purchased care, together with associated training and messaging that explains VHA's authority to purchase care and clarifies eligibility standards and processes.

VA purchased care contracts should include requirements for data sharing, quality monitoring, and care coordination. In its contracts with outside providers and third-party administrators, VA should require routine reporting of quality measures to ensure that the quality of care Veterans receive through non-VA providers is equivalent to the quality of care offered by VA. Such contracts should also include provisions for how non-VA providers will communicate and coordinate with VA counterparts.

VA should consider adopting innovative, but tested, ways to purchase care. TRICARE and Medicare offer useful lessons in how to purchase care. VA should incorporate some of these

strategies, including outsourcing administrative functions and offering performance incentives to contractors.

VA and Congress should eliminate inconsistencies in current authorities and provide VHA with more flexibility to implement a purchased care strategy. There are several points of tension and confusion within existing authorities, including inconsistencies in standards for episodes of care, the subjective nature of some elements of 38 U.S.C. 1703 (the core statutory authority for VA purchased care), different definitions of geographic inaccessibility and wait times, and conflict between the language and intent of the rule specifying that the Choice program can be used if there is not a VA facility within 40 miles of the Veteran's residence. Congress and VA should also consider the more ambitious step of simplifying purchased care authorities and mechanisms generally, by seeking to consolidate and harmonize them. At least in principle, such a step could help reduce the complexity and ambiguity now associated with purchased care authorities and mechanisms.

VA and Congress should revise the definition of episode of care to better accommodate Veterans' needs. Under the Veterans Choice Act, VA must allow Veterans who use the Choice program to seek outside services through the completion of an episode of care, "but for a period not in excess of 60 days." The legal requirement for a fixed-term reauthorization of an episode runs contrary to evolving clinical practice and standards in the broader health care sector. A revision of this authority would improve monitoring of episodes of care and reduce the administrative burden on VA staff and Veterans.

VA and Congress should adopt a consistent strategy for setting reimbursement rates across purchased care initiatives. Such a strategy should balance cost and access considerations. In setting reimbursement rates, VA mechanisms and contracts for purchasing care should reflect the reality of local competitive market conditions.

The complete Assessment C report is available in Volume II.

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Appendix D   Access Standards

Scope

Assessment D responded to language in Title II, Section 201, of the Veterans Choice Act of 2014 that mandated an independent assessment of "the appropriate system-wide access standard applicable to hospital care, medical services, and other health care furnished by and through the Department, including an identification of appropriate access standards for each individual specialty and post-care rehabilitation."

To address the requests in Assessment D, the Department of Veterans Affairs, Veterans Health Administration contracted the Institute of Medicine (IOM). The IOM formed an ad hoc Committee and instructed it to conduct a study and prepare a report directed at exploring appropriate access standards for the triage and scheduling of health care services for ambulatory and rehabilitative care settings to best match the acuity and nature of patient conditions.

Convened at the request of VA/VHA, the committee was charged with the following tasks: (1) review the literature assessing the issues, patterns, standards, challenges, and strategies for scheduling timely health care appointments; (2) characterize the variability in need profiles and the implications for the timing in scheduling protocols; (3) identify organizations with particular experience and expertise in demonstrating best practices for optimizing the timeliness of scheduling matched to patient need and avoiding unnecessary delays in delivery of needed health care; (4) consider mandates and guidance from relevant legislative processes, review wait time proposals from the VA/VHA Leading Access and Scheduling Initiative, and evaluate all evidence indicated above, along with input and comment from others in the field; (5) organize a public workshop of experts from relevant sectors to inform the committee on the evidence of best practices, their experience with acuity-specifics standards, and the issues to be considered in applying the standards in various health care settings; and (6) issue findings, conclusions, and recommendations for development, testing, and implementation of standards, and the continuous improvement of their application. Throughout its work, the committee has been guided by its view that health care must always be patient and family-centered and implemented as a goal oriented partnership.

To do so, the committee:

1. Reviewed the literature assessing the issues, patterns, standards, challenges, and strategies for scheduling timely health care appointments

2. Characterized the variability in need profiles and the implications for the timing in scheduling protocols

3. Identified organizations with particular experience and expertise in demonstrating best practices for optimizing the timeliness of scheduling matched to patient need and avoiding unnecessary delays in delivery of needed health care

4. Organized and held a public workshop of experts from relevant sectors to inform the committee on the evidence of best practices, their experience with acuity-specific

standards, and the issues to be considered in applying the standards under various circumstances

5. Issued findings, conclusions, and recommendations for development, testing, and implementation of standards, and the continuous improvement of their application.

In the course of its work, the committee considered mandates and guidance from relevant legislative processes, reviewed VA wait time proposals from the Leading Access and Scheduling Initiative, and evaluated all evidence indicated above, along with input and comment from others in the field.

Findings

The committee summarized its findings as follows:

- **Variability**: Timeliness in providing access to health care varies widely.
- **Consequences**: Delays in access to health care have multiple consequences, including negative effects on health outcomes, patient satisfaction with care, health care utilization, and organizational reputation.
- **Contributors**: Delays in access to health care have multiple causes, including mismatched supply and demand, a provider-focused approach to scheduling, outmoded workforce and care supply models, priority-based queues, care complexity, reimbursement complexity, financial barriers, and geographic barriers.
- **Systems strategies:** Although not common practice, immediate engagement for patients is achievable through queue streamlining and related systems strategies to access and scheduling.
- **Supply and demand:** Continuous assessment, monitoring, and realigning of supply and demand are basic requirements for improving health care access.
- **Reframing:** Alternatives to in-office physician visits, including the use of non-physician clinicians and technology-mediated consultations, can often meet patient needs.
- **Standards:** Standardized measures and benchmarks for timely access to health care are needed for reliable assessment and improvement of health care scheduling.
- **Evidence:** Available evidence is very limited on which to provide setting-specific guidance on care timeliness.
- **Best Practices:** Emerging best practices have improved health care access and scheduling in various locations and serve as promising bases for research, validation, and implementation.
- **Leadership:** Leadership at every level of the health care delivery system is essential to steward and sustain cultural and operational changes needed to reduce wait times.

In addition to the significant variability in wait times among care settings, among specialties, and over time, there is a lack of national standards and benchmarks for appropriate wait times. While references to timely care appear regularly in legislative proposals, a prevailing definition of timeliness has not yet emerged. While national standards for access and wait-times do not presently exist, the committee did also identify examples of organization-specific benchmarks

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within various health care settings. For example, some organizations set internal benchmarks of same-or next-day engagement for new and returning patients in primary care (Southcentral Foundation's Alaska Native Medical Center) or first time appointments of newly diagnosed cancer patients (Dana- Farber/Brigham and Women's Cancer Center in Boston); internal benchmarks guide door to provider times within emergency departments (Virginia Mason Hospital), wait times for specialty new visits (Cincinnati Children's Hospital), and primary care backup practices for urgent services (Tufts Health Plan Network Health). The Joint Commission has also developed standards pertaining to emergency department boarding times and hospital discharge risk assessments. Organization-specific benchmarks, such as these, serve as promising reference points for future research and validation.

Recommendations

The committee issued four recommendations for health care delivery systems leadership, leading to: 1) front-line scheduling practices anchored in the basic access principles, 2) governance commitment to leadership on basic access principles, 3) patient and family participation in designing and leading change, and 4) continuous assessment and adjustment at every care site.

Specifically, the committee recommended that:

1. The front-line scheduling practices of primary, specialty, hospital, and post-acute care appointments should be anchored in basic access principles, including: supply matched to projected demand, immediate engagement, patient preference, care tailored to need, surge contingencies, and continuous assessment.

2. The leadership and governing bodies at each level of the health care delivery sites should demonstrate commitment to implementing the basic access principles through visible and sustained direction, workflow and workforce adjustment, the continuous monitoring and reframing of supply and demand, the effective use of technology throughout care delivery, and the conduct of pilot improvement efforts.

3. Decisions involving designing and leading access assessment and reform should be informed by the participation of patients and their families. The potential ways that patients could provide their expertise through informal or formal channels (e.g., patient and family advisory councils, surveys, and focus groups) include contributing input on their expectations, experiences, and preferences for scheduling practices and wait times; helping representatives of health systems explore alternative access strategies; contributing to the design of pilot improvement efforts; helping to shape communication strategies; and interfacing with governance and leadership.

4. Care delivery sites should continuously assess and adjust the match between the demand for services and the organizational tools, personnel, and overall capacity available to meet the demand, including the use of alternate supply options such as alternate clinicians, telemedicine consults, patient portals, and web-based information services and protocols.

The complete Assessment D report is available in Volume II.

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Appendix E   Workflow – Scheduling

E.1   Scope

Health systems across the United States have struggled with ensuring optimal patient access to the services they provide, and VHA is no exception. Although the Veterans Health Administration (VHA) has faced public concerns about access to outpatient care for several decades, many factors that influence access have been only partially analyzed to date at VHA and were called out in the Choice Act as areas for independent assessment. The Choice Act tasked Assessment E with assessing "the workflow process at each medical facility of the Department for scheduling appointments for Veterans to receive care, medical services, or other health care from the Department." The assessment was also asked to address several supplemental areas related to provider scheduling templates, scheduler training, the use of call centers and the appointment scheduling system. All of these factors—as well as others explored in Choice Act assessments such as overall health care capabilities (Assessment B) and clinical staffing (Assessment G)—are critical to ensuring that our Veterans receive improved access to care. Volume II contains the full Assessment E report.

E.1.1   Findings

In this assessment, we have reviewed VHA performance in the scheduling workflow areas against best practices from both within VHA and across the private sector. The major finding of this assessment is that VHA is not fully leveraging provider resources, scheduling best practices, or scale to deliver the best possible scheduling experience and access for Veterans. These shortcomings have a negative impact on both patient access to outpatient appointments (in terms of total number of appointments available and the matching of patients to those available appointments) and the patient experience of scheduling an appointment with VHA. It is likely that, with improved data visibility, more streamlined processes and performance management, VHA could expand the supply of appointments even with its existing provider base, as well as improve overall utilization of appointment supply and patient experience.

More specifically, we observed the following challenges that reduce the overall effectiveness of VHA scheduling today:

- **System limitations prevent accurate visibility into the supply of available appointments, inhibiting VHA's ability to understand the gap between total appointment supply and demand and to effectively manage current performance and plan for the future**. Due to system design limitations, some providers operate across multiple, potentially overlapping, booking templates or "clinic profiles" for any given day or session. As a result, these profiles, when aggregated, provide an inaccurate picture of total available appointment supply and make it challenging to easily understand whether appointment supply matches the quantity VHA should expect given the number of providers. The issue of overlapping profiles not only affects centralized calculations of overall and provider-level appointment supply, but also makes it challenging to calculate provider utilization rate, which is an essential metric for

managing access to care. These limitations mean VHA cannot determine how much patient demand its current provider capacity can meet in a timely manner.

- **Imbalance between supply and demand has led to policies that add responsibilities for schedulers and administrators.** Because VHA has a persistent backlog of patient demand, VHA created additional policies that do not exist in the private sector, such as the capture of patient desired date and the use of the Electronic Wait List (EWL). These policies for measuring wait times and managing waitlists have resulted in a significant number of additional activities required within the scheduler's day-to-day workflow. Further, the implementation of these policies is left largely to frontline interpretation, which may also result in inconsistent experience for patients across clinics or facilities. For example, use of the EWL varies across clinics; some clinics use it solely to measure backlog while others use it to highlight patients who may be willing to take an appointment that becomes available at the last minute (Choice Act site visits, interviews 2015). Veterans may then experience variation in when they are removed from the waitlist depending on how their clinic has implemented EWL.

- **Clinics do not consistently employ standard industry practices related to schedule setup and other scheduling processes.** VHA clinics are inconsistent in their use of industry and VHA best practices in scheduling, resulting in a fewer appointment slots available than may be possible within existing provider capacity and a significant number of booked appointments not being completed as originally scheduled. On schedule setup, examples of these practices in common use in industry and within certain services (such as Primary Care) within VHA include using standard appointment lengths within a sub-specialty and determining appointment mix (for example, number of new patient slots) based on patient demand (Institute for Healthcare Improvement (IHI), "Reduce Scheduling Complexity," n.d.; Primary Care Clinic Profile Standardization Guide, 2014). Similarly, inconsistent scheduling practices, such as the ways in which appointment reminders are used, exist across facilities and clinics. For example, a patient could expect a reminder from a clinic and not receive it (and potentially not go to the appointment as a result). Ultimately, the variability in these practices may result in reduced appointment availability and utilization as well as inconsistent patient experience.

- **Facility-level differences in performance management and accountability limit system-wide improvements in access.** VHA facilities lack consistent organizational structures for managing scheduling or access and, in many cases, lack dedicated resources to manage performance and outcomes for these activities. Given structural differences, formal monitoring of schedules is not a clearly defined duty for any staff members at the facility level, which hinders cross-system sharing of best practices, policy dissemination, and process standardization. In addition, this lack of consistency in organizational structure and accountabilities limits VHA performance management of facilities, as no one individual is specifically accountable and data analysis is

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cumbersome.[117] The Veterans Choice Act (Section 303) identified this lack of accountability and aims to assign management of access responsibilities to a particular role within each clinic and to provide tools and processes to help perform this duty ("Veterans Access, Choice, and Accountability Act of 2014," 2014). VHA plans to fulfill this mandate without any new facility hires; instead, the organization will designate current FTEs as owners of these responsibilities at the clinic and facility levels (Access and Clinic Administration Program [ACAP], interviews, 2015).

- **VHA-specific processes paired with a scheduling system that does not simplify processes leads to a greater reported need for scheduler training**. In response to a survey, 90 percent of schedulers noted the need for additional training in at least one area (for example, wait times and wait list policies) to become proficient at executing their basic responsibilities (Assessment E VHA Employee Survey, 2015). This perceived need for enhanced training may be due to systems and processes that do not simplify scheduler responsibilities, a common focus among private sector health system executives we interviewed. For instance, scheduling systems of private sector health systems have more user-friendly interfaces, fewer unique programs, and more automated processes (Private sector health system, interviews, 2015). As a result of greater complexity, VHA schedulers must receive additional training (on wait times and wait list policies, for example) to become proficient at executing basic VHA scheduler responsibilities.

- **Scheduling call centers are not maximizing their performance due to their small scale and disparate service offerings.** VHA call centers are smaller than industry standard (median size of 12 agents within VHA compared to 28 agents in private sector health systems and 110 agents across other industries) (Assessment E national data call, 2015; Belfiore et al., 2015). The scheduling call centers that do exist provide different services and support different specialties depending on the facility. Due to efficiencies in managing call demand that can lead to service improvement for patients, other provider systems have, in some cases, moved to pooling call volumes in more central locations. Larger scale call centers can also have lower per-unit costs and put less stress on space-constrained facilities than facility- or clinic-based operations. Further, larger call centers may be able to offer more coaching, training and career options to schedulers.

E.1.2   Recommendations

VHA has received significant feedback on ways to improve its scheduling and access performance. In fact, since 1999, more than 35 reports by the Government Accountability Office, VA itself, VA Office of the Inspector General (OIG), and independent contractors have commented on possible approaches for VHA to improve scheduling and access. Despite the number of reviews, there has been little articulation of the fundamental need for VHA to solve its ability to manage provider appointment slot supply until the Institute of Medicine's February

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[117] For example, at present, there is no easy or automated way to consistently and accurately monitor provider schedules.

The views, opinions, and/or findings contained in this report are those of the assessment team and should not be construed as an official government position, policy, or decision.

2015 "Innovation and Best Practices in Health Care Scheduling" white paper, which recommended that VHA get "back to the basics" to understand provider supply vis-a-vis patient demand and ultimately design schedules that optimize the two. With the access crisis and subsequent Choice Act in 2014, VA/VHA have accelerated several efforts to address issues raised in past reports, including funding provider hiring and non-VA care, initiating the procurement of a commercial off-the-shelf (COTS) scheduling system referred to as the Medical Appointment Scheduling System (MASS), and designing a clinic manager training program to better manage the scheduling process. However, to drive overall improvement to scheduling and address the specific challenges described above, we recommend that VA and VHA successfully complete in-flight initiatives and consider additional actions, which would be most effective if executed in an integrated manner. These actions include the following:

- **Address system limitations to provide visibility into aggregate appointment supply, alternative measures of wait times, and provider-level performance data.** VHA providers can operate across multiple and sometimes overlapping clinic schedules (also known as "profiles"),[118] which can result in double-counting of appointment slots when aggregated. VHA has a current initiative to clean-up overlapping schedules and unused clinic profiles that should result in a more accurate view of each clinic's appointment slot supply. Although this is an important first step, the effort may not eliminate all overlap in schedules and will not by itself allow understanding of appointment supply and utilization. One consolidated schedule for each provider would allow VHA to capture total appointment supply and measure the industry-standard wait time metric. With VA OI&T's current procurement of a new scheduling system (discussed in detail in section 7, Scheduling System), VHA may be on the path to addressing system limitations. Of course, when updating or acquiring a system to support scheduling, it is important to understand the business case relative to modifying the existing system or locally sourcing solutions at the facility / regional level.

- **Codify proven scheduling practices and empower clinics to improve appointment utilization and deliver a consistent patient experience.** Several pockets of scheduling best practice exist within VHA, such as the predictive missed opportunity model. However, many of the best practice VHA tools and processes are not widely disseminated nor utilized. The VHA ACAP Office reported that it is beginning to codify system-wide knowledge of scheduling best practices, but there is also an opportunity to ensure that these practices are consistently utilized in the field (ACAP, interviews, 2015). This will require addressing the lack of clinic management resourcing, addressing scheduler vacancies and ensuring that providers have an understanding of why certain practices (for example, overbooking) may be necessary to provide access.

- **Streamline scheduling policy implementation with supporting tools and implementation guidance; where possible, utilize technology to support.** The current Scheduling Directive policy is designed to aid VHA facilities in managing in an environment of excess demand relative to the appointment supply it is offering. This has

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[118] Described in Provider Availability Section 5 of this report

resulted in policy steps, such as wait time capture and wait list management being added to the scheduling process, which can result in inconsistent patient experience due to discrepancies in policy interpretation and implementation in the field. For instance, to adhere to the policy regarding the Electronic Wait List, the scheduler will place a patient scheduled outside of 90 days on a wait list, an additional step in the scheduling process (Choice Act site visits, interviews, 2015). Further, while the EWL prioritizes Veterans to be scheduled based on policy, schedulers can find it challenging to use the list in conjunction with other policies (e.g., how many times the patient should be called before moving to the next patient on the list). In contrast, an ideal system would automatically place relevant patients on the EWL, provide a manager with a comprehensive dashboard for monitoring the waitlist demand, and prioritize which patients should get the first available appointments based on additional parameters. As a result, these changes would improve schedulers' efficiency and improve consistency of policy implementation.

- **Improve scheduler training by sharing local best practices and increasing experiential and on-the-job training, while also minimizing the need for training by simplifying policy implementation and improving system functionality.** Currently VHA's need for scheduler training is exacerbated by its scheduling software, policies (like EWL), and clinic- and provider-specific scheduling rules. Improvements to the scheduling systems, streamlining policy implementation, and minimizing unnecessary clinic-specific rules would reduce demands for schedulers' training and create more consistent patient scheduling experience. To optimize its training program, VHA should also leverage local best practices to create an improved and standardized curriculum for training and minimize duplication of materials development at the facility-level. In addition, training should be delivered using more experiential training methods to increase its effectiveness and information retention by schedulers.

- **Design scheduling call centers that can provide expanded services for Veterans relative to current state.** Currently, VHA scheduling call centers are managed locally at the facility level. As a result, most are small (median size of 12 schedulers, based on facilities that responded to our data call) and each call center varies in regards to the responsibilities and specialties for which it is responsible (Assessment E national data call, 2015). Decentralized call centers are difficult to centrally monitor and manage with regards to patient experience. Through the new myVA effort, the organization is examining how it interacts with Veterans across various channels (such as, web, call centers, mail). This includes a VA-wide Call Center Task Force that may ultimately address scheduling; however, the scope does not yet appear to be clearly defined. VA has an opportunity to evaluate its current call center use for scheduling and develop an approach based on existing VHA call centers in other areas (like Health Resource Centers) and leading private sector scheduling call centers. VHA can then evaluate which responsibilities and specialties should be handled at larger scheduling call centers. Additionally, VHA should analyze the appropriate degree of centralization (for example, regional or virtual call center) and the call center locations.

- **Ensure that the clinic manager training program and subsequent implementation are appropriately scoped and resourced to drive access and clinic management.** Different roles, accountabilities and levels of expertise exist across facilities for managing access and scheduling, which affects how access and scheduling is managed and prioritized at different facilities. Via the Choice Act, VHA was directed to develop a clinic management training program to address these gaps within the system. While many important scheduling functions are reported to be addressed in the training curriculum as it is currently envisioned, resourcing and accountability for these activities will be equally important in ensuring that VHA is able to fully utilize its provider capacity and the appointment supply made available to Veterans. Further, tools need to be developed and distributed to ensure that these new clinic managers are successful.

Despite many of its broader organizational and operational challenges, VHA can leverage multiple positive aspects of its current scheduling and access management practices in the future. For instance, VHA's scheduling policy has created the mechanism to identify potential supply-demand imbalances by tracking patients waiting for care at the clinic level. Similarly, VHA's efforts to encourage patient appointment adherence through a multi-pronged patient reminder approach, coordination of transportation and efforts to coordinate multiple services, where possible, demonstrate a commitment to supporting Veterans receiving care. Additionally, locally developed scheduling innovations demonstrate the potential for new scheduling tools and practices within the organization. For example, several VA Medical Centers (VAMCs) have developed home-grown "best practice" tools, including the predictive missed opportunity model, aggregated views of provider availability, and facility-centralized patient reminder systems across multiple modalities. In addition, VHA can build on its early efforts to modernize its patient-facing scheduling capabilities, such as online self-scheduling. This foundation suggests that VHA can draw on experience and assets within the organization, as well as on external best practices, to improve its scheduling processes.

In summary, if VA / VHA were to continue to build on existing assets, execute on its in-flight initiatives and supplement them by executing on the recommendations above, it may be able to offer a more consistent experience across clinics and facilities, expand appointment supply with existing provider resources and ensure better utilization of its supply. The impact of this for Veterans could come in the form of both improved experience and improved access.

Appendix F   Workflow – Clinical

F.1   Scope

Assessment F (Inpatient Clinical Workflow), Section 201 of the Veterans Access, Choice, and Accountability Act of 2014 ("The Choice Act") mandates an assessment of the "organization, workflow processes, and tools used by the Department to support clinical staffing, access to care, effective length-of-stay management and care transitions, positive patient experience, accurate documentation, and subsequent coding of inpatient services." Pursuant to this language, Assessment F focused on the organization, workflow processes, and tools (i.e., structural components and approaches) in place within acute care hospitals to facilitate the five identified sub-assessments as both individual components as well as part of the interdependent continuum of inpatient care. Comparison of current VHA practices to accepted best practices (drawn from literature and professional associations), as well as standard practices (drawn from public and private sector benchmarks) provided insight into alternative approaches and recommendations. While selected performance outcomes were used to prioritize areas of focus, a complete analysis of clinical, performance, operational, or other outcomes associated with the employed approaches was not in scope for this assessment. Volume II contains the full Assessment F report.

F.1.1   Findings

Our assessment identified both cross-cutting strengths and opportunities for improvement as well as findings and recommendations specific to each of the five sub-assessment areas reviewed.

F.1.1.1   CROSS-CUTTING FINDINGS

We observed three common themes supported by findings across sub-assessment areas.

- **Ineffective data collection and management drives a lack of transparency into many key aspects of clinical operations, hindering VHA's ability to effectively manage inpatient care**. Despite having a well-regarded EMR system and the capability of tracking extensive clinical data, poor data collection and management of operational metrics was a consistent theme heard during site visits. Furthermore, it was clearly evident from our central and local requests for specific information. Data that is standard in private sector hospitals was frequently inaccessible in a timely manner or not tracked in a usable format by VHA. For example, VHA FTE and payroll data includes information by clinical occupation but not by department, which prevented planned analysis of the appropriateness of staffing, since needed staffing levels vary considerably by department (e.g., the ICU requires more concentrated nursing attention than med/surg floors; see Volume II, Assessment F, Section 5 for more detail). We observed data integrity and availability issues significantly affecting VHA's visibility into clinical operations in four of our five sub-assessment areas and believe that this likely affects VHA's ability to manage operations at the local and national levels.

- **VHA resources (e.g., staff, beds) do not always match Veterans' care needs.** The practical allocation and prioritization of resources across the VHA system may not be consistently aligned to meeting the broader health needs of the Veteran patient population. Mis-match of resources to patient care needs manifests itself in three ways: hiring that does not consistently match staffing needs; allocation of staff to tours ("shift") that do not consistently match Veteran demand; and limited access to appropriate outpatient and post-/sub- acute care options. An example of the impact limited outpatient and post-acute care options has on Veterans can be seen in the abundance of inpatient admissions and continued stays that do not meet acute care admissions or continued stay criteria. National Utilization Management (NUMI) data[119] indicates that 23 percent of inpatient admissions (see Volume II, Assessment F, Section 6 for more detail) and 34 percent of inpatient stays overall do not meet admission and continued stay criteria (see Volume II, Assessment F, Section 7 for more detail). Many are admitted to, or remained in the hospital, due to challenges in accessing the appropriate level or type of care (e.g., primary care, detoxification center, post-acute rehabilitation). The disconnect between resources and demand has clear implications on VHA's ability to effectively and efficiently provide the care needed to improve the health and well-being of Veterans.

- **While best practices exist in selected pockets, communication and support for implementation at scale appears to be a challenge**. Our site visits revealed several clear best practices in place at various VAMCs; however, adoption of these practices was isolated even within the facility. Case studies of particularly strong programs are included in all sub-assessments. Despite successfully adopting best practices in some units, however, facilities appeared to struggle to implement programs house-wide. Moreover, information-sharing between VAMCs appears to be limited and ad hoc. As one Assistant Director of Patient Care Services described, "I'm shameless about stealing what works at other places, the problem is, I don't know what other places are doing. We need a way to connect, to learn from each other"[120]. This sentiment was echoed by many staff across all of the facilities we visited.

SUB-ASSESSMENT FINDINGS

In addition to the broad cross-cutting findings, a review of each sub-assessment identified specific strengths and opportunities for improvement within their areas of focus.

- **Clinical staffing:** Siloed resource management (e.g., limited coordination across service lines on FTE requests), poor data management, and limited guidance on staffing methodology result in staffing practices that are seldom evidence-based, outside of a few best practice areas (such as nursing). This prevents VHA from knowing whether staffing

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[119] NUMI (National Utilization Management Integration): supports national utilization management agenda by providing a common tool for tracking performance on utilization management metrics across facilities

[120] Facility interview

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allocations are appropriate. Furthermore lengthy hiring timelines and inconsistent alignment of staff to patient care needs have downstream implications.

- **Access:** Best practices exist at disparate facilities however, their lack of systemic adoption combined with an inaccurate understanding of patient demand and available capacity and inconsistent admission and bed assignment practices hinder inpatient access.

- **Length-of-stay and care transitions:** National efforts to improve length-of-stay have been hampered by challenges meeting discharge needs of patients requiring specialized post-acute care (e.g., homeless, psychiatric diagnoses), inefficiencies in care delivery practices (e.g., limited availability of weekend consults), and inconsistent approaches to discharge planning often delay care transitions and discharge beyond private sector benchmarks.

- **Patient experience:** Best practice innovations are evident at the national and local levels, but challenges with patient satisfaction data transparency and national implementation support limit system-wide adoption.

- **Documentation and coding:** Limited understanding by providers and coders of the link between coding and resource allocation, coupled with limited performance management, likely contribute to sub-optimal documentation practices yielding lost revenues and misaligned resources. Despite these challenges, coding performance is a relative strength and comparable with industry standards.

F.1.2   Recommendations

Across sub-assessments, our recommendations also fall under three major themes:

- **Improve clinical management through establishing clear operational metrics, and streamlining data collection focused on clinical priorities, monitoring, and performance management**. Appropriately defining standards for high performance and having accurate information on how departments and facilities measure against defined targets is the foundation of managing operations. Site visits, data analysis, and comparison against best and standard practices suggest that VHA lacks such visibility into clinical operations, significantly reducing its ability to address challenges and innovate (see Volume II, Assessment F, Section 3.1). We believe that improving transparency is critical to ensuring effective, timely, and efficient delivery of care to Veterans, across many of our sub-assessment areas. In part, transparency could be improved through enhanced data management, meaning both better data integrity and sharper focus on a targeted set of key metrics needed to assess performance. Equally important, VHA should ensure that facilities have clear operational guidelines on how to set and track appropriate performance goals (e.g., by providing comprehensive staffing methodologies for service lines with no national guidance).

- **Realign resourcing (for example, staff, facilities) to allow VHA to serve patients at the appropriate level of care (such as, increase Veteran access to sub-acute and post-acute care to reduce clinically inappropriate admissions and prolongation of acute inpatient stays)**. We observed many instances in which VHA resources were not appropriately matched to patient demand. As described in Volume II, Assessment F, Section 3.2, there is a disconnect between resources and demand in delayed hiring of staff needed to

The views, opinions, and/or findings contained in this report are those of the assessment team and should not be construed as an official government position, policy, or decision.

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support patient care, mis-allocation of staff to tours (i.e., shifts), and limited outpatient and post-acute care options needed to ensure treatment at the appropriate level of care. In order to provide high quality care that promotes the health and well-being of Veterans in a cost efficient manner, VHA should ensure that resourcing allows the system to serve patients at the appropriate level of care. Broadly, we see three categories of changes that could help effect this recommendation: improve hiring, allocate staff to match patient demand (e.g., align that staffing on weekend, holiday, and evening hours is sufficient to meet patient need), and increase access to outpatient and post-acute care options.

- **Scale existing best practices and support further innovation at the local and national levels.** A consistent theme during our site visits and interviews was that the opportunity to build off of existing strengths within the system was encumbered by limited sharing of best practices across VAMCs (see Volume II, Assessment F, Section 3.3). In instances where best practices have been developed nationally, challenges appear to exist due to unclear guidance on implementation, occasional flaws in the design of programs, and lack of VAMC adoption. In instances where best practices have been developed locally, scaling seems to be inhibited by limited infrastructure for information-sharing and lack of resources. To address both sets of challenges and fully leverage and build off of institutional strengths, we suggest improving practices through a combination of targeted national guidance (e.g., streamline Veteran-centered care initiatives and mandates) and nationally-supported local best practice-sharing and innovation (e.g., build infrastructure to promote cross-facility sharing of patient flow best practices).

Several recommendations will require national coordination, while others could be implemented in the near-term at the facility level. We have provided additional tactical steps, titled near-term actions, for associated recommendations at the sub-assessment level and encourage facilities to review these and take action quickly at the local level where appropriate. Additionally, several pre-conditions for implementation (see Section II, Assessment F, Section 4.2.1) have been identified for prioritization by Congress and VACO to support a successful and sustainable system-wide transformation.

Implementing solutions to long-standing challenges will require collaboration among Congress and the Executive Branch, VA leadership (VACO, VISN, and VAMC) and staff, as well as the unions and external stakeholders. We see this assessment as an opportunity for improvement, to be achieved by all stakeholders through a combination of local, regional, and national action. Addressing these challenges will require sustained commitment as a part of an integrated transformation effort for the system as a whole.

Appendix G   Staffing/Productivity

Scope

Assessment G (Staffing/Productivity) examined "the staffing level at each medical facility of the Department and the productivity of each health care provider at such medical facility, compared with health care industry performance metrics, which may include an assessment of the case load and number of patients treated by each health care provider, time spent by health providers on matters other than caseload, including time spent at an affiliate, conducting research, training or supervising other health care professionals of the department."

Findings

The Assessment G team had several key findings and observations pertaining to the core assessment objectives: staffing, productivity, and time allocation.

The Assessment G team analyzed VHA provider staffing levels and compared them to the private sector (using physician per population ratio industry comparisons) and identified some of the challenges VHA faces in ensuring it has sufficient providers to meet demand. With respect to provider staffing levels, the Assessment G team found that:

- **VHA specialties with the highest provider full time equivalent (FTE) levels include medicine specialties, mental health, and primary care, consistent with VHA's care model and the needs of the Veteran population**. Social Workers also represent a significant portion of provider FTEs. VHA does not systematically track fee-basis provider productivity, and does not capture FTE level information for fee-basis care providers.

- **VHA physician staffing levels per population are, in most specialties, lower than industry ratios**. These ratios are not sufficient to establish whether VHA is staffed to meet demand. One factor to consider is that even industry physician supply is not sufficient to meet demand in many specialties. Another factor to consider is that VHA uses Advanced Practice Providers (APPs) extensively, but APPs are not included in industry ratios.

The Assessment G team also assessed the productivity of VHA providers in comparison to providers in the private sector. With respect to provider productivity, the Assessment G team found that:

- **VHA measures the performance of its primary care providers (PCPs) using panel size.** VHA calculates a modeled panel size for providers based on a variety of factors at each facility. The model was developed based on research into the appropriate panel size for the unique needs of Veterans.

- **In accordance with policy, VHA facilities establish a maximum panel size for each primary care provider which is often lower than the modeled panel size.** The maximum figure takes into account specialized panel needs (for example, a geriatric population) and other factors deemed appropriate by the facility.

- **The actual panel size of VHA primary care providers is lower than internal and external benchmarks.** The actual panel size for VHA general practice physicians is 13 percent

below the VHA modeled panel size, 12 percent below the external benchmark, and 5 percent below the facility maximum.

- **When compared to the private sector using wRVUs, there is a productivity gap in VHA specialty care**. When encounters (visits) are used as a measure, the gap shrinks and VHA specialty care compares more favorably to the private sector. VHA mental health providers are more productive than academic medical center (American Medical Group Management Association [AMGMA]) benchmarks, as measured by both wRVUs and encounters.

- **Overall, VHA specialty care providers are producing fewer wRVUs than private sector benchmarks; however, VHA specialty care providers at the highest complexity facilities are more productive than their peers**. Further, the most productive VHA providers (those at the 75th percentile of VHA providers) are often more productive than the private sector.

- **Productivity and access are important measures in population based health models like VHA that focus on patient outcomes, rather than volume**. VHA's Office of Productivity, Efficiency, and Staffing (OPES) reports on productivity and access offer tools for use by medical facilities. With some improvements to expedite adoption and regular use by medical centers, these tools could become key resources in optimizing productivity and maximizing access to care.

- **VHA dentists see fewer patients on average than private sector benchmarks, but serve a population with special needs**. The dentistry patient population of VHA generally has a compensable service-connected dental disability, is older, has more complex injuries, and may present for dental care following years of dental neglect.

The Assessment G team identified several barriers which limit provider productivity and may explain the differences between VHA provider productivity and that of the private sector, especially in specialty care. These include:

- A shortage of examination rooms and poor configuration of space

- Insufficient clinical and administrative support staff ratios

- Providers may not fully document and accurately code all of their clinical workload, which may impact the accuracy of wRVU productivity measurement

We noted the insufficient clinical and administrative support staff ratios as a key barrier to optimizing productivity and studied this more closely. More specifically, we found that:

- While there has been widespread implementation of the Patient Aligned Care Team (PACT) model in primary care clinics and the National Nurse Staffing Methodology in many areas of inpatient care, **there are no current VHA standards for staffing levels and/or mix in specialty clinics**, with the exception of eye clinics. Furthermore, VHA OPES has developed state of the art tools for managing staffing and productivity, but these tools will require improvements for leaders to more effectively leverage them in resource decisions.

- **Organizational siloes and separate reporting lines exist for physicians, nurses and medical service administrators at a majority of VA Medical Centers** (VAMCs). As a result, service chiefs do not have control over the resourcing and performance of their clinical support staff (nurses) or clerical and administrative support staff.

- **Many facilities do not have a centralized staffing office or nurse float pool to address daily staff variances or absences.**

With respect to how providers spend their time, the Assessment G Team observed that:

- **VHA physicians spend a comparable proportion of total time devoted to clinical activities as private sector physicians.** There is some potential difference in the definition of direct patient care used by the private sector, specifically with respect to training, teaching and research, but we believe this represents only a small proportion of a provider's direct patient care time.

- **Across all VHA providers, less than two percent of time is devoted to research.** Since provider time spent devoted to clinical care activities is comparable to the private sector, it does not appear that research activities reduce providers' time spent treating patients. Despite the overall low proportion of time spent on research, the accomplishments of VHA's research program, and contributions to advancing care for Veterans, are numerous.

Recommendations

Taking the above findings into consideration, the Assessment G Team offers five cross-cutting recommendations:

VHA should improve staffing models and performance measurement. VHA should conduct an evaluation of the design and implementation of current VHA staffing models to determine the extent to which they are sufficient to meet the goals of VHA's population health focused model and ensure all eligible Veterans have access to high quality, timely care. VHA should conduct a program review of the implementation of the PACT staffing model in primary care to identify the causes of the gaps between actual, facility maximum, modeled and external benchmarks, the impacts of these performance gaps on access to quality care, the appropriateness of current guidelines and performance standards, and determine areas for improvement. VHA should develop and implement staffing models for outpatient specialty care services and improve existing performance measurement systems to realize the benefits of specialty care staffing models. VHA should refine and implement the National Nurse Staffing Methodology across inpatient services and improve the performance measurement system to realize the benefits of the methodology. We further recommend that VHA mandate all VAMCs adopt and report nursing quality metrics to a national database to compare VHA to other external health organizations.

To improve staffing and productivity measurement and better determine the capacity of VHA specialty clinics, this assessment recommends that VHA gather data and assess the productivity of fee-based providers, as well as conduct a work measurement study (or confirm existing workload data) to determine the volume and distribution of workload annually to better match staffing requirements to demand. For future reporting, OPES should complete the development

of the APP productivity cube, to include completion of business rules that would allow APPs to be mapped to a specialty designation and included in OPES specialty group practice and facility productivity reports to accurately reflect care teams' overall effort and present a combined provider (doctor of medicine [MD] and APP) productivity view.

VAMCs should create the role of clinic manager and drive more coordination and integration among providers and support staff. We identify recommendations for increasing the level of teamwork and accountability among all outpatient clinic staff, especially in specialty care services. This might be achieved by creating multidisciplinary management teams for specialty clinics that include a physician leader, nurse leader, and business administrator. Alternatively, specialty clinics might establish a single or dual reporting line and operating a model for providers and their clinical and non-clinical support staff, so that all of the members of the specialty clinic team have more accountability to each other and the Service Chief of the specialty.

VA Medical Centers should implement strategies for improving management of daily staff variances, and include a replacement factor for all specialties, including PACT. With respect to managing staff absences, we make recommendations for improving the management of daily staffing variances by implementing several strategies that include intermittent float pools of support staff and the inclusion of a replacement factor across all staffing methodologies/models, to include PACT.

VA Medical Centers should implement local best practices that mitigate space shortages within specialty clinics. We identify recommendations to help VA medical facilities mitigate space shortages within specialty clinics. These include strategies such as: standardized schedule templates, expanded clinic hours, increased use of non-face-to-face encounters for follow-up consults by specialty care, and system redesign initiatives to improve patient flow within clinics.

VHA should improve the accuracy of workload capture. We recommend that VHA conduct an audit of health record documentation and current procedural terminology (CPT®) coding accuracy and reliability to validate physician productivity measurement and that if the results support it, evaluate the ability of commercially available computer assisted coding (CAC) applications to assist providers with coding. The creation of the role of clinic manager for Specialty Care clinics should also be used to improve clinic management and coding practices.

Appendix H   Health Information Technology

Scope

Assessment H responded to language in Title II, Section 201, of the Veterans Choice Act of 2014 that mandated an independent assessment of "the information technology strategies of the Department with respect to furnishing and managing health care, including an identification of any weaknesses and opportunities with respect to the technology used by the Department, especially those strategies with respect to clinical documentation of episodes of hospital care, medical services, and other health care, including any clinical images and associated textual reports, furnished by the Department in Department or non-Department facilities." The recognition that Veteran health and satisfaction constitute important measures of information technology (IT) effectiveness guided the assessment team's investigations and the resulting recommendations.

To gain comprehensive insight into Department of Veterans Affairs (VA) health IT and the strategies that guide its implementation, the Assessment H team conducted 185 interviews in the course of site visits to Veterans Integrated Service Networks (VISNs), VA Medical Centers (VAMCs), and Community Based Outpatient Clinics (CBOCs), as well as VA's Office of Information and Technology (OI&T). The team also reviewed plans, reports, audits, and protocols procured from OI&T and VHA, as well as external reports and journal articles relevant to health IT and complex system development. Further, the team compared its observations and findings against lessons learned and best practices identified by executives, administrators, clinicians, and IT professionals at high-performing private health systems. Because IT touches nearly every aspect of operations at VHA, the data gathered by Assessment H generally supports the qualitative evidence related to IT collected by the other assessments.

Findings

Several decades ago VA led the development of electronic health record (EHR) technology with its Veterans Health Information Systems and Technology Architecture (VistA) system and Computerized Patient Record System (CPRS) systems. Most VHA clinicians have a high opinion of the clinical applications and databases enabled by VistA and CPRS, as well as VA's newer technologies such as telehealth and mobile applications (apps). Several Assessment H interviewees attributed the success of the early VistA and CPRS development efforts to the close working relationship between VistA/CPRS developers and clinicians. This collaboration seems to have disappeared with the centralization of IT in 2006, resulting in uncoordinated execution of health IT strategy and limited development of new and improved capabilities for VistA/CPRS. During the past decade, VistA and CPRS development has been confined to point solutions and minor enhancements.

Clinical users have become increasingly frustrated by the lack of any clear advances during the past decade. Numerous VHA clinicians have experience with commercial EHR systems and want the same level of features, modern clinical capabilities, integration, and mobility they see emerging in the commercial marketplace.

VHA and OI&T do not collaborate effectively with respect to the planning and execution of IT strategies for managing and furnishing health care. Although the goals of OI&T and VHA do not conflict at the strategic planning level, the organizations often do not agree on priorities for executing the strategic plans.

During the past decade, VA's ability to deliver new capabilities for its VistA system to meet changing Veteran health care needs has stalled. As a result, VA/VHA health care systems are in danger of becoming obsolete. The VistA/CPRS systems are based on a tightly integrated, monolithic architecture and design with numerous and diverse functional components and associated interdependencies. These characteristics impose significant barriers to modernizing these systems. In addition, the high cost of infrastructure operation and maintenance (85 percent of the total IT budget) reduces funding available for new development efforts. Maintenance and data sharing are further complicated because most VAMCs have customized their local versions of VistA, leading to approximately 130 different instances of VistA across the country.

Overly demanding processes for system development, as defined by OI&T's Project Management Accountability System (PMAS), impede cost-effective delivery of new health IT capabilities and limit VA's ability to measure the value of IT investments. The PMAS process is schedule driven and risk averse, leading many project managers to limit the amount of functionality in each release, thereby increasing the total time for any useful capability to be released.

The lack of standard clinical documentation has made it harder to develop effective clinical decision support systems and hinders EHR information exchange among VAMCs, between VA and non-VA facilities (including those of the Department of Defense [DoD]), and between VA and the individual Veteran. The lack of data standards presents challenges to using comparable data for analysis and disparities among the 130 tailored local instances of VistA complicating information sharing, data aggregation, and analytics. The outdated technology underlying VistA weakens VHA's ability to leverage powerful new technologies for extracting information from free-form text, processing genomic data and images, and extracting and analyzing data from personal health monitoring devices.

While VA has successfully developed and deployed telehealth capabilities and mobile apps, it does not effectively assist end users of these technologies and it does not match the pace of the commercial marketplace. VA's support for telehealth users (patients and clinicians) is weak, understaffed, and poorly integrated with IT systems. In addition, barriers associated with providing VISN-to-VISN telehealth make optimizing the caseload across VISNs more difficult, creating unnecessarily long waits for care in certain regions. VA has the opportunity to apply mobile technology at a low price point, but until VA improves its IT development process to emphasize delivery instead of process, it cannot match the pace of the commercial marketplace with respect to delivery and improvement of mobile apps. These limitations prevent VA from realizing the strategic value of mobile technologies as an enabler of both Veteran access and Veteran satisfaction.

Recommendations

VA/VHA must resolve IT challenges comprehensively, targeting solutions to the entire system rather than seeking to solve isolated problems. To their credit, many leaders within OI&T and VHA, as well as administrators, health information management and IT professionals, and users at the facility level, recognize the need to address these issues. This report describes a future vision for VA/VHA as a high-performing health care system and a continuously learning health system that implements enterprise IT service management best practices.

At the strategic level, VA and VHA need to transform IT strategy, planning, and execution in a systematic manner with dedicated executive-level leadership. Specifically:

The VA chief information officer (CIO) should select a CIO for VHA to manage and advocate for VHA's IT needs and assist in transforming the VA IT strategy to a model based on enterprise IT service model standards and best practices. This involves taking the following actions, explained in more detail in this report:

- Establish mutually acceptable IT service level agreements and optimize them for effectiveness.
- Refine the planning and budgeting process to ensure that business needs are effectively identified, prioritized, funded, and used to drive health IT investments.
- Develop a governance policy to ensure the strategic plans are executed well and in a timely manner.
- Establish product (capability)-focused teams to ensure delivery of needed capabilities to users.
- Refine VA's agile development process from a document-and-schedule focus to a delivery focus.

The VHA CIO, in partnership with the VA CIO, should oversee a comprehensive cost-versus-benefit analysis between a commercial off-the-shelf (COTS) EHR and continued in-house custom development of the VistA EHR currently in use. The analysis should take into account all the complexities of the VistA/CPRS architecture and infrastructure and known issues with performance, scalability, extensibility, interoperability, and security. It should also address full life-cycle costs, including development time (based on recent delivery trends), availability of development resources, maintenance and licensing costs, and infrastructure costs. VIS

The VA and VHA CIOs should conduct site visits and review the successful IT practices implemented at high-performing health care systems (including VISN4), to inform their strategies for effective approaches and potential contributions that IT can provide to improve the treatment of Veterans today.

The VA CIO and VHA CIO should report to Congress at the end of fiscal year 2016:

- Evidence that the VHA CIO serves as an effective advocate for the IT needs for health care delivery. This should include, but not be limited, to a description of the requirements for an effective health care management system to provide a basis for comparing VistA and COTS EHRs.

- Actions taken and evidence that OI&T acts as a service provider and delivers IT capabilities and IT services that improve health care delivery to Veterans. Evidence should include results of clinician and Veteran surveys confirming the quality of and satisfaction with the newly delivered capabilities and services.

- Results of the cost-versus-benefit analysis between a COTS EHR and continued in-house custom development of the VistA EHR.

VA should implement a broad process, inclusive of clinicians, to pursue requirements that support clinical documentation best practices and improved functionality and usability while considering the positive aspects of existing systems. Although providers can continue to leverage the free text capability available in the current EHR, it must be augmented with discrete, structured data capture using industry standard definitions to increase the interoperability with other systems inside and outside of VHA. This is especially critical due to the increased use of non-VA care.

VHA should accelerate efforts to establish semantic definitions for data elements through the use of standard nomenclatures, terminologies, and code sets. By doing so, VA can ensure consistency and integration across multiple systems, leverage follow-on IT products, and facilitate analytics for clinical decision making.

VA/VHA should assess the effectiveness of analytical products in driving health and business outcomes. They should identify and recommend improvements needed in the information systems that serve as the sources of the data to improve the reporting capabilities. VA/VHA should track actions taken as a result of the analytical products and quantify how effective those actions were in improving health and business outcomes.

To reduce the number of Veterans who abandon telehealth, VA should offer technical support to Veterans, should make testing a connection between Veterans and providers easier for all parties, and should better integrate telehealth technologies across VA medical facilities and VISNs. Assisting Veterans with use of this technology should improve the Veteran experience and reduce health care costs. VA should also address the challenges that complicate telehealth appointments between VISNs.

VA should explicitly identify mobile applications as a strategic enabler to increase Veteran access and satisfaction and help VHA transition to a data-driven health system. Mobile technology could effectively leverage patient-generated data to augment the data captured in the EHR to feed the learning health system.

Appendix I   Business Processes

Scope

Assessment I reviewed the "business processes of the Veterans Health Administration, including processes relating to furnishing non-Department health care, insurance identification, third-party revenue collection, and vendor reimbursement, including an identification of mechanisms as follows:

- To avoid the payment of penalties to vendors.

- To increase the collection of amounts owed to the Department for hospital care, medical services, or other health care provided by the Department for which reimbursement from a third party is authorized and to ensure that such amounts collected are accurate.

- To increase the collection of any other amounts owed to the Department with respect to hospital care, medical services, and other health care and to ensure that such amounts collected are accurate.

- To increase the accuracy and timeliness of Department payments to vendors and providers."

I.1   Summary of Findings

VHA Revenue—VHA is Not Optimizing Revenue Due to Ineffective Veteran Insurance Identification, Clinical Documentation and Coding, and Cultural Barriers.

Ineffective Veteran-facing (front-end) VAMC processes for insurance identification, and clinical documentation, and outpatient coding issues result in CPAC staff members having to address issues "after-the-fact." The issues correspond to $581 million in denials from insurance companies in 2014.

For first-party (Veteran) co-payments, VAMC staff members are not collecting the co-payments at the point-of-service and CPACs must collect the co-payments weeks to months after the date of service. Further, based on feedback from VAMC leadership, Veterans do not always understand the need to provide insurance information and VHA staff can be reluctant to ask for it.

Revenue processes span across VAMCs and CPACs; however, only the CPACs are accountable for revenue collection and the associated performance outcomes. VAMC commitment is required to monitor and correct issues early in the process to reduce collections delays and denials.

Non-VA Care Payments—VHA Does Not Have Adequate Infrastructure and Streamlined Processes to Pay Non-VA Care Claims Timely and Accurately.

VHA's complex and disparate processes for paying Non-VA Care claims are confusing to Non-VA providers and VHA staff, resulting in inconsistencies in authorization and payment practices. VHA's mechanisms to pay Non-VA claims timely and avoid delinquent payments, particularly at

select VISNs. However, inadequate data analytics indicate the issues could be more widespread. VHA mechanisms to avoid delinquent payments to external providers are inadequate putting VHA at risk for significant interest penalties.[121]

Inadequate claims submission guidance discourages widespread use of electronic claims submission. VHA receives only a small percentage of non-VA claims electronically, which increases workload, manual processing, and the likelihood for payment errors. Low staff retention and a 20 percent vacancy rate further exacerbate delays and errors in claims payments.

VHA established Patient Centered Community Care (PC3) to expand Non-VA care access by entering into national contracts with Healthnet and TriWest to provide Veteran health care on a fee for service basis. Feedback from VA employees interviewed indicate that PC3 is experiencing challenges due to gaps in the non-VA provider network.

Information Technology—Lack of Automation and Integration Prevent VHA from Optimizing Performance in both Collections and Payments.

VHA will not be able to make necessary improvements in their billing and collection processes without modern, automated technology. Antiquated systems used to support the revenue collection processes for third-party reimbursements and first-party (Veteran) co-payments do not provide needed functionality. These systems require significant manual intervention and processing that creates an environment prone to human error and delayed claims payments from insurers.

VHA software tools and functions do not interoperate across clinical and revenue management systems and their limited interoperability with other internal and external systems inhibits VHA's ability to bill and collect revenue accurately and rapidly.

Few Non-VA providers submit their claims to VHA electronically, relying instead on paper claims, which reduces payment timeliness and accuracy. In addition, staff members process claims manually compared to private-sector benchmarks of 79 percent automation.

Oversight and Metrics—VHA Lacks Certain Performance Reporting to Provide Effective Oversight and Proactive Process Improvements for Collections and Payments.

VHA lacks standard national reporting of key performance metrics for timely insurance identification and verification across VHA, inhibiting visibility into VAMC insurance capture performance of VAMCs. In addition, VHA cannot establish effective productivity standards and monitor Non-VA Care staff performance because processes are inconsistent across VAMCs and VISNs. Current decision support capabilities are not sufficient to provide oversight and management of Non-VA Care claims processing and payment. Proactive and retrospective processes are in place to find inaccurate payments, but these practices are highly manual.

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[121] There is an ongoing VA Office of General Counsel review of the universe of payments to which the Prompt Payment Act applies.

I.2　Summary of Recommendations

Recommendation 1—VHA: Develop a long-term comprehensive plan for provision of and payment for non-VA health care services.

The expansion of Non-VA Care over the last decade has resulted in a combination of programs that lack sufficient infrastructure to successfully perform the business functions today or meet the demands of the future. The demand for Non-VA Care will be determined, in large part, by the decisions made regarding VHA care and, in turn, by VHA's capacity to meet demand for services. For example, decisions about VHA facilities and workforce will affect demand for Non-VA Care, as will changes in the demographics and clinical needs of Veterans. VHA should adjust the plan as necessary depending on ongoing studies regarding VHA's capacity.

Recommendation 2—VHA: Establish a formal governance model that allows CBO and VISN leadership to converge, aligning interests and accountability.

The growth of both VHA and Non-VA Care requires an increased focus on business processes to sustain care for an increasing Veteran population. An organizational structure that balances central management with local autonomy is vital to VHA. VHA must align accountability and interests at the leadership level of CBO and the VISNs. Under the current alignment, CBO is dependent upon the VAMCs and VISNs to execute core business functions. With CBO and VISNs reporting separately to the VHA Office of the Under Secretary, VAMC priorities do not always align with CBO's. Placing both organizations under a single governance structure will promote convergence of interests, accountability, cooperation, and coordination.

Recommendation 3—VHA: Standardize policies and procedures for execution of Non-VA Care, particularly the Choice Act, and communicate those policies and procedures to Veterans, VHA staff, VHA providers, and Non-VA providers.

Examination of the claims processing protocols and operations revealed opportunities to standardize the manner in which VHA implements Non-VA Care and the Veterans Choice Act across the organization. Standardization will enable VHA to communicate processes and benefits effectively to both patients and Non-VA providers.

Recommendation 4—VHA: Employ industry standard automated solutions to bill claims for VHA medical care (revenue) and pay claims for Non-VA Care (payment) to increase collections, to improve payment timeliness and accuracy.

The growth of both VHA and Non-VA Care over the last decade has produced a combination of programs that lack sufficient technology to support the execution of routine business functions. In large part, these deficiencies result in a high degree of manual intervention required to bill and pay claims. The focus on automation should expand to include integration with front-end processes such as scheduling, insurance identification and verification, medical records, and coding.

Recommendation 5—VHA: Consider and further evaluate aligning the Patient Intake and Health Information Management Service (to include Coding) functions under CBO.

An emerging practice in private-sector health care is to align all components of the revenue cycle under the Chief Financial Officer (CFO) linking job responsibilities to financial performance. VHA's revenue cycle activities currently owned by the VAMC/VISN are Scheduling, Pre-Registration, Registration and Coding—all primary functions for identifying and verifying insurance, and ensuring accurate and timely first- and third-party collections. The private sector has recognized that aligning these functions under a single organization improves accountability and revenue cycle performance. Our findings indicate that the separation between business process and organizational structure within the VHA revenue cycle processes has resulted in a lack of coordination and consistency in these functional areas. Given the size and complexity of VHA compared to the private sector, any realignment needs to be carefully considered. Added to this, the VHA CBO recently completed a very large organizational consolidation of Non-VA Care employees and adding significantly more responsibility to the CBO at this time may be difficult for the CBO to absorb in the near-term.

Recommendation 6—VHA: Align performance measures to those used by industry, giving VHA leadership meaningful comparisons of performance to the private sector.

VHA should continue its progress toward implementation and management reporting of common industry performance measures. Once these practices are in place, VHA should identify performance standards that balance meeting VHA requirements with achievable, incremental performance improvements. This approach would immediately allow VHA to leverage common industry measures and benchmarks to conduct analysis, make informed decisions, and help to bring VHA performance into congruence with private-sector benchmarks.

Recommendation 7—VHA: Simplify the rules, policies, and regulations governing revenue, Non-VA Care, eligibility, priority groups, and service connections, educate all stakeholders, and institute effective change management.

Simplifying the rules, policies, and regulations will allow VHA to execute business processes uniformly, and to communicate clearly with all stakeholders.

Recommendation 8—VHA: Identify, share and institutionalize best practices across the agency.

There are numerous examples of business practices in VHA (as described in section 4 of this report) that produce results that significantly exceed VHA averages. VHA should develop a recurring process to examine these peer organizations' "positive deviants" and determine where successful practices apply to VHA business processes. Doing so will enable VHA to not only standardize, but also improve upon current best practices.

Appendix J   Supplies

J.1   Scope

Assessment J examined the "purchasing, distribution, and use of pharmaceuticals, medical and surgical supplies, medical devices, and health care related services by the Department." In line with the language of the legislation, pharmaceuticals, medical and surgical supplies (hereafter referred to as clinical supplies), and medical devices are considered within the scope of this assessment. In addition, services directly related to the purchasing, distribution, and use of these products are also considered, such as third party distributors and inventory management services. As the strengths and opportunities related to pharmaceuticals are quite distinct from clinical supplies and medical devices, the assessment is structured in two parts: (1) pharmaceuticals and related services, and (2) clinical supplies, medical devices and related services. Findings and recommendations are outlined below and described in more detail in the full report found in Appendix J.

J.2   Findings

J.2.1   FINDINGS RELATED TO PHARMACEUTICALS AND RELATED SERVICES

VA pays low prices for pharmaceuticals overall but several factors limit its ability to consistently access the lowest price available. Through mandated price concessions and national contracting, VA has relatively low pricing overall for pharmaceuticals. However, pharmaceuticals are not always bought at the lowest price available for a number of reasons, including inconsistencies between Federal Acquisition Regulations (FAR) and VA Acquisition Regulations (VAAR), contract lapses, national drug shortages, and requirements to buy from countries that are compliant with the Trade Agreements Act (TAA).

VA's distribution of pharmaceuticals to Veterans and to facilities is efficient and effective: VA's pharmaceutical prime vendor (PPV) is a distributor that sources pharmaceuticals and delivers them to VA facilities. The PPV model ensures efficient delivery of pharmaceuticals to facilities and Consolidated Mail Order Pharmacies (CMOPs) and supports a just-in-time inventory management approach. It received unanimous support from the pharmacists, pharmacy managers, and CMOP leaders interviewed during this assessment.

Supporting distribution directly to Veterans, VA's seven CMOPs deliver 80 percent of outpatient prescriptions directly to Veterans' homes, and they do so efficiently and cost effectively at $1.53 per prescription[122]. The CMOP program also achieved the highest overall customer satisfaction scores of any U.S. mail order pharmacy in a recent J.D. Power customer survey.[123]

VA has developed effective mechanisms to drive appropriate utilization such as its formulary, clinical use guidelines, and involvement of clinical pharmacists: Physicians and pharmacists

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[122] VHA Pharmacy Benefits Management. CMOP Overview for the Secretary. Filename: CMOP Info 4-1-15.pptx

[123] J.D. Power (2014) U.S. Pharmacy Study

believe the VA formulary helps guide good clinical decisions, and they express strong buy-in to the formulary process. Veterans have access to medications based on clinical need regardless of their formulary status. Standardized processes enable off-formulary prescribing, including electronic submission of clinical justification by physicians and review by clinical pharmacists. Around 80 percent of off-formulary requests are approved and five percent of outpatient prescriptions are for non-formulary drugs.[124]

High generic drug use supports delivery of high quality, FDA-approved medications to Veterans while ensuring efficient use of taxpayers' dollars. While VA does not measure generic use as industry does, VA purchases 97 percent of its drugs (by volume) as a generic when a generic exists[125] – similar to health care leader Kaiser Permanente which claims 99 percent generic prescription dispensing when a generic exists[126]. However, there are pockets of opportunity to use a higher share of generics within certain drug classes in some geographies.

VA has implemented policies and processes to improve patient transitions from the Department of Defense (DoD) to VA but challenges remain: Prior reports have highlighted challenges to Veterans' transitions directly from DoD to VA care, particularly related to medication continuity. VA has taken steps to improve this process in recent years, including the release and implementation of a January 2015 directive. However, three key challenges remain in the transition: timely access to primary care before existing prescriptions run out, limited mobility of health information between DoD and VA, and some differences in the DoD and VA formularies (see Appendix J, Section 3.2.4 for more detail).

VA has successfully implemented programs to reduce utilization of high-risk medications and early results are promising: For example, VA's opioid reduction program has cut the share of patients prescribed opiates by almost three percentage points since 2012. However, there are opportunities to improve the current measurement approach by taking into account the type, strength, and dosage frequency of opioids dispensed.

J.2.2 FINDINGS RELATED TO CLINICAL SUPPLIES, MEDICAL DEVICES, AND RELATED SERVICES

The organizational structure of the VA's supply chain enterprise is unduly complex and duplicative: VA and VHA both contain organizations that play a role in the management of VA's medical supply chain. There are several areas of overlap between VA and VHA overall, between national and regional contracting organizations, and between the four VA-level contracting organizations. Senior leaders in VA's and VHA's supply chain organizations who were interviewed unanimously said that the current organizational structure is too complex and should be simplified to improve collaboration, ownership and accountability.

VA's current IT systems, data systems, and analytical capabilities related to finance, inventory management, and purchasing are major impediments to effective supply chain management:

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[124] VHA Pharmacy Benefits Management. 2014 Outpatient dispensing data

[125] VHA Pharmacy Benefits Management. 2014 PPV purchase data

[126] Kaiser Permanente, http://businesshealth.kaiserpermanente.org/manage-costs/pharmacy/ accessed June 2015

VA's IT and data systems in these areas are antiquated, not integrated, and do not meet the needs of a modern health system. Health, procurement, finance, and contracting systems do not communicate needed information seamlessly, requiring manual manipulations leading to data inaccuracies and tracking problems. VA has at least 130 separate instances of its clinical, procurement, and inventory management systems, each with its own product nomenclature and numbering for items. As entries are mainly free text, data from each instance can be quite different and cross-site comparisons or regional/national roll-ups are almost impossible. This situation is a major impediment to effective management of VA's medical supply chain.

The performance of VA's contracting organization does not meet customers' expectations, so frontline staff have developed workarounds: Users are not satisfied with the communication, responsiveness, and time it takes for contracting requests. At one facility, data showed it took on average 21-39 days from the date of initial submission to receive the first response from contracting[127] requesting, for example, additional information or paperwork. Conversely, individuals in contracting reported VAMC requests submitted to them were often incomplete or unclear, and facilities were poor at forecasting demand for items, leading to unpredictable peaks in demand for contracting services that exceeded their capacity.

Two interrelated workarounds avoid delays from contracting: (1) staff buy the majority of their clinical supplies and devices on VA-issued purchase cards to enable greater autonomy to choose products and buy through preferred suppliers; and, (2) staff mainly place orders below the $3,000 micro purchase threshold. As a result, approximately 98 percent of VA's purchases of clinical supplies are made on purchase cards[128], which can limit VA's ability to ensure compliance with regulations because purchase card holders are responsible for identifying appropriately priced goods and contracted vendors, and VA's current systems do not support these tasks with integrated catalogs and controls. This likely leads to higher prices paid for goods. Purchase card processes are also inefficient when compared with modern alternatives, such as electronic order transmission and funds transfer.

VA has not taken full advantage of its scale or potential for product standardization to achieve optimal pricing and efficiency: Unit prices showed significant variation in the price paid for identical items. In addition, at least 27 percent of clinical supply purchases were made at open market prices[129]. Unlike pharmaceutical purchasing, VA's supply purchasing systems are not integrated with contract or pricing catalogs. This results in limited ability to monitor and drive compliance with contract usage. In fact, over 60 percent of all clinical supply items have no contract number listed.[128]

VA has achieved limited product standardization leading to a fragmented supplier network and a high number of items managed by the logistics organization. Despite some efforts, there is no routine mechanism to identify products for which central contracts should be established.

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[127] VAMC IFCAP/eCMS communications log

[128] VHA Procurement and Logistics Office. FY2014 IFCAP purchase data for five VISNs

[129] VHA Procurement and Logistics Office. Four months FY2015 system-wide clinical supply orders with IMF numbers

Inventory management process, practices, and systems are neither integrated nor optimized: VA has contracts with six Medical/Surgical Prime Vendors (MSPVs) – distributors like the PPV that provide services supporting purchasing, distribution, and use of clinical supplies. To date, VA takes limited advantage of services offered such as electronic ordering platforms or lean delivery models, resulting in suboptimal utilization of the MSPV program. There is also no robust feedback loop linking inventory to product utilization, contracting, and ordering, which leads to fluctuating demand for contracting services that can overwhelm its capacity.

VA struggles to attract, hire, and retain high caliber supply chain talent: Interviewees estimated 20-30 percent of positions were currently unfilled. As an example, VA had 563 open positions for medical supply aides and technicians[130] – 20 percent of all those positions or almost four vacancies per facility. Supply chain leaders perceive three factors contribute to recruitment and retention challenges: recent position downgrades, long lead times to fill positions, and lack of a clear career path. Moreover, competition for supply chain talent in health care is also high and organizations are paying more to attract and retain the highest performers.

There are pockets of good performance and innovation across VA's supply chain that could be replicated across VA: The Denver Acquisition and Logistics Center (DALC) is a bright spot within VA's supply chain organization in its acquisition and distribution of select devices such as hearing aids to Veterans. It has developed an integrated operating model that brings together clinicians, contracting, finance, logistics, and program management to create a holistic view of what is best for Veterans. Another VA strength is the autonomy VAMCs and VISNs have to test and pilot new processes, management approaches, and technologies. Several innovations were observed during this assessment that could be scaled across VA to improve service to Veterans.

J.3   Recommendations

J.3.1   RECOMMENDATIONS RELATED TO PHARMACEUTICALS AND RELATED SERVICES

Establish mechanisms to ensure VA secures a reliable supply of pharmaceuticals and accesses the lowest possible pricing more consistently. The largest hurdle to accessing favorable pricing more consistently, is its management of suppliers and at-risk supplies. To that end, VA should improve lifecycle management of contracts to prevent lapses, and identify drugs at highest risk of shortages and price spikes, and develop specific strategies to limit impact. VAAR and FAR conflicts are also likely to cause confusion among VA contracting officers. VA should consider updating the VAAR, including options to ensure fair competitive prices are obtained when only a single supplier is on the Federal Supply Schedule.

Continue driving efficiency through VA's CMOP network. VA should drive more volume to CMOPs, increase automation of packing and shipping to improve throughput and quality, and optimize the network's footprint to improve utilization of fixed assets and reduce costs.

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[130] VHA Office of Workforce Services May 2015 staffing update

Develop strategies to improve the transition of patients from DoD to VA care. Access to primary care during a transition and better interoperability between DoD and VA are key improvements for ensuring continuity of care and clinical management. Improvements for access can be found in Assessment B and Assessment E, while recommendations for improving IT strategy can be found in Assessment H. VA should also explore opportunities to align or integrate formularies taking into account clinical evidence and economic impact. As differences are likely to remain because of different Departmental strategies, VA should develop drug-class-specific guidance for medication changes related to transitions and explore opportunities to improve communication with Veterans about their medications during transitions.

Build sophisticated approaches to drive appropriate utilization of pharmaceuticals. VA has the opportunity to be a health care leader with respect to pharmaceutical use. To that end it should incorporate evidence-based prescribing guidelines into clinical protocols and pathways, building upon recommendations in Assessment F. Enabling these developments will require investment in IT and analytic capabilities to support outcomes-based data analysis. Ensuring compliance and changing physician behaviors should be driven with appropriate data interpretation and utilization through peer review, and by building utilization rules into prescribing systems to reduce inappropriate use.

J.3.2 RECOMMENDATIONS RELATED TO CLINICAL SUPPLIES, MEDICAL DEVICES, AND RELATED SERVICES

Transform and consolidate VA's entire supply chain organization. VA should rationalize the organizational structure by consolidating VA and VHA entities into one integrated supply chain organization. Guiding principles should include a single accountable leader for policy and end-to-end effectiveness, governance including all supply chain elements, clear expectations for supporting functions and users, and alignment of personnel by product categories. In making changes, VA should ensure the pharmaceutical supply chain is not negatively impacted; rather its practices are incorporated to improve clinical supply and medical device management.

Performance management focused on Veteran outcomes should be supported by service level agreements between supply chain functions and its end users, based both on end users' expectations and what is feasible within the constraints in which VA operates. Enhancing VA's performance management system will require a level of standardized data capture and reporting that is not possible with VA's current data systems. Therefore, system upgrades and/or replacements should be considered as per the recommendation below.

Improve key enablers required to support the organizational transformation, including IT systems, data standardization, and talent management. VA should update or replace supply chain IT systems to make them fit for purpose. Any decisions made should be in line with VA's overarching IT strategy and in full consideration of the interoperability and interdependencies between supply chain, financial, and clinical systems.

VA's lack of data standardization is a major impediment to effective monitoring and management of its supply chain. It should be a high priority to standardize supply chain data and overlay user-friendly interfaces that enable robust and timely decision-making across the enterprise. As a first step, VA should evaluate near-term options to standardize critical data

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elements to enable some level of cross-comparability. This should include establishing a central item master file with standardized nomenclature and numbering of VA's commonly used items.

The future of VA's supply chain rests on the talent that can drive these changes, therefore professionalizing the supply chain workforce by creating clear opportunities for training and advancement within the organization should be a priority.

Streamline, standardize, and integrate key supply chain management processes. VA should expedite product standardization in key categories by prioritization. The approach should build upon learnings from VA's pharmacy committee structure, with its integrated cascade of testing, review, feedback, and decision-making related to selection and use of pharmaceuticals.

VA should expedite its process mapping initiative and also look holistically at acquisition policies and regulations to streamline contracting and purchasing processes. Electronic and automated purchasing processes should be improved and encouraged. Additionally, VA should build upon its ability and willingness to experiment by establishing an approach to more systematically capture, codify, prioritize, and if appropriate, scale innovations across VA.

The complete Assessment J report is available in Volume II.

Appendix K   Facilities

Scope

Assessment K examined "the process of the Department for carrying out construction and maintenance projects at medical facilities of the Department and the medical facility leasing program of the Department." Specifically, the team was required to (i) review the processes for identifying and designing proposals for leases and capital projects, (ii) assess the process for determining the necessity and size of a lease or capital project, (iii) assess the processes and project management of the design, construction, leasing, and activation of medical facilities, and (iv) assess the medical facility-leasing program of the department. The Assessment K team also considered two additional areas that are critical to addressing VHA's facility needs, facility management and the long term capital funding needs of VHA.

Findings

We have found that VHA is expected to face accelerating and likely unfunded capital requirements driven by maintenance to aging infrastructure, projected workload needs to serve the Veteran population, and inefficient capital management. Moreover, we observed that VA performance in capital management, design and construction, leasing, and facilities management is on par with public sector performance in most cases, yet well below private sector performance, particularly in the cost to deliver major construction projects. Consistently deploying world class practices in capital management has the potential to improve performance significantly and address some of the capital constraints VA faces, but would require a further overhaul of VA's capital program and supporting organization. However, even if VA is able to meet the significant challenge of achieving best practice performance in capital management, VA would still likely experience a significant capital funding gap that will require strategic changes in operations and additional funding to close the gap.

The capital requirement for VHA to maintain facilities and meet projected growth needs over the next decade is two to three times higher than anticipated funding levels, and the gap between capital need and resources could continue to widen.

VA has identified more than $51 billion in total capital needs over the next 10 years through its capital planning methodology.[131] These requests cover current ten-year projections; however, new projects may be added as needs change and could change the total capital requirement. Provided that average funding levels remain consistent over the next 10 years, the $51 billion

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[131] The $51 billion capital requirement combines $46 billion in projects submitted through the Strategic Capital Investment Plan (SCIP) and $5 billion in anticipated outstanding funding needs for on-going major projects projected in the FY2016 VA Budget Submission. While our team did not independently verify the cost estimates for the 8,038 capital requests that make up the $46 billion requests through SCIP, we did review the process by which these requests are identified and developed. See Section 3.1 and Appendix B.3 for additional detail.

capital requirement would significantly exceed the anticipated funding level of $16–26 billion.[132]

Multiple factors drive the scale of the capital need. VHA facilities are older buildings, with significant repair needs, and some are poorly suited to emerging models of care. The average VHA building is 50 years old, five times older than the average building age for not-for-profit hospital systems in the United States.[133] While many facilities have been extensively renovated, the renovations themselves have aged, and the condition of buildings shows this strain. Independent assessments of infrastructure and facilities through the VHA Facilities Condition Assessment (FCA) found that VHA facilities average a "C minus" score, meaning that much of the total facilities portfolio is nearing the end of its useful life.[134] More than 70 percent of VHA facilities correction costs result from infrastructure and facilities that are D rated, meaning that they are at the end of their useful life.

Current facilities, whether they have been maintained adequately or not, often do not match current models of care. The overwhelming majority of VHA hospitals were designed when care was focused more heavily around inpatient hospital treatments. Over the past eight years, Veteran inpatient bed days of care have declined nearly ten percent while outpatient clinic workload has increased more than 40 percent.[135] Space for outpatient care is typically housed in converted inpatient spaces or VHA's growing number of clinics. As a result, VHA's capital needs fall into a broad range of categories, including ensuring adequate facility condition, providing sufficient and appropriate space for Veteran care, and upgrading infrastructure. As facilities age further and care continues to shift to the outpatient setting, the size of the capital need could continue to grow.

Shortfalls in overall accountability, role clarity, personal ownership, internal communication, and proactive problem solving approaches limit the ability of VA and VHA to deliver the correct projects consistently on time and on budget. Facilities functions are dispersed through VA, resulting in a lack of accountability for facilities outcomes, a mismatch between planning efforts and funding decisions, and the separation of project execution and facilities management. Additionally, internal VA directives, federal procurement requirements, and stakeholder involvement impact VHA's ability to deliver and operate medical facilities at the level of private sector benchmarks.

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[132] Over the last four years, VA's capital funding budget has ranged from $1.6 billion to $2.6 billion each year, averaging $2 billion.

[133] The age of VHA facilities is calculated by taking the year built recorded in the Capital Asset Inventory and weighting it by the gross square footage of each property. 2013 analysis of 139 not-for-profit hospital systems in US, encompassing 1,362 hospitals (Soule & Keller, 2013). See Section 5.2.1.4 for additional detail.

[134] FCA assessments are conducted by independent evaluators at each facility every three years. More than 180,000 individual items are scored across VHA facilities, using a scale of A (like new) to F (critical condition) scale. Average score was calculated using the aggregated reports in VA's Capital Asset Database, accessed March 2015.

[135] Workload reported by VAMCs in the 2015 VSSC Trip Packs, aggregated by VISN.

Capital is not being consistently allocated to projects that address the greatest areas of Veteran need in the most cost effective and timely manner. Lengthy approval and funding timelines hinder the ability of VHA to meet the identified space requirements to keep up with Veteran demand and invest in facilities updates that align with changing models for care. VA has recently established the Strategic Capital Investment Plan (SCIP), a systematic approach to approve capital projects and allocate funding. However, the process does not yet ensure full alignment with VA strategy, include rigorous business case scrubbing, or incorporate feedback on past project outcomes into the capital program assessment.

VA construction costs are similar to other public agencies in most cases, but double private industry best practice, and VA time-to-complete exceeds both public and private peers. Increased design requirements resulting from resilience, energy, security and community mandates increase the initial cost of projects over the private sector. Frequent design changes driven by users before construction contract award and during construction further increase the costs of projects and contribute to construction delays. Additionally, project teams are designed and staffed to support compliance requirements but these structures have resulted in reduced accountability for project delivery outcomes and a limited ability to develop solutions to manage cost overruns and schedule delays.

The leasing program is not effectively enabling VHA to provide facilities where and when they are required or at a reasonable cost for major leases. Lease timelines preclude VHA from benefitting from the speed and flexibility that leasing typically provides, often taking more than twice as long as private sector benchmarks. The leasing program typically achieves per square foot costs comparable to market prices for small and medium sized facilities, however, for larger build-to-suit facilities which are impacted by the same type of design and construction challenges seen in owned facilities we observed rents clustered at 40 to 50 percent higher than private sector benchmarks.

Facility management costs across VHA exceed those at comparable medical facilities. Facility management costs, including recurring maintenance and environmental services, are on the average two to three times higher than comparable private medical facilities, largely due to in-house management of these services rather than utilization of lower cost external service contracts. Facility management costs and practices are also highly variable across VHA facilities, with little incentive for individual stations to adopt cost effective measures.

Recommendations for consideration

Achieving best practice levels of performance in each of the assessment areas would require an overhaul of VA's capital program and supporting organization. Through our research, we have identified best practices from capital management organizations around the world that could be deployed to improve the total performance of capital programs of the scale and complexity of VA's. The cumulative improvement value of deploying all of these best practices in a single

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organization could result in savings up to 40 percent.[136] However, even world class capital management organizations do not succeed in deploying all of these best practices consistently across their organizations, which illustrates the scale of the challenge. Shifts in the model of care delivery, lengthy approval processes, organizational health concerns, and strained budgets have combined to make capital management and delivery a formidable task for VA, and even the most ambitious transformation effort at VA may not achieve this total potential. As a result, we have estimated the total potential improvement opportunity for VA to be up to 25–35 percent.

Detailed recommendations for improving the capital program can be found in Sections 5 through 9, for each of the deep dives on core assessment areas. These recommendations fall into the following main opportunity areas:

VA should improve project selection and refine its project portfolio. VA should refine the SCIP process to rationalize and prioritize capital requirements by ensuring that space, energy, and condition criteria are reflective of the most critical items that contribute to Veteran care. The SCIP process, initiated four years ago, advanced VA capital project selection by creating a standardized methodology to review and approve projects which did not previously exist, but further steps are needed to improve the approach. These include a careful assessment of standards and a modification of the criteria for project selection. By focusing the criteria and approval processes for capital projects, VA could concentrate capital spending on strategic priorities and accelerate approval timelines. Capital project planning should also incorporate feedback on performance and outcomes from past projects to determine which capital programs respond to Veteran needs in the most cost effective manner possible. This would help enable a vital link between portfolio planning, project execution, and achievement of the desired outcomes in Veteran care.

VA should streamline project delivery across all construction types and leasing. VA should comprehensively address the root causes (for example, specifications, approval processes, project governance structures, team capabilities and composition) currently leading to consistent overruns in cost and schedule for construction projects and lengthy timelines for leases. This begins with modernizing and rationalizing design standards in keeping with current innovations in health care. A clear stage-gate process should be implemented to manage scope and design changes in the planning and design phases of projects and to limit scope and design changes that occur after a project receives funding and during construction. The recently launched Capital Program Requirements Management Process (CPRMP) introduced reviews during the design process to manage scope changes, another positive step which should be further developed and rolled out. To increase ownership and accountability, project delivery teams should be restructured with clear roles and responsibilities, well-defined handoffs, and adequate staffing levels. Additionally, contracting and other supporting entities should be

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[136] "Infrastructure Productivity How to save $1 trillion a year," by McKinsey & Company (January 2013). This report includes more than 400 case examples from around the world. For this assessment, estimated savings have been adjusted to reflect requirements and constraints specific to VA.

accountable and equipped to support a fast-paced project environment and facilitate the needs of construction projects and leases.

VHA should ensure proposed projects make the most of existing infrastructure. VHA could improve the effectiveness of its infrastructure through incorporating a total cost of ownership assessment approach into design, capital planning, and facility management. This requires evaluating the operational cost implications of design choices and pursuing opportunities to optimize capital and operating costs simultaneously. Space planning programs should regularly evaluate underutilized and vacant space to identify opportunities for increased utilization or to actively divest unusable properties.

In addition to taking steps to address the above recommendations, VHA should consider more transformative options as needed to address the remaining unfunded capital requirement. If VA is able to successfully implement current improvement initiatives, act on the additional recommendations listed above, and demonstrate best practice performance, VA could potentially reduce its total capital need to $33 to $38 billion over the next 10 years. Based on average funding of $16–26 billion over 10 years, an unfunded gap of $7 to 22 billion would still exist. To close this remaining gap, funding would have to increase and VA will need to consider more transformative options. When other institutions have faced similar capital shortfalls, they have considered a range of strategic and business model redesign options in addition to implementing best practices in capital project delivery. This report lays out several strategic approaches for further consideration by VHA, including:

- *Maximize operational efficiency*. Operating improvements, such as extending operating hours, improving scheduling efficiency, increasing tele-health options, and reducing average length of stay, can provide non-capital solutions to meeting workload needs. The operating recommendations in Assessments E, F, G, and H may contribute to addressing VHA's capital need.

- *Reassess how and where to best serve Veterans*. When facing similar circumstances to VA, other health care organizations have considered strategic operating changes that result in a realignment in their capital portfolios. This could potentially include geographic realignment, community partnerships, or a shift in service offerings. Assessments B and C may offer some further insights.

- *Explore alternative vehicles for capital delivery*. Alternative models of providing facilities have proved productive for some organizations. These models include contracting out capital investment, outsourcing facility management, and establishing innovative public-private partnerships.

In summary, VA has taken steps to improve its capital program, but much more is required given the scale of the capital need and the gap between current performance and best practice. Even with the most ambitious expectations for improving the capital program, VA will likely face a major funding gap over the next decade that will require a combination of additional funding and transformative changes to operations in order to ensure that Veterans receive the level and quality of care VA has committed to provide.

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Appendix L   Leadership

L.1   Scope

Part L ("Assessment L"), Section 201 of the Veterans Access, Choice, and Accountability Act of 2014 ("The Veterans Choice Act") required an independent assessment of how leadership influences the Veterans Health Administration's (VHA's) ability to accomplish its mission. The law required an assessment of:

> "(L) The competency of leadership with respect to culture, accountability, reform readiness, leadership development, physician alignment, employee engagement, succession planning, and performance management."

Congress has thus directed that VHA leadership be viewed in the context of the eight separate but related elements of leadership, each of which is addressed in detail in the assessment, as summarized below.

The broad scope of the law's mandate represented an important opportunity to understand leadership at VHA, including its executive organization, Medical Center facility leaders, and regional network administrators. The scope of this assessment focuses on the senior leadership of VHA at each VA Medical Center (VAMC), Veterans Integrated Service Network (VISN), VA Central Office (VACO), and VHA Central Office (VHACO). The senior leadership at the VAMC and VISN are defined as the "Quadrad" or "Pentad" leaders: Director, Associate Director, Chief of Staff, Associate Director for Patient Care Services, and Assistant Director for Operations, if applicable.[137]

The assessment utilizes data and analysis from a survey of all VHA employees about its leadership beliefs and practices, 39 site visits and more than 300 interviews with VHA leaders across the country and analysis of existing VHA and other federal data. We then synthesized the findings and recommendations across the eight elements to identify patterns, points of interaction, and interdependencies, resulting in seven cross-cutting themes and six overarching recommendations.

L.1.1   Findings

Reviewing all eight elements described in Section 201 Assessment L provides an opportunity to create an integrated perspective of leadership at VHA. The scale of VHA is vast, and it is difficult to fully capture all the nuances and variability that exist throughout the system. Areas of excellence exist across the system, including some inspiring and resilient leaders, front-line systems redesign teams, and homegrown innovation. We touch on these throughout the full report. However, most areas of the organization show a highly risk-averse culture; lack of role clarity; fragmentation and organizational silos; and breakdowns in communication, accountability, and key processes that impair the organization's ability to deliver the mission.

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[137] The terms Quadrad and Pentad are used interchangeably throughout this report as they are at VHA.

Our efforts have yielded a complex portrait of leadership practices reflecting leaders at VHA who are diverse in their approach, experience, skill, and effectiveness. They are operating in a system without common agreed upon leadership goals, methods and processes. Examining each of the eight elements, we identified the following seven themes about leadership today at VHA:

1. **An expanding scope of VHA activities has led to confusion around leadership priorities and the strategic direction of VHA.** The organization's focus has expanded and shifted over time, and it is unclear what the priorities are, and unclear when they will shift again. Over time, VHA has expanded into the delivery of a wide range of clinical services, as well as various social pursuits. The organization is not configured or resourced to deliver this expanding scope of activities, and it is unclear where the boundaries of the mission lie. VHA is also treated by oversight entities and external stakeholders as both a hospital system and a traditional government agency. This unique complexity of VHA is not supported by equally unique performance expectations, operational flexibility, and supporting tools.

2. **From the point of view of leaders and employees, the VHA organization is intensely, unnecessarily complex due to lack of a clear operating model, limited role clarity, fragmentation of authority, and overlapping responsibilities**. This lack of clarity around operating model, roles and responsibilities extends across VAMCs, the VISNs, and Central Office. The issue is exacerbated by a cultural context that is often unable to work effectively across chains of command, except where all parties concur. Fragmentation and silos exist across the system and within each tier of the organization. Many key support functions, such as human resources or contracting, suffer from this, resulting in service too slow to meet the needs of the mission. Meanwhile, the sheer number of operational performance measures in many cases overwhelms and makes it difficult to know and focus on what is most important.

3. **The broader VHA culture is characterized by risk-aversion and distrust, resulting in an inability to improve performance consistently and fully across the system**. At almost every facility visited, at least one leader interviewed mentioned that risk-aversion and a reluctance to "speak up" were significant issues. Three out of every four leaders interviewed at VISNs in which site visits were conducted echoed this concern (VHA interviews, 2015). A general aversion to speak up or take risks originates from: a) trying to perform in a heavily siloed organization; b) fear that raising issues will result in punitive actions toward the individual or addition of significant workload with no additional support; and c) insufficient reward for those trying to make improvements. This culture permeates across all levels of the organization – from the front-lines, to Medical Center leaders, to people at Central Office. This culture of risk aversion also hinders great ideas from spreading. A lack of enterprise-wide incentives and mechanisms for knowledge-sharing within or across the system yields pockets of innovation but not broader system-wide adoption (VHA interviews, 2015; VHA OHI survey, 2015).

4. **VHA leadership faces a workforce that appears to be steadily losing its motivation.** Caring for Veterans is a value that powerfully motivates VHA leaders and employees alike – however, this commitment alone is insufficient to fuel the organization's motivation and performance. Other sources of motivation such as a great work environment, job satisfaction, or working with an inspiring team have eroded in recent years (VHA interviews, 2015). Physicians are only partially aligned with the various demands put on them. In a changing environment in which VHA competes with other health care organizations for top talent, a value proposition that relies primarily on the intrinsic reward of caring for Veterans cannot make up for the erosion of other sources of employee motivation to meet the VHA mission.

5. **The performance of a particular VAMC hinges to a large degree on the capability of its Director and the executive leadership team; yet these leaders are "on their own" in many ways.** VAMC Directors often lack competent and timely assistance from support functions (including HR for disciplining, hiring employees, planning for succession; construction; IT; and contracting). Support from VISN and VHACO is variable and often limited. Directors are left to navigate their own career progression and development (VHA interviews, 2015).

6. **VHA leadership attention is consumed by addressing crises that have occurred in the past, at the expense of preparing for tomorrow's opportunities**. The number of directives for which leaders are accountable, coupled with heightened scrutiny from internal and external sources, compels leaders to spend much of their time reacting to crises and completing action items from above. Bottom-up innovation and consultative leadership are not well-developed, and there is a heavy reliance on top-down directives, exacerbated by the growth of Central Office Program Offices (VHA OHI survey, 2015; VHA interviews, 2015).

7. **The leadership pipeline is not robust enough to meet VHA's current and future needs, a function both of inadequate succession planning and unfocused leadership development efforts**. As of March 2015, 16 percent of VAMC Quadrad and VISN Network Director positions are vacant or have acting leaders. Twenty-three VA Medical Centers (16 percent) do not have a permanent Director. Nine VISN Network Directors (43 percent) are Acting (VHA Office of Workforce Services, 2015). Leadership positions are increasingly unattractive to the next generation of VHA leaders, which contributes to the difficulty in filling leadership openings (VHA interviews, 2015). VHA is currently experiencing a large and widespread number of current vacancies and upcoming retirements in key leadership roles, and open positions remain unfilled due to a lack of qualified candidates. Meanwhile, VHA's lack of a comprehensive approach to leadership development—experiential, relational, and training—has resulted in leaders with uneven preparation for their future roles. Multiple competency models and frameworks are in use, and VHA's formal programs are not linked to career paths, not well-coordinated, and thus do not effectively bolster VHA's talent pipelines (VHA Office of Workforce Services, 2015; VHA interviews, 2015).

The views, opinions, and/or findings contained in this report are those of the assessment team and should not be construed as an official government position, policy, or decision.

This report's findings indicate that immediate action is required. The challenges of the current culture and operating environment, the deteriorating atmosphere for leaders, and the intense public scrutiny suggest that sustaining an effective operation and an engaged employee and leadership base to serve six million Veteran enrollees each year will require a fundamental shift achieved through a bold, integrated, multi-year transformation.

L.1.2   Recommendations

The scale of the transformation needed to address the findings above has few precedents in the private or public sector. VHA employs one in nine federal civilian employees (OPM, Historical Federal Workforce Tables and FedScope, 2015). It is both the largest hospital system and the largest training ground for health care providers in the country, training tens of thousands of clinicians each year (VA, Office of Academic Affiliations, 2015). And the nature of the current system – with hundreds of unique locations, partnerships, and performance measures – only increases the complexity of the opportunity.

Given this challenge, the recommendations summarized below should not be approached like a checklist of individual and incremental performance improvements. Most transformations treated in this manner fail (Keller and Price, 2011). Instead, VHA should systematically implement these recommendations in a comprehensive, multi-year transformation program. The transformation program needs to clearly define its aspiration state, determine what is needed to meet this state, be housed in a formal change program, protect or build on best practices and high performing pockets, and ensure timely implementation faithful to the original aspiration.

These recommendations fall into six main opportunities:

1. **Galvanize VHA leaders around a clear strategic direction.**

   Decide and communicate the strategic direction of VHA going forward. The strategy could take a variety of forms, but there needs to be clarity within VHA of where the organization is headed, and this needs to be communicated throughout the organization and understood by all leaders and employees. We do not seek to define the strategic direction here, but clear strategic direction will be critical as the organization moves forward and works to implement the recommendations laid out herein.

2. **Stabilize, grow, and empower leaders.**

   VHA should strengthen its leadership foundation, both today's and tomorrow's. VHA should focus in the near term on increasing leadership stability and readiness by filling vacancies with high-quality leaders, improving the attractiveness of the role to prospective leaders, and ensuring leaders are ready to assume their roles. In the medium term they should build a coordinated people development strategy that connects top performers with the right opportunities and generates a robust pipeline of leaders through a formal succession planning program and a coordinated set of development opportunities. Efforts should be made to build sustained leadership continuity across the system, including considering longer tenures for key leaders, such as Medical Center Directors and select roles at VHACO. This is necessary to have the

authority, accountability, ownership and time needed to stabilize the organization, strengthen its health and performance, and shepherd the transformation.

3. **Redesign VHA's operating model to create clarity for decision-making authority, prioritization, and long-term support.**

   VHA should immediately lead an effort to clearly define roles and decision rights at each level and increase coordination within Central Office, refocusing the role of Central Office to managing outcomes and providing "corporate center"-like support to the field. The Central Office should prioritize, integrate, and actively provide support to the various initiatives and policies being implemented by the field. The net effect of the redesign should be a Central Office that is highly valued by the field for the expertise, services, and strategic direction it provides.

4. **Focus and simplify performance management to clarify accountability and actively support the mission.**

   Within six months, VHA should complete an effort to develop an integrated and balanced performance scorecard for VAMCs focusing on a smaller number of core metrics that roll up to support the broader enterprise view. These metrics should be designed to focus more on the mission and encourage cross-functional collaboration and should be carefully cascaded. This requires moving from hundreds today (over 382 alone in the National Performance Measures Report) to no more than 20 that cover quality, safety, patient experience, operational efficiency, finance, and human resources. The resulting data should be made readily available and accessible agency-wide with proper procedures in place to ensure quality.

5. **Rebuild a high-performing, healthy culture by cultivating greater employee collaboration, ownership, and accountability to accomplish the mission.**

   Culture is often described simply as "how things are done around here," and changing the VHA culture will need to happen at all levels of VHA: VHACO, VISN, and the VAMC level, as well as within the context of VA broadly. VHACO should consider how to integrate their efforts so the workforce is involved and experiences a coherent set of messages, policies, and support from VHACO. The VISNs should lead the VAMC leaders by sharing best practices, demanding steady improvement, and encouraging innovation. VAMC leaders will need to role model the change, describe why the culture must change, reinforce desired behaviors (and discourage unhelpful ones), and provide leaders and employees alike with the coaching, training and tools they will need to succeed. In our experience this is feasible, but there is no simple or fast way, and it will require a dedicated performance transformation effort.

6. **Redesign the human resources function as a more responsive customer service-focused entity.**

   VHA, with the full support and backing of VA, should begin an effort in the next 12 months to transform the human resources (HR) function to be more responsive to meeting the needs of VAMC leadership, more efficient, and more customer service-

focused. Although a comprehensive examination of HR was not within scope of Assessment L, systematic HR challenges were identified that need to be addressed through a transformation of the HR function. Such a transformation will likely require redesigning key processes (e.g., hiring), shifting the mindsets of HR cadre from compliance to effectiveness, training HR and its customers on key roles and responsibilities, and rationalizing its technology systems.

The complete Assessment L report is available in Volume II.

Appendix M   Outreach

Over the past 10 years, many assessments of VHA have been conducted from different points of view, and many thoughtful solutions by experts from inside and outside the department have been provided. However, while some incremental changes may have been made, the real desired impact of a highly coordinated, enterprise-level, successful transformation of VHA has not been achieved.

MITRE conducted an analysis of selected health care systems that successfully transformed into high-functioning and performing health care systems. This effort included interviews with executive teams from 27 large U.S. health systems and also included visits to selected health systems.

Some of the lessons learned from these engagements include:

A sense of urgency: Many of the largest health systems faced financial crises in the late 1990s and early 2000s due to a dramatically changed medical payment landscape. Several leaders of the selected health care systems found their institutions were not profitable, and they faced a critical decision: either change management models from a fee-for-service model or go out of business. Within this crucible, new leaders often emerged. They recognized both the need for change and the importance of communicating the urgency of that change to all levels of the organization and to organizational stakeholders.

Empowered visionary leaders and new missions: The individuals who emerged to lead these institutions had similar characteristics. They were visionary and charismatic leaders who were fully committed to the new mission and exemplified the behaviors required to achieve that mission. Their leadership teams described them as actively shaping the culture, and they provided focus on change and freedom to fundamentally alter processes. They consistently were "hard on processes, not on people," meaning they built a culture that was developmental and transparent rather than punitive. Employee morale, motivation, and retention improved as they were empowered to remove non-mission essential burdens and increase time and resources for core mission activities. Leaders were routinely seen on the front lines of care and in regular meetings with cross-functional teams to resolve barriers to mission success and reinforce the vision and culture.

Sustained and time-consuming process: The institutions that were visited consistently pointed out that what they are doing to realize change is not a special project; rather, it is a management system. Each found that it took about three years for physicians and staff to recognize that the changes occurring were not the "change du jour." They also shared that after five to six years, staff and providers within the health systems felt the changes were successful and enduring. Along the way, it was important to experiment, tolerate mistakes, and learn from them and encourage employee engagement to instill a new culture within the organization.

A new management system that adheres to a patient-centric culture and value system: The new management models were patient centered and required working with physician leadership and payers to reshape clinical and operational processes around the patient. Leaders were selected carefully for performance, not on résumés. Leadership and staff were

empowered, recognized, and rewarded for challenging care decisions and modifying processes that did not add value to patients care.

Supportive and knowledgeable governance: The leaders of these high-performing systems often had a supportive and knowledgeable Board of Trustees. Some trustees had led similar successful transformations in other industries. This type of governance structure ensured adherence to a single clear architecture and the ongoing integrity of the health care system's mission and operating principles. The board also often had compacts with practicing physicians, leadership, and management. In addition, the leaders were given a wide berth and sufficient time (more than five to seven years) to execute needed reforms.

Transparent data-driven management system: The systems consistently demonstrated transparent use of data that was shared from the chief executive officer to front-line staff, clarifying how performance is measured and ensuring that everyone worked from the same accurate information. Many compared the performance data of similar teams and staff members to promote sharing best practices. Most health care systems focused on continuous improvement that originated within teams rather than setting team targets from higher levels in the organization. Lastly, "red" metrics were used as an opportunity for management to focus and fix, rather than blame and punish.

Methodology: In January 2015, CAMH gathered publicly available listings of the largest U.S. health care systems (by number of employees), health insurers (by market share), and organizations representing medical device manufacturers and pharmaceutical companies. CAMH leveraged its network of health care executives to add additional prominent health care systems with national reputations and then generated a convenience sample of 37 private-industry institutions to use for data collection. Upon inquiry, executive leaders from 27 of the selected U.S. health care organizations were available to be interviewed.

MITRE Officers and leaders conducted 30–60 minute interviews with the executives from selected health care systems to inform them of the Veterans Choice Act 201 assessments and to gain their insight, experience, and recommendations of best practices that, if adopted, would positively impact the Veterans health care delivery system. An interview guide was developed for each institution that targeted the Veterans Choice Act 201 assessment topic areas and was tailored to center on strengths (by reputation) of the institution being interviewed.

From March to June 2015, CAMH Choice Act Program Teams conducted site visits to selected health systems. Teams of 5–18 members from CAMH's Choice Act Program attended these one- to three-day site visits; participated in the discussions with executive leaders, administrators, and clinicians; and completed facility tours and observations. These site visits have included:

- Kaiser Permanente
- Cleveland Clinic
- Virginia Mason Hospital and Medical Center
- Geisinger Health System.

U.S. Health Care Industry Leaders: The following organizations gave freely of their time and provided access to their systems and their senior leadership teams for in-depth discussions.

During those conversations, they shared their experience, perspectives, health initiatives, and viewpoints of best practices in health care that could be adopted by the Veterans health care system. Several also provide on-site visits to examine their clinical and administrative operations. Many spoke of their thankfulness for our nation's Veterans and their pleasure to support the VA in making improvements to Veterans' care.

- Adventist Health System
- Aetna, Inc.
- American Pharmacists Association
- Anthem, Inc.
- Ascension Health
- Blue Cross Blue Shield of Massachusetts
- Blue Shield of California
- Cleveland Clinic
- Geisinger Health System
- Hospital Corporation of America, Inc.
- Humana Subsidiaries: Government Business - Humana Veterans (subsidiary of Humana Government Business) and Concentra
- Intermountain Health care
- Independence Blue Cross Group
- New York City Health and Hospital Corporation
- Johns Hopkins Medicine
- Kaiser Permanente
- Medical Device Manufacturers Association
- New York-Presbyterian Health care System
- NYU Langone Medical Center
- Partners Health care, including executives from Brigham and Women's Hospital and Mass General Hospital System
- Pharmaceutical Research and Manufacturers of America
- Providence Health & Services
- Tenet Health care Corporation
- ThedaCare Center for Health care Value
- University of California Health Sciences and Services
- University of Texas System
- Virginia Mason Hospital & Medical Center

Veterans Service Organizations (VSOs): The VSOs listed below shared with us data, reports, surveys, and their understanding of their constituents' health care needs. They provided the voice of the Veterans that the health care system serves. We are grateful to them for their support and for their daily commitment and service to Veterans.

- The American Legion
- American Veterans
- Disabled American Veterans
- Iraq and Afghanistan Veterans
- Military Officers Association of America
- Military Order of the Purple Heart of the U.S.A., Inc.
- Paralyzed Veterans of America
- Veterans of Foreign Wars of the United States
- Vietnam Veterans of America
- Wounded Warrior Project

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Appendix O   Acronyms

ACAP	Access and Clinic Administration Program
APP	Advanced Practice Providers
ASA	Average Speed of Answer
BRAC	Base Realignment and Closure
CAMH	CMS Alliance to Modernize Healthcare
CBO	Congressional Budget Office
CBOC	Community-Based Outpatient Clinic
CIO	Chief Information Officer
CMOP	Consolidated Mail Order Pharmacies
CMS	Centers for Medicare & Medicaid Services
COTS	Commercial Off-the-Shelf
CPAC	Consolidated Patient Account Center
CPRS	Computerized Patient Record System
CPT	Current Procedural Technology
DoD	U.S. Department of Defense
EHR	Electronic Health Record
EWL	Electronic Wait List
FBCS	Fee Basis Claims System
FFS	Fee for Service
FITARA	Federal Information Technology Reform Act
FTE	Full-Time Equivalent
FY	Fiscal Year
GAO	General Accountability Office
HCPS	Health Care Payment System
HEDIS®	Healthcare Effectiveness Data and Information Set
HHC	New York City Health and Hospitals Corporation
HMO	Health Maintenance Organization
HR	Human Resources
IOM	Institute of Medicine of the National Academies
IRS	Internal Revenue Service

IT	Information Technology
MASS	Medical Appointment Scheduling System
MSVP	Medical/Surgical Prime Vendors
NLC	National Leadership Council
O&M	Operations and Maintenance
OI&T	Office of Information & Technology
OIG	Office of the Inspector General
OMB	Office of Management and Budget
OPES	Office of Productivity, Efficiency, and Staffing
PCC	Patient-Centered Community Care
PMAS	Project Management Accountability System
PPV	Pharmaceutical Prime Vendor
PTSD	Post-Traumatic Stress Disorder
SAIL	Strategic Analytics for Improvement and Learning
SCIP	Strategic Capital Investment Plan
SES	Senior Executive Service
SLA	Service-Level Agreement
U.S.	United States
VA	U.S. Department of Veterans Affairs
VACO	VA Central Office
VAMC	Veterans Affairs Medical Center
VHA	Veterans Health Administration
VHACO	Veterans Health Administration Central Office
VISN	Veterans Integrated Service Network
VistA	Veterans Health Information Systems and Technology Architecture
VSO	Veterans Service Organizations
wRVU	Work Relative Value Unit

Appendix P   Section 201 of the Veterans Choice Act

Section 201: Independent Assessment of the Health Care Delivery Systems and Management Processes of the Department of Veterans Affairs.

(a) INDEPENDENT ASSESSMENT.—

(1) ASSESSMENT.—Not later than 90 days after the date of the enactment of this Act, the Secretary of Veterans Affairs shall enter into one or more contracts with a private sector entity or entities described in subsection (b) to conduct an independent assessment of the hospital care, medical services, and other health care furnished in medical facilities of the Department. Such assessment shall address each of the following:

(A) Current and projected demographics and unique health care needs of the patient population served by the Department.

(B) Current and projected health care capabilities and resources of the Department, including hospital care, medical services, and other health care furnished by non-Department facilities under contract with the Department, to provide timely and accessible care to veterans.

(C) The authorities and mechanisms under which the Secretary may furnish hospital care, medical services, and other health care at non-Department facilities, including whether the Secretary should have the authority to furnish such care and services at such facilities through the completion of episodes of care.

(D) The appropriate system-wide access standard applicable to hospital care, medical services, and other health care furnished by and through the Department, including an identification of appropriate access standards for each individual specialty and post-care rehabilitation.

(E) The workflow process at each medical facility of the Department for scheduling appointments for veterans to receive hospital care, medical services, or other health care from the Department.

(F) The organization, workflow processes, and tools used by the Department to support clinical staffing, access to care, effective length-of-stay management and care transitions, positive patient experience, accurate documentation, and subsequent coding of inpatient services.

(G) The staffing level at each medical facility of the Department and the productivity of each health care provider at such medical facility, compared with health care industry performance metrics, which may include an assessment of any of the following:

(i) The case load of, and number of patients treated by, each health care provider at such medical facility during an average week.

(ii) The time spent by such health care provider on matters other than the case load of such health care provider, including time spent by such health care provider as follows:

(I) At a medical facility that is affiliated with the Department.

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(II) Conducting research.

(III) Training or supervising other health care professionals of the Department.

(H) The information technology strategies of the Department with respect to furnishing and managing health care, including an identification of any weaknesses and opportunities with respect to the technology used by the Department, especially those strategies with respect to clinical documentation of episodes of hospital care, medical services, and other health care, including any clinical images and associated textual reports, furnished by the Department in Department or non-Department facilities.

(I) Business processes of the Veterans Health Administration, including processes relating to furnishing non- Department health care, insurance identification, third-party revenue collection, and vendor reimbursement, including an identification of mechanisms as follows:

(i) To avoid the payment of penalties to vendors.

(ii) To increase the collection of amounts owed to the Department for hospital care, medical services, or other health care provided by the Department for which reimbursement from a third party is authorized and to ensure that such amounts collected are accurate.

(iii) To increase the collection of any other amounts owed to the Department with respect to hospital care, medical services, and other health care and to ensure that such amounts collected are accurate.

(iv) To increase the accuracy and timeliness of Department payments to vendors and providers.

(J) The purchasing, distribution, and use of pharmaceuticals, medical and surgical supplies, medical devices, and health care related services by the Department, including the following:

(i) The prices paid for, standardization of, and use by the Department of the following:

(I) Pharmaceuticals.

(II) Medical and surgical supplies.

(III) Medical devices.

(ii) The use by the Department of group purchasing arrangements to purchase pharmaceuticals, medical and surgical supplies, medical devices, and health care related services.

(iii) The strategy and systems used by the Department to distribute pharmaceuticals, medical and surgical supplies, medical devices, and health care related services to Veterans Integrated Service Networks and medical facilities of the Department.

(K) The process of the Department for carrying out construction and maintenance projects at medical facilities of the Department and the medical facility leasing program of the Department.

(L) The competency of leadership with respect to culture, accountability, reform readiness, leadership development, physician alignment, employee engagement, succession planning, and performance management.

(2) PARTICULAR ELEMENTS OF CERTAIN ASSESSMENTS.—

(A) SCHEDULING ASSESSMENT.—In carrying out the assessment required by paragraph (1)(E), the private sector entity or entities shall do the following:

(i) Review all training materials pertaining to scheduling of appointments at each medical facility of the Department.

(ii) Assess whether all employees of the Department conducting tasks related to scheduling are properly trained for conducting such tasks.

(iii) Assess whether changes in the technology or system used in scheduling appointments are necessary to limit access to the system to only those employees that have been properly trained in conducting such tasks.

(iv) Assess whether health care providers of the Department are making changes to their schedules that hinder the ability of employees conducting such tasks to perform such tasks.

(v) Assess whether the establishment of a centralized call center throughout the Department for scheduling appointments at medical facilities of the Department would improve the process of scheduling such appointments.

(vi) Assess whether booking templates for each medical facility or clinic of the Department would improve the process of scheduling such appointments.

(vii) Assess any interim technology changes or attempts by Department to internally develop a long-term scheduling solutions with respect to the feasibility and cost effectiveness of such internally developed solutions compared to commercially available solutions.

(viii) Recommend actions, if any, to be taken by the Department to improve the process for scheduling such appointments, including the following:

(I) Changes in training materials provided to employees of the Department with respect to conducting tasks related to scheduling such appointments.

(II) Changes in monitoring and assessment conducted by the Department of wait times of veterans for such appointments.

(III) Changes in the system used to schedule such appointments, including changes to improve how the Department—

(aa) measures wait times of veterans for such appointments;

(bb) monitors the availability of health care providers of the Department; and

(cc) provides veterans the ability to schedule such appointments.

(IV) Such other actions as the private sector entity or entities considers appropriate.

(B) MEDICAL CONSTRUCTION AND MAINTENANCE PROJECT AND LEASING PROGRAM ASSESSMENT.—In carrying out the assessment required by paragraph (1)(K), the private sector entity or entities shall do the following:

(i) Review the process of the Department for identifying and designing proposals for construction and maintenance projects at medical facilities of the Department and leases for medical facilities of the Department.

(ii) Assess the process through which the Department determines the following:

(I) That a construction or maintenance project or lease is necessary with respect to a medical facility or proposed medical facility of the Department.

(II) The proper size of such medical facility or proposed medical facility with respect to treating veterans in the catchment area of such medical facility or proposed medical facility.

(iii) Assess the management processes of the Department with respect to the capital management programs of the Department, including processes relating to the methodology for construction and design of medical facilities of the Department, the management of projects relating to the construction and design of such facilities, and the activation of such facilities.

(iv) Assess the medical facility leasing program of the Department.

(3) TIMING.—The private sector entity or entities carrying out the assessment required by paragraph (1) shall complete such assessment not later than 240 days after entering into the contract described in such paragraph.

(b) PRIVATE SECTOR ENTITIES DESCRIBED.—A private entity described in this subsection is a private entity that—

(1) has experience and proven outcomes in optimizing the performance of the health care delivery systems of the Veterans Health Administration and the private sector and in health care management; and

(2) specializes in implementing large-scale organizational and cultural transformations, especially with respect to health care delivery systems.

(c) PROGRAM INTEGRATOR.—

(1) IN GENERAL.—If the Secretary enters into contracts with more than one private sector entity under subsection (a), the Secretary shall designate one such entity that is predominately a health care organization as the program integrator.

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(2) RESPONSIBILITIES.—The program integrator designated pursuant to paragraph (1) shall be responsible for coordinating the outcomes of the assessments conducted by the private entities pursuant to such contracts.

(d) REPORT ON ASSESSMENT.—

(1) IN GENERAL.—Not later than 60 days after completing the assessment required by subsection (a), the private sector entity or entities carrying out such assessment shall submit to the Secretary of Veterans Affairs, the Committee on Veterans' Affairs of the Senate, the Committee on Veterans' Affairs of the House of Representatives, and the Commission on Care established under section 202 a report on the findings and recommendations of the private sector entity or entities with respect to such assessment.

(2) PUBLICATION.—Not later than 30 days after receiving the report under paragraph (1), the Secretary shall publish such report in the Federal Register and on an Internet website of the Department of Veterans Affairs that is accessible to the public.

(e) NON-DEPARTMENT FACILITIES DEFINED.—In this section, the term ''non-Department facilities'' has the meaning given that term in section 1701 of title 38, United States Code.

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Appendix Q   Blue Ribbon Panel

The Blue Ribbon Panel members are listed here, along with their biographies.

Dr. Brett Giroir (Panel Chair)	
Dr. Gail Wilensky (Panel Co-Chair)	
Dr. Katrina Armstrong	Dr. Debra Barksdale
Dr. Ronald R. Blanck	Prof. W. Warner Burke
Dr. Christine Cassel	GEN(R) Peter W. Chiarelli
Mr. George Halvorson	Mr. Robert L. Mallett
Dr. Robert Margolis	Dr. George Poste
Dr. Robert C. Robbins	Dr. Mark D. Smith
Dr. Glenn D. Steele, Jr.	Dr. Beth Ann Swan

Dr. Katrina Armstrong

Katrina Armstrong, M.D., MSCE, a world-renowned investigator in the areas of medical decision-making, quality of care, and cancer prevention and outcomes, is Physician-in-Chief of the Massachusetts General Hospital Department of Medicine, and Professor of Medicine at Harvard Medical School. Focusing at the interface of genomics, cancer and social policy, she has translated genomics advances into improvements in cancer control and identified novel mechanisms underlying cancer disparities. She leads one of the premier departments of medicine in the U.S. today, and has a deep understanding of what is needed to deliver exemplary clinical care.

Dr. Debra Barksdale

Dr. Debra J. Barksdale is Professor and Director of the DNP program at the University of North Carolina at Chapel Hill (UNC-CH). She is certified as a family nurse practitioner (NP), an adult NP, and a nurse educator. She is a Fellow of the American Academy of Nurse Practitioners and the American Academy of Nursing. She has over 20 years of NP experience and has been a NP in urgent care, primary care, home care and care of the underserved. On September 23, 2010, Dr. Barksdale was one of 19 members appointed to the 21 member Board of Governors for the new Patient-Centered Outcomes Research Institute (PCORI) by the U.S. Government Accountability Office under the Obama Administration. She is the only nurse appointed to the PCORI Board.

Dr. Ronald R. Blanck

Lt. Gen. Ronald R. Blanck, D.O., USA (Ret.), was the 39th Surgeon General of the United States Army, from 1996–2000. He was president of the University of North Texas Health Science

Center at Fort Worth from 2000 to 2006. He currently serves as Chairman of the Board of Regents of the Uniformed Services University of the Health Sciences. He began his military career in 1968 as a medical officer and battalion surgeon in Vietnam. He retired 32 years later as the Surgeon General of the U.S. Army and commander of the U.S. Army Medical Command, with more than 46,000 military personnel and 26,000 civilian employees throughout the world.

Prof. W. Warner Burke

Warner Burke, Ph.D,. is the E. L. Thorndike Professor of Psychology and Education and Editor of the Journal of Applied Behavioral Science at Teachers College, Columbia University. A social-organizational psychologist (Ph.D., University of Texas, Austin), Dr. Burke is currently engaged in teaching, research, and consulting. He teaches leadership and supervision and organization change. His research focuses on leadership, multirater feedback, organization change, and learning agility. Prof. Burke co-directs the Eisenhower Leader Development Program, an MA degree for Army officers jointly sponsored by Teachers College, Columbia University and the US Military Academy at West Point. He is the former Chair of the Department of Organization and Leadership at Teachers College, Columbia University. Among his many awards is the Public Service Medal from the National Aeronautics and Space Administration.

Dr. Christine Cassel

Christine K. Cassel, M.D., President and CEO of the National Quality Forum, is a leading expert in geriatric medicine, medical ethics, and quality of care. She is one of the world's leading experts on clinical quality. Dr. Cassel previously served as President and CEO of the American Board of Internal Medicine (ABIM), the ABIM Foundation, and Dean of the School of Medicine at Oregon Health Sciences University. Dr. Cassel is one of 20 scientists (and the only M.D.) chosen by President Obama to serve on the President's Council of Advisors on Science and Technology (PCAST), which advises the President in areas where an understanding of science, technology, and innovation is key to forming responsible and effective policy. She is the co-chair and physician leader of PCAST working groups that have made recommendations to the President on issues relating to health information technology and ways to promote scientific innovation in drug development and evaluation. In addition to having chaired influential Institute of Medicine (IOM) reports on end-of-life care and public health, she served on the IOM's Comparative Effective Research Committee mandated by Congress to set priorities for the national CER effort (PCORI).

Gen. Peter W. Chiarelli

Peter W. Chiarelli is a retired United States Army general who served as the 32nd Vice Chief of Staff of the U.S. Army from August 4, 2008 to January 31, 2012. As former vice chief of staff of the Army, Gen Chiarelli understands the needs of the Veteran, understands the issues of the hand-off from DoD care to VHA care for the Veterans, and has a deep personal interest in improving care for those Veterans who have experienced traumatic brain injury and post-traumatic stress.

Dr. Brett Giroir (Panel Chair)

Brett Giroir, M.D., is currently Senior Fellow at the Health Policy Institute of the Texas Medical Center, and former CEO of the Texas A&M Health Science Center, a premier assembly of colleges devoted to educating health professionals and advancing research in medicine, dentistry, public health, nursing, and pharmacy. He is a global authority on health care and life sciences innovation, having served diverse roles including Director of the Defense Science Office at DARPA, Principal Investigator of the DHHS Center for Innovation responsible for producing 50 million doses of vaccine against pandemic influenza, and Director of the Texas Task Force on Infectious Diseases chartered to lead the state's Ebola response and recommend policy changes within the state.

Mr. George Halvorson

Mr. George Halvorson served as chairman and chief executive officer of Kaiser Permanente from 2002–2013. Prior to serving as Kaiser Permanente CEO, Mr. Halvorson was the president and CEO of Health Partners in Minnesota for 17 years. He brings world-class leadership experience and expertise to the Panel, particularly in terms of leading a very large vertically integrated health care delivery system. He also brings connectivity to, and relationships with, many other expert health care leaders.

Mr. Halvorson currently serves as the Chair and CEO for the Institute of InterGroup Understanding and has a four year appointment to Chair the State of California Commission for Children and Families.

Mr. Robert L. Mallett

Robert L. Mallett is currently a board member and President and CEO of Accordia Global Health Foundation, an organization dedicated to health systems strengthening in Sub-Saharan Africa. For much of his professional career, Mr. Mallett has served in the health sector as a board member of health centered nonprofit organizations and at industry-leading health care companies. He is formerly Executive Vice President & General Counsel, Public and Senior Markets Group, a division of United Health Group. Immediately prior to joining United Health Group, Mr. Mallett served as Senior Vice President, Worldwide Policy & Public Affairs, Pfizer Inc. At Pfizer, among other things, he co-led the company's efforts on enhancing global access to medicines and served as President of the Pfizer Foundation. Mr. Mallett has also enjoyed a stimulating career as a chief operating officer in both federal and local government. During the Clinton Administration, he served as Acting Secretary and Deputy Secretary of the U.S. Department of Commerce, and he was City Administrator and Deputy Mayor for Operations for the District of Columbia. He has been the Peter P. Mullen Visiting Professor of Law at Georgetown University, and a Visiting Professor at the John F. Kennedy School of Government at Harvard University. Mr. Mallett is a member of the Council on Foreign Relations and an elected Fellow of the National Academy of Public Administrators.

Dr. Robert Margolis

Robert Margolis, M.D., is former Co-Chairman of the Board, DaVita HealthCare Partners and CEO Emeritus of HealthCare Partners, LLC. Dr. Margolis served as the managing partner and CEO of HealthCare Partners from the formation of the company in 1992 through February 2014. Under Dr. Margolis' leadership, HealthCare Partners became a highly respected and innovative

physician-owned and operated medical group, independent physician association, and management services organization. Dr. Margolis has been on the leading edge of the managed care industry for more than 30 years.

Dr. George Poste

Dr. George Poste is the Del E. Webb Professor of Health Innovation and Chief Scientist of the Complex Adaptive Systems Initiative (CASI) at Arizona State University (ASU). This program integrates research in genomics, synthetic biology and high performance computing to study the altered regulation of molecular networks in human diseases to develop new diagnostic tests for precision (personalized) medicine and the remote monitoring of health status using miniaturized body sensors and mobile devices. From 1992–1999, he was Chief Science and Technology Officer and President, R&D, of SmithKline Beecham (SB). During his tenure at SB, he was associated with the successful registration of multiple drug, vaccine, and diagnostic products. He has served as a member of the Defense Science Board of the U.S. Department of Defense and currently serves on advisory committees for several U.S. government agencies in defense, intelligence, national security and health care.

Dr. Robert C. Robbins

Robert C. Robbins, M.D., became President and Chief Executive Officer of Texas Medical Center on November 5, 2012. Prior to that, he was professor and chairman of the Department of Cardiothoracic Surgery at Stanford University School of Medicine, where he served as a member of the faculty since 1993. He served as director of the Stanford Cardiovascular Institute, of the Heart- Lung and Lung Transplantation Programs, and of the Cardiothoracic Transplantation Laboratory. Dr. Robbins is an internationally recognized cardiac surgeon who has focused his clinical efforts on acquired cardiac diseases with a special expertise in the surgical treatment of congestive heart failure. His research work includes the investigation of stem cells for cardiac regeneration, cardiac transplant allograft vasculopathy, bioengineered blood vessels, and automated vascular anastomotic devices. As the CEO of the largest medical complex in the world, he brings world class expertise from a senior leadership perspective for all of the areas covered by the 12 assessments.

Dr. Mark D. Smith

Mark D. Smith, M.D., is founder and former President and Chief Executive Officer of the California HealthCare Foundation, an independent philanthropy in Oakland California, dedicated to improving the health of the people of California, particularly the underserved. He chaired the IOM's Committee on the Learning Healthcare System, which produced the widely publicized 2012 report Best Care at Lower Cost.

Dr. Glenn D. Steele, Jr.

Glenn D. Steele, Jr., M.D., Ph.D., is Chairman of xG Health Solutions and immediate past President and Chief Executive Officer of Geisinger Health System. Under his leadership from 2001–2015, this vertically integrated health care system has risen to be one of the most cost-effective, high quality provider organizations in the country. Prior to Geisinger, he was at the University of Chicago, where he served as Richard T. Crane Professor in the Department of

Surgery, Vice President for Medical Affairs, and Dean of the Biological Sciences Division and the Pritzker School of Medicine. Prior to that, he was the William V. McDermott Professor of Surgery at Harvard Medical School, President and Chief Executive Officer of Deaconess Professional Practice Group and Chairman of the Department of Surgery at New England Deaconess Hospital. Widely recognized for his investigations into the treatment of primary and metastatic liver cancer and colorectal cancer surgery, Dr. Steele is past Chairman of the American Board of Surgery. He serves on the editorial board of numerous prominent medical journals. His investigations have focused on the cell biology of gastrointestinal cancer and pre-cancer. Most recently, he has concentrated on innovations in health care delivery and financing.

Dr. Beth Ann Swan

Beth Ann Swan, Ph.D., CRNP, FAAN, is Dean and Professor, Jefferson College of Nursing, Thomas Jefferson University. An acknowledged leader in nursing and ambulatory care, she has deep expertise and research experience in technology applications for practice-based research; client outcomes, especially symptom distress and functional status following ambulatory surgery; post-acute care coordination and transition management; and dissemination of evidence, based on accessibility and usability of web-based evidence resources.

Dr. Gail Wilensky (Panel Co-Chair)

Gail Wilensky, Ph.D., is an economist and senior fellow at Project HOPE, an international health foundation. She directed the Medicare and Medicaid programs from 1990–1992 and served in the White House as a senior health and welfare adviser to President GHW Bush. Dr. Wilensky currently serves as a trustee of the Combined Benefits Fund of the United Mine Workers of America and the National Opinion Research Center, is on the Board of Regents of the Uniformed Services University of the Health Sciences (USUHS), the Visiting Committee of the Harvard Medical School, and the Geisinger Health System Foundation. She recently served as president of the Defense Health Board, a Federal advisory to the Secretary of Defense, was a commissioner on the World Health Organization's Commission on the Social Determinants of Health, and co-chaired the Dept. of Defense Task Force on the Future of Military Health Care. She is an elected member of the Institute of Medicine and has served two terms on its governing council. She is a former chair of the board of directors of Academy Health, a former trustee of the American Heart Association and a current or former director of numerous other non-profit organizations.

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Section 201: Independent Assessment of the Health Care Delivery
Systems and Management Processes of the Department of Veterans
Affairs

Assessment A (Demographics)

September 1, 2015

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Assessment A Authorship Credits

Assessment A Study Directors
Christine Eibner
Heather Krull

RAND Project Director
Carrie Farmer

Communications Analyst
David Adamson

RAND Project Co-Director
Susan Hosek

Section 1: Introduction

David Adamson
Christine Eibner
Heather Krull

Section 2: Conceptual Framework
Christine Eibner
Amii Kress
Andrew Mulcahy
Jaime Hastings
Kristine Brown
Matthew Cefalu
Michael Pollard
Heather Krull

Section 2: Demographic Projections
Michael Pollard*
Ernesto Amaral
Joshua Mendelsohn
Matthew Cefalu
Amii Kress
Rachel Ross

Section 4: Enrollment and Reliance
Matthew Cefalu*
Andrew Mulcahy*
Kristine Brown
Jaime Hastings
Amii Kress
Carolyn Rutter
David Adamson
Robin Weinick

Section 5: Health Care Needs Projections
Kristine Brown*
Kanaka Shetty*
Trinidad Beleche
Matthew Cefalu
Kandice Kapinos
Carolyn Rutter
Amii Kress
Rachel Ross

Section 6: Scenarios

Andrew Mulcahy*
Philip Armour
Joshua Mendelsohn
Dulani Woods
Olena Bogdan

Section 7: Conclusions
Heather Krull
Kristine Brown
Amii Kress
Andrew Mulcahy
Michael Pollard
Christine Eibner

* Denotes team lead

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Acknowledgments

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Preface

Congress enacted and President Obama signed into law the Veterans Access, Choice, and Accountability Act of 2014 (Public Law 113-146) ("Veterans Choice Act"), as amended by the Department of Veterans Affairs (VA) Expiring Authorities Act of 2014 (Public Law 113-175), to improve access to timely, high-quality health care for Veterans. Under "Title II – Health Care Administrative Matters," Section 201 calls for an Independent Assessment of 12 areas of VA's health care delivery systems and management processes.

VA engaged the Institute of Medicine of the National Academies to prepare an assessment of access standards and engaged the Centers for Medicare & Medicaid Services (CMS) Alliance to Modernize Healthcare (CAMH)[1] to serve as the program integrator and as primary developer of the remaining 11 Veterans Choice Act independent assessments. CAMH subcontracted with Grant Thornton, McKinsey & Company, and the RAND Corporation to conduct 10 independent assessments as specified in Section 201, with MITRE conducting the 11th assessment. Drawing on the results of the 12 assessments, CAMH also produced the Integrated Report in this volume, which contains key findings and recommendations. CAMH is furnishing the complete set of reports to the Secretary of Veterans Affairs, the Committee on Veterans' Affairs of the Senate, the Committee on Veterans' Affairs of the House of Representatives, and the Commission on Care.

The research addressed in this report was conducted by the RAND Corporation, under a subcontract with The MITRE Corporation.

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[1] The CMS Alliance to Modernize Healthcare (CAMH), sponsored by the Centers for Medicare & Medicaid Services (CMS), is a federally funded research and development center (FFRDC) operated by The MITRE Corporation, a not-for-profit company chartered to work in the public interest. For additional information, see the CMS Alliance to Modernize Healthcare (CAMH) website (http://www.mitre.org/centers/cms-alliances-to-modernize-healthcare/who-we-are/the-camh-difference).

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Executive Summary

This report presents findings from Assessment A (identified under Title II—Health Care Administrative Matters, Section 201 of the Veterans Choice Act). The assessment responds to language in the Veterans Choice Act of 2014, Title II—Health Care Administrative Matters, Section 201.A.1.a, mandating "an independent assessment of current and projected demographics and unique health care needs of the patient population served by the Department."

Study Purpose and Approach

Assessment A examines the demographic characteristics of the current and projected population of U.S. Veterans and patients of the VA health care system. In addition, the assessment examines the unique health care needs of the patient population currently served by VA, and it projects the health care needs of Veterans who might become patients in the future. We use the term *Veteran* to describe all Veterans, whether or not they use VA health care services, and the term *VA patients* to describe Veterans who received at least some health care from VA in the past year.

Assessment A addresses four overarching research questions:

- What are the demographic characteristics of the U.S. Veteran population and how are these projected to change between 2015 and 2024?
- To what extent do Veterans, including VA patients, rely on VA for their health care?
- What are the current health care needs of the Veteran population, including both VA patients and non-VA patients, and how do these compare with the needs of the non-Veteran population? How will the needs of Veterans in general and the VA patient population specifically evolve over time given current policies?
- How might the projected number of Veterans and VA patients change due to external forces or changes in VA policies?

To address the research questions, the Task A assessment team conducted a series of analytic activities: Using a cohort-based approach, we estimated the size and demographic composition of the Veteran population; using the projected number of Veterans as a baseline, we estimated future enrollment in the VA health care system, the future size of the VA patient population, and the share of health care services that current Veterans receive from VA; we combined several data sources to assess the unique health care needs of Veterans and VA patients compared with non-Veterans; we used a modeling approach to assess how the number of VA patients and their health conditions might evolve over time; and we conducted scenario testing to understand how VA policies and external factors might affect the size of the Veteran population and the number of VA patients.

Background

VA provides health care services to enrolled Veterans who seek care at VA facilities, or—in some cases—through contracted care purchased from the civilian sector. Eligibility for VA health care has evolved over time, and today's eligibility rules are rooted in the Veterans Health Care Eligibility Reform Act of 1996. The law mandated health care for service-connected health conditions and for Veterans with a service-connected disability rated at 50 percent or higher. The Secretary of Veterans Affairs has legal discretion over the provision of all other care, but VA must maintain specialized treatment and rehabilitation programs for spinal injuries, blindness, amputations, mental illness, and other serious service-connected health conditions.

In general, a Veteran must have served in the U.S. military for at least 24 months and received an honorable discharge to enroll for VA health care. Some exceptions are permitted; for example, Veterans serving less than 24 months may be eligible if they were medically retired from military service due to a service-connected condition. To implement the 1996 law, VA established a priority system for determining which groups of Veterans will be authorized for care within the authorized budget. This structure places Veterans in one of eight priority groups based on their service-connected disability rating, income, and other factors. A Veteran's priority group designation affects his or her eligibility to receive care through VA, as well as his or her cost-sharing requirements (that is, whether co-payments are required and, if so, how much). Currently, enrollment is limited to recent combat Veterans, Veterans with qualifying incomes, and Veterans with service-connected or other disabilities. Based on our analysis of VA administrative data, about 9 million Veterans (42 percent of all Veterans) were enrolled in 2014. Non-enrolled Veterans include a mix of Veterans who are ineligible to enroll and Veterans who are eligible to enroll but choose not to do so.

Use of VA health care depends on a number of factors, including the total number of Veterans in the population, Veterans' eligibility to enroll for services, Veterans' enrollment decisions when eligible, and Veterans' decisions to seek VA health care services when enrolled. Because many Veterans have access to health care through other sources, such as employer insurance or Medicare, not all will choose to enroll, and those who do enroll may choose not to use VA for all of their health care needs. In addition, both VA policy and factors external to VA can affect Veterans' use of services. For example, a policy change enabling higher-income Veterans to enroll could increase demand for VA services. Similarly, a future military conflict could increase the number of Veterans in the pipeline and affect their health care needs. In our analysis, we distinguish VA enrollees from VA patients; a VA patient is an enrollee who has used VA health care in the past year.

In this assessment, we used data from VA and from other federal sources, such as the U.S. Census Bureau, to estimate the total number of Veterans and VA patients, to project the size of these populations over time, and to estimate the health care needs of these populations. Our baseline estimates and projections assumed that VA policies and other factors that might affect Veterans' demand for services are constant, with adjustments for policy changes that have already been announced (such as the President's plan to reduce the size of the U.S. military). In scenario testing, we considered how uncertain future events, such as a future conflict or a

change in VA eligibility policy, might affect the size and health care needs of the Veteran and VA patient populations.

Key Findings

Current and Projected Demographic Trends in the Veteran Population

Today's Veterans generally enjoy favorable socioeconomic outcomes relative to their non-Veteran counterparts. Using data from the American Community Survey (ACS), we find that Veterans are less likely to be unemployed, less likely to be living below the poverty line, and more likely to have graduated from high school, on average, than non-Veterans (Figure ES-1). Veterans are also more likely than non-Veterans to have medical insurance; only 7 percent of female Veterans and 6 percent of male Veterans were uninsured during the 2009 to 2013 time period, according to the ACS. In contrast, 15 percent of female non-Veterans and 22 percent of male non-Veterans were uninsured during this time period. Rates of uninsurance among the Veteran population may be low in part because many Veterans have access to free insurance through VA. Insurance rates in the United States have increased since 2013, due to the implementation of the Patient Protection and Affordable Care Act (ACA) (Office of the Assistant Secretary for Planning and Evaluation, 2015a). We did not have data, however, that allowed us to compare post-ACA insurance rates between Veterans and non-Veterans.

Figure ES-1. Socioeconomic Characteristics of the Veteran and Non-Veteran Civilian Population, by Sex, 2009–2013
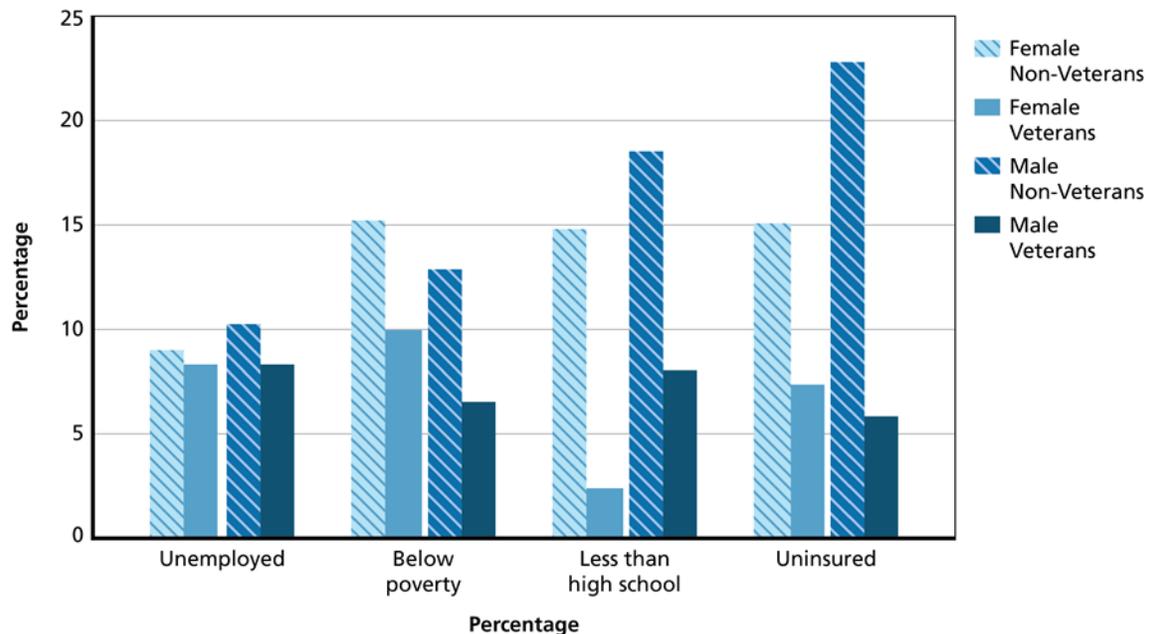
SOURCE: ACS, 2009–2013 five-year file.

Homelessness is declining among Veterans. Homelessness remains a significant problem among Veterans. Veterans are overrepresented in the U.S. adult homeless population: In 2010, Veterans accounted for approximately 10 percent of the adult population; however, they

represented a disproportionate share of the homeless adult (16 percent) and sheltered homeless adult (13 percent) populations (National Center for Veterans Analysis and Statistics, 2012b). Notwithstanding this, the rate of homelessness among Veterans has declined since 2010. According to the U.S. Department of Housing and Urban Development, there were 49,933 homeless Veterans in 2014, representing less than 0.25 percent of the total Veteran population. Between 2010 and 2014, the number of homeless Veterans declined by 33 percent (U.S. Department of Housing and Urban Development, 2014).

VA patients tend to be older and less socioeconomically well off than Veterans who do not rely on VA for care. Using data from the Medical Expenditure Panel Survey (MEPS), we are able to compare Veterans who use VA care with Veterans who do not use VA care (Table ES-1). VA patients are older and less well-off from a socioeconomic standpoint than Veterans who do not use VA for care. For example, 9 percent of VA patients have less than a high school education, compared with 6 percent of Veterans. VA patients' average household incomes are more than 20 percent lower than incomes for non-patient Veterans. VA patients are also far less likely to be employed than non-VA patients.[2] Partly, these differences are by design, because higher-income Veterans may not be eligible for VA services.

Table ES-1. Socioeconomic Characteristics of Veterans by VA Patient Status, 2006–2012

Characteristic	Veterans, VA Patients	Veterans, Non-VA Patients
Over age 65	52.2%	38.7%
Married	62.6%	68.0%
Less than high school education	9.1%	5.8%
Employed*	41.3%	62.8%
Average household income	$35,981	$45,278

SOURCE: RAND analysis of MEPS, 2006–2012.
NOTES: Veterans, VA patients and Veterans, non-VA patients are mutually exclusive categories. Sample size, VA patients = 4,871, and sample size, non-VA patients = 7,442.
* Non-employed individuals include both people who are unemployed and people who are out of the labor force, such as retirees.

We project that the population of U.S. Veterans will decrease by 19 percent over the next 10 years. The U.S. Veteran population has been decreasing for the past three decades, and this trend will continue. There were 27.5 million Veterans in the United States as of the 1990 Census; we estimate that there were 21.6 million Veterans in 2014. Over the next 10 years, our projections, drawing on VA, U.S. Census, and U.S. Department of Defense (DoD) data, showed that the Veteran population will decline to 17.5 million, a decrease of 19 percent relative to

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[2] The remaining 37.2 percent of non-VA patients and 58.7 percent of VA patients who are not employed include both unemployed individuals and people who are out of the labor force because, for example, they are retired or disabled and unable to work.

2014 levels (Figure ES-2). Given the strong preexisting trends and the President's ongoing drawdown in the size of the active duty military population (Hagel, 2014; Parrish, 2011; Office of the Under Secretary of Defense [Comptroller], 2015), the reduction in the size of the Veteran population is inevitable, absent a major policy change to increase the size of the military (for example, if an unanticipated large-scale conflict were to materialize).

Figure ES-2. The Number of U.S. Veterans Will Decline by 19 Percent by 2024
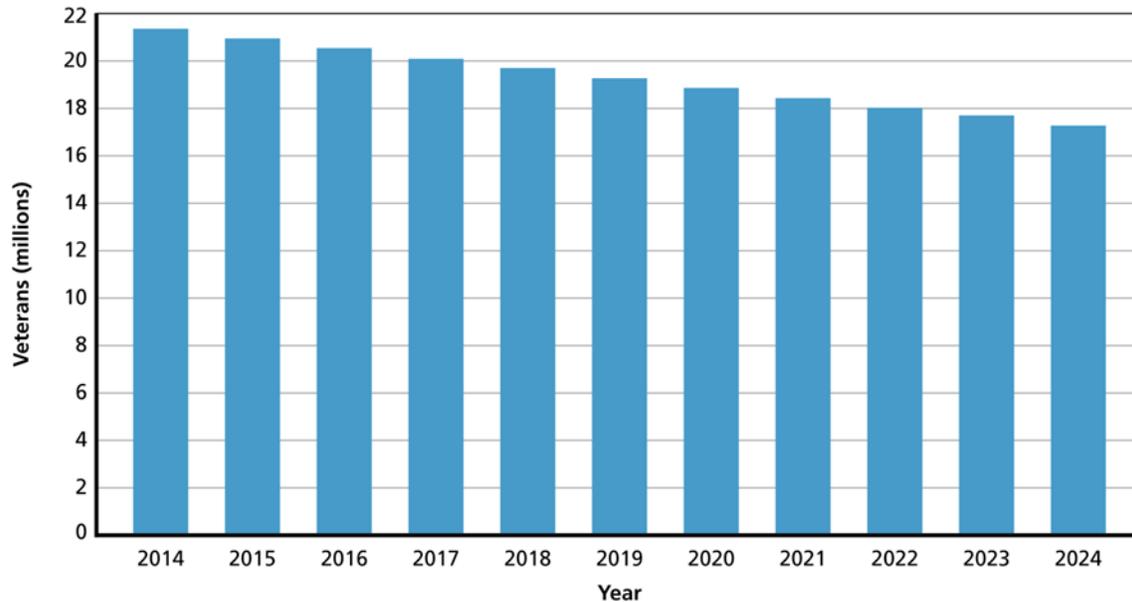
SOURCE: RAND analysis of VA, DoD, and Census data.

Geographic distribution of Veterans will shift slightly. We estimate that, geographically, the Veteran population will become more concentrated in urban areas, and the relative proportion of the Veteran population in the Ohio River Valley region will diminish.

There will be modest changes in the demographic mix, by sex and race/ethnicity. Currently, Veterans are more likely than non-Veterans to be male, and are on average much older. We estimate that approximately 92 percent of the Veteran population was male in 2014. We also estimate that 75 percent of Veterans were age 55 or older, compared with only 34 percent of the non-Veteran population. By 2024, this will shift somewhat: The proportion of female Veterans will increase 3 percentage points, from 8 to 11 percent, by 2024, and the share of non-Hispanic white males will decrease from 80 to 74 percent over the same period. Mean age will increase slightly; the population will have a higher proportion of both older and younger Veterans.

These projections are based on historic separation rates, the anticipated decrease in military end-strength over the next several years, and an assumption that there are no significant new conflicts during the projection period.

Enrollment and Reliance on VA Health Care

The number of Veterans receiving VA health care is projected to level off over the next 10 years. While the Veteran population is projected to decline by 19 percent over the next 10 years, the number of VA patients is projected to increase until 2019. Use of VA health care has increased across all demographic groups since 2005, and the fraction of Veterans under age 35 who are VA patients has increased threefold. The growth of VA use by Veterans may be related to outreach efforts on the part of VA, policies that have expanded the list of conditions granting presumptive eligibility for VA services, and streamlined enrollment processes. Continued increases in the rates of VA use are expected to slow the decline in the number of VA patients. Nevertheless, in years beyond 2019, VA may begin to experience slight declines in the volume of patients. Because VA will be coming off a period of more than a decade of expanded use, careful monitoring and new policies may be necessary to address the leveling-off and possible reduction in demand for services that could occur after 2019.

Health care planning for VA is complicated by the fact that most Veterans have more than one possible source of health coverage. The extent to which Veterans use VA care as opposed to care from other sources is captured in the concept of *reliance,* by which we mean the fraction of Veterans' total care that is provided by or paid for by VA. Reliance on VA versus other sources of care varies by type of care, but it averages below 50 percent for many routine services. Across all types of care, Veterans under age 30 are the most reliant on VA and those over age 65 are least reliant.

Both VA policy, such as policies to enhance Veterans' access to VA services, and external trends, such as the cost and availability of private health insurance, can affect Veterans' reliance on VA. However, VA has limited visibility into patients' reliance. While VA has access to data on care obtained at VA facilities, it is difficult to track how much care Veterans consume outside of the VA system—for example, through private health insurance. Yet understanding reliance is critical for planning, because shifts in reliance can affect the total amount of care that Veterans obtain from VA facilities.

We analyzed reliance using data from MEPS and compared these estimates with reliance estimates used in VA's Enrollee Health Care Projection Model (EHCPM). MEPS is a survey of health care utilization and spending conducted by the Agency for Healthcare Research and Quality (AHRQ). The EHCPM is a forecasting model sponsored by VA, which relies on VA survey data, Medicare claims data, and proprietary data from the actuarial firm Milliman.

Using MEPS data, we found that younger Veterans, lower-income Veterans, Veterans in rural areas, Veterans without other access to health insurance coverage, and Veterans with poorer self-reported health status rely more than other Veterans on VA. However, the estimated share of care obtained through VA is generally lower in the MEPS estimates than in the EHCPM estimates. For example, MEPS indicates that VA patients obtain 30 percent of their prescription drugs through VA, compared with ECHPM's estimate that enrollees obtain 66 percent of their prescriptions from VA. Because the EHCPM estimates are in part based on proprietary methods, we were unable to ascertain fully the reasons for these differences. However, a general conclusion is that VA might benefit from validating current reliance estimates and investing in survey approaches to better understand Veterans' total health care needs.

Unique Health Care Needs of Veterans and VA Patients

To identify the unique health care needs of Veterans and the VA patient population,[3] we first compared the prevalence of key health conditions among the current Veteran population with those among the non-Veteran population. We then compared the prevalence of key health conditions among VA patients with those among Veterans who do not use VA health care and analyzed which characteristics (including the presence of particular health conditions) were associated with receiving care at VA facilities. Our analysis relied on MEPS, which collects information on all care received, regardless of payer, and information on Veteran status and use of VA services. With MEPS data, we can analyze all of a Veterans' diagnosed health conditions, regardless of whether the Veteran used VA health services. We can also use MEPS data to compare Veterans with non-Veterans. While the numbers reported in this summary are from MEPS, we also present in the body of the report findings from analysis of VA administrative data on patient encounters.

We examined both unadjusted prevalence rates of these health conditions and adjusted prevalence rates, which accounted for key demographic characteristics, such as age and sex. Both rates provide unique information with relevance to policy issues.

Unadjusted prevalence rates provide a snapshot of the overall Veteran population and enable us to compare how Veterans and VA patients may differ from civilians in terms of their health care needs. Unadjusted rates, however, do not account for the fact that Veterans are typically older and more likely to be male than civilians. Nevertheless, these numbers are useful for planning purposes. For example, the fact that Veterans have a much higher rate of diabetes than non-Veterans is useful for determining the types of providers and services that Veterans need, even if most of the difference between Veterans and non-Veterans can be explained by factors such as age and sex.

Adjusted prevalence rates help us understand how Veterans' and VA patients' health care needs may differ from the needs of demographically similar non-Veterans. As a result, these comparisons inform our understanding of how the experience of being a Veteran affects health. However, because they already account for demographic differences, without careful interpretation, the adjusted prevalence rates may appear to understate key differences in health care needs between Veterans and non-Veterans at the population level.

We also projected the prevalence of the health conditions of Veterans and VA patients forward over the next 10 years, accounting for predicted changes in their demographic composition and their service experiences.

Veterans have a higher unadjusted prevalence of diagnosed health conditions than non-Veterans. The diagnosed prevalence of many common chronic health conditions, unadjusted for differences in demographic characteristics, is higher among Veterans than non-Veterans.

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[3] We define the *unique* health care needs of Veterans as those that disproportionately affect Veterans relative to non-Veterans. These include both service-connected conditions, such as posttraumatic stress disorder (PTSD), and other conditions that are more prevalent among Veterans than non-Veterans, including diabetes and cancer.

For example, the prevalence of diabetes and gastroesophageal reflux disease (GERD) disorders among Veterans is substantially higher than for non-Veterans (Figure ES-3). Veterans are more likely than non-Veterans to be diagnosed with cancer, hearing loss, and PTSD. Mental health conditions, generally, are equally prevalent in the Veteran and non-Veteran populations. Because Veterans are more likely to have insurance than non-Veterans, some of these differences could reflect that Veterans are more likely to receive diagnoses than non-Veterans. Nevertheless, understanding differences in diagnosed conditions sheds light on differences in conditions that Veterans and non-Veterans are being treated for under existing policies. As such, these analyses inform our understanding of whether Veteran providers are likely to treat a different mix of conditions than civilian providers. Our analyses suggested that VA providers are likely to be treating a sicker population with more chronic conditions, such as cancer, diabetes, and chronic obstructive pulmonary disease (COPD), than the population expected by civilian providers.

Figure ES-3. Veterans Have Higher Diagnosed Prevalence of Several Key Health Conditions (Unadjusted Prevalence)
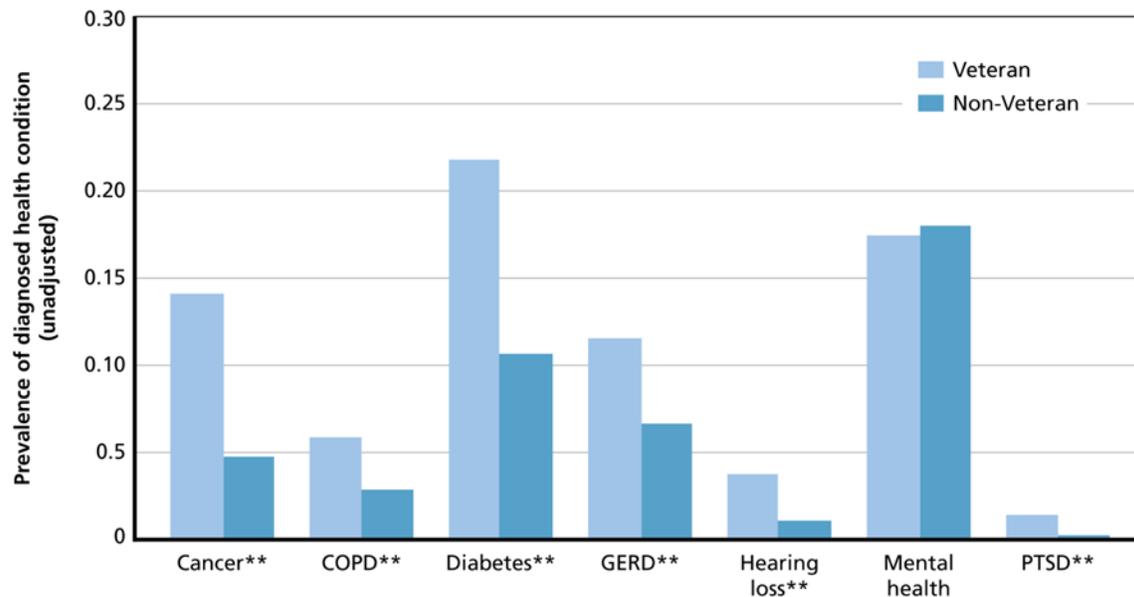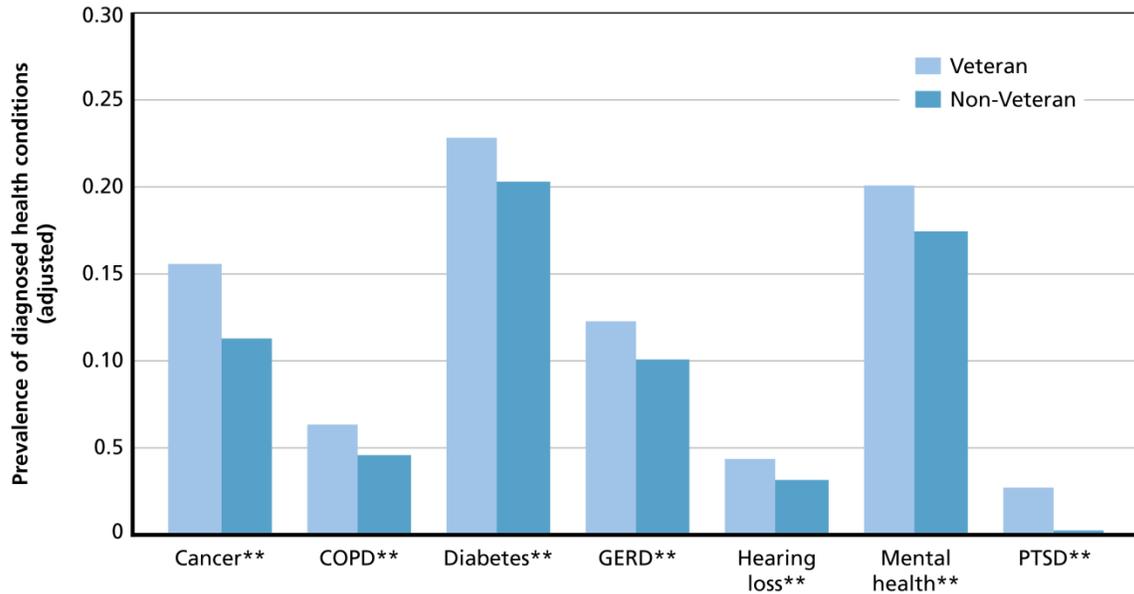

SOURCE: MEPS, 2006–2012.
NOTES: ** indicates a statistically significant difference between Veterans and non-Veterans at p-value < 0.05. Sample size, non-Veterans = 150,225 and sample size, Veterans = 12,313. Sample sizes may be smaller for some conditions due to missing values. Cancer includes any malignancy, and Mental Health includes any mental health condition.

Veterans also have a higher adjusted prevalence of key health conditions than non-Veterans. For some conditions, adjusting for demographic characteristics substantially reduces the difference in prevalence rates between Veterans and non-Veterans. For example, Veterans are twice as likely to have diabetes as non-Veterans in the unadjusted model, but after adjusting for demographic characteristics, the prevalence rate among Veterans is only 13 percent higher. In the adjusted model, Veterans are more likely to have mental health conditions than non-Veterans, while differences were not statistically significant in the unadjusted model. Even though fewer than 5 percent of Veterans are diagnosed with PTSD, it is even rarer in the non-

Veteran population. After controlling for age and other factors (Figure ES-4), Veterans are 13.5 times more likely than non-Veterans to be diagnosed with PTSD.

Figure ES-4. Veterans Have a Higher Prevalence of Several Key Health Conditions (Adjusted Prevalence)
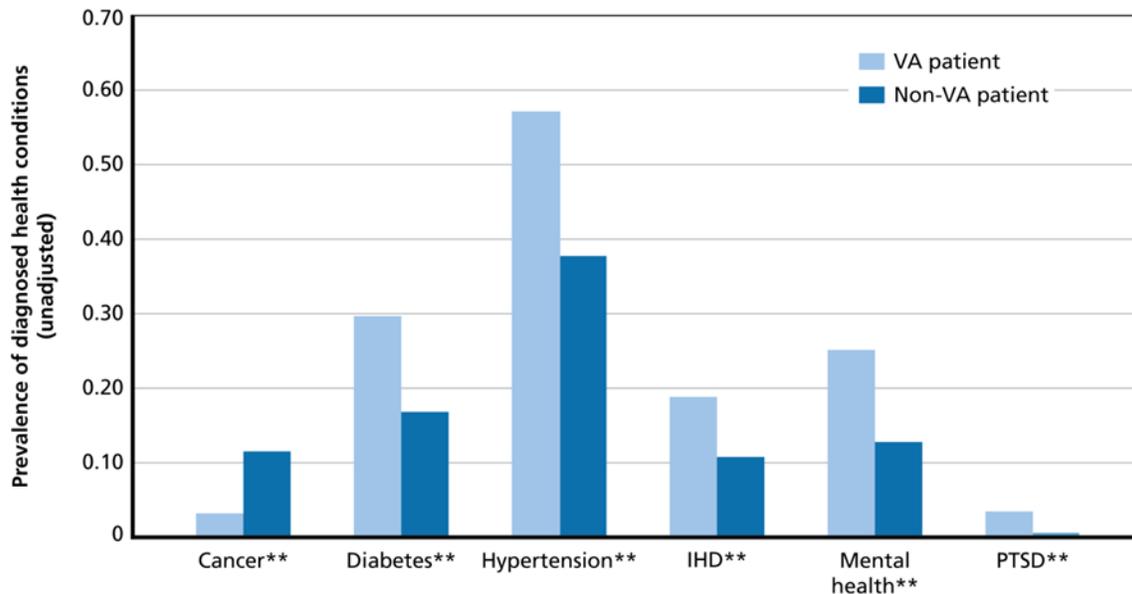

SOURCE: MEPS, 2006–2012.
NOTES: ** indicates a statistically significant difference between Veterans and non-Veterans at p-value < 0.05. Sample size, non-Veterans = 150,225, and sample size, Veterans = 12,313. Sample sizes may be smaller for some conditions due to missing values. Cancer includes any malignancy, and Mental Health includes any mental health condition.

VA patients are typically less healthy than Veterans who do not use VA health care.
Compared with Veterans seen by private health care providers, Veterans who received treatment from VA had higher rates of cancer, diabetes, hypertension, PTSD, ischemic heart disease (IHD), and other conditions (Figure ES-5). These differences reflect VA patients' older age, and also reflect the eligibility criteria for enrolling in VA care, which depend in part on health status. Among VA patients, the unadjusted prevalence of common chronic conditions (e.g., diabetes, cancer) is 51 to 96 percent higher for VA patients relative to Veterans who do not use VA care; however, rates of PTSD are several orders of magnitude higher among VA patients relative to non-patients. Adjusting for demographic characteristics slightly reduces differences in prevalence rates between patients and non-patients (results shown in Section 5).

**Figure ES-5. VA Patients Have a Higher Prevalence of Several Key Health Conditions
(Unadjusted Prevalence)**

SOURCE: RAND analysis of MEPS, 2006–2012.
NOTES: ** indicates a statistically significant difference between VA patients and Veterans who are not VA patients at p-value <
0.05. Sample size, VA patients = 4,871, and sample size, non-VA patients = 7,438. Sample sizes may be smaller for some
conditions due to missing values. Cancer includes any malignancy, and Mental Health includes any mental health condition.

According to the MEPS data in Figure ES-5, about 25 percent of all patients who accessed care
at VA had a mental health condition, and almost 4 percent had PTSD.[4] Rates of PTSD are
substantially higher among Veterans under age 35 (see Section 5). When combined with the
otherwise rare conditions related to combat—amputation, traumatic brain injury (TBI),
blindness, and severe burns—and the vulnerable circumstances of some patients, VA handles a
patient mix that differs from what community providers typically see.

**The prevalence of many common conditions is projected to increase among Veterans over
the next 10 years.** We estimate that aging in the Veteran population will lead to increases in
the prevalence of several common health conditions among Veterans over the next 10 years.
Figure ES-6 shows projected unadjusted prevalence for hypertension, diabetes, IHD, and mental
health conditions; in Section 5, we report similar charts for a more extensive set of conditions.
Among all Veterans, we estimate that the prevalence rates for diabetes and hypertension will
increase by about 12 and 8 percent, respectively, between 2015 and 2024. However, while
aging will tend to increase the prevalence of IHD, we estimated that prevalence rates for IHD
will decline during 2015–2024. This finding is consistent with long-standing trends toward

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[4] As shown in more detail in Section 5, PTSD prevalence rates for VA patients are higher in the VA administrative
encounter data than in the MEPS data. The higher prevalence in the encounter data could reflect that these data
are more recent than MEPS, especially because we pool six years of data (2006–2012) in our MEPS analysis. In
addition, MEPS data could be biased downward if people are reluctant to report mental health conditions in
surveys, while VA encounter data could be biased upward if some encounters reflect "rule-out" diagnoses.

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decreasing prevalence of acute coronary syndrome across all age groups in the U.S. population (Krumholz, Normand, & Wang, 2014; Talbott et al., 2013). However, this decline largely represents an extrapolation of recent declines in the prevalence of IHD noted in MEPS. The relatively large confidence bands suggest that the trend is uncertain and actual prevalence may not decline as sharply. Mental health conditions increase moderately over time, with prevalence rates rising by about 6.8 percent.

Figure ES-6 reports prevalence rates among all Veterans, which we estimated using a combination of data sources, including MEPS and MHS data, on service members who recently converted from active duty to Veteran status. In Section 5, we provide more detail on the analytic approach that we used to generate these estimates, and present additional results for VA patients (as opposed to all Veterans). In general, prevalence rates among VA patients increase somewhat more than prevalence rates for all Veterans. As a result, the gap in prevalence rates between VA patients and Veterans who do not use VA health care is projected to increase over time.

Figure ES-6. Projected Unadjusted Prevalence of Selected Health Conditions Among Veterans (2015–2024)
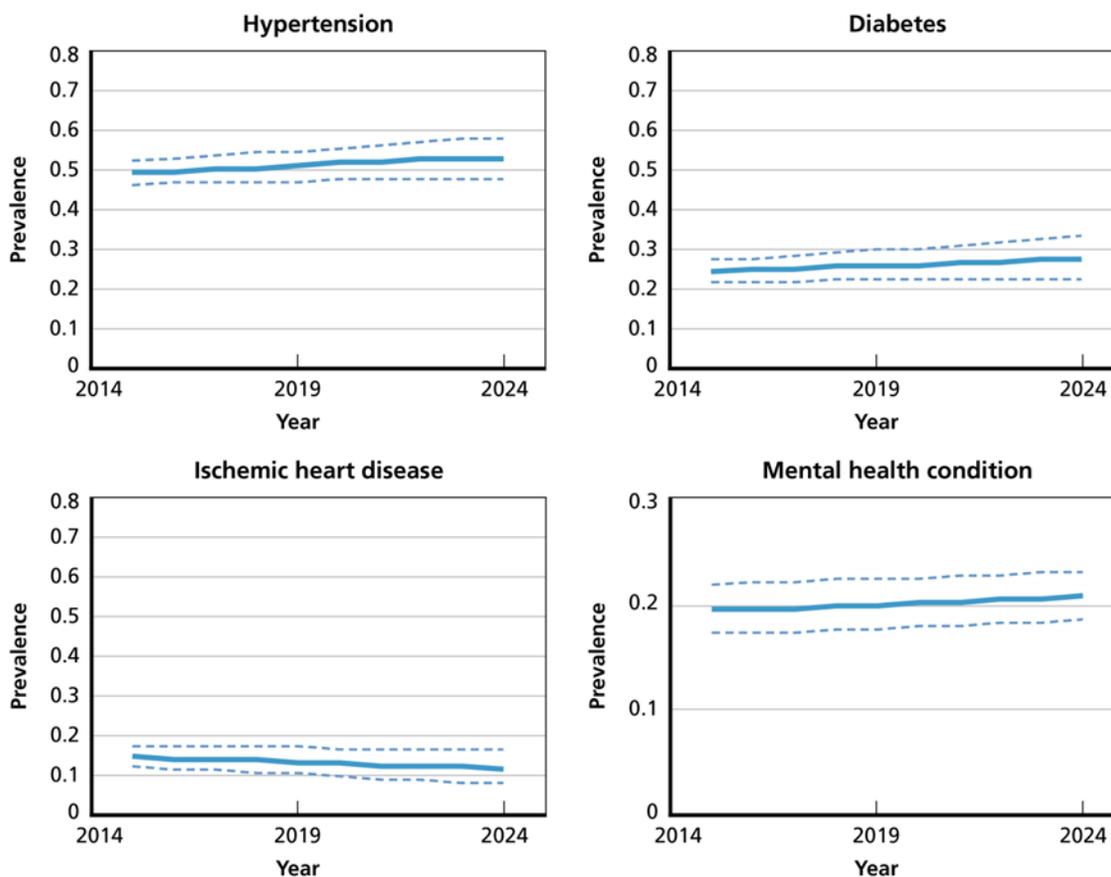
SOURCE: RAND analysis of VA, DoD, and Census data (2005–2014, Section 3), and MEPS (2006–2012).
NOTES: Solid lines indicate the projected prevalence for each health condition, which accounts for the changes in the composition of the VA patient populations by age, sex, race/ethnicity, Census region, and metropolitan statistical area (MSA).

The dashed lines indicate upper and lower bounds for the projected prevalence rates. (See Appendix C.1.5 for methodological details.)

Scenarios

We examined five scenarios, based on hypothetical future changes to VA policy or to the environment surrounding VA health care.

Scenario 1: Broader VA eligibility. Higher-income Veterans without disabilities are currently ineligible to enroll for VA coverage or to receive care at VA. Expanding eligibility to currently excluded groups could lead to more than 4.8 million newly eligible Veterans, and as many as 2.1 million new VA patients, amounting to a 35-percent increase in the size of VA's patient population.

Scenario 2: Including hypertension presumptively as a service-connected condition for Vietnam Veterans. According to the Institute of Medicine of the National Academies (IOM), there is increasingly solid evidence that hypertension among Vietnam-era Veterans is related to service in the Vietnam Theater of Operations. As yet, VA has not added hypertension to the list of presumptive conditions for Vietnam-era Veterans. If hypertension were included, we estimate that this would translate into 363,000 new VA patients, an increase of 6.4 percent in VA's total patient population.

Scenario 3: Hypothetical future conflict. How would demand for VA health care services be affected by future military conflict? In examining 36 possible scenarios, we found that the vast majority of them project between 500,000 and 925,000 new VA patients by 2024. However, most low-conflict scenarios anticipate 500,000 and 600,000 new patients, while most high-conflict scenarios predict between 750,000 and 925,000. This suggests that even moderate levels of deployment could substantially increase the size of the incoming cohort of VA patients. In fact, our projections suggest that, for every new patient that would have entered the VA system in more-peaceful times, approximately 1.5 new patients will enter the VA system following a major conflict. However, previous cohorts, especially the Vietnam cohort, were much larger than recent cohorts, so the difference will be small relative to the entire VA patient population.

Scenario 4: Expanding access to VA care by extending the Veterans Choice Act or by other means. Surveys have shown that 1.8 million Veterans reported not using VA care due at least in part to access barriers. We estimate that if these barriers were removed, at most an additional 235,000 Veterans per year might use VA.

Scenario 5: Effects of the ACA. Policy changes associated with the ACA could have conflicting effects on Veterans' use of VA health care. The individual mandate, which requires most individuals to obtain health insurance coverage, could increase Veterans' propensity to enroll in the VA system. However, ACA's coverage expansions, which include expanded Medicaid eligibility and subsidies to buy individual market insurance, could cause some current enrollees to use fewer VA services. Our analysis found that the net impact of ACA coverage expansions on the number of VA patients is relatively modest: We estimate 98,000 fewer VA patients under base assumptions, although other plausible assumptions result in increases in VA patient counts.

Conclusions and Recommendations

Overall Conclusions

The number of Veterans has been declining for three decades, and our analysis of the Veteran population over the next 10 years suggests that this trend will continue. The total number of Veterans is expected to decrease by 19 percent between 2014 and 2024. The median age of the population will continue to increase, and Veterans are projected to become more geographically concentrated over this period.

Veterans are more likely than non-Veterans to be diagnosed with health conditions, including those that are chronic and in some cases linked to service in the military. Although some of these differences may be explained by the age and sex characteristics of Veterans compared with non-Veterans, differences remain after these characteristics are taken into account. The higher adjusted prevalence rates may be related to the challenges of serving in the military and in combat.

Among all Veterans, those who receive at least some of their health care from VA are generally more likely than Veterans who do not use VA health care to be diagnosed with many of the conditions we examined in this assessment. This result may be related to the fact that eligibility to receive VA services is based, in part, on Veterans' disability status and presence of service-connected conditions.

Assessing trends in Veterans' health care needs is complicated, because assessing the need or demand for health care requires an understanding of the extent to which Veterans rely on VA to meet those needs. During the past three decades, the number of Veterans has decreased while the number of VA patients has increased. This is due in part to an increase in the number of Veterans who have been rated for service-connected disabilities, as well as policy changes that made more Veterans eligible for VA health care benefits (due to presumptive eligibility), that made it easier for Veterans to apply for benefits, and that gave the benefit of the doubt to Veterans in cases where there was uncertainty. Looking to the future, our patient projection models suggest that the number of VA patients will continue to increase through 2019, but could level off or decline in subsequent years.

In addition to VA policies, external policies (such as the ACA) and other trends (such as the cost of civilian health care) may influence the way Veterans interact with VA's health care system. Our analysis of five potential future scenarios illustrated the extent to which policy may affect the projected number of Veterans and VA patients. Among them, expanding eligibility rules to include higher-income Veterans, entering future conflicts, and improving access to VA health care generated the largest increases in new Veterans and VA patients.

Finally, VA data systems and U.S. data collection efforts more broadly have significant limitations that hinder planners' ability to assess how demand for VA services might change over time. For example, there has not been a full accounting of the U.S. Veteran population since the 2000 Census. In addition, current VA data collection systems do not assess detailed information on Veterans' health care conditions and health care utilization patterns. Important data gaps include that data are often completely unavailable for Veterans who are not currently

eligible or enrolled in VA health programs. Even among those who use VA care regularly, VA has detailed information only on care paid for or provided by VA, or paid for by the federal Medicare program. Additional data collection would be needed to fully understand Veterans' total health care needs, including use of care currently provided by the civilian sector. Understanding these gaps is important because shifts in patient reliance and changes in eligibility rules could cause more Veterans to seek care at VA, and could change the mix of care sought from VA versus civilian providers.

Recommendations for Consideration

Prepare for a Changing Veteran Landscape

The number of VA patients has been increasing since 2005, despite the three-decades-long decline in the size of the Veteran population. We estimate that this increase will continue through 2019. However, in 2020 and beyond, it is likely that the size of the VA patient population will level off or even decrease. Total demand for VA services during this time period will be heavily influenced by utilization patterns among patients; if the health care needs of the population are significant or the cost of outside options is high, patients may use more care than they have in previous years. Nonetheless, there is a possibility that demand for services will level off or decline as the continued growth in the patient population slows or even reverses. The likely short-term growth in demand, followed by a leveling-off or decline in the next decade, may make it difficult to ensure that the size of the VA health system is tailored to fully meet the needs of the population in the near term without becoming inefficiently large in the long run. Increasing the use of care purchased from the civilian sector may enable VA to meet short-run increases in demand without requiring costly investment in facilities, infrastructure, and personnel that could become less needed in the future.

Improve Tracking of Some Veteran Populations

Because the 2010 Census did not capture information on Veteran status, there has not been a full-scale accounting of the U.S. Veteran population since 2000. As a result, VA must estimate the size of the Veteran population using data from more than 15 years ago, coupled with smaller surveys and information on personnel losses from DoD. While ACS provides information on a sample of Veterans (1,197,923 Veterans in the 2009–2013 sample), this is not a full accounting of the Veteran population. An updated census of the Veteran population would enable a definitive count of all Veterans, while also helping to refine sampling procedures for the yearly surveys of samples of the population. Given that the events of September 11, 2001, set off prolonged U.S. engagement in oversees conflict and changed DoD accession and personnel retention policies that affect the flow of service members from active duty to Veteran status, it seems that the nation is overdue for an updated census of the Veteran population. We recommend asking about Veteran status in the 2020 Census.

In addition, little is currently known about how the utilization patterns and health care needs of Veterans from the conflicts in Afghanistan and Iraq will evolve over time. Yet, Afghanistan and Iraq Veterans are more likely to have service-connected disabilities than other Veterans and are automatically eligible for VA health care for five years after leaving the military. Historically, Veterans have relied less on VA health care as they age, gain access to other health insurance

(e.g., through an employer), and start families. However, it is not clear the extent to which these patterns will hold for newer Veterans who have different exposures and enhanced eligibility relative to previous cohorts. Closely monitoring this population may help VA planners to prepare as this population ages and their health care needs and utilization patterns shift.

Anticipate Potential Shifts in the Geographic Distribution of Veterans, and Align VA Facilities and Services to Meet These Needs

While our estimates suggest that the geographic distribution of Veterans will remain relatively stable over time, there may be several opportunities to streamline or shift VA resources to ensure adequate capacity in all parts of the country. Given projected declines in the size of the Veteran population living in the Ohio River Valley and upper Midwest, it may be possible to consolidate relatively proximal VA facilities in those regions. At the same time, some areas of projected Veteran population growth—including Montana, Wyoming, and Colorado—are not currently well covered by VA facilities. While the absolute size of the Veteran population in these areas will remain small, there may be opportunities to use telehealth and community-based outpatient clinic (CBOC) services to meet Veterans' needs in these areas. There may be a more pressing need to expand VA coverage in the Southwest, where Veteran Affairs Medical Centers (VAMCs) are currently widely spaced, and where growth in the Veteran population is expected to be significant. Finally, we estimate that the Veteran population under age 35 will increase in the regions around Los Angeles; Dallas; Washington, D.C.; and northern New Jersey by 2024. VA facilities in these areas might monitor growth in utilization among younger Veterans to ensure that they are able to meet the needs of this group.

Improve Collection of Data on Veteran Health Care Utilization and Reliance

Fully understanding the needs of the patient population served by VA will require data that do not currently exist. This data would capture information on all sources of health care that are used by an individual—including when and where care is delivered, what diagnoses are recorded and procedures performed, and who pays for the services—as well as what needs for care are unmet, and why. The data would also require a large enough sample of Veterans to ensure that it is representative of the population, and to allow VA to track the prevalence of relatively rare service-connected conditions. Creating these data would enable an analysis of the extent to which Veterans currently rely on VA for health care, as well as how that reliance may change as a result of internal VA policies or external factors. It would also provide insight into where VA succeeds in meeting the health care needs of its patient population and what types of obstacles exist in delivering needed care. In addition, by collecting information on Veterans who are not currently patients, the data would enable VA to better plan for changes in the demand for services that might occur if VA eligibility rules changed, or if additional Veterans chose to enroll.

Current surveys of Veterans do not capture comprehensive information on health care use, particularly among Veterans who are not currently eligible for or enrolled in the VA system. While MEPS contains information on all the care that respondents receive regardless of payer, the survey contains only a small sample of Veterans, and this sample may not be adequately representative of the population. VA might consider fielding a comprehensive survey of all

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Veterans, aimed at assessing their total health care use patterns, including use of non-VA care. Such a survey could be modeled on the MEPS Household Component (MEPS-HC), which collects utilization data across all sources of care for the general population. Potentially, VA could work with AHRQ (the organization that fields MEPS-HC) to include a more robust sample of Veterans in its survey.

Incorporate Separation Patterns and Health Care Needs of Current Service Members into Projections

In this assessment, we incorporated data on current service members—who will become Veterans in the future—in several of our analyses, including (1) counts of service member separations in our demographic analysis to augment Census data of Veterans from 2000, (2) diagnosed health conditions of separating service members who received care through the Military Health System (MHS), and (3) estimated number of service members who would separate and become Veterans in the case of a hypothetical future conflict.

At present, VA does not have access to DoD MHS encounter data. Such data could enable VA planners to analyze health care needs among current active duty service personnel who may become Veterans in the future. For this study, we utilized MHS data from 2008 to 2014 to explore whether current service members (future Veterans) have different health care needs from current Veterans. We estimate that service members are much more likely than current Veterans to have a diagnosed musculoskeletal condition or asthma at the time of separation from service. On the other hand, the prevalence of mental health conditions is higher in the existing Veteran population than among separating service members. This result may reflect a disincentive to seek care for mental health conditions while serving in the military. To the extent that individuals who separate from the military and become Veterans during the 2015–2024 projection window have different health care needs from the patients currently being served by VA, adding MHS data is critical for projecting the needs that VA must meet in the future.

Develop an Analytic Framework to Perform Scenario Testing

Our analysis of five future scenarios highlights the importance of developing methods and models that can respond quickly and agilely to policy changes. While some of the policy changes we considered resulted in modest changes in number of new Veterans and new VA patients, others estimated as many as hundreds of thousands of new Veterans and patients. The VA Office of the Actuary (OACT) has a Veteran Healthcare Scenario Model, which is able to estimate, for instance, how changes in demographic characteristics or economic conditions (such as employment or income) may affect demand for VA services and related costs. Expanding this model to include such events as changes in the civilian health sector, unanticipated changes in perceptions about health care quality, and groundbreaking new technologies, to name a few, will enable VA to address the types of uncertainties that current models may not address. Having methods in place to estimate the effects of these types of changes on Veteran demand for health care services will improve VA's efforts to meet the health care needs of its patient population.

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The views, opinions, and/or findings contained in this report are those of RAND Corporation and should not be construed as an official government position, policy, or decision.

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1 Introduction

1.1 Background

The Veterans Access, Choice, and Accountability Act of 2014 ("Veterans Choice Act") was signed into law on August 7, 2014. In addition to expanding the criteria through which Veterans can access civilian providers for their health care, the legislation called for an independent assessment of the VA health care system across a broad array of topics related to the delivery of health care services to Veterans in VA-owned and -operated facilities, as well as those under contract to VA.

In September 2014, the CMS Alliance to Modernize Healthcare (CAMH)—the MITRE Corporation's federally funded research and development center—entered into a contract with VA to serve as the overall integrator for the independent assessment. MITRE subcontracted with the RAND Corporation to conduct three of the 11 specific assessment tasks (Assessments A, B, and C) and to furnish reports on the findings and recommendations from these assessments for inclusion in an integrated report to VA and Congress.

This report presents findings from Assessment A (identified under Title II—Health Care Administrative Matters, Section 201 of the Veterans Choice Act), which examined the current and projected demographics and unique health care needs of Veterans and the patient population served by VA. In this report, we use the term "Veteran" to describe all Veterans, whether or not they use VA health services, and "VA patient" to describe an individual who received at least some health care from VA in the previous year.

The Veterans Choice Act language requires that Assessment A shall address "current and projected demographics and unique health care needs of the patient population served by the Department." Our team has interpreted this language to require an independent analysis of the current characteristics and unique health care needs of the Veteran population and VA patients, and estimates of how the characteristics and needs of these populations will evolve over time. To generate these estimates, we have compiled data from VA administrative files, DoD administrative files, surveys conducted by the U.S. Census Bureau and other federal agencies, and surveys conducted by VA to develop a comprehensive picture of U.S. Veterans, VA patients, and the demographic characteristics and health care needs of these populations. We have then used established statistical methods to project these characteristics and needs forward over time. Finally, we have considered the extent to which uncertain future events, including changes to VA policy, possible future military conflicts, and other external factors, might affect the size and characteristics of the Veteran population overall and of VA patients specifically.

1.2 Motivation

U.S. Veterans represent a special population of individuals who have served their country and may have faced extraordinary health risks during deployment to combat areas. Part of the promise America makes to its armed forces is to provide for their health care needs during their service and afterward, when it is the mission of VA to meet Veterans' needs. Because many

Veterans have served overseas missions, including combat, Veterans are a clinically complex and vulnerable population. Meeting the needs of this population requires a clear understanding of Veterans' distinctive characteristics in comparison with non-Veterans, in terms of both their demographic and health characteristics, and how these are likely to evolve.

The Veterans Choice Act and its congressionally mandated assessments were further motivated by challenges faced by VA patients in recent years, including long wait times to receive services, poor patient outcomes, and a million-person backlog among Veterans waiting for disability claims to be evaluated. While Assessment A does not directly address these specific challenges, understanding the size, demographic composition, and health care needs of the population eligible for VA services is critically important to ensure that VA has the capacity to meet Veterans' needs in the future.

1.3 Purpose

This report responds to the Veterans Choice Act requirement for an independent assessment of the demographics and health care needs of the Veteran population. Specifically, the assessment examines the demographic characteristics of the current and projected population of U.S. Veterans and VA patients. In addition, the assessment delineates the unique health care needs of the patient population currently served by VA, as well as the projected needs of Veterans who might become patients in the future. The findings of this assessment will inform future VA efforts to plan, budget, and staff, and, along with the findings from Assessment B (health care capabilities and resources of VA),[5] will highlight areas where assets do not meet current or projected needs.

This assessment addresses four overarching research questions:

- What were the demographic characteristics of the U.S. Veteran population in 2014 and how are these projected to change between 2015 and 2024?
- What are the current health care needs of the Veteran population, including both VA patients and non-VA patients, and how do these compare with the needs of the non-Veteran population? How will the needs of Veterans in general and the patient population specifically evolve over time given current policies?
- To what extent do Veterans rely on VA for their health care?
- How might external forces or changes to VA policy affect the characteristics of Veterans, their eligibility to use VA health care, and their health care needs over time?

Defining the "unique" health care needs of the VA population is challenging, because many common health conditions affecting Veterans also affect non-Veteran populations. Further, even though there are many combat-related conditions that are important to VA—such as amputations, burns, and TBIs—these conditions are not, strictly speaking, "unique" to Veterans; they can occur among civilians as well. We therefore define the unique health care needs of Veterans as those that disproportionately affect Veterans relative to non-Veterans.

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[5] See Assessment B in this series, on VA health care resources and capabilities.

These include both service-connected conditions, such as PTSD, and other conditions that are more prevalent among Veterans than non-Veterans, including diabetes and cancer.

An additional challenge that we face in this analysis is that not all Veterans are currently eligible to receive care at VA, not all eligible Veterans opt to enroll for services, and not all enrollees receive all or even the majority of their care from VA. From a conceptual standpoint, estimates of the future VA patient population must account for the possibility that Veterans' enrollment and use patterns may change over time due to external factors, such as the cost of private health insurance. From a data standpoint, estimates must address the fact that the VA health system's data include only information on VA patients, and will not necessarily include comprehensive data on patients' total health care utilization and diagnoses. In Section 2, we provide a conceptual discussion of these issues. Much of the analyses reported in Sections 4 and 5 aim to understand differences between VA patients and non-patients and to determine the health care needs of these populations without relying solely on information reported in VA patient data.

1.4 Scope of the Analysis

We recognize that VA has developed several models, including the Veterans Population Projection Model (VetPop) and the EHCPM, that forecast the size and characteristics of the VA population and the health care utilization of VA patients. In keeping with Congress's desire for an independent assessment, we generate our own estimates of the Veteran and patient populations, without relying on existing VA models. However, our work is not meant to replace these models, which are extremely sophisticated tools that VA has spent years refining. Rather, our goal is to take a fresh look at population and patient projections, in some cases using new methodologies and data. The analyses presented here may be useful to VA planners when considering future updates or refinements to existing VA models.

As part of our analysis, we reviewed the methods used to develop VetPop and EHCPM, and we discuss these methods in the report. We do not, however, provide a systematic evaluation of the strengths and weaknesses of existing VA models. Our focus is on understanding the Veteran population rather than evaluating VA's current modeling approaches.

Our baseline estimates consider the Veteran population in 2014. To estimate trends over time, we have chosen a 10-year time frame, from 2015 through 2024. In selecting this period, we aimed to balance the need for a long-term understanding of how the Veteran and VA patient populations might evolve against the reality that predictive models become less reliable when forecasting far into the future. We settled on a 10-year projection window, which aligns with the time frame used by the Congressional Budget Office when scoring legislation.

Finally, it is worth noting that this analysis was conducted under constraints due to the short time frame allotted for conducting the assessments and the limited availability of data. The entire assessment was conducted in an eight-month time frame. Many of the VA and DoD data sources that we used in this analysis required special permissions that took months to obtain and further limited the time in which we could conduct analysis.

1.5 Organization of the Report

The rest of this report is organized as follows: Section 2 presents an overview of the Veteran population and the VA enrollment process. This section also provides an overview of our modeling approach and a brief description of methods. In Section 3, which responds to the congressional requirement to analyze Veterans' "current and projected" demographics, we discuss our model of the Veteran population, its demographic characteristics, and how the size and characteristics of this population might evolve over time. One key attribute we consider in analyzing demographics is where Veterans are geographically located, both now and in the future. Section 4 discusses Veterans' decisions to enroll in VA health care and reliance on VA when enrolled. Section 5 responds to the requirement to assess the "unique health care needs of the patient population served by the Department," and focuses on understanding the current needs of both Veterans and VA patients, and how these needs will evolve over time under current policy. In Section 6, we consider hypothetical future scenarios that might affect the size and composition of the Veteran population, Veterans' propensity to use VA health services, and the health care needs of future Veterans. This section builds on the analyses presented in Sections 3, 4, and 5 by recognizing the inherent uncertainty in attempting to predict future outcomes and providing alternative estimates of future trends. Section 7 presents the study's conclusions and recommendations.

2 Conceptual Framework

2.1 Introduction

While we present a more detailed summary of specific methods in subsequent sections and appendixes, this section focuses on our conceptual approach. Below, we briefly describe the distinction between a Veteran and a VA patient, and outline steps that a Veteran must take to enroll and begin using VA health care. In addition, we provide an overview of the approach we used to model how the population of Veterans, and correspondingly VA patients, might evolve over time. Finally, we discuss a framework for analyzing how patient needs may change in the future.

2.1.1 Definition of a Veteran and Eligibility to Use VA Health Care Services

A Veteran is defined by law as "a person who served in the active military, naval, or air service, and who was discharged or released there from under conditions other than dishonorable" (Enrollment—Provision of Hospital and Outpatient Care to Veterans, 2003). We estimate that there were 21.6 million Veterans in the U.S. population in 2014. However, there are additional eligibility requirements for enrolling in the VA health care system. Current eligibility rules for VA health care were established in the Veterans Health Care Eligibility Reform Act of 1996. The legislation revised Section 1710 in Title 38 to mandate health care for:

- Veterans with service-connected health conditions
- Veterans with a compensable service-connected disability or who received a disability discharge from the military
- Veterans unable to pay for their health care
- Certain other specific groups.

This mandate, however, is subject to the appropriated funding. For the first time, the 1996 legislation also gave VA discretionary authority to provide health care to all other Veterans "to the extent and in the amount provided in advance in appropriations Acts for such purposes." The Secretary of Veterans Affairs has legal discretion over the provision of all other care, but VA must maintain specialized treatment and rehabilitation programs for spinal injuries, blindness, amputations, mental illness, and other serious service-connected health conditions. Under current policy, all enrolled Veterans have access to VA's comprehensive health care benefits package, but a Veteran may also receive certain benefits (e.g., dental care) based upon his or her unique eligibility status (U.S. Department of Veterans Affairs, 2014c).

Consistent with the legal definition of a Veteran, eligibility for health care is limited to individuals who are former active duty service members, or current or former reservists or national guardsmen who (a) were called to active duty by a federal order, and (b) completed the full period of that active service. Veterans also must have served either 24 continuous months or the full period for which they were called to active duty. Exceptions to this minimum service duty requirement apply to Veterans who were discharged for a disability incurred or aggravated in the line of duty, discharged for a hardship or "early out," or served prior to

September 7, 1980 (U.S. Department of Veterans Affairs, 2015c). The VA website notes that there are numerous additional exceptions to the minimum duty requirements, which can be evaluated during the enrollment process. In Section 6, we estimate that 17.8 million (81 percent) of all individuals with any military service meet these basic enrollment criteria. However, as we discuss below, not all of these Veterans are currently eligible to enroll and use VA health care.

Under certain extenuating circumstances (for example, if a Veteran is rated permanently and totally disabled due to a service-connected disability, or if a Veteran dies while on active duty), a Veteran's family members may also be eligible for VA health benefits. However, VA health care for Veterans is prioritized over that for Veteran dependents.

2.1.2 Enrollment Priority Groups

VA uses Veterans' service-connected disability ratings, along with income and other factors, to assign Veterans to one of eight priority groups through its enrollment system (Congressional Budget Office, 2007, 2009). Priority groups are used to determine a Veteran's enrollment priority, a Veteran's access to certain additional health care benefits, and whether co-pays are required. The three highest priority groups (priority groups 1–3) are for Veterans with a service-connected disability rated at 10 percent or higher. Table 2-1 lists all of the current VA priority groups, including a brief description of each. Eligibility determinations and assignments to priority groups are made by the Health Eligibility Center in Atlanta, Georgia (U.S. Department of Veterans Affairs, 2015g).

Table 2-1. VA Priority Groups for Enrollment

Priority group	Description
1	• Service-connected disability 50% or more disabling • Veterans determined unemployable due to service-connected disabilities
2	• Service-connected disability 30% or 40% disabling
3	• Service-connected disability 10% or 20% disabling • Other: former prisoners of war (POW); Purple Heart medal awardees; Medal of Honor awardees; Veterans discharged for disability incurred during/aggregated by military service; other
4	• Catastrophically disabled (ability to complete activities of daily living is permanently compromised; Veterans require personal/mechanical assistance to leave home/bed or require constant assistance) • Recipients of VA aid/attendance or housebound benefits
5	• Low income: annual income below zip-code-based adjusted income limits; Veterans receiving VA pensions; Veterans eligible for Medicaid

Priority group	Description
6	• Service-connected disability 0%, compensable • Veterans with occupational exposures • Ionizing radiation from atmospheric testing, Hiroshima, or Nagasaki • Project 112/SHAD participants • Service in Vietnam (January 9, 1962–May 7, 1975) • Service in Persian Gulf War (August 2, 1990–November 11, 1998) • Service on active duty at Camp Lejeune for at least 30 days (August 1, 1953–December 31, 1987) • Service in theater of combat operations after November 11, 1998, and discharged after January 28, 2003
7	• Low income: gross household income below geographically adjusted income limits; agree to co-pays
8	• Veterans with gross household income above VA and the geographically adjusted income limits for their resident location and who agree to pay co-pays
Priority Group 8 Veterans Who Are Currently Eligible to Enroll for VA Health Care	
8a	• Veterans with noncompensable 0% service-connected disabilities who enrolled as of January 16, 2003, and who have remained enrolled since that date and/or placed in this subpriority due to changed eligibility status
8b	• Veterans with noncompensable 0% service-connected disabilities who enrolled on or after June 15, 2009, whose income exceeds the current VA or geographic income limits by 10% or less
8c	• Veterans without a service-connected disability who enrolled as of January 16, 2003, and who have remained enrolled since that date and/or placed in this subpriority due to changed eligibility status
8d	• Veterans without a service-connected disability who enrolled on or after June 15, 2009, whose income exceeds the current VA or geographic income limits by 10% or less
Priority Group 8 Veterans Who Are Not Currently Eligible to Enroll for VA Health Care	
8e	• Veterans with noncompensable 0% service-connected disabilities who do not meet the criteria for priority groups 8a–8d
8f	• Veterans without a service-connected disability who do not meeting the criteria for priority groups 8a–8d

SOURCE: U.S. Department of Veterans Affairs, 2015c.
NOTE: Veterans assigned to priority group 8 who do not meet the criteria listed in the table are currently ineligible to receive VA care.

In 2003, VA sought to improve access to services for higher-priority Veterans by restricting enrollment of higher-income Veterans without service-connected disabilities (Goldberg, 2015). In part, this policy was created because VA is funded through annual appropriations, and restricting enrollment helped to keep spending within VA's budget. The policy also was created to "recognize the higher obligation owed to Veterans requiring care for their service-connected disabilities, and to lower-income Veterans" (Enrollment—Provision of Hospital and Outpatient Care to Veterans, 2003). Based on this policy, VA continued to treat Veterans in all priority groups and treat new enrollees in priority groups 1–7, but suspended the enrollment of additional Veterans in priority group 8.

The most recent change in enrollment eligibility, in May 2009, relaxed the enrollment restrictions on Veterans in priority group 8 (U.S. Department of Veterans Affairs, 2009a). Under

the new policy, additional subpriorities were added for priority group 8 for Veterans whose income exceeded the current VA national means test or geographical means test income thresholds[6] by 10 percent or less (Expansion of Enrollment in the VA Health Care System, 2009). The new regulations went into effect in June 2009, and VA then began enrolling (for VA health care benefits) those Veterans who were eligible in subgroups 8a through 8d, while continuing to exclude Veterans in subgroups 8e and 8g (Congressional Budget Office, 2009). Of the 17.8 million who we estimate meet the basic eligibility criteria, 13 million (73 percent) are in priority groups 1 through 8d or in groups 8e and 8g but enrolled prior to the most recent eligibility change in 2009.

For many Veterans, enrollment eligibility hinges on income. Veterans whose incomes fall below the national income test, who are Medicaid eligible, or who receive a disability pension are classified into priority group 5, unless they qualify for a higher priority group based on service-connected conditions or other disabilities. In some cases, there is a geographic means test (GMT) that exceeds the national income threshold. Veterans whose income is above the national income threshold but below the geographic means threshold are classified in priority group 7. Those with higher incomes may qualify for priority groups 8a or 8d, if their incomes are within 10 percent of the relevant threshold (either the national income threshold or the GMT, whichever is binding). Both the national income threshold and the geographic means threshold vary depending on whether a Veteran has dependents.

Veterans who served in a combat theater after 1998 have automatic eligibility to enroll for up to five years after they leave the military.[7] These Veterans are placed in priority group 6 unless they qualify for a higher priority group (e.g., have a disability rating of 10 percent or higher or income below the threshold for priority group 5). Veterans with qualifying occupational exposures are also placed in priority group 6, unless they qualify for a higher priority group based on income or disabilities. A Veteran may apply for VA health care benefits at any time after separation (U.S. Department of Veterans Affairs, 2009b).

2.1.3 Use of VA Services Conditional on Enrollment

Once Veterans enroll and are deemed eligible to receive care, Veterans must make a choice about whether to use VA health care and how much care to consume. The majority of enrolled Veterans have access to other health care coverage, and approximately half of enrolled Veterans are also enrolled in Medicare or Medicaid (Congressional Budget Office, 2009; Goldberg, 2015). Enrolled Veterans receive the majority of their health care outside of VA (Goldberg, 2015). The term reliance refers to the fraction of a Veteran's total care that is provided by or paid for by VA. Based on the EHCPM, VA estimates that current VA patients have on average about 21 percent of their total physical medicine (that is, physical therapy and

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[6] These thresholds are established by the Department of Housing and Urban Development.

[7] On February 12, 2015, the Clay Hunt Suicide Prevention for American Veterans Act provided a one-year window of enhanced enrollment for combat Veterans who were discharged or released from active service after January 1, 2009 and before January 1, 2011, who did not enroll within the original five-year window.

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occupational therapy) visits with VA, 38 percent of their emergency room visits with VA, and 66 percent of their prescriptions from VA.

However, reliance rates can vary substantially based on Veterans' health care needs and underlying characteristics. Veterans enrolled in priority group 1 (those with a service-connected disability rated 50-percent or more disabling) and in priority group 4 (those with a nonservice-connected catastrophic disability) face the highest overall health care costs and rely on VA for a greater percentage of their medical care than other Veterans (Congressional Budget Office, 2009). In general, VA enrollees with private insurance are less likely to use VA care than other Veterans (Shen, Hendricks, Wang, Gardner, & Kazis, 2008). Veterans who utilize VA for all of their health care are more likely to be from disadvantaged (poor, less-educated, minority) groups (Nelson, Starkebaum, & Reiber, 2007). Among Veterans with Medicare, those Veterans who are disability-eligible for Medicare have more VA primary and specialty care visits than Veterans age-eligible for Medicare (Liu et al., 2012). The increased utilization of both primary and specialty care among disability-eligible Veterans with Medicare is likely due to greater health care need (Liu et al., 2012). Other factors, such as access constraints and perceived quality, may also affect Veterans' decisions to use care.

In fiscal year (FY) 2014, 6.2 million unique patients used VA health care services or received VA reimbursed treatment (Table 2-2). The majority of VA users were Veterans (5.9 million), and 4.6 million of these Veterans were in priority groups 1 through 6. The table focuses on Veterans who sought any care, regardless of how much care they obtained at VA.

Table 2-2. VA Health Care Users (FY 2014)

Type of VA Health Care User	FY14 Unique Patients
Priority Groups 1–6	4,612,915
Priority Groups 7–8	1,256,610
Priority Group Not Assigned	2,241
Veterans	**5,871,766**
Non-Veterans	308,805
Total Unique Patients	6,180,571

SOURCE: Authors' analysis of FY 2014 data from the Veterans Health Administration (VHA) Support Service Center.
NOTES: *Unique patients* are unique individuals who were treated by VA or received treatment paid for by VA; Non-Veterans include active duty military and reserve, family members of Veterans who qualify to enroll, VA employees receiving occupational health care, and so on.

Between 2000 and 2011, the number of Veterans seeking inpatient treatment increased by 131 percent, and the number of Veterans seeking outpatient care increased by 201 percent (National Center for Veterans Analysis and Statistics, 2011b). The number of Veterans seeking VA care continued to increase through 2012 (National Center for Veterans Analysis and Statistics, 2014e). These increases occurred despite a substantial decline in the size of the Veteran population. For example, the U.S. Census Bureau estimates that there were more than 26 million U.S. Veterans in 2000 (Richardson, 2003), compared with just under 22 million today

according to both our analysis and VA's (National Center for Veterans Analysis and Statistics, 2014b).

This increase in use of VA health care is likely due in part to the close to 300 percent increase in the number of pre-9/11, Gulf War-era Veterans receiving health care from FY 2000 to FY 2009 and extended enrollment for Afghanistan and Iraq Veterans (National Center for Veterans Analysis and Statistics, 2011b). The increases are also due in part to policy changes that have expanded VA's outreach to Veterans, eased the diagnostic criteria used to determine service-connected PTSD, and implemented the use of online application forms (Congressional Budget Office, 2014b). In addition, over time, VA has expanded the list of conditions that are considered to be presumptively related to service and therefore automatically render the Veteran eligible for benefits. For example, in 2001, VA granted presumptive eligibility status to Vietnam Veterans with type 2 diabetes, due to links to Agent Orange exposure (Congressional Budget Office, 2014b).

2.2 Factors Associated with Veterans' Health Care Utilization

A Veteran's decision to use VA health care depends on a number of factors, which are summarized in Figure 2-1, a conceptual model of health care utilization among Veterans, adapted from Aday and Andersen (1974). At a macro level, health care utilization is influenced by organizational policies and characteristics of the health care system. Health policy, especially in a large national health care system like VA's, is one of the primary drivers of health care utilization. As described in more detail below, VA has implemented numerous policies since the 1990s that have directly influenced Veterans' access to and use of VA health care. VA's health care delivery system also directly influences utilization. VA provides many services that are not available through non-VA sources, due in part to the needs of the unique patient population and to VA's social mission. Access, frequently measured in terms of wait times by VA, is also associated with use of health care services.

At the patient level, health care utilization is typically determined by three factors: predisposing factors (e.g., age), enabling factors (e.g., health insurance), and need for health care services, perceived or actual. Veterans, especially those using VA health care, have a different sociodemographic, health insurance, and health status than their peers who do not use VA health care. Finally, Veteran satisfaction with health care, including perceptions of quality, access, and stigma associated with certain treatments or care settings, also influence their health care utilization.

Figure 2-1. Conceptual Model of Factors Associated with Veterans' Use of VA Health Care
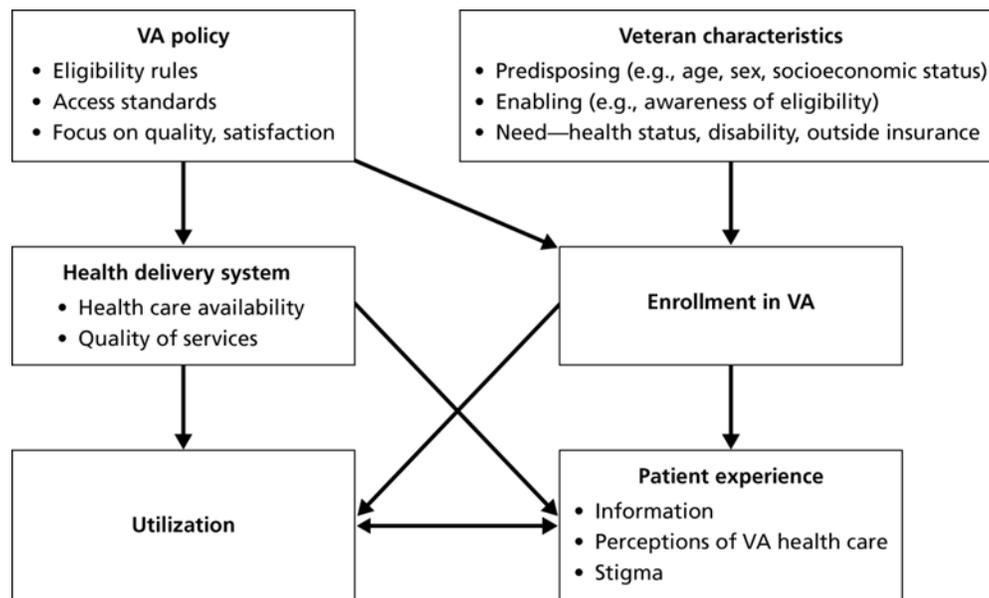
SOURCE: Based on Aday & Andersen, 1974.

2.2.1 Policies That Affect VA Use

Federal law authorizes VA to provide medically necessary health care services to eligible Veterans (U.S. Government Accountability Office, 2009). According to VA officials, federal laws and court decisions over the past decade have expanded Veterans' entitlement to a variety of VA benefits, not just health care (U.S. Government Accountability Office, 2013c). In the area of VA health benefits, legal and policy changes have attempted to expand and improve services provided to eligible Veterans. The foundation for this expansion began in the mid-1990s.

VA enrollment policies directly determine the number and composition of Veterans who are eligible to receive VA health care services. Veterans who have service-connected disabilities (including presumptive diseases) are given higher priority for VA health care, skewing the VA patient population toward Veterans with greater health care needs. VA-specific policies may also lead to a higher rate of diagnosis for some health conditions, such as mental health conditions.[8] Factors external to VA may also affect the number of Veterans who are eligible to receive VA health care and the choices of those eligible to use VA health services. Deployment and combat experiences are linked to higher rates of service-connected disability (Congressional Budget Office, 2014b), which translates into a larger number of Veterans eligible to enroll in VA and in part determines the prevalence of the health conditions among the newest Veterans.

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[8] For example, in 2004, VA finalized a five-year Mental Health Strategic Plan, which emphasized mental health as an important part of Veterans' overall health, and its objectives included increasing early mental health screening and assessments.

In the 1990s, there was a "reengineering" of VA's health care system, with the purpose of improving performance, quality, and innovation (Congressional Budget Office, 2007). Prior to these changes, higher-income Veterans without service-connected disabilities were eligible for limited medical services, which did not include outpatient care (Congressional Budget Office, 2009). The Veterans' Health Care Eligibility Reform Act of 1996 revised VA eligibility rules, lifted the restriction on outpatient care, and expanded outpatient services in an effort to provide comprehensive health care to each enrolled Veteran (Veterans' Health Care Eligibility Reform Act of 1996, 1996). After the law, all enrolled Veterans were eligible for VA's full range of health care benefits, including outpatient services (Congressional Budget Office, 2009). Consequently, there was an increase in Veterans' use of VA outpatient care (Congressional Budget Office, 2009).

In 2000, the Veterans Claims Assistance Act (VCAA) clarified the duty of VA to assist benefits claimants, including actions to be taken for and information to be provided to Veterans (Veterans Claims Assistance Act of 2000, 2000). For example, VCAA required VA to assist a Veteran filing a claim in obtaining evidence to substantiate that claim before making a decision on benefits (Veterans Claims Assistance Act of 2000, 2000). VCAA also required VA to give the benefit of the doubt to Veterans in making benefits determinations. The "Combat Veteran" Authority of 2008 extended enhanced eligibility and expedited enrollment for VA health care for Veterans of Afghanistan and Iraq.

Recent years also have seen changes in VA policies related to women's health. These include the following requirements: each VAMC must have a Women Veterans program manager, who is responsible for assessing the needs of female Veterans (U.S. Government Accountability Office, 2009); all VAMCs and CBOCs must make comprehensive primary care available from one primary care provider at one site for all eligible female Veterans, including routine detection and management of acute and chronic illness, preventive care, basic gender-specific care,[9] and basic mental health care (U.S. Government Accountability Office, 2009); and all VAMCs and CBOCs must ensure the privacy[10] of female Veterans in all care settings. Federal law also now requires VA to provide mental health screening, counseling, and treatment for eligible Veterans who have experienced military sexual trauma (Counseling and Treatment for Sexual Trauma, 2011). Recent statistics show that 21 percent of female Veterans screened positive for military sexual trauma (U.S. Government Accountability Office, 2009). Even though the military sexual trauma law is particularly relevant to female Veterans, it applies to all Veterans.

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[9] Gender-specific care is minimally defined as cervical cancer screening, breast examination, management of menopause, mammography, obstetric care, and infertility evaluation (U.S. Government Accountability Office, 2009).

[10] Privacy requirements include auditory and visual privacy at check-in and interview areas; the location of examination rooms, presence of privacy curtains, and orientation of examination tables; access to private restrooms in outpatient, inpatient, and residential care settings; and the availability of sanitary products in public restrooms at VA facilities (U.S. Government Accountability Office, 2009).

2.2.2 Characteristics of Veterans

2.2.2.1 Predisposing Factors

By *predisposing factors,* we mean demographic and socioeconomic characteristics that affect individuals' chances of using health care. Two demographic characteristics that set Veterans apart from the general population are age and sex, both of which are highly related to health care utilization. Veterans are significantly older and more likely to be male than non-Veterans (Goldberg, 2015; National Center for Veterans Analysis and Statistics, 2014d). Not only does an aging Veteran population face greater health care needs, but users of VA health care tend to be older than non-users (Congressional Budget Office, 2009; Elhai, Grubaugh, Richardson, Egede, & Creamer, 2008; Zeber, Copeland, & Grazier, 2006). Conditions such as hypertension and diabetes are more prevalent in older age. Large older cohorts of Veterans will continue to require additional services, including regular monitoring of health conditions, periodic diagnostic testing, and regular use of pharmaceuticals or other medical services, all of which will tax a burdened system.

In recent years, there has been a dramatic increase in the number of female Gulf War-era (pre-9/11 and post-9/11) Veterans seeking care (U.S. Government Accountability Office, 2009; Frayne et al., 2014). The number of female Veterans utilizing VA health care has doubled since 2003, and female Veterans accounted for 7 percent of patients seen in the VA health care system in FY 2013 (Frayne et al., 2014). Female Veterans face a burden of physical and mental illness similar to male Veterans (Frayne et al., 2006), are more likely than male Veterans to use VA health care exclusively (National Center for Veterans Analysis and Statistics, 2014d), and have higher health care expenditures than male Veterans (Bertakis & Azari, 2010; Bertakis, Azari, Helms, Callahan, & Robbins, 2000). The specific health care needs of female Veterans vary by service era (Washington, Bean-Mayberry, Hamilton, Cordasco, & Yano, 2013), with recent Veterans (of Afghanistan and Iraq) experiencing more health care encounters at VA than earlier eras.

Other demographic and socioeconomic characteristics, such as income, education, and employment, may also affect health care utilization decisions. In Section 3, we present results showing that Veterans and VA patients have higher average incomes than non-Veterans, that Veterans are more likely to be employed than non-Veterans, and that Veterans are more likely to have graduated from high school than non-Veterans. The relationship between socioeconomic status and health care use in the general population is complex; those with higher socioeconomic status are more likely to be insured and to have a usual source of care (Agency for Healthcare Research and Quality, 2014), but those with lower socioeconomic status tend to have poorer health outcomes and greater need for health services (Centers for Disease Control and Prevention, 2013).

2.2.2.2 Enabling Characteristics

In the context of this model, *enabling characteristics* are the means that individuals have available to them for use of services, which include individual-specific resources (such as income) and characteristics of the environment in which the Veteran lives (such as rurality).

Veterans may not fully understand their eligibility for VA health care benefits, services available at VA, how to apply for services, and the need for treatment for their condition (U.S. Government Accountability Office, 2011; Weeks et al., 2004; Wittrock, Ono, Stewart, Reisinger, & Charlton, 2015). One study found that the most common reason that potentially eligible rural Veterans did not use VA care was that they were unaware of their eligibility (Wittrock et al., 2015). Among rural non-enrolled Veterans, it was a common perception that VA enrollees were poor and were required to have experienced combat and a subsequent injury or disability (Wittrock et al., 2015). These findings are cause for concern because rural Veterans tend to have more physical health comorbidities and likely a greater need for VA health care services than other Veterans (Weeks et al., 2004). Some Veterans believe that VA services are focused on certain groups, such as older male Veterans, and are not available for women and younger Veterans (U.S. Government Accountability Office, 2011).

2.2.2.3 Need

Veterans with greater health care needs are both more likely to qualify for VA coverage and more likely to seek care at VA. Prior research has shown that Veterans with severe service-connected disabilities are particularly likely to seek health care from VA (Goldberg, 2015; McGeary, Ford, McCutchen, & Barnes, 2007). Similarly, mental health conditions and substance use disorders are associated with higher use of VA care (Virgo, Price, Spitznagel, & Ji, 1999). Afghanistan and Iraq Veterans with PTSD are using VA health care more frequently than Veterans of other eras (Elbogen et al., 2013; Shiner, Drake, Watts, Desai, & Schnurr, 2012). Data suggest that Afghanistan and Iraq Veterans with PTSD may also be at increased risk for poorer physical health in terms of medical disease burden (Possemato, Wade, Andersen, & Ouimette, 2010).

2.2.3 Health Delivery System

The availability of specific health care services through VA directly influences health care utilization. VA offers several services that are not readily available through other public or private insurance. For instance, VA offers extensive specialized mental health coverage and social worker services (Congressional Budget Office, 2009; Goldberg, 2015). Veterans are more likely to use VA for outpatient care and VA-emphasized services, including specialized mental health care for PTSD and outpatient psychiatric substance abuse counseling (Congressional Budget Office, 2009; Goldberg, 2015). These services may not be covered by private insurance, or the coverage may not be as extensive as VA coverage, which usually provides these services to Veterans with no or minimal cost-sharing (Congressional Budget Office, 2009; Goldberg, 2015).

At the same time, the lack of specific services at VA facilities may cause Veterans to seek care outside of the VA health care system or go without important treatment. For example, VA health care services for female Veterans are not widely available. Based on VA-provided workforce data, the Veterans Choice Act's Assessment B team estimates that only 81 out of 141 local VA health systems had an obstetrician or gynecologist on staff. Gynecologists were not available in one-third of VAMCs (Disabled American Veterans, 2015), and most CBOCs refer women Veterans to VAMCs, which may be up to 130 miles away, for gender-specific services

(U.S. Government Accountability Office, 2009). Several other gaps in VA health care services have been identified, including limited PTSD interventions in some VAMCs (Institute of Medicine of the National Academies, 2014b) and limited specialized PTSD programs for women Veterans (Disabled American Veterans, 2015; U.S. Government Accountability Office, 2009). Veterans tend to rely on non-VA providers for emergency services, inpatient care, and outpatient surgery (Congressional Budget Office, 2009).

2.2.3.1 Costs

Veterans enrolled in VA health care benefits do not pay enrollment fees, monthly premiums, or deductibles (Goldberg, 2015; U.S. Department of Veterans Affairs, 2015b). Some Veterans are required to submit co-payments for VA health care, which vary by priority group (U.S. Department of Veterans Affairs, 2015a). In general, Veterans in priority group 1 have no co-pays, Veterans in priority groups 2 through 6 face co-pays for some services, and Veterans in priority groups 7 and 8 face co-pays for most or all services.[11] Veterans who have co-pays are charged only one co-pay per day regardless of the number of appointments on that day. VA estimated that the annual out-of-pocket costs for VA health care among Veterans in priority groups with co-pays were $320 in 2014 (U.S. Department of Veterans Affairs, 2014b). This is likely an underestimate of the total costs to Veterans for their health care, given that enrolled Veterans receive most (70 percent) of their health care outside of VA (Goldberg, 2015).

Because many VA enrollees have access to other health insurance, costs associated with using VA services must be considered against the costs and convenience of external options. Growth in civilian health care costs, such as shifts toward high-deductible health plans in the employer health insurance market, may cause some Veterans to rely more heavily on VA. At the same time, some reforms implemented under the ACA, such as expanded Medicaid eligibility and access to premium and cost-sharing subsidies, may reduce Veterans' demand for VA care.

2.2.3.2 Quality

Studies have demonstrated that VA provides high-quality medical care overall (Congressional Budget Office, 2009) and for specific clinical populations (U.S. Department of Veterans Affairs, 2012). In fact, a 2004 article found that VA patients receive two-thirds of the care recommended by national standards, while patients in other health care systems receive about half of the recommended care (S. M. Asch et al., 2004). VA has certain initiatives in place, such as reviewing providers' actions following an adverse event, in an effort to improve the quality of care provided (U.S. Government Accountability Office, 2013b). Additionally, VA tracks the quality of its health care through numerous metrics, including patient satisfaction (Congressional Budget Office, 2007), adherence to clinical guidelines, patient use of VA Virtual Care Modality, geographic access, and wait times (Veterans Health Administration, 2015).

More-recent analysis conducted by RAND in Assessment B (part of this congressionally mandated study) concluded that VA health care quality was good overall; however, quality was uneven across the VA health care system, with marked differences between the highest- and

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[11] For additional details, see U.S. Department of Veterans Affairs, 2015.

lowest-performing VA facilities. VA outpatient care outperformed non-VA outpatient care on most quality measures; however, inpatient quality measures varied. VA has served as a leader in the quality measurement arena and uses many systems for monitoring quality, but there are mixed opinions within VA on the impact of the quality measures.

Positive reports about quality may lead more Veterans to seek care through VA. However, it is unclear whether studies that have shown strong clinical quality outcomes in the VA health care system are widely known or understood among the Veteran population. Veterans may be influenced by findings that are reported in major newspapers, and could potentially be deterred from seeking care by recent reports of long wait times and other access problems. We discuss Veterans' perceptions about the VA health care system in Section 2.2.4.

2.2.3.3 Access

Under the Veterans Choice Act, *timely access* is defined as care provided within 30 days of the Veteran's desired date for an appointment. VA measures and routinely reports wait times for both primary and specialty care appointments for new and existing patients (Veterans Health Administration, 2015). However, wait time measures have been shown in recent years to be unreliable. Schedulers do not always record the desired appointment date in the scheduling system correctly, and scheduling policies are not always adhered to, resulting in the potential for inaccurate wait time calculations (U.S. Government Accountability Office, 2012). In other cases, wait times are not tracked, such as for VA-purchased care, which prevents VA from assessing whether non-VA care is meeting the wait time standards that apply to VA facility-based care (U.S. Government Accountability Office, 2014a).

Assessment B evaluated access to VA care and noted considerable variability across the dimensions of access. Geographic access varied by region and by access standard used (drive-time versus straight-line distance). Overall, most appointments met VA timeliness standards (30 days of preferred date); however, the average number of days that Veterans wait varies tremendously across the VA health care system. Veterans are less likely than patients in the private sector to report getting appointments as soon as needed.

In recent years, VA wait times have increased, resulting in a slight decrease in utilization, as well as adverse health outcomes among vulnerable Veterans (Pizer & Prentice, 2011). Delays in accessing care have occurred for patients seeking outpatient primary and specialty care within VA (U.S. Government Accountability Office, 2012, 2013a, 2014b). Veterans who received care at VA facilities with longer wait times were at increased risk of adverse long-term health outcomes (e.g., preventable hospitalizations) and intermediate outcomes (e.g., worse hemoglobin A1C levels) than Veterans receiving care at facilities with shorter wait times (Pizer & Prentice, 2011). The increase in wait times and associated adverse health outcomes were responsible, in part, for the greater use of technological methods to deliver care (e.g., messaging between patients and providers, telehealth) (U.S. Government Accountability Office, 2013a), and the development of legislation that expanded VA coverage to allow enrolled Veterans to seek VA-purchased care from community providers. In addition to the long wait times for VA patients, as recently as last year, nearly 1 million Veterans were stuck in a backlog waiting for their disability determinations to be evaluated (Hicks, 2014; Zoroya, 2014). Some of these individuals have an

initial disability determination, but are seeking re-evaluation to increase their disability ratings, which in turn could affect their co-payment requirements. Such backlogs may affect Veterans' ability to get timely access to care, because some will be unable to enroll, and others may face higher cost-sharing payments until their disability claims are adjudicated.

Long wait times and other access challenges likely deter Veterans from seeking care in two ways. First, long wait times and backlogs in processing disability claims pose barriers to accessing care among those who make an attempt to use VA services. Second, reports about long wait times, inconveniently located facilities, and other challenges may make some Veterans less likely to enroll or attempt to use VA services.

2.2.4 Patient Experience

The Aday-Andersen framework defines consumer satisfaction, or patient experience, as the "attitudes toward the medical care system of those who have experienced a contact with it." Veterans perceptions about the VA health system are also important predictors of health care use (Congressional Budget Office, 2009). One study found that media coverage of adverse events that occurred in VA facilities was associated with lower enrollment rates and subsequent Veteran disenrollment (Weeks & Mills, 2003). Facilities that had published reports of adverse events had lower enrollment rates after publication of the report (Weeks & Mills, 2003). Veterans' negative perceptions about VA health care influence Veterans' use of VA health care; these negative perceptions include both overall negative perceptions about VA and the treatment of Veterans by VA and more-specific perceptions that VA cannot meet their health care needs (U.S. Government Accountability Office, 2011). Veterans dissatisfied with their VA health care are more likely to seek care outside of VA (Stroupe et al., 2005).

Having considered the theoretical factors that influence a Veteran's decision to enroll in and use VA health care services, we now turn to our empirical approach, which makes use of a variety of DoD and VA data that capture experiences, characteristics, and environmental factors correlated with these decisions.

2.3 Analytic Approach

2.3.1 Overview

The goal of our assessment is to estimate the current and projected demographic characteristics and unique health care needs of the patient population served by VA. To accomplish this goal, we selected and synthesized data to estimate the size of the current Veteran population, their characteristics, the probability of using VA health care services, and trends over time in both the number of Veterans and their probability of health care use. Our baseline projections incorporated known trends and policy changes, such as DoD's ongoing "drawdown" aiming to reduce the size of the active duty force (Hagel, 2014; Parrish, 2011; Office of the Under Secretary of Defense (Comptroller), 2015). However, because many factors that could affect the size of the VA patient population are unknown and difficult to predict, we also considered uncertain future scenarios. These scenarios included both policies that are

within VA's control, such as a change in conditions that qualify for presumptive eligibility, and policies external to VA, such as the rollout of the ACA.

The number of Veterans who will ultimately seek care is determined by several factors, including the number of Veterans in the pipeline, Veterans' eligibility for enrollment, Veterans' decisions to enroll conditional on eligibility, and Veterans' decisions to use care when enrolled (Figure 2-2). These factors are influenced not only by VA policies but also DoD policies, trends in the generosity and availability of civilian health insurance coverage, geopolitical issues (such as the emergence of conflicts and the U.S. response), and Veterans' perceptions about the VA health system. Approaches to estimating future demand for VA health services must therefore consider previous utilization trends and current policies, as well as how these uncertain future scenarios could affect decisions. While our main analyses held policies and other factors that affect VA utilization constant (with an exception for the announced trends in the drawdown of the size of the military force), our scenario testing analyzed the impact of changes in Veterans' proclivity to use VA health services.

Figure 2-2. Pathway to Use of VA Health Care
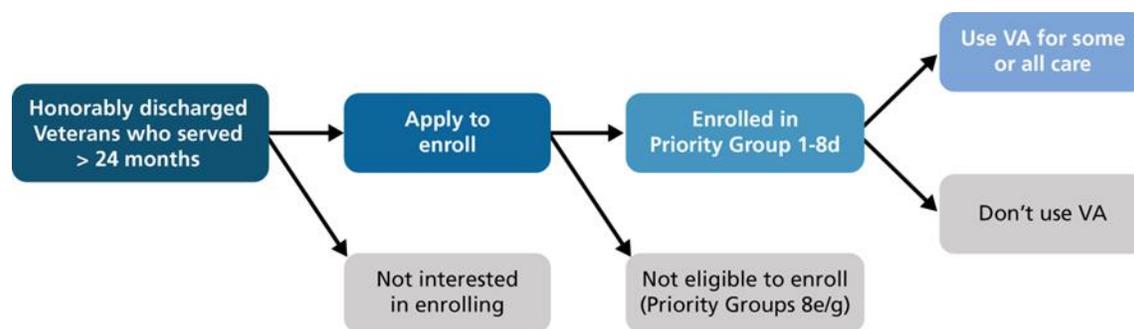
Figure 2-3 describes the analytic approach that we undertook for this project. Briefly, the approach involved estimating the current number of Veterans and the share of Veterans who are currently VA patients, using data from sources such as the Census, ACS, and MEPS. We then projected both the size of the Veteran population and use of VA care over time, accounting for historical trends and known policy changes on the horizon. Finally, we considered how uncertain future scenarios may affect the size of the population and Veterans' proclivity to use VA services. The *use rate* refers to the probability of an individual becoming a VA patient given that he or she is a Veteran. A critical step to becoming a VA patient is the decision to enroll in VA health services. However, few available data sources combine information on Veterans, enrollment, and use of care. Because enrollment is an intermediate step that is not critical to answering all of the questions posed by Congress, we did not necessarily consider enrollment in all of our analyses. In analyses that required estimating enrollment, we predicted the enrollment rate and the *conditional use rate*, which is the use rate among enrollees (as opposed to the overall use rate among all Veterans). The overall use rate is illustrated by the curved arrows in Figure 2-3, and the enrollment and conditional use rates are illustrated with straight,

horizontal arrows. Mathematically, the overall use rate represents the product of the enrollment rate and the conditional use rate.

When considering uncertain future scenarios, we modified the enrollment and the use rates among those enrolled to account for potential changes that may occur due to future events. For example, a policy that would loosen restrictions on enrollment among Veterans in priority groups 8e and 8g would affect both the probability of enrollment and the probability of using care conditional on enrollment.

Figure 2-3. Analytic Framework
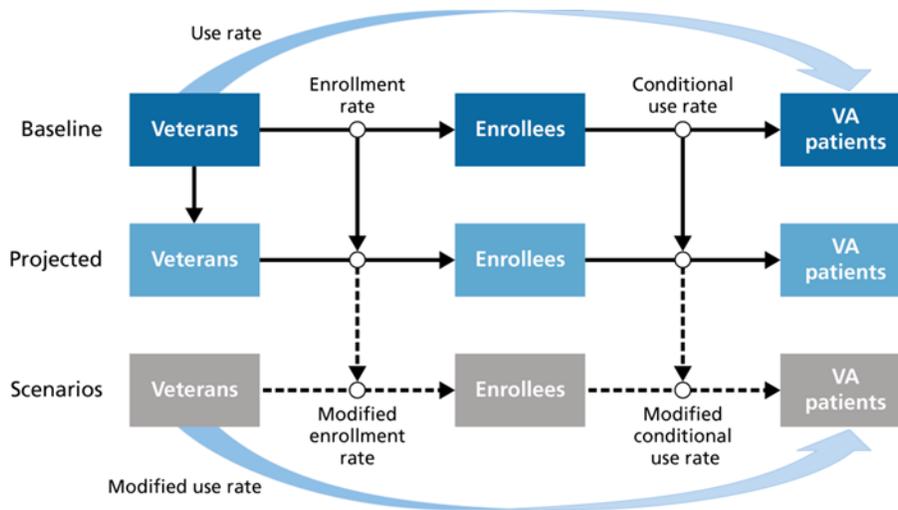
2.3.2 Baseline 2014 Population Estimates

To develop our baseline estimates, we started with data from the 2000 Census (the most recent national accounting of Veterans; the 2010 Census did not assess whether respondents were Veterans), and appended that data with more-recent information on Veterans from ACS, an annual survey conducted by the U.S. Census Bureau that collects information on Veteran status, demographic characteristics, and insurance coverage. To account for newly discharged Veterans and reservists since the 2000 Census, we incorporated data from DoD, including the Defense Manpower Data Center (DMDC) Active Duty Loss files, the Work Experience (WEX) files, and the Contingency Tracking System files. These data sources are described in more detail later in this section and in Appendix A. With this information, we were able to develop a comprehensive picture of the current Veteran population, including demographic characteristics such as age, sex, geographic location, race/ethnicity, and service era.

Because the demographic files described above do not contain information on Veterans' health status or use of health care, we turned to other data to assess this information. One important source of information was MEPS, which collects information on health care conditions and use of services for the U.S. noninstitutionalized population, including Veterans. With these data, we could identify whether an individual is a Veteran, whether the individual reports VA as a source of health coverage, whether the individual received any health care paid for by VA, what types

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of conditions and illnesses the individual experienced in the past year, and treatments received in the past year. Because MEPS collects comprehensive information on both VA and non-VA care, we could use the data to understand Veterans' health care needs regardless of whether they sought treatment from VA sources. In addition, because MEPS collects information on both Veterans and non-Veterans, we could use the data to compare Veterans' health conditions and comorbidities with non-Veterans' health conditions and comorbidities. A drawback of MEPS, however, is that its relatively small sample size precluded us from using these data to investigate extremely rare conditions, such as amputations, that are of high interest to VA. In addition, because diagnoses are based on self-reports, MEPS could miss key conditions, especially those associated with stigma (e.g., mental health conditions) (Agency for Healthcare Research and Quality, 2004).

As an additional source of data on the health status of the VA patient population, we turned to encounter data from the VA health system. The encounter data record every patient interaction that a Veteran has with the VA health system, enabling us to get a comprehensive picture of care and diagnoses delivered by VA. With these data, we could count the total number of VA patients and analyze treated Veterans' recorded diagnoses, including diagnoses for rare conditions such as amputations, burns, blindness, TBI, and spinal cord injury. Further, because the encounter data record all patient interactions, it is not subject to recall bias or other reporting biases. However, the encounter data do not contain information on care or diagnoses received outside of VA, and the administrative nature of the data can make it difficult to separate true diagnoses from diagnosis associated with encounters to "rule out" disease (e.g., if an individual receives a test for diabetes but the results are negative, this visit may nevertheless have an associated diabetes diagnosis code in the encounter data).[12] Further, the data contain no information on non-Veterans (other than a small number of Veterans' family members who are eligible for care), making it impossible to use VA encounter data to compare Veterans' diagnoses with non-Veterans' diagnoses.

Despite these limitations, the combination of the MEPS data and the VA data allowed us to develop a nuanced understanding of Veterans' health care needs. With MEPS, we could assess needs of all Veterans whether or not they use the VA health system, and we could compare these needs with the needs of non-Veterans. With the VA encounter data, we could access more-detailed information on the unique health care needs of the current VA patient population.

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[12] In our analysis with the VA encounter data, we attempted to identify conditions with greater accuracy by requiring that one inpatient encounter be labeled with the associated conditions or that two outpatient encounters were labeled with the associated conditions; this is a common approach for identifying conditions within VA encounter data (Park et al., 2014). We made exceptions for TBI, acute coronary syndrome, and acute myocardial infarction (AMI). We identified TBI cases even if there was only a single outpatient or inpatient diagnosis flagged because acute causes of TBI (concussion, skull fracture, etc.) may be described only at the initial visit, per guidance from DoD (U.S. Department of Defense, 2010). In contrast, we identified acute coronary syndrome and AMI if one or more inpatient stays had a principal diagnosis code associated with those conditions (Petersen, Wright, Normand, & Daley, 1999).

To understand transitions between becoming an enrollee and becoming a VA patient at baseline, we relied on administrative data from VA that record the total number of enrollees overall and by subgroup (e.g., based on priority status). We also used the encounter data to determine the number of unique VA patients in a given year. However, there was no definitive source of information on the total Veteran population living in the United States. Like the VA OACT, we therefore had to rely on Census and survey data to estimate the size of the total population.

2.3.3 Population Projections

We projected the future size and demographic characteristics of the Veteran population by combining several sources of information, including:

- Past trends in the size and characteristics of the Veteran population observed in historical data
- Statistical models of migration patterns used by demographers, known as "gravity models" (defined in Section 3)
- Information on the characteristics and size of incoming Veteran cohorts, based on DoD data on the current active duty population, annual discharge patterns, and projected plans to reduce the size of the force
- Projected mortality rates among Veterans derived from the Centers for Disease Control and Prevention (CDC) and the VA OACT.

We combined this information to develop detailed annual estimates of how the Veteran population will change between 2015 and 2024, accounting for trends in demographics, migration patterns, and projected mortality rates. For example, our approach accounted for the fact that newly discharged Veterans are more likely to be female and more likely to be Hispanic than the existing population of Veterans (although, despite these trends, Veterans are still disproportionately male and primarily non-Hispanic).

To project VA patient status over time, we estimated the use rate, or the probability that a future Veteran will use VA for health services. We used administrative data from VA to model the probability that a Veteran will use VA health services, accounting for demographic characteristics and historical time trends in the proclivity to access care at VA. The projected use rate was combined with the Veteran population projections to estimate the number of VA patients in each year from 2015 to 2024.

We used statistical models to estimate the health conditions of the total Veteran population and the VA patient population, taking into account such factors as age, sex, race/ethnicity, Census region, and historical time trends. This information was appended to our projections of the size and demographic composition of the Veteran and VA patient populations, and allowed us to project the health conditions of Veterans and VA patients in each year between 2015 and 2024. In projecting the future health conditions of Veterans and VA patients, we also considered the health conditions of the current active duty force, using encounter data from MHS.

2.3.4 Scenarios

The projected trends in the Veteran population and VA patient population described above are based on a "steady state" and are driven by predicted changes in Veteran population demographics and observed trends in health care needs; they do not account for uncertain future scenarios that might affect the composition of the Veteran population and Veterans' health care use. In Section 6, we consider the impact of uncertain policy changes and external trends that could affect demand for VA services. The scenarios we consider focus on factors that could affect the number of Veterans in the pipeline (e.g., possible future conflicts), factors that could affect Veterans' eligibility to receive care (e.g., changes in enrollment prioritization, changes in conditions that grant presumptive eligibility status), and factors that could affect Veterans' use of care when eligible (e.g., expansions to the Veterans Choice Act; eligibility for new, non-Veteran programs due to the ACA).

The scenario tests build from our baseline projections, incorporating possible changes in the size of the population and Veterans' propensity to use VA services. An inherent limitation of the scenario testing section is that, because we were modeling uncertain future events, we did not always have access to reliable historical information that we could use to estimate effect sizes, and instead needed to rely on relatively strong assumptions. For example, in estimating the effects of a potential future conflict on the size of the VA population, it is unclear that we could draw meaningful insight from experiences of prior conflicts (e.g., Vietnam, World War II) because technologies, methods of fighting, and military strategic approaches have changed dramatically over time. For the future conflict scenario, we relied on military staffing patterns observed during the most-recent conflicts (Afghanistan and Iraq), but we recognize that even these recent conflicts could be quite different from what might occur in a hypothetical future conflict. As a result, the output of our scenario testing is by definition highly uncertain. Nevertheless, this type of evaluation is important for contingency planning and understanding the possible magnitudes of demand shifts that VA could face if large-scale changes should occur. While any given scenario is unlikely to come to fruition in exactly the manner we have posited, analyzing possible changes in demand may help VA to respond quickly when unforeseen circumstances arrive. For example, a modeling strategy could be altered or updated as better data or more-specific policy details emerge.

2.4 Existing VA Forecasting Models

For the purposes of this independent assessment, we implemented our own modeling approaches to estimate the current and future demographics of the Veteran population and their health care needs. However, VA has three existing modeling tools that it uses to estimate future demand, including VetPop (a model of the Veteran population), EHCPM, and the VA OACT's Veteran Healthcare Scenario Model (VHSM). In this section, we briefly describe each of these models. However, the amount of available documentation for the models varies. We had access to detailed documentation for the EHCPM but not the other two models. As a result, we are able to offer a more thorough description of the EHCPM model.

2.4.1 VetPop

The VetPop2014 model was developed by OACT for Veteran population projections from 2014 to 2043. The model provides Veteran counts by age, sex, service era, and race/ethnicity at the county level. VetPop2014 is the culmination of years of work and refinement by OACT, representing the seventh iteration of the projection model (the previous iteration was developed in 2011). Documentation for the VetPop2014 model is scarce, and we rely on information contained in an online two-page abstract and discussions with the VetPop2014 team at OACT (Office of the Actuary, 2014).

Vetpop2014 starts with a baseline population, then applies mortality rates and adds new Veterans over time. The model also accounts for Veterans' migration patterns throughout the forecasting period. The baseline population for the VetPop2014 model comes from the 2000 U.S. Census. VetPop2014 then applies age- and sex-specific mortality rates derived from mortality data that include Veteran-specific information from VA administrative data and U.S. population data from the Social Security Administration and the Internal Revenue Service (IRS). Mortality rates in VetPop2014 vary by age and sex. VetPop2014 assumes a slight mortality improvement for older Veterans due to expected increases in life expectancy.

VetPop2014 projects annual separations from the military (i.e., new Veterans) by age and sex, and by active and reserve component, using DoD data. The abstract states that "[b]ased on DoD's annual military separation data from FY1980 to FY2013…VetPop2014…developed a set of Time Series Models to project annual separations for various age and gender groups. . . . VetPop2014 Model then used historical county separation data based on VA administrative records along with migration information from the IRS to project the county level separation from FY2014 to FY2043 using predictive modeling techniques." VetPop2014 assumes that conflicts in the Gulf end by 2018, and that there are no other major conflicts in the next 30 years. Finally, VetPop2014 models migration at the county level using historical data from VA, IRS, and ACS. Predictive migration models are developed for various age (five groups) and sex cohorts.

2.4.2 Enrollee Health Care Projection Model

EHCPM is a model for projecting how Veterans will interact with the VA health care system, and what consequences VA will experience as a result. The model is organized into three stages, which predict (1) eligibility and enrollment of Veterans in VA health care, (2) Veteran demand for health care services and reliance on VA health care for those services, and (3) total cost to VA of providing services. Each stage is contingent on projections from the previous stages, as well as external data and models.

At the highest level, EHCPM calculates costs as the product of Veterans, demand per patient, a reliance factor representing the proportion of care that Veterans receive from VA, and a unit cost:

$$Veterans * \frac{Demand_{Total}}{Veterans} * \frac{Demand_{VA}}{Demand_{Total}} * \frac{Unit\ Cost_{VA}}{Unit\ Demand_{VA}} = Costs_{VA}$$

This process is repeated for many Veteran subpopulations (defined by geography, demographics, priority group, and other characteristics) and for many categories of health care services.

EHCPM is a policy and planning model. It serves three functions for VA. First, the model provides a principled way to anticipate future demand for VA services, so that administrators can plan accordingly. Second, the model enables VA to provide Congress with an estimate of future costs, which, in turn, helps to ensure that its congressionally apportioned budget is sufficient to meet service demand. Third, because political, cultural, and demographic factors strongly shape the VA operating environment, EHCPM enables administrators to understand the operational consequences of factors both within and beyond VA's control.

In this regard, a key feature of the model is its ability to produce estimates for hypothetical scenarios, such as new legislation. EHCPM decomposes model outcomes into a series of joint probabilities, each of which can be altered to simulate the impact of scenarios and project the consequences for VA health care. For example, the probability that a Veteran uses services can be decomposed as the probabilities of: enrollment in VA care × reliance on VA over alternative sources of insurance × patient demand for health care services. If a new piece of legislation had the potential to raise Veteran co-pays, that might lower the probability that Veterans rely on VA care instead of alternative insurance options. The model could be recalculated with an artificially lowered reliance rate, enabling planners to understand how the proposed legislation would affect patient demand for VA services.

The joint probability strategy greatly increases the volume, variety, and specificity of the data required. To project enrollment of Veterans in VA health care, EHCPM relies on (1) actual enrollee and user data from internal records; (2) estimates of the characteristics of the total Veteran population, which is itself a multidata-source model projection from the VA OACT; (3) DoD data on deployment and separation of military personnel; and (4) actuarial mortality tables. To project health care demand and Veteran reliance on VA for it, EHCPM relies on (1) user data from internal records on Veteran characteristics and diagnoses; (2) the VA Survey of Veteran Enrollees' Health and Reliance Upon VA (SoE); (3) Medicare data for Veterans age 65 or older; (4) Chronic Illness & Disability Payment System data from the University of California, San Diego on the relationship between diagnoses and usage patterns for chronic illness/disability; (5) data from the actuarial firm Milliman's *Health Cost Guidelines* on health care utilization and cost averages by geographic area; and (6) various proprietary scores developed by Milliman. To project health care costs, EHCPM relies on (1) VA unit cost, workload, and budget obligations data; (2) CMS data on the work required to provide various physician services; and (3) Milliman data on the workload burden of providing various outpatient hospital services. Each stage of the model relies on outputs from the previous stage. In many instances, EHCPM uses linear modeling, with some analyst discretion in model specifications,[13] to extrapolate needed figures with no suitable data source. Finally, many model inputs are smoothed to account for temporal or categorical progression and trends.

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[13] These adjustments are reviewed by another actuary at Milliman who is not directly involved with the EHCPM work.

At each step, model projections are calibrated against the previous year's actual statistics. This involves running the model for the previous year, and then calculating an adjustment statistic for each model output to make model outputs identical to the previous year's actual figures. These adjustment statistics are then applied to the future projections, which predict various aspects of VA health care over the next 20 years. Analysts also examine these adjustment figures for trends, as trending adjustments may be the first sign of an underlying change in the health care system.

2.4.3 Office of the Actuary Veterans Health Care Scenario Model

Based on conversations with the VA OACT, VA uses VHSM for strategic planning and specifically to evaluate the budget impact of various business scenarios. By applying multiple analytic methods, VHSM produces analysis of key drivers and three types of model outputs: (1) baseline models, (2) scenario models, and (3) stochastic models. The key-drivers analysis is used to evaluate the trends and important factors influencing eligibility and demand for VA services, utilization of these services, and corresponding costs. The baseline model can then identify gaps in VA services in terms of demand and associated costs, while the scenario model can be used, for example, to understand how the changes in Veteran population demographic characteristics or economic conditions (such as income or employment) can influence the demand for VA services and related costs. The stochastic models are the Monte Carlo Simulations of the likelihood that VA will actually meet the demand for its services, given its budget limits, if the scenario under consideration is realized.

OACT relies on many data sources in its analysis: (1) VA administrative data (enrollment files, patient utilization files, benefits data), (2) public data (MEPS for medical expenditures, CMS data on Medicare and Medicaid, U.S. Census for socioeconomic demographic data, DoD data for new Veterans, and the Social Security Administration for mortality and disability data), and (3) industry and commercial data (Society of Actuaries health care trend analysis, United Health Group claim data for utilization and cost benchmarks, and Acxiom data for socioeconomic analysis).

2.5 Strengths of Our Approach

VA has made substantial investments in the models described above and refined them over the years. Our analysis, which was done on an eight-month time frame with limited access to data, was not meant to replace current VA models. Rather, we aimed to provide an independent assessment of the current and future Veteran population and patients' need for health services. In addition, while our models are prototypes and have not been refined to the same extent as VetPop and EHCPM, we incorporated several features into these model that could be useful for future VA planning. Strengths of our approach include the following.

Use of DoD data: We incorporated several sources of data from DoD into our models, to enable us to refine our estimates of the pipeline of future Veterans and their health care needs. By using the combination of the DMDC loss files, WEX files, and Contingency Tracking System files, we were able to account for age, sex, race, branch, active duty status, and activated reserve status in our demographic projections. To the best of our understanding, the VetPop model

relies on aggregate rather than micro-level DoD data, and accounts for only age, sex, and service era in projection models, although race/ethnicity estimates are ultimately presented among the characteristics of future Veterans.

In addition, we incorporated health status information from MHS into our estimates of Veterans' future health care needs. We do not believe that MHS data or other data on current military populations is incorporated into EHCPM. Better anticipating the needs of incoming Veterans could improve model accuracy.

Effort to incorporate race/ethnicity: The DoD data we used to enhance our projections include information on race and ethnicity, enabling us to estimate how changes in the racial and ethnic composition of the current military force may affect the demographics and health care needs of future Veterans. In addition, we incorporated race/ethnic-specific mortality rates from CDC into our model, adjusted to account for overall differences between Veteran and non-Veteran mortality. In contrast, mortality rates in VetPop account only for sex. A more nuanced focus on race and ethnicity may help VA to better understand the evolving needs of the VA population, especially because the number of Hispanic Veterans is increasing.

Use of MEPS to estimate reliance: VA faces a significant challenge in estimating future demand for health services due to the issue of reliance, or the fact that many Veterans receive only a portion of their total health care from VA. Reliance raises two important sources of uncertainty in estimating future demand: Reliance patterns may shift over time, and existing VA administrative data do not provide visibility into the total health care utilization and needs of the patient population. EHCPM appends VA data with Medicare claims data to estimate reliance for patients age 65 and older, and use a combination of VA survey data and proprietary commercial utilization benchmarks to estimate reliance among Veterans under age 65.

We took a different approach, using MEPS to estimate Veterans' reliance and propensity to use VA health care. MEPS is a survey of the noninstitutionalized civilian population (including Veterans) that aims to understand the U.S. population's total demand for health services and use of care across all possible settings. Because the survey identifies Veterans and assesses how they pay for health care, we were able to use this data to infer total utilization, whether or not care was provided by VA, as discussed in Section 5. Relative to current surveys conducted by VA, MEPS provides greater detail on the use of health services and specific diagnoses. Further, MEPS data suggest that Veterans over age 65 use other sources of care besides VA and Medicare (e.g., private insurance, self-pay), raising questions about VA's current approach to estimating reliance among this population.

MEPS has some significant drawbacks in terms of its utility for VA planning. Most importantly, the sample size of Veterans in MEPS is small, and the survey is not currently designed to ensure that the demographic distribution of Veterans is accurately preserved. For these reasons, it is unclear whether relying on MEPS in its current form would significantly enhance VA's forecasting capability. However, it is possible that the methods employed by MEPS to estimate health care use for the general population could be tailored to support a similar survey of Veterans.

***Scenario testing*:** We tested the sensitivity of our estimates to alternative (but plausible) scenarios in which the number of eligible Veterans and Veterans' proclivity to use health care were altered relative to our initial projections. Our analysis considered both the impact of policy changes that VA could enact on its own, as well as the impact of policy changes and external trends that are beyond VA's control. The scenarios helped us to understand what types of policy change and events might significantly change the demand for VA services, and hence require changes to planning approaches. While it is unlikely that any of the specific policy scenarios will unfold in exactly the manner we have modeled, the approach is useful to understand the potential impacts of uncertain future events. Conducting regular sensitivity analyses related to potential changes in Veterans' eligibility and utilization patterns could help VA to be better prepared when unforeseen circumstances arise.

We reiterate that our analysis was not meant to replace ongoing VA modeling efforts. Rather, we aimed to provide a fresh perspective on potential modeling approaches, and to provide insight into how different methodologies might affect results.

2.6 Overview of Data Sources

Throughout this report, we use a variety of data sources that provide information on populations (civilians, service members, Veterans, VA enrollees, VA patients) and their characteristics. Table 2-3 summarizes the populations in each data set, including the National Health Interview Survey (NHIS), the Behavioral Risk Factor Surveillance System (BRFSS), and the National Survey of Veterans (NSV), among others; indicates whether health and geographic information is included; and denotes specifically whether we could determine if an individual was eligible for VA services, was enrolled in VA, and was a VA patient. The passages following Table 2-3 briefly discuss the main advantages and limitations of each available data source.

Table 2-3. Summary of Data Sources

Data File	Population	Health	Geographic Location	Veteran Status	VA Enrolled	VA Patient
Nationally Representative Surveys						
MEPS[a]	Civilians, Veterans, VA patients	Yes	Census region	Yes	Yes	Yes
NHIS[b]	Civilians, Veterans, VA enrollees	Yes	Census region	Yes	Yes	Yes
BRFSS[c]	National Veterans, civilians	Yes	State	Yes	Yes	Yes
U.S. Census	Civilians, Veterans	No	Yes	No	No	No
ACS[d]	Civilians, Veterans, eligible Veterans, enrollees	Limited	Yes	Yes	Yes	No
Veteran/VA Surveys						
NSV	Veterans	Limited	No	Yes	Yes	Yes
SoE	VA enrollees	Limited	Yes	Yes	Yes	Yes
Administrative Data						
VA Encounter	VA patients	Yes	Yes	Yes	Yes	Yes
VA Enrollment	VA patients, VA enrollees	No	Yes	Yes	Yes	Yes
TRICARE/MHS	Active duty military	Yes	Yes	N/A	N/A	N/A
Active Duty Master and Loss	Active duty military	No	No	N/A	N/A	N/A
Work Experience	Service members	No	No	N/A	N/A	N/A
Contingency Tracking System	Service members	No	Yes	N/A	N/A	N/A

Note: For the survey data sources, details vary regarding how Veteran status, enrollee states, and patient status is assessed. Table 2-4, below, reports details on Veteran status is determined. Enrollee status is typically based on a self-report of enrollment or use of VA insurance. Patient status may be inferred in some cases based on utilization of VA services and/or payment for services by the VA.

[a] See Medical Expenditure Panel Survey, undated.
[b] See Centers for Disease Control and Prevention, 2012.
[c] See Centers for Disease Control and Prevention, 2014a.
[d] See U.S. Census Bureau, 2015.

The **Medical Expenditure Panel Survey (MEPS)**, sponsored by AHRQ, is a recurring nationally representative longitudinal survey of the U.S. civilian noninstitutionalized population drawn from the NHIS sampling frame. The Household Component of MEPS collects information on medical utilization, expenditures, and sources of payment for care obtained by households in all care settings outside of nursing homes. It also includes detailed information obtained via

questionnaires provided to households and separately to their medical providers. Demographic information includes age, sex, race/ethnicity, marital status, education, and income, but does not include information on service era. Health information is derived from responses to survey questions about several common medical conditions and responses to open-ended questions about medical conditions or procedures. These open-ended questions are translated into International Classification of Diseases, 9th revision (ICD-9) codes that are used for analysis. MEPS does not contain sufficient information to precisely determine eligibility or enrollment in VA services. Given these limitations, we define Veterans as those respondents who report being honorably discharged from the military,[14] and we define active VA patients to be those respondents who had any payment by VA for services used.[15] The period of analysis covered data from 2006 to 2012.

MEPS has several strengths relative to other possible data sources that we could have used for this analysis. First, the goal of the assessment was to analyze the health care needs of the patient population served by VA. We interpreted this to include all health care needs, not just health care needs addressed by VA providers or paid for by VA. Because many VA patients receive a large portion of their health care needs from non-VA sources, we felt it was important to use a data source that captured non-VA care. MEPS allows us to identify all care consumed by a VA patient, not just care provided by VA. The fact that use of VA care is influenced by access barriers makes it even more critical to consider episodes of care provided outside of VA. Focusing only on care provided by VA would understate both the total needs of the VA population and the underlying need for VA services.

Second, MEPS allows us to identify the health care needs of Veterans who do not currently use VA for any care. This population is important because many of these Veterans are potential VA patients, and could opt to use VA care in the future. We recognize that some of these Veterans are not currently eligible to enroll in the VA system. However, VA enrollment policy is fluid and changes over time, and VA has discretionary authority to provide care for all Veterans. For example, VA suspended enrollment for Veterans in priority group 8 in 2003, and then relaxed some of these restrictions in 2009. Thus, fully understanding the needs of the future patient population requires considering the needs of Veterans who are not currently eligible to enroll.

Third, MEPS allows us to compare the health care needs of Veterans with the health care needs of non-Veterans using a single data source that collects information using the same methods for both groups. This comparison is important to understand the unique health care needs of the VA population, a requirement identified by Congress.

The **National Health Interview Survey (NHIS)**, sponsored by CDC, is an individual-level annual survey that includes information on demographics, Census region, general health, cancer screening, self-reported medical conditions (including asthma, arthritis, cancer, diabetes), health behaviors (including alcohol use, smoking, exercise), physical or functional limitations, and mental health (adult mental health, stress). We defined eligible Veterans to be those who

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[14] Prior to 2006, the survey instrument asked whether anyone in the household had *ever served on active duty in the Armed Forces of the United States* [emphasis added]*.*

[15] Methodology for identifying Veterans is discussed in Roemer, 2012.

self-reported having served in active military duty. It is not possible to identify VA patients in these data. We analyzed data from 2011 to 2013, which covers the period when military service information is available. We used NHIS to estimate the prevalence of the selected health conditions among Veterans and non-Veterans. Where possible, we compared these estimates with those derived using MEPS, which were based on ICD-9-coded health conditions.

The **Behavioral Risk Factor Surveillance System (BRFSS)**, sponsored by CDC, is a nationally representative survey fielded monthly by state health departments that collects individual-level information on health behaviors and risk factors associated with the leading causes of premature mortality and morbidity among adults in the United States. We used data covering 2013. The survey allows for periodic experimental modules and for states to ask additional questions beyond the core instrument. The survey asks whether respondents have ever served in active military duty in the core instruments, and we used this response to identify Veterans. There are also several experimental modules (for certain states) that have asked more-detailed questions about deployment, service, and a few specific Veterans' health issues (e.g., PTSD, TBI), but we did not use this information because the sample sizes were small and the populations were not nationally representative. We used BRFSS to estimate the prevalence of the self-reported health conditions among Veterans and non-Veterans. BRFSS was also used to examine differences in health behaviors (e.g., smoking) and other health indicators (e.g., obesity) between Veterans and non-Veterans.

The **U.S. Census** collected information about the 115.9 million housing units and 281.4 million people in the United States on April 1, 2000. A 5-percent sample of people and housing units received a more detailed long-form survey that contained questions about Veteran status and periods of service. As a starting point, the team used the 5-percent sample 2000 Census data to assess the baseline Veteran population in 2000. The 2010 Census did not include a long form and did not collect information on Veteran status. The 2010 Census short form included only basic demographic questions (e.g., name, relationship with head of household, age, sex, Hispanic origin, race) and household information (e.g., number of people in the household, whether the home is owned or rented). The 2000 Census long form asked detailed demographic and household questions, including Veteran status and time that the person served on active duty in the U.S. armed forces. As of the 2010 Census, detailed sociodemographic and other information is collected in ACS, rather than the Census.

The **American Community Survey (ACS)** is an ongoing mandatory survey conducted by the U.S. Census Bureau that collects data each year to bridge intercensal periods and provide detailed information about the population, including Veteran status. ACS also includes information on current location and location in the previous year. Our analysis uses ACS to determine Veteran geographic distribution and migration patterns. It was not possible to use ACS to accurately measure the number of Veterans in the population; ACS is generally acknowledged to undercount Veterans, though it is assumed to accurately capture the distribution of Veteran characteristics (age, sex, race/ethnicity, service cohort, location). For example, the 2013 ACS estimates of total Veteran population are roughly equivalent to our own estimates of the number of Veterans observed in the 2000 Census who are estimated to still be living in 2013—that is, ACS estimates effectively undercount by the number of new Veterans who entered the population from 2000–2013. For this reason, the team produced a set of population projections

using a combination of Census 2000 data, DoD data, and ACS data. More specifically, the team used the 2005–2009 and 2009–2013 ACS 5-year estimates available through the American FactFinder website (U.S. Census Bureau, undated). ACS data prior to 2005 do not have information about residence in previous year, which is necessary for migration estimates.

The **National Survey of Veterans (NSV)**, sponsored by VA, is a recurring nationwide survey of Veterans, military service members, and their families. Our analysis used the 2010 NSV survey. NSV data include individual-level demographic and socioeconomic characteristics, general health status, branch of service and period of active duty, and self-reported enrollment in VA and use of VA benefits and services. NSV data were used to estimate characteristics of current Veterans who use VA medical services and how these differ from Veterans who are not VA patients.

The **VA Survey of Veteran Enrollees' Health and Reliance Upon VA (SoE)** is a recurring nationwide survey of more than 40,000 Veterans enrolled in the VA system. The survey includes each enrollee's demographic and socioeconomic characteristics, general health status, period of military service, and priority group (from administrative record). It also includes information relevant to enrollees' relationships with the VA system, including when and why individuals enrolled in VA, health insurance coverage, long-term care insurance, use of VA and non-VA services, and payer information. We used this survey to determine the characteristics of Veteran VA enrollees predicting use (or non-use) of VA services and, in combination with demographic projections, future rates of VA use.

VA encounter data include individual-level information on diagnoses, demographic characteristics, and geographic location (state). VA encounter data were used to estimate current and prior condition prevalence patterns among active VA patients. These data include all health care encounters provided or paid for by VA, which allowed us to estimate the prevalence of service-connected health conditions that exhibit very low prevalence in the national population. A limitation of these data is that they do not capture Veterans who did not use VA care. Moreover, the database includes only health conditions of VA patients that were treated at VA. This may represent only a subset of total health conditions if VA patients also seek care from non-VA providers. Most Veterans with service-connected disabilities use VA (RAND analysis of FY 2014 VHA Support Service Center Current Enrollment Cube data), so the prevalence estimates for these conditions are expected to be more representative of the overall prevalence in the Veteran population.

VA enrollment data are derived from the Health Eligibility Center enrollment files via the VA Business Intelligence System Current Enrollment Cube and the Assistant Deputy Under Secretary for Health (ADUSH) enrollment file. These sources include the counts of VA patients and VA enrollees by state of residence, sex, age group, and Iraq-Afghanistan deployment status. We used data covering 2005 to 2014.

Military Health System (TRICARE) encounter data include information on diagnoses and demographic characteristics of active military personnel. We used TRICARE data to estimate the prevalence of health conditions among separating personnel, which may be useful in predicting health conditions among future VA service users and in determining variation in demand for VA services by health condition.

The **Active Duty Master and Loss files** provide an inventory of all individuals on active duty (excluding reservists on active duty for training) for the Army, Navy, Marine Corps, Air Force, Coast Guard, Public Health Service, and National Oceanic and Atmospheric Administration Commissioned Corps at a point in time. Relevant personal data elements include date of birth, sex, race, and ethnic group. Relevant military data elements include months of service and basic active service date, as well as anticipated service contract end date. The Active Duty Military Personnel Transaction file contains a transaction record for every individual entrance, separation, or reenlistment in the Army, Navy, Air Force, Marine Corps, and Coast Guard within a specific time frame. The Active Duty Loss files are subsets of the Master/Transaction file. The team used these data to supplement the 2000 Census counts for April 2000 to December 2014. Each separation, or "loss," indicates an incoming Veteran to the civilian population.

The **Work Experience (WEX) file** contains a longitudinal record for each individual who has served in the active or reserve forces since September 1990. For those individuals, the WEX includes information on service back to 1975. The file is organized by "transactions"; in other words, a new record is generated whenever there is a change in the key variables—service/component/reserve category, pay grade, occupation (primary, secondary, or duty), and unit identification code. The WEX is built from information in DMDC's Active Duty Master Personnel Edit file, equivalent reserve files, and the underlying service files.

The **Contingency Tracking System** is an administrative data set that contains one record for every activation or deployment in support of the conflicts in Afghanistan and Iraq. These deployment data were linked to the DMDC Loss files in many analyses throughout this report to track the portion of separating service members who were ever deployed over time.

Table 2-4 contains definitions of Veteran and VA patient in the nationally representative survey data used in the analyses in this report. The two VA surveys (NSV and SoE) and VA administrative data (VA encounter, VA enrollment) define the two terms according to the legal definition described above. The DoD administrative data (MHS TRICARE, Active Duty Master and Loss files, and Contingency Tracking System) are designed around service members and therefore do not explicitly contain Veteran and VA patient data. We define Veterans in these data to mean those who have separated from the military after serving two or more years, and for reservists, a period of activation of 30 days or more is required. We do not exclude former service members who received other-than-honorable discharges.

Table 2-4. Survey Definitions of Veteran and VA Patient

Data File	Veteran	VA Patient
MEPS	Self-report of being honorably discharged by the military	Respondents who had any payment by VA for services used
NHIS	Self-report of having served in active military duty	N/A
BRFSS	Self-report of having ever served in active military duty	N/A
ACS	Once an individual has ceased to "ever serve on active duty in the U.S. Armed Forces, military Reserves or National Guard. Active duty does not include training for the Reserves or National Guard, but does include activation, for example, for the Persian Gulf War"	N/A
NSV	VA definition	VA definition

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3 Current and Future Demographics of the Veteran Population

3.1 Introduction

Although many national surveys collect information on Veterans, there has not been a full national accounting of all Veterans since the 2000 Census. This section presents estimates of the number of Veterans and their demographic characteristics. Motivated directly by the language of the Veterans Choice Act, this section describes the current population of Veterans in the United States, categorizes them according to age, sex, race/ethnicity, service cohort, and geographic location, and projects how this population will change by 2024. These estimates are intended to be informative in their own right, as well as to support analyses in Section 4 to predict VA enrollment, in Section 5 to predict health care needs, and in Section 6 to conduct scenario testing.

The team derived these estimates using standard demographic techniques. We estimated the national population using cohort component population projection methods, and estimated migration flows using gravity models. Cohort component population projection is a method that estimates future population sizes by applying mortality rates specific to age, sex, and race/ethnicity to a baseline population. The projection method also accounted for new Veterans entering the population as they leave the military throughout the projection period, and applied the same mortality rates to them moving forward. The team used data from DoD to determine the number and characteristics of new Veterans entering the population from 2000 to 2014. The team further assumed that total military end-strength would decline and that there would be no significant new conflicts over the projection period.[16] The analysis used data from the U.S. Census Bureau to initially distribute our 2013 national projections, then used gravity models to estimate the migration flows of Veterans through 2024.[17] For complete details of the methods used to derive the population projections, see Appendix A.

This section defines *Veteran* according to information available in the ACS and DoD data. ACS characterizes Veterans as those who "ever served on active duty in the U.S. Armed Forces, military Reserves or National Guard. Active duty does not include training for the Reserves or National Guard, but does include activation, for example, for the Persian Gulf War." Once individuals have ceased to serve on active duty in any of these capacities, they are considered Veterans for the purposes of the projections. Note that ACS does not have information on length of service (only eras of active duty) or on status of discharge. Thus, not all Veterans in the projection exercise may qualify for VA services. For example, Veterans who served less than two years or Veterans with "bad paper" discharges (dishonorable, other-than-honorable, and bad conduct discharges) are all ineligible for VA services but are included in the definition of Veteran in this section. Additionally, in projections of future Veteran counts, DoD separation

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[16] Refer to Section 6 for more discussion on how future conflicts would affect these results.

[17] Gravity models are statistical models of migration that take into account a variety of factors, including age, sex, race/ethnicity, service era, population size of sending and receiving areas, and distance between areas.

data were used to identify individuals who separate from the military. Here, because personnel files were used, we were able to account for years served and whether an individual deployed during his or her time in service.

Overview of Methods and Data for Demographic Analysis

- We estimated the 2014 and 2024 population of U.S. Veterans using a cohort component population projection method.
- Data for this analysis came from the U.S. Census for baseline national projections; we then factored in estimates of mortality, adjusted for demographic characteristics, and added data from DoD on Veterans entering the population.
- We estimated migration flows of Veterans using gravity models.
- Supplementary data came from ACS and accounted for a variety of factors, including age, sex, race/ethnicity, service era, population size of sending and receiving areas, and distance between areas.
- For complete details of the methods used to derive the population projections, see Appendix A.

3.2 Results: The U.S. Veteran Population, 2014 and 2024[18]

3.2.1 Total Population

We estimate that the U.S. Veteran population will shrink over the next decade—declining from 21.6 million in 2014 to 17.5 million by 2024, a 19-percent decrease (Figure 3-1). Over a longer time frame, VA estimates that the total number of Veterans will continue to decline, by 37 percent between 2008 and 2033 (U.S. Government Accountability Office, 2009) due to the continued aging of the Veteran population and military downsizing. This projected decrease suggests that in 2032, there will be fewer than 15 million living Veterans (McGeary et al., 2007). Detailed comparisons with VA estimates are discussed in Appendix A.

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[18] Detailed tables and figures are presented in Appendix 3-B. Here we highlight the main features of the results.

Figure 3-1. Projected Veteran Population, 2014–2024
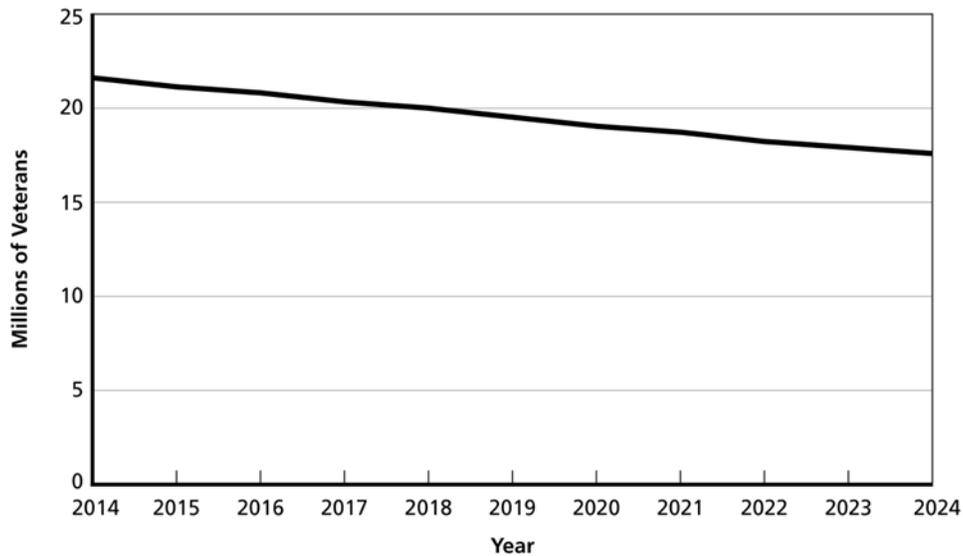
SOURCE: RAND analysis of VA, DoD, and Census data.

3.2.2 Race/Ethnicity

We estimate that the proportion of Veterans who are non-Hispanic white will decline slightly, from 80 percent in 2014 to 76 percent by 2024. The literature shows that the racial and ethnic composition of the Veteran population varies by age. Older Veterans are primarily non-Hispanic white, while younger Veterans are more likely to be racially and ethnically diverse (Lee & Beckhusen, 2012). Gulf War-era Veterans are more racially and ethnically diverse than prior cohorts of Veterans (Holder, 2014). In 2012, minorities accounted for 20 percent of the male Veteran population and 38 percent of male non-Veterans (National Center for Veterans Analysis and Statistics, 2014c). Among Veterans, the two largest minority groups were Veterans who were black or Hispanic (National Center for Veterans Analysis and Statistics, 2011a, 2014a). Figure 3-2 shows our estimates of the racial and ethnic composition of the Veteran population in 2014 and in 2024. Like VA, we estimate that the largest minority groups represented in the Veteran population are Veterans who are black or Hispanic.

Figure 3-2. Race/Ethnicity Composition of the Veteran Population, 2014 and 2024 (Projected)
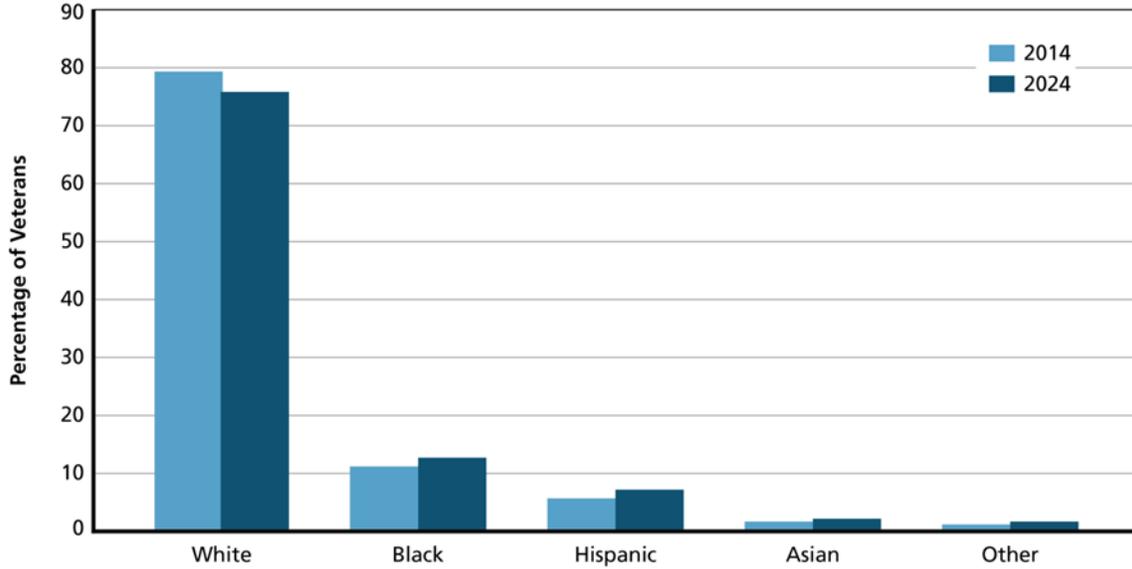
SOURCE: RAND analysis of VA, DoD, and Census data.

3.2.3 Sex

We estimate that the proportion of male Veterans will decline from 92 percent to 89 percent by 2024. Based on the growth trend observed since 2000, the total number of female Veterans is projected to increase very slightly at the same time (Figure 3-3), leading to a 38-percent increase in the relative share of female Veterans, from 8 percent to 11 percent of the Veteran population by 2024. Despite this increase, the Veteran population remains predominately male throughout the projection period.

Figure 3-3. Total Veteran Population by Sex, 2014–2024 (Projected)
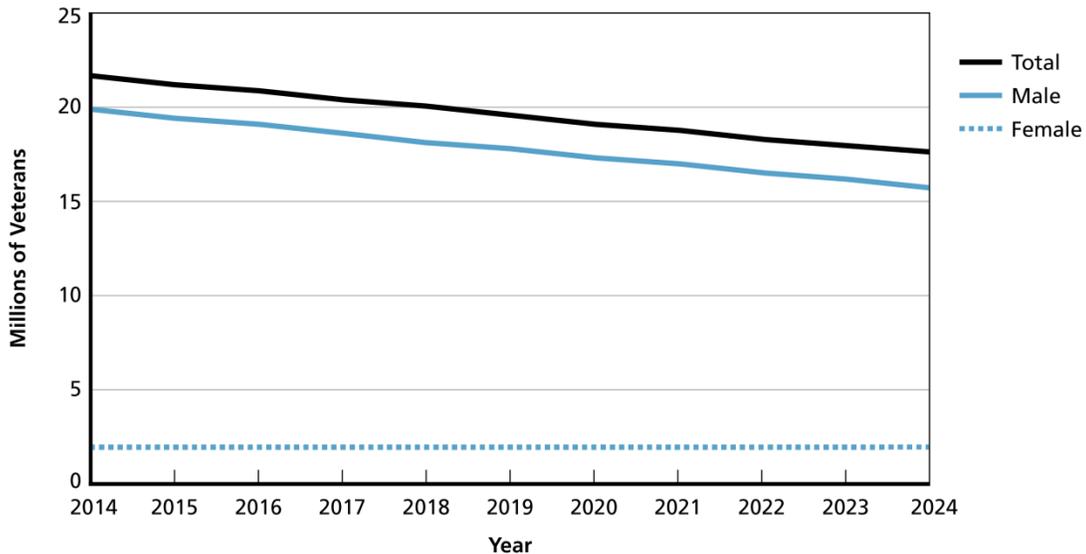
SOURCE: RAND analysis of VA, DoD, and Census data.

Our estimates are in line with the existing literature on this topic, which confirms that the majority of Veterans will continue to be men, but the proportion of women is growing (U.S. Government Accountability Office, 2009). In 2008, 15 percent of active duty military and 7.7 percent (1.8 million) of Veterans were women (National Center for Veterans Analysis and Statistics, 2011a; U.S. Census Bureau, 2014). Approximately 33 percent of female Veterans were minorities in 2012 (National Center for Veterans Analysis and Statistics, 2014a). Female Veterans were more likely than non-Veterans to be non-Hispanic black (19 percent versus 12 percent) or non-Hispanic white (69 percent versus 67 percent) (National Center for Veterans Analysis and Statistics, 2011a).

In Figure 3-4, we display the number of new service members who separate from the active component to become Veterans. We estimate that the total number of new Veterans will decrease from approximately 192,000 in 2015 to 162,000 in 2024. The decrease in the total number of new Veterans is driven mostly by separations of male service members, down from 164,000 in 2015 to 138,000 in 2024. We note that new Veterans from the active component represented approximately 1 percent of all Veterans in 2014 (roughly 224,000 out of 21.6 million).

Figure 3-4. Number of New Veterans from Active Component, Total and by Sex
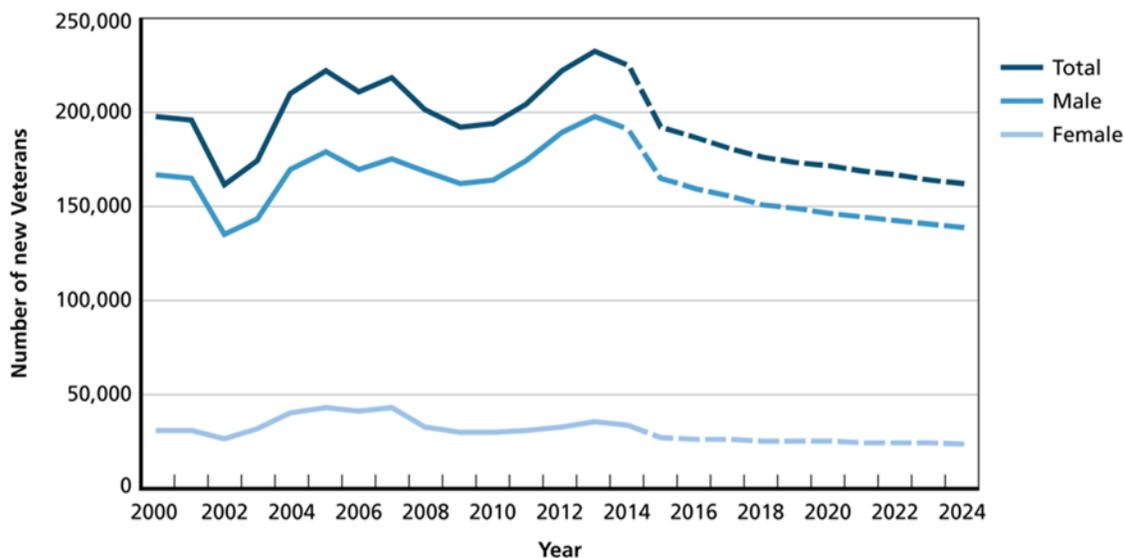
SOURCE: RAND analysis of DoD data.

3.2.4 Age

We estimate that the age structure of Veterans will shift between 2014 and 2024, as shown in Figure 3-5. We estimate that the share of Veterans ages 45–64 will decline from 34 percent to 31 percent of the Veteran population, while the share of both younger and older Veterans will increase; the share of Veterans age 65+ will increase from 49 percent to 51 percent by 2024; and the share of all Veterans at the oldest ages (85+) will increase from 9 percent to 10 percent. As shown in Figure 3-6, Veterans' mean age will increase slowly throughout the period. Male Veterans' mean age will rise much more slowly than female Veterans' mean age, although

female Veterans are substantially younger than male Veterans overall, and will continue to be so during the projection period.

Figure 3-5. Age Structure, 2014 and 2024 (Projected)
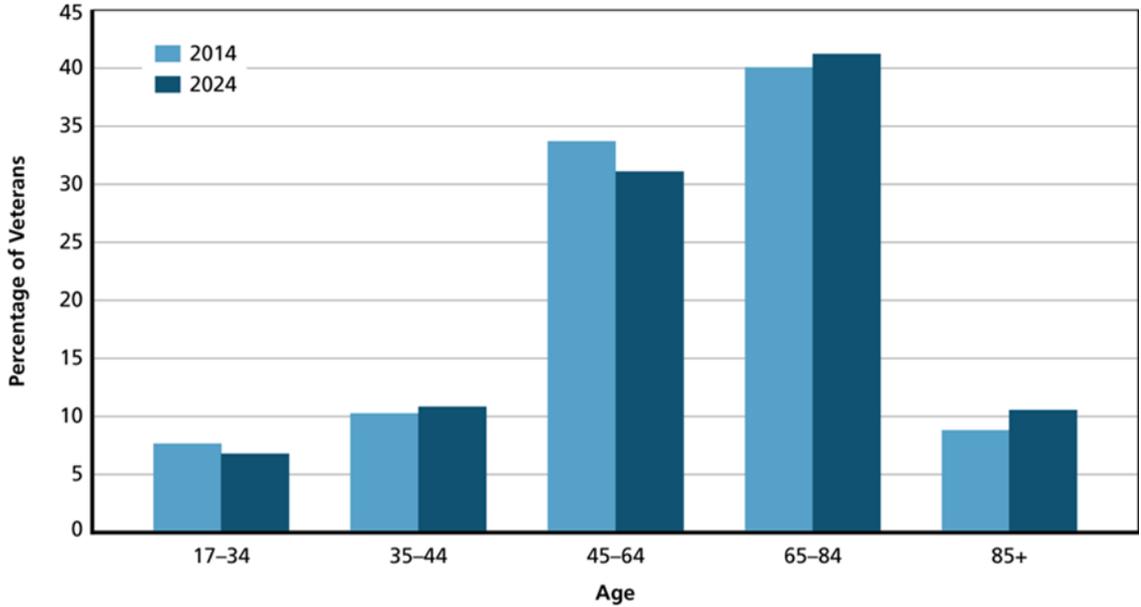
SOURCE: RAND analysis of VA, DoD, and Census data.
NOTE: Population in 2014: 21.6 million. Population in 2024: 17.5 million.

Figure 3-6. Mean Age by Sex, 2014–2024 (Projected)
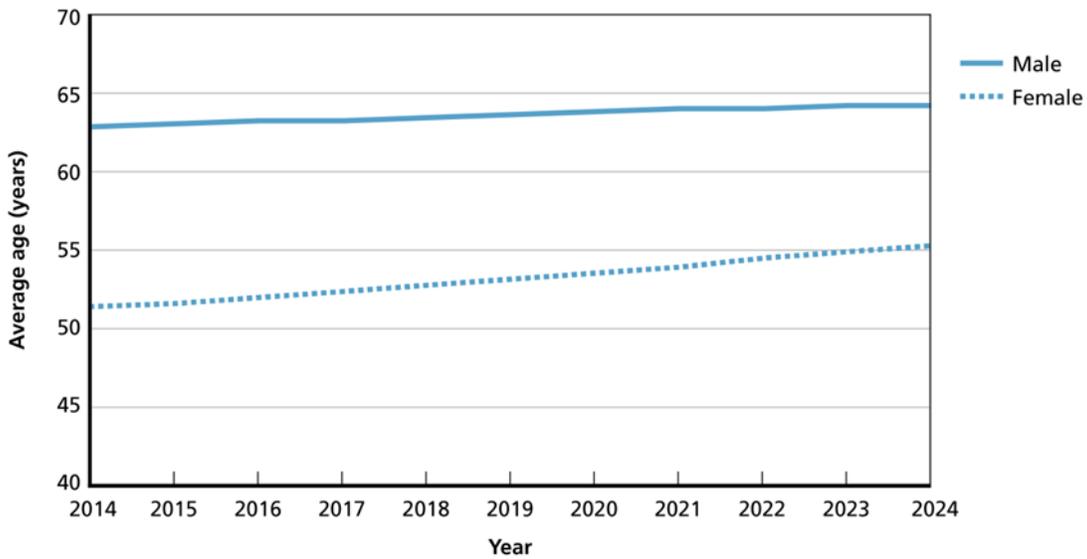
SOURCE: RAND analysis of VA, DoD, and Census data.

We also examined the age profile of newly separated active component service members and plot the results in Figure 3-7. While the number of service members who are projected to separate between 2015 and 2024 is relatively constant for those in age groups 35–44 and 45+, the number of new Veterans under age 35 is expected to decrease throughout the 10-year projection horizon. In 2015, we estimate that 146,000 new Veterans will be under age 35, and that number is expected to decrease to 123,000 by 2024.

Figure 3-7. Number of New Veterans from Active Component, by Age
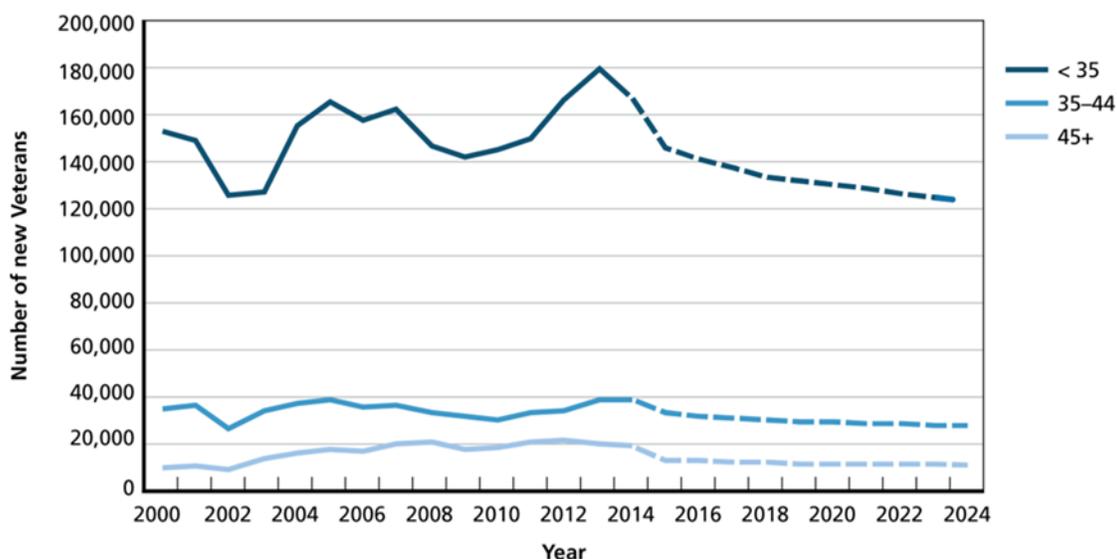
SOURCE: RAND analysis of DoD data.

A profile of the current age structure shows that in 2014, the largest conflict-era cohort—Vietnam-era Veterans—averaged 67 years of age, while the second-largest conflict-era cohort—Gulf War-era Veterans—averaged 47 years of age (see Table 3-1).

Table 3-1. Number and Mean Age of Veterans, by Era of Service (2014)

Era of Service	Mean Age	Veterans (millions)
Pre-1950	86	1.6
Korean conflict	82	2.0
Pre-Vietnam peace	75	2.1
Vietnam	67	6.7
Post-Vietnam peace	53	3.3
Gulf War	47	3.2
Post-9/11	36	2.6

SOURCE: RAND analysis of VA, DoD, and Census data.
NOTE: Individuals are grouped into the most recent active duty wartime era they served in (if they report multiple periods of service), or if they only served during peacetime, they are grouped into their most recent peacetime era.

3.2.5 Service Cohort

The team estimates that pre-Vietnam-era Veterans constituted 25 percent of the total Veteran population in 2014, but by 2024, their share is projected to fall to 13 percent of the total. The analysis also estimates that the share of Vietnam-era Veterans (1964–1975) will decline slightly from 32 percent to 29 percent of the Veteran population by 2024. These estimates are consistent with earlier numbers; in 2000, Vietnam-era Veterans were estimated to account for 31.7 percent of the Veteran population (Richardson & Waldrop, 2003). The RAND projection estimates that the proportion of Gulf War-era and post-9/11-era Veterans will grow from 26 percent to 41 percent of the total Veteran population by 2024; post-9/11 Veterans alone will account for 24 percent of all Veterans in 2024. Figure 3-8 presents the projected service-era cohort composition changes in the Veteran population over time (pre- and post-Vietnam peacetime-only service eras are not presented), highlighting the rapid proportional growth of the post-9/11 era.

Figure 3-8. Conflict-Era Veterans as Percentage of Total Veteran Population, 2014–2024 (Projected)
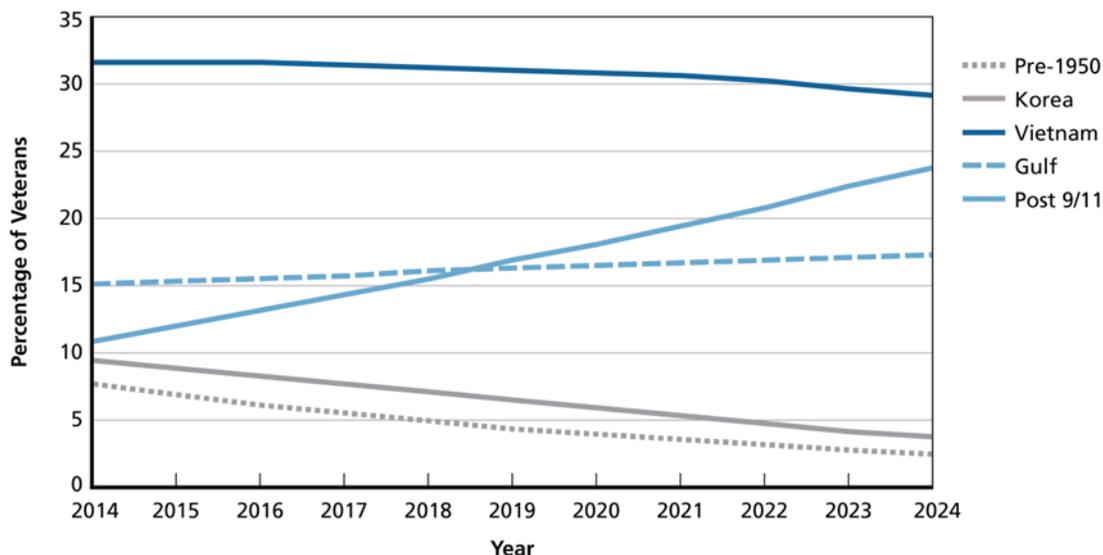
SOURCE: RAND analysis of VA, DoD, and Census data.

3.2.6 Socioeconomic Status

3.2.6.1 Employment

Educational and economic measures are routinely considered in the examination of demographic events and processes (O'Hare, Pollard and Ritualo, 2004). Our review of the literature found that in 2014, approximately 5 percent of Veterans were unemployed compared with 6 percent of non-Veterans (Bureau of Labor Statistics, 2015). There was notable variation in unemployment by service era. Approximately 7 percent of Veterans who deployed to Afghanistan and Iraq were unemployed in 2014 (Bureau of Labor Statistics, 2015). In 2014, there were approximately 573,000 unemployed Veterans (Bureau of Labor Statistics, 2015). The majority of the unemployed Veterans (59 percent) were age 45 or older (Bureau of Labor Statistics, 2015). Comparisons between Veterans and civilians that account for disability status show that Veteran status and being female are associated with higher rates of unemployment, though disability is the strongest predictor of being unemployed (Smith, 2014).

In Table 3-2, we present data on the socioeconomic status of the Veteran and non-Veteran civilian populations using ACS data from 2009 to 2013. The data in the table are interpreted as the mean throughout the 2009–2013 period.[19] According to ACS, unemployment was lower for Veteran than non-Veteran civilians, but it was slightly higher throughout this period than the level reported by the Bureau of Labor Statistics. The table also indicates that Veterans tend to

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[19] ACS estimates are period estimates; when precision of estimates is more important than currency of estimates, the U.S. Census Bureau recommends using the five-year ACS estimates rather than the one-year estimates. Thus, we rely on the five-year ACS estimates throughout this section. See Beaghen & Weidman, 2008.

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have higher incomes and education levels than their non-Veteran counterparts. Both male and female Veterans have higher average personal incomes than non-Veterans, and female Veterans have higher average family incomes than non-Veterans. Male Veterans, however, report lower average total family incomes than their non-Veteran civilian male counterparts. For both sexes, Veterans are less likely to live below the poverty line than non-Veterans, and more likely to have graduated from high school. Relative to non-Veterans, Veterans are also more likely to have at least a college degree. Characteristics of Veterans with VA medical insurance are also presented;[20] unemployment is higher, and income is lower, as expected by design.

Table 3-2. Socioeconomic Characteristics of the Veteran and Non-Veteran Civilian Population, by Sex, 2009–2013

Socioeconomic Characteristics	Non-Veteran Civilians		Veterans		Veterans with VA Insurance	
	Female	**Male**	**Female**	**Male**	**Female**	**Male**
% unemployed	9.07	10.26	8.30	8.43	12.15	12.58
Avg. total family income	$86,335	$92,117	$89,547	$87,533	$79,576	$73,717
Avg. total personal income	$27,113	$44,456	$38,304	$50,964	$35,775	$41,514
% income < 100% FPL	15.25	12.94	9.98	6.63	12.33	8.52
% income 100–250% FPL	27.38	25.87	24.25	23.50	28.52	29.77
% income 250–400% FPL	21.32	21.92	23.85	24.68	24.30	25.71
% income > 400% FPL	36.05	39.27	41.92	45.19	34.84	36.00
% Less than high school	14.81	18.51	2.41	8.05	2.45	9.57
% HS graduate or GED	27.47	28.29	19.07	30.50	16.81	30.98
% Some college	23.85	21.69	31.60	27.43	32.65	29.11
% College +	33.86	31.51	46.92	34.02	48.09	30.34
% With medical insurance	84.90	77.24	92.62	94.15	100.00	100.00

SOURCE: RAND analysis of Census data.
NOTES: All Veteran means are statistically different (at p < 0.001) from non-Veteran civilian means by sex. Unemployment does not include those who are not in the labor force (e.g., retired).
FPL = federal poverty level, which varies by size of the household.

3.2.6.2 Income

Corresponding to the analysis described above, the literature also suggests that Veterans are less likely to live below the poverty line than non-Veterans, and that Veterans have higher median incomes (2000, 2009, 2012) (National Center for Veterans Analysis and Statistics, 2011c, 2014a, 2014d). Veterans working full-time had higher median earnings and personal incomes than non-Veterans in 2012 (National Center for Veterans Analysis and Statistics, 2014c). Compared with male Veterans, female Veterans are more likely to have no health

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[20] Individuals' insurance status is reported by the primary householder responding to the ACS survey, who responds on behalf of all members of the household.

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insurance coverage, have no income, and live in poverty (National Center for Veterans Analysis and Statistics, 2014d). VA patients are more likely to have a lower household income compared with non-patients. However, these differences are not surprising, given that eligibility for VA care is partly dependent on income (National Center for Veterans Analysis and Statistics, 2014e).

3.2.6.3 Homelessness

In 2010, Veterans accounted for approximately 10 percent of the adult population; however, they represented a disproportionate share of the homeless adult (16 percent) and sheltered homeless adult (13 percent) populations (National Center for Veterans Analysis and Statistics, 2012b). Approximately 10 percent of homeless Veterans are women (U.S. Department of Housing and Urban Development, 2014), and female Veterans are three to four times more likely than non-Veteran women to become homeless (Washington et al., 2010). Among female Veterans, sexual assault during military service, unemployment, disability, and poor physical and mental health are associated with being homeless (Washington et al., 2010). While homelessness is a significant problem among the Veteran population, the total size of the homeless Veteran population has decreased over time. The U.S. Department of Housing and Urban Development reported that there were 49,933 homeless Veterans in 2014, representing less than 0.25 percent of the total Veteran population. Between 2010 and 2014, the number of homeless Veterans declined by 33 percent (U.S. Department of Housing and Urban Development, 2014).

3.2.7 Geographic Distribution of Veterans

This section presents a series of maps that show the geographic distribution of the U.S. Veteran population by a variety of characteristics, and how this distribution is expected to change between 2014 and 2024. Understanding the geographic distribution of Veterans is an important consideration for policies that attempt to align the availability of health care services with the Veteran population. The maps on each topic are paired: The first of the two presents information for 2014, and the second presents information for 2024. We report geographic detail using Public Use Microdata Areas (PUMAs), which are geographic units used by the U.S. Census Bureau. Typically, each PUMA contains roughly 100,000 residents. PUMAs respect state borders, but not necessarily county or municipality borders. We provide more-complete information on PUMAs in Appendix A.

Each map shading indicates the total number of Veterans living in all PUMAs within 40 miles of the center of the shaded PUMA.[21] The text in the lower left corner reports the total number of Veterans depicted in the map, as well as the percentage of the total Veteran population they represent. The bar chart on the lower right serves the dual purpose of reporting how each shade corresponds to the number of Veterans, as well as what portion of the depicted population lives in the PUMA shaded with each color.

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[21] For an explanation of why we shaded based on all Veterans living *near* each PUMA rather than just those living *in* each PUMA, please see Appendix A.

3.2.7.1 Geographic Concentration of Veterans

Figure 3-9 depicts the geographic distribution of the Veteran population as a whole in 2014. Like the U.S. population as a whole, the majority of Veterans are concentrated in a small number of heavily urbanized regions. The "Bos-Wash" corridor, a stretch of heavily urbanized area that runs from Boston, Massachusetts, to Washington, D.C., contains 30–50 million people and 1.43 million Veterans.[22] Southern California, including the Los Angeles, Riverside, and San Diego metropolitan areas, contains more than 20.97 million people and 1 million Veterans. Other large cities, such as Chicago (population: 9.55m, Veterans: 423k), Dallas (6.95m, 360k), Houston (6.49m, 332k), Atlanta (5.61m, 405k), Miami (5.93m, 262k), and the San Francisco Bay Area (6.55m, 346k), account for another 41.08 million people, including 2.08 million Veterans. Taken together, these eight urbanized regions account for 35 percent of the American population and 20 percent of the Veteran population.

Of the 318.9 million people residing in the United States in 2014, 21.6 million, or 6.8 percent, were Veterans. Slightly more Veterans than expected based on this national average live in Virginia Beach (14 percent), Boston (14 percent), central Florida (10 percent), Cleveland (10 percent), Washington, D.C. (9 percent), and San Antonio (9 percent). Slightly fewer Veterans than expected live in Chicago (4 percent), Miami (4 percent), Dallas (5 percent), Los Angeles (5 percent), Houston (5 percent), San Francisco (5 percent), Minneapolis (5 percent), and New York City (3 percent).

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[22] Veteran estimates include all Veterans living in a PUMA within 40 miles of the named city centers. Total population estimates include the entire metropolitan population, not just the population of the named cities proper.

Figure 3-9. Total Veteran Population in 2014

Total: 21.6m (100%)
Lambert Conformal Conic Projection
Alaska Rendered at One-Third Scale
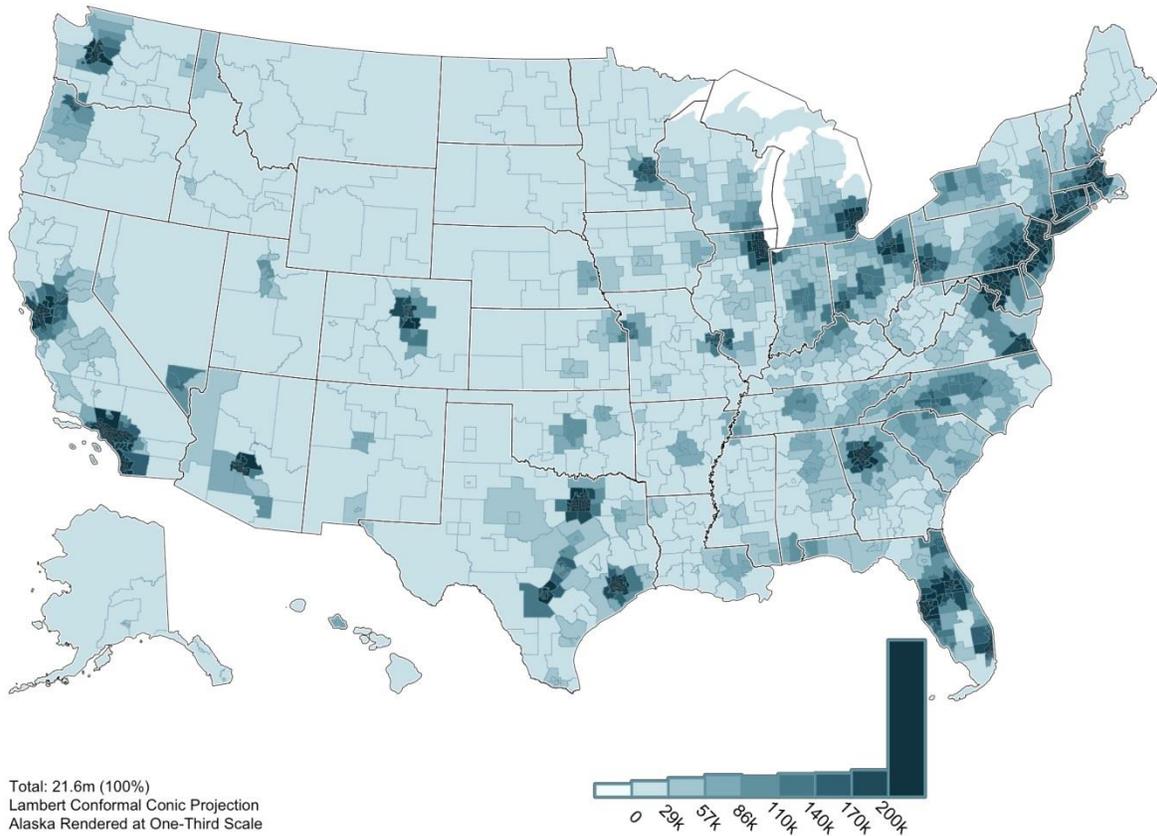
SOURCE: RAND analysis of VA, DoD, and Census data.

Figure 3-10 displays how the Veteran population is expected to look in 2024. Overall, we expect the population to decline to 17.5 million as older cohorts of Veterans experience high rates of age-related mortality. For the most part, these losses will not change the geographic distribution of Veterans. However, we estimate that the share of Veterans in the Ohio River Valley cities, including Buffalo, Cincinnati, Cleveland, Columbus, Detroit, Indianapolis, and Pittsburgh, will decline.

Figure 3-10. Total Veteran Population in 2024 (Projected)

Total: 17.5m (100%)
Lambert Conformal Conic Projection
Alaska Rendered at One-Third Scale
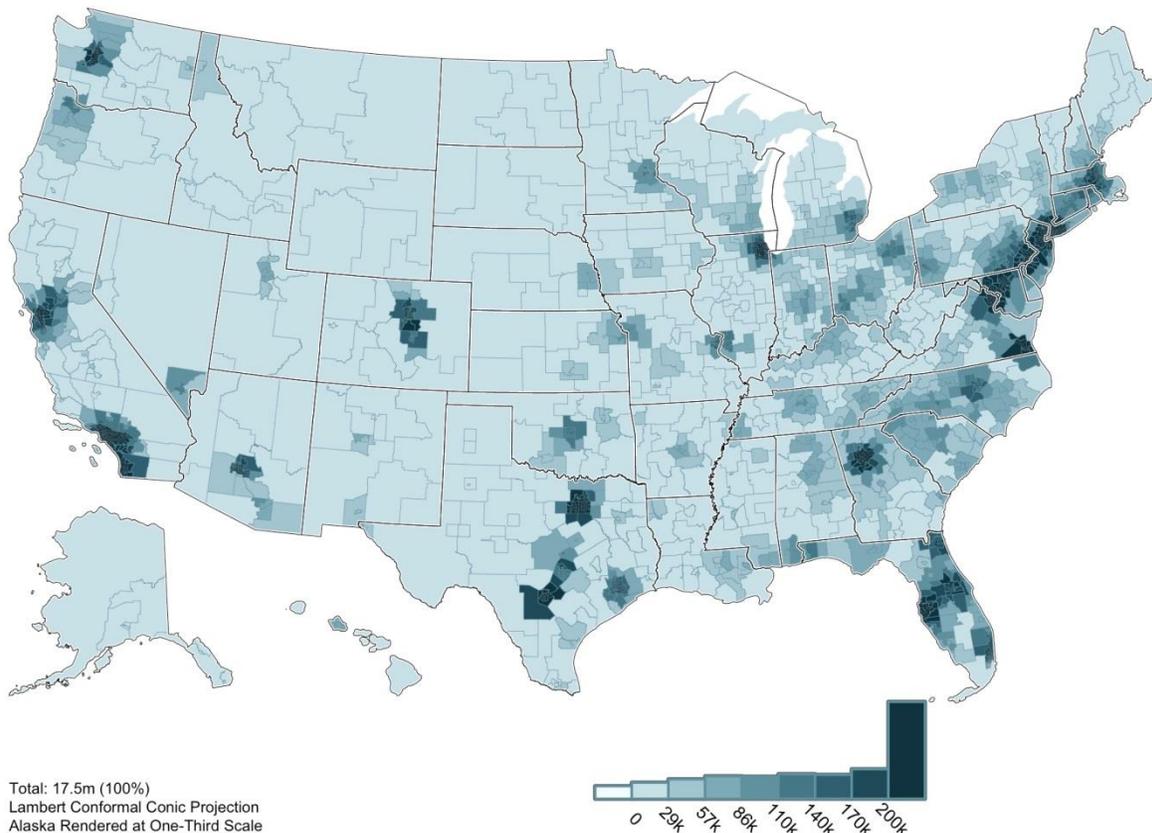
SOURCE: RAND analysis of VA, DoD, and Census data.

3.2.7.2 Age Patterns in Geographic Distribution

Over time, there will be more diversity in the geographic distribution of Veterans by age. Veteran mean age will grow older over time, but the increases in the proportion of Veterans at both the younger and older ages will alter the geographic distribution of Veterans by age. We estimate that Veterans under age 35 will be concentrated in areas surrounding Los Angeles; Dallas; Washington, D.C.; and northern New Jersey by 2024. Over time, Veterans under age 35 will constitute a greater proportion of the population in Northern California, central Washington state, the Midwest, and Wyoming and Utah. Other portions of the Southwest and much of the Southeastern seaboard, from Virginia Beach through the coast of Georgia, will see a decrease in the proportion of the population that is under age 35. See Figures 3-11 and 3-12.

Figure 3-11. Total Veterans Under Age 35, 2014

Total: 1.5m (7%)
Lambert Conformal Conic Projection
Alaska Rendered at One-Third Scale
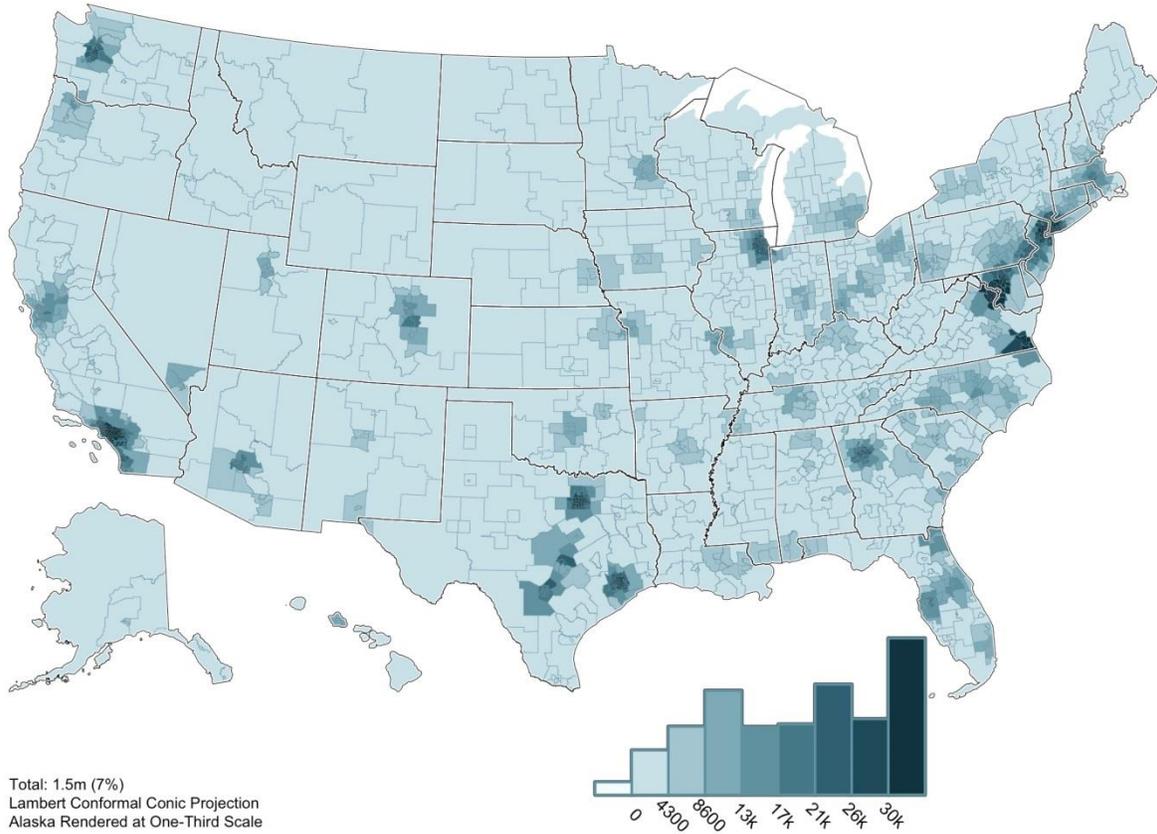
SOURCE: RAND analysis of VA, DoD, and Census data.

Figure 3-12. Total Veterans Under Age 35, 2024 (Projected)

Total: 1.1m (6%)
Lambert Conformal Conic Projection
Alaska Rendered at One-Third Scale
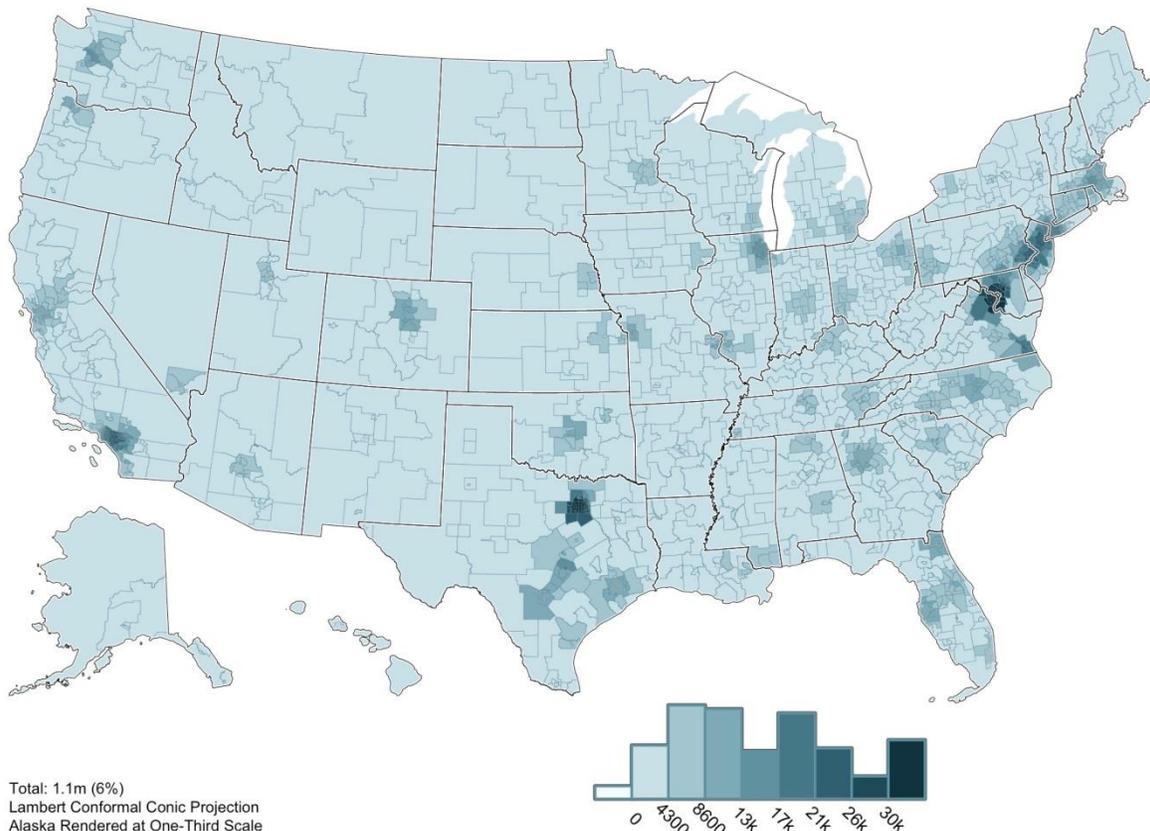
SOURCE: RAND analysis of VA, DoD, and Census data.

Concentration of older Veterans in areas of current higher prevalence will continue to 2024 (see Figures 3-13 and 3-14). San Francisco; Los Angeles; Denver; southwestern Texas; much of Florida; Washington, D.C.; western Pennsylvania; northern New Jersey; New York City; and western Massachusetts are currently places in which the share of older Veterans is high, and they are predicted to remain high through 2024. At the same time, we estimate that the share of older Veterans living in much of the Northeast and Florida (especially the panhandle), the Midwest, Wyoming, Utah, and southwestern Alabama will decline.

Trends in geographic distribution by age are likely to reflect cohort changes in where Veterans reside, rather than trends in migration per se. Areas where older Veterans decline in proportion are most likely to be areas where they are not being replaced by incoming cohorts of Veterans. Similarly, areas with proportionate growth in Veterans over age 65 are likely areas where currently middle-aged Veterans live and will continue to live as they age. Florida is an exception to this, as older Veterans will also tend to migrate there (although in relatively low numbers in comparison with the local populations). See Section 3.2.9 for more details.

Figure 3-13. Total Veterans Age 65+, 2014

Total: 10.4m (48%)
Lambert Conformal Conic Projection
Alaska Rendered at One-Third Scale
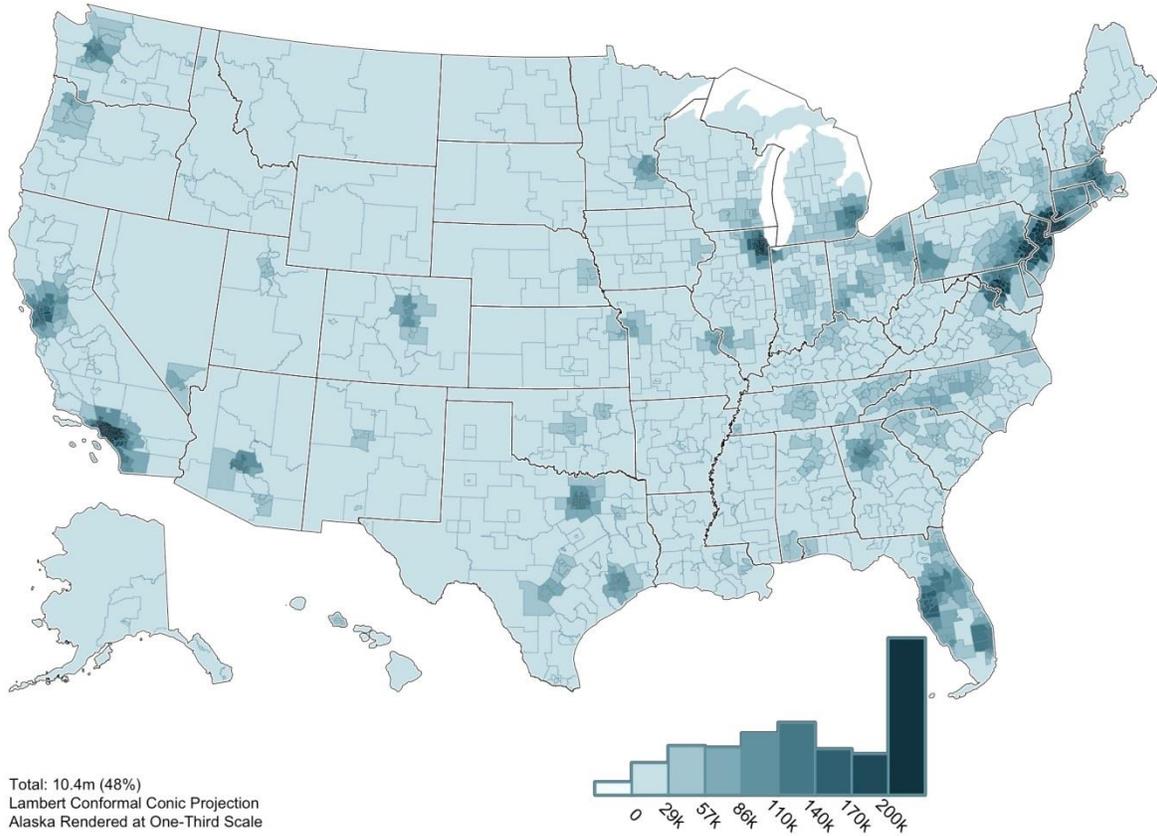
SOURCE: RAND analysis of VA, DoD, and Census data.

Figure 3-14. Total Veterans Age 65+, 2024 (Projected)

Total: 8.9m (51%)
Lambert Conformal Conic Projection
Alaska Rendered at One-Third Scale

0 29k 57k 86k 110k 140k 170k 200k
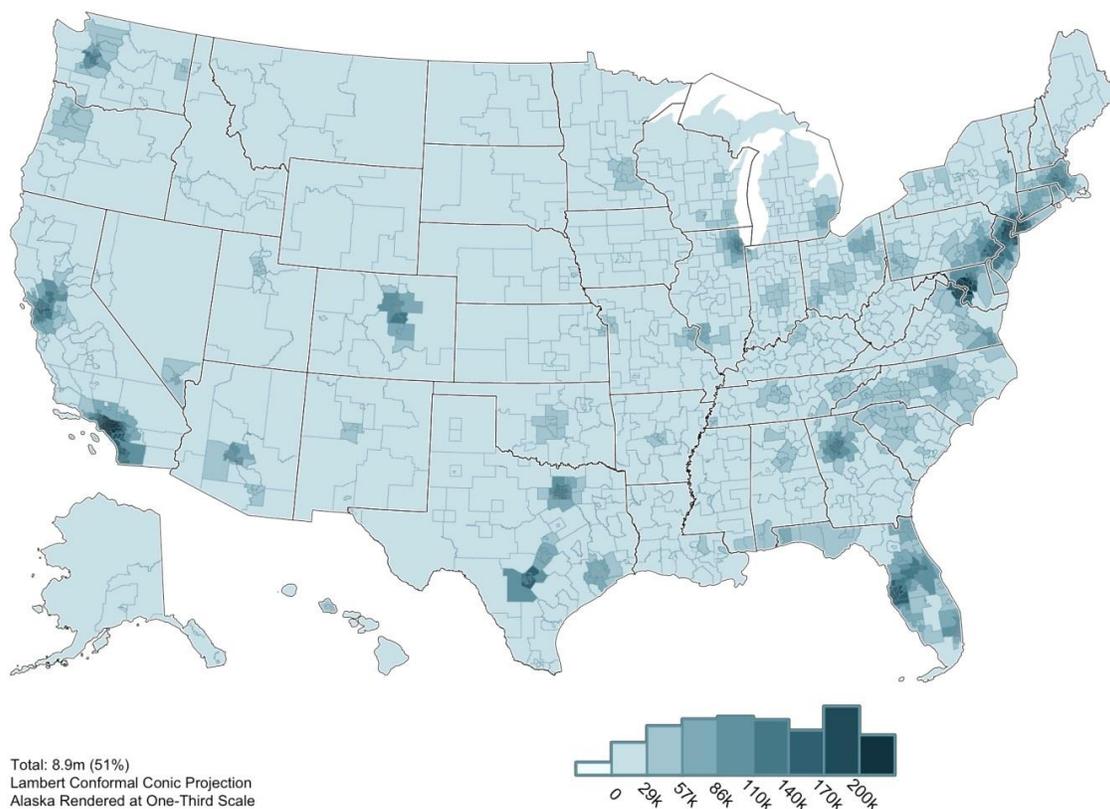
SOURCE: RAND analysis of VA, DoD, and Census data.

3.2.7.3 The Changing Urban-Rural Distribution

Over time, fewer Veterans are going to be located in rural areas,[23] reflecting both the overall national population trend of movement away from rural areas and absence of younger Veterans replacing older rural Veterans. However, northwestern Washington state, a belt running through Montana to Wisconsin, parts of Northern Michigan, much of Maine, Alaska, and northern Texas (Amarillo outskirts) will remain areas of rural Veteran populations by 2024. See Figures 3-15 and 3-16.

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[23] Rural status is based on rural-urban commuting area codes, which are based on measures of population density, urbanization, and daily commuting from the 2010 Census and 2006–2010 ACS. Our analysis assumes that the classifications will remain the same in 2024 as in 2014, and thus the 2024 maps may be best interpreted as "based on areas that were rural in 2014." Refer to the U.S. Department of Agriculture Economic Research Service for more information on rural-urban commuting area codes (U.S. Department of Agriculture, 2014).

Figure 3-15. Total Rural Veterans, 2014

Total: 1.7m (8%)
Lambert Conformal Conic Projection
Alaska Rendered at One-Third Scale

0   1400   2900   4300   5700   7100   8600   10k
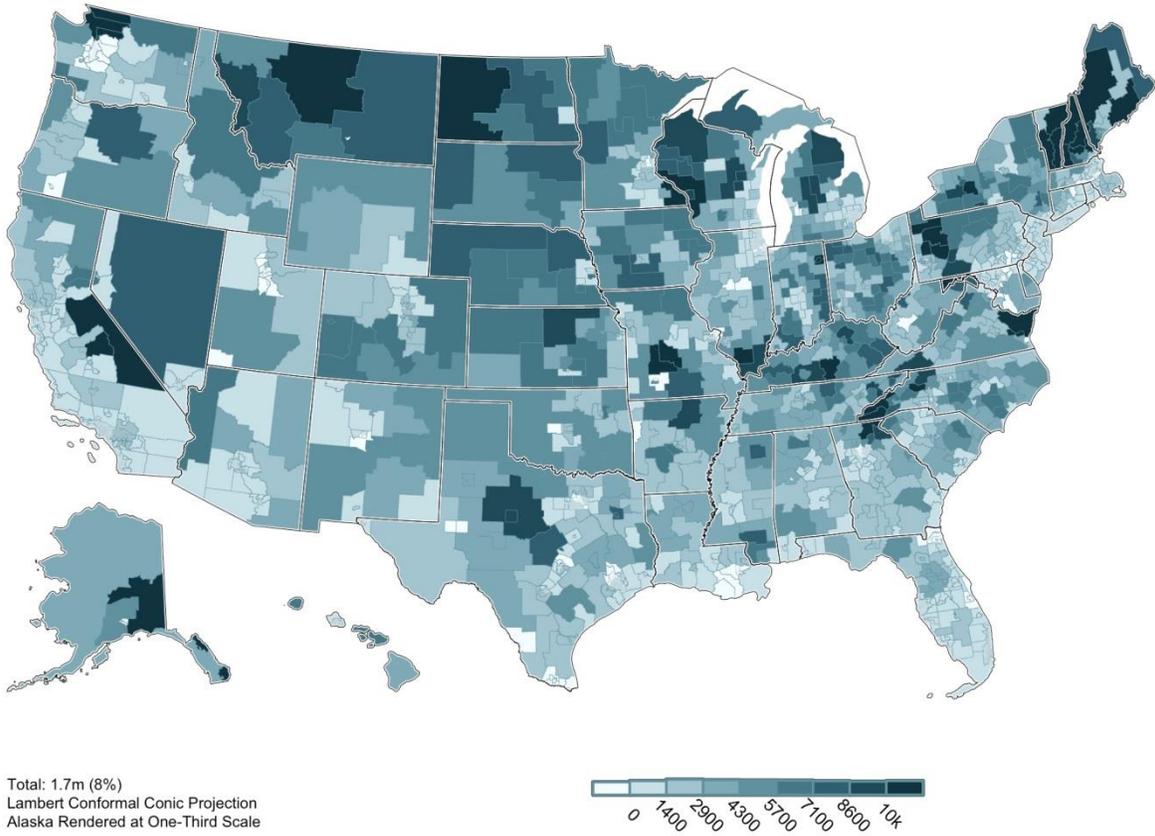
SOURCE: RAND analysis of VA, DoD, and Census data.

Figure 3-16. Total Rural Veterans, 2024 (Projected)

Total: 2.8m (16%)
Lambert Conformal Conic Projection
Alaska Rendered at One-Third Scale
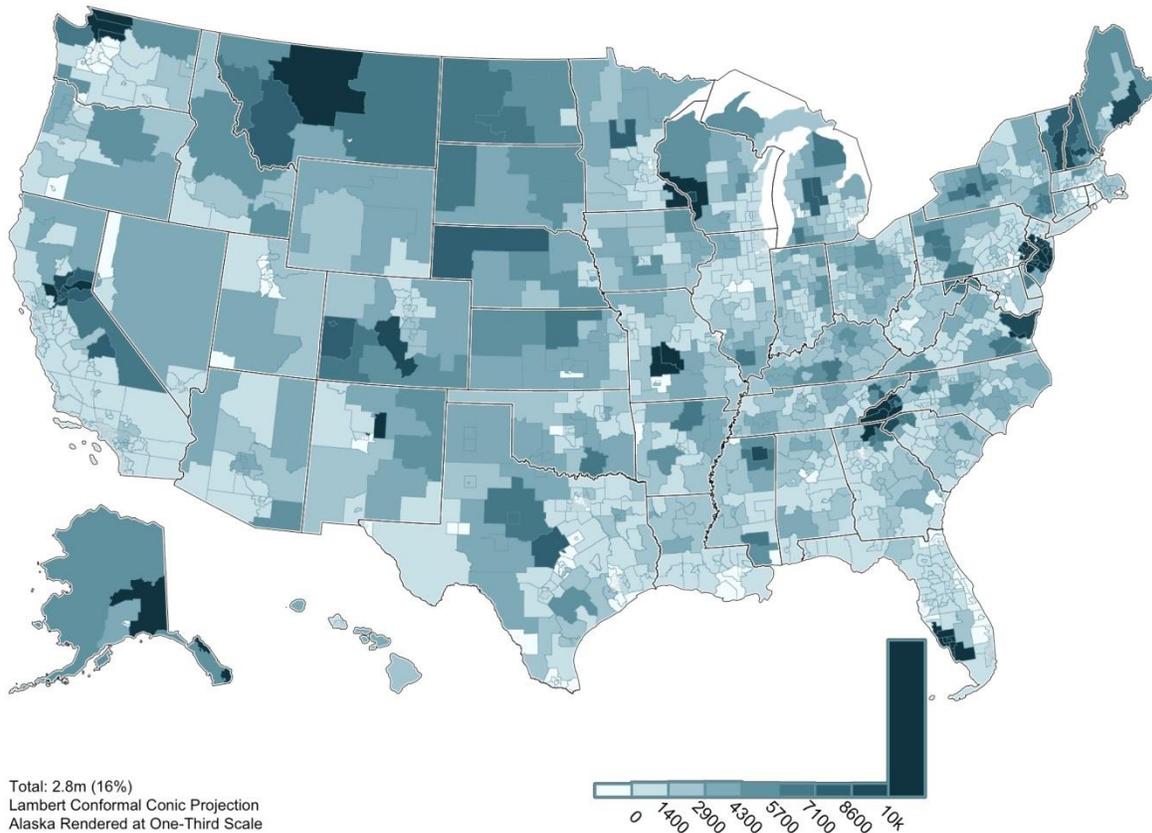
SOURCE: RAND analysis of VA, DoD, and Census data.

3.2.8 Distance to Nearest Veteran Facility

The VA medical system relies primarily on two kinds of facilities: VAMCs and CBOCs. VAMCs are full-service medical centers, offering both primary care and specialty care. CBOCs are satellite clinics that provide primary, preventative, and behavioral health services. While VAMCs are the heart of the system, CBOCs provide a cost-effective way to increase access to basic services in rural areas, reduce travel time to primary care services, and serve as a flexible option for adapting to changes in demand for VA services.

3.2.8.1 VA Medical Centers

Figure 3-17 displays the straight-line distance from the center of each PUMA to the nearest VAMC. In general, VAMCs are more prevalent and closer spaced in the Northeast, and most Veterans live within a relatively short distance of their nearest facility. However, coverage is uneven by region, especially the more sparsely populated noncoastal Western states.

Figure 3-17. Distance to Nearest VA Medical Center (miles), 2014

Lambert Conformal Conic Projection
Alaska Rendered at One-Third Scale

0 10 20 30 40 50 60 70 80
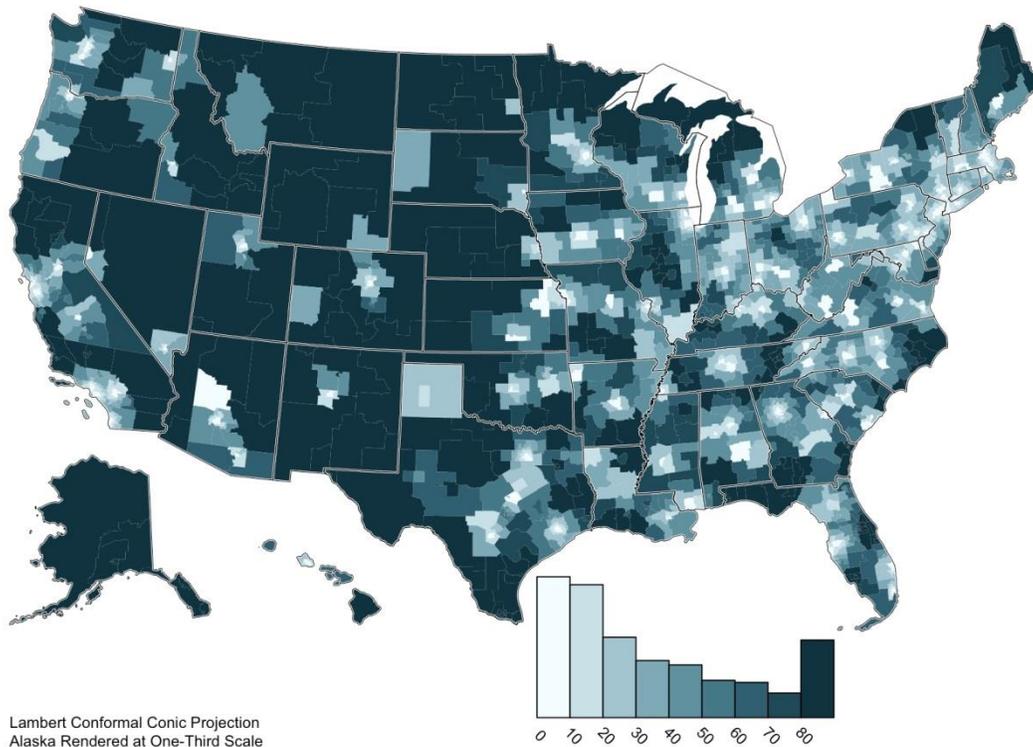
SOURCE: RAND analysis of VA, DoD, and Census data.

Figure 3-18 shows the percentages of the Veteran population living in PUMAs within a given distance of the nearest VAMC in 2014, for Veterans living in urban and rural areas. Figure 3-19 shows the same for Veterans by region. The darker lines indicate the percentage of the Veteran population living in urban areas, while the lighter lines indicate the percentage of Veterans living in rural areas. The solid lines report the percentages for 2014, while the dashed lines indicate the percentages for 2024, based on our projections.

In 2014, 70 percent of the urban Veteran population live within 40 miles of the nearest VAMC, and 90 percent live within 80 miles. By 2024, this distribution is projected to change relatively little, with perhaps a 1–2 percentage point increase in those living farther away from the nearest VAMC.

As expected, the rural Veteran population tends to be much farther from the nearest VAMC. While more than 70 percent of urban Veterans live within 40 miles of a VAMC, less than 20 percent of rural Veterans do. The differences persist when we consider a much wider radius. While nearly all urban Veterans live within 100 miles of a VAMC, less than 80 percent of rural Veterans live within a similar radius. Many of these Veterans live in relatively remote areas. Just

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under 40 percent live more than 200 miles from the nearest large (> 2 million) city—mostly in the Great Plains and the Southwest.

Figure 3-18. Percentage of Veterans Living Within a Given Distance of a VAMC, by Urban/Rural Status
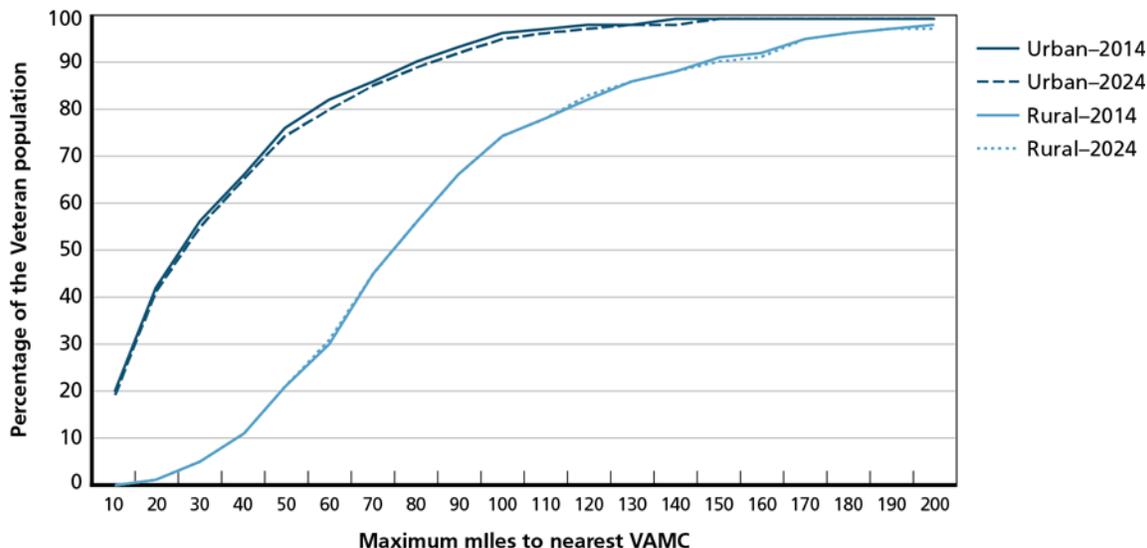
For the most part, the urban Veteran population is projected to stay closely aligned with the location of current VAMC and population distribution. However, the Veteran population in the Southwest has the most uneven alignment and most risk of future misalignment. In 2014, 10 percent more Southwestern Veterans lived within 40 miles of a VAMC, but 10 percent less lived within 75 miles. By 2024, the situation is not projected to improve. The Southwest has witnessed particularly strong population growth rates in recent decades, including growth in the Veteran segments. New centers of population have emerged, and the construction of VAMCs has not yet caught up. Moreover, because VAMCs in the Southwest are far more widely spaced apart, emerging population centers in the Southwest are less likely to fall within a short distance of an existing facility, and less likely to have an alternative VAMC in proximity.[24] This combination of factors—above-average rates of population change and wider spacing of VA facilities—places Southwestern VAMCs at higher risk of becoming geographically misaligned with the Veteran population.

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[24] This is in marked contrast to the Ohio River Valley region. The Ohio River Valley is also experiencing significant shifts in the distribution of the population, but spacing of VAMCs generally means that emerging population centers still fall within a short distance of the a facility.

Figure 3-19. Percentage of Veterans Living Within a Given Distance of a VAMC, by Region
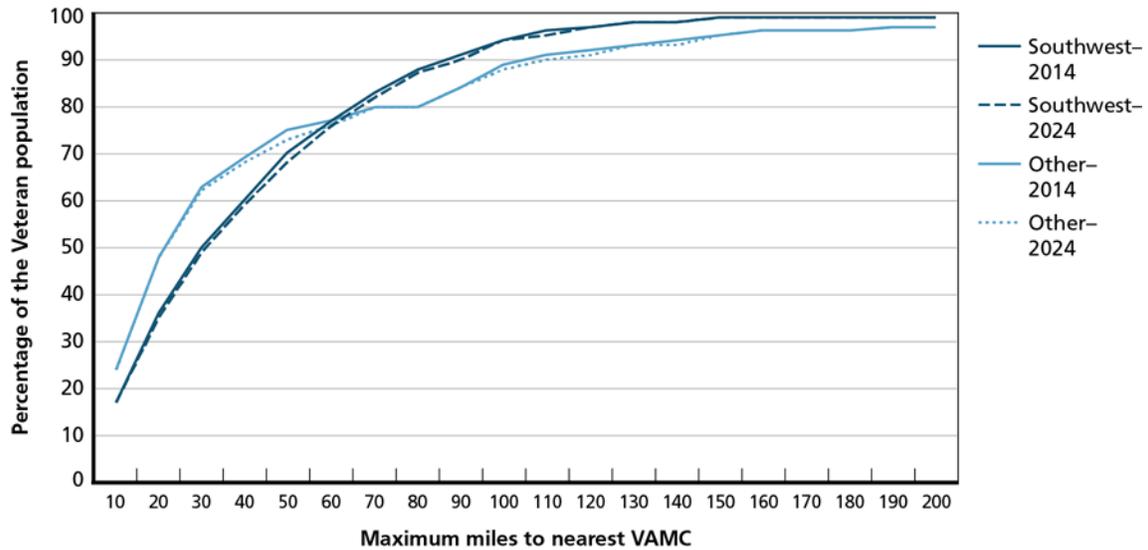
3.2.8.2 Community-Based Outpatient Clinics

Figure 3-20 charts the percentage of the Veteran population living in PUMAs within a given radius from different types of VA facilities. While VAMCs offer a wide array of medical services, CBOCs offer the most commonly used basic services—primary, preventive, and counseling services. The darker line reports the maximum distance to the nearest VAMC, while the lighter line reports the equivalent statistics for the nearest CBOC.

More than 90 percent of all Veterans live in a PUMA that falls within 40 miles of a CBOC, compared with just under 70 percent for a VAMC. Because of the wider geographic coverage of the CBOC network, this pattern is unlikely to change by 2024, despite projected change in the distribution of the Veteran population. That is, while Veterans may be closest to a different set of CBOCs in 2024, they will still be relatively close to a CBOC.

Figure 3-20. Percentage of Veterans Living Within a Given Distance of the Nearest VA Facility, VAMC Versus CBOC
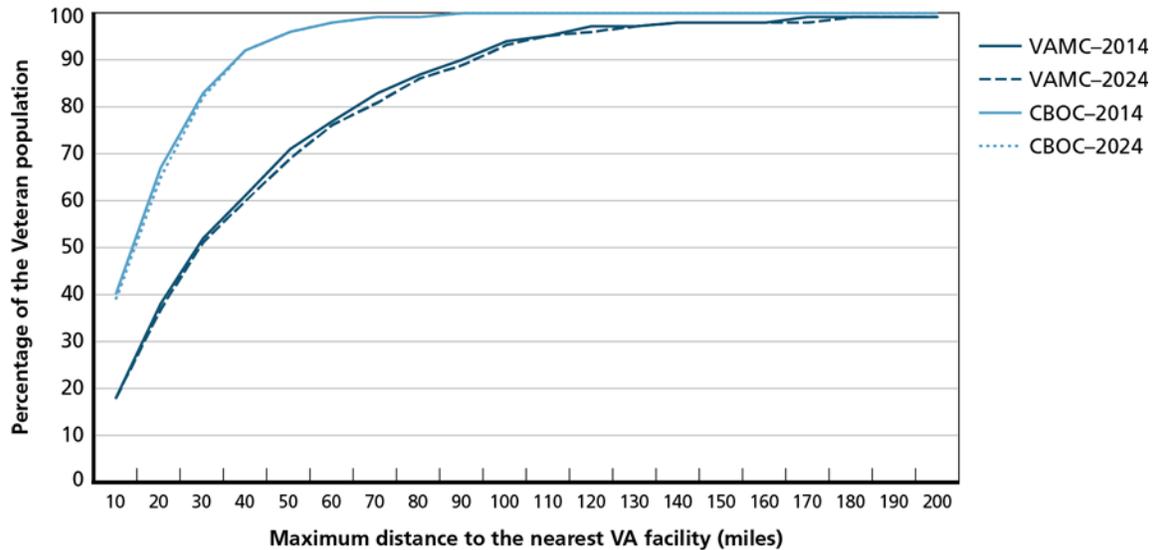
3.2.9 Veteran Net Migration

Veterans, like other civilians, move around the country for work, family, retirement, and many other reasons.[25] In order to inform projections of where Veterans will live over the next 10 years, it is important to consider their migration patterns throughout the entire period. We estimated net migration for each year between 2014 and 2024 based on predicted in-migration and out-migration rates from gravity models, which utilized information on sex, service era, age, race/ethnicity, distance between PUMAs, and population of Veterans in areas of origin and destination to estimate the number of migrants. Results suggest that men are less likely to migrate than women, consistent with migration trends in the national population, according to ACS and other data sources. Previous research has linked greater female residential mobility and desire to move to greater residential satisfaction (Mateyka, 2012) and notes that women's migration was significantly less affected by the Great Recession than men's (Benetsky & Fields, 2015).[26] All else equal, older Veterans (especially those 70 and older) are more likely to migrate compared with younger Veterans (25–29 age group), likely reflecting retirement moves as in the rest of the civilian population. However, all else equal, Veterans in older service cohorts are less likely to migrate compared with those in the 9/11 era. Thus, within each service cohort, older Veterans are more likely to migrate, especially among the most recent service cohorts. All race/ethnicity groups other than whites are more likely to migrate than whites. Migration is less

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[25] Here we refer to residential migration, not vacation or other travel.

[26] Mateyka (2012) used data from the Survey of Income and Program Participation, conducted by the U.S. Census Bureau, to identify greater mobility and greater desire to move among women in 2010–2011. Desire to move was measured using the following questions: (1) Are conditions in your home undesirable enough that you would like to move? (2) Overall, is the threat of crime where you live undesirable enough that you would like to move? (3) Is your neighborhood undesirable enough that you would like to move? (4) Are the public services undesirable enough that you would like to move?

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likely to occur between PUMAs that are farther apart—that is, migration over longer distances is less likely than migration over shorter distances. Longer distances between PUMAs have negative impacts on the likelihood of migrating. The overall net migration rates vary from 2.97 percent in 2014 to 1.61 percent in 2024. Based on ACS data, migration between PUMAs is around 4 percent for the American population, which indicates that Veterans are less likely to migrate than non-Veterans. A previous study about interregional population flows in the United States (Raymer & Rogers, 2007) suggests that migration rates are higher among those between ages 20 and 39, which is related to labor migration. Since only 11.86 percent of Veterans were within this age range in 2014, gravity models suggest that they are more likely to migrate at older, near-retirement ages. Thus, net migration is relatively small and not likely to be a major factor in Veteran demographics. Prior research also suggests that migrating Veterans do not have a noticeable impact on VA health care use (Cowper & Longino, 1992).

It is important to note that this is a discussion of net migration, not in- and out-migration separately (that is, the churn in Veteran residents). Outflows of migrants to areas generally closely match inflows that replace them, resulting in relatively low levels of net migration. It is also important to note that the estimation process does not treat the initial entry of Veterans to the civilian population as migration; in the projection method, Veterans are assumed to initially enter the civilian population according to historical geographic distribution of Veterans with the same age, sex, race/ethnicity, and service-era characteristics, as described in Appendix A. In these projections, migration refers only to movement after the initial entry to the civilian population; we do not include the movement between the initial location of service members when they exit the military and where they are initially distributed as an incoming Veteran. We interpret this type of population change as cohort change, rather than change resulting from migration. In this way, some areas may see relatively increasing populations due to cohort change, but negative net migration (i.e., incoming Veterans may initially locate in Los Angeles, but subsequently move elsewhere).

We used predicted rates from gravity models to estimate net migration. Areas with the highest net migration (the result of in-migrants subtracted by out-migrants at the end of the year) are in Texas, Arizona, Utah, southern Colorado, Wyoming, western Montana, Idaho, Washington state (except the interior), coastal Oregon, Northern California, and northwestern and southwestern Florida. Areas with greater negative net migration are in the interior of Washington state; Southern California; Phoenix, Arizona; San Antonio, Houston, and Dallas, Texas; and Jacksonville, Florida. By 2024, Nevada is also expected to experience general negative net migration, and Southern California will see marginal net in-migration, although net migration overall is low.

3.2.9.1 Net Migration and Presence of VA Facilities

In order to examine the hypothesis that Veterans choose to move to areas where they are closer to VA facilities, we used spatial regression models to examine how growth and movement in the Veteran population is related to the location of a range of VA facilities. Complete details of the estimation methods and results are provided in Appendix A.1.5. Results indicate that in net, migrating Veterans are tending to move farther away from, rather than closer to, VA facilities (VAMCs and CBOCs). This suggests that Veterans' migration decisions are

not strongly driven by the presence of VA facilities, and indeed, that they are choosing to move to areas that are not as well covered with VA facilities. Recall that migration is only a small contributor to how Veterans are distributed around the country; although net migration patterns suggest movement away from VA facilities, this does not mean an overall trend of Veterans being farther from facilities. As Section 3.2.8 describes, overall distance to facilities is not likely to change substantially over the next 10 years.

3.2.9.2 Changing Population Size and VAMC Location

The RAND projections indicate an overall 19-percent decline in the Veteran population over the next decade. While the majority of the country will see shrinking Veteran populations, some areas will lose proportionately more than others, and several areas are projected to see growth in the number of Veterans. For a sense of the regions in which VA facilities will face particularly steep population declines (or growth), and regions without VA facilities that will face growth, see Figure 3-21, which presents the projected percent change in Veteran population size for each PUMA between 2014 and 2024, with VAMC facilities indicated on the map as black dots.

Figure 3-21. Projected Percent Population Change 2014–2024, with VAMC Locations

Total number: 17.5m (100%)
Lambert Conformal Conic Projection
Alaska Rendered at One-Third Scale
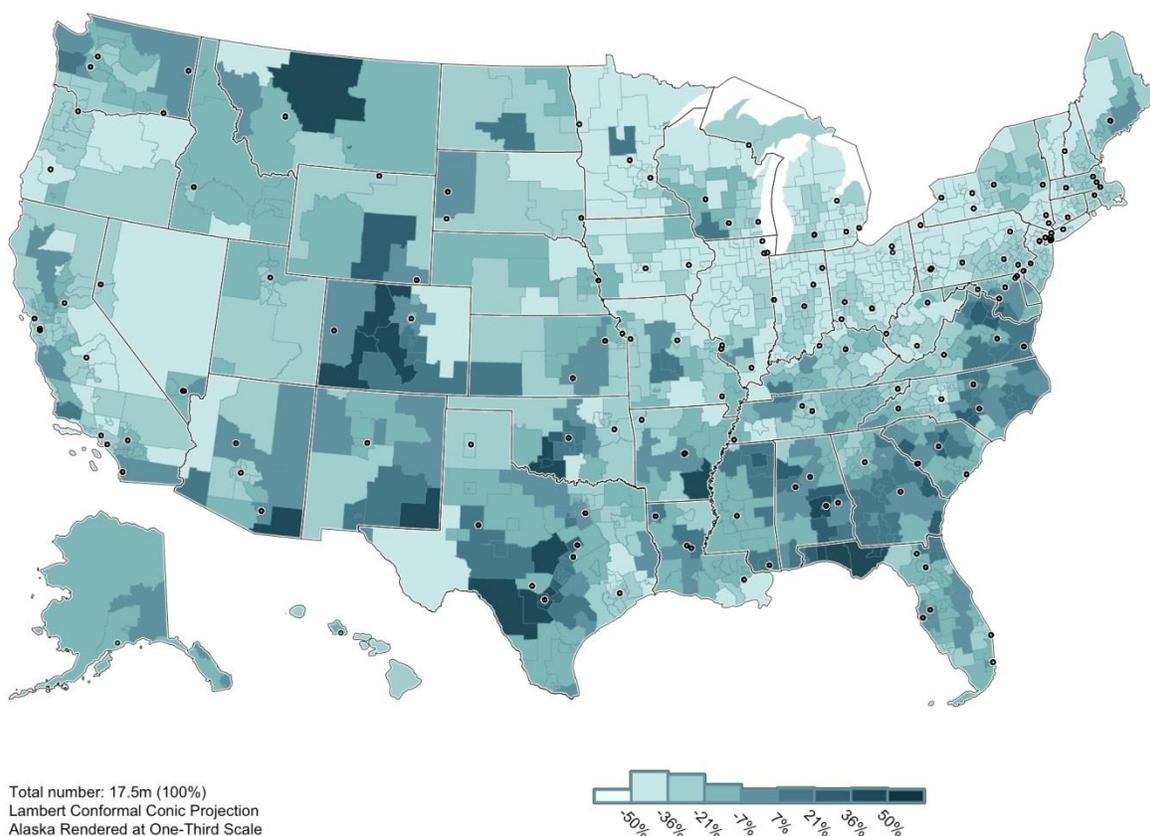
SOURCE: RAND analysis of VA, DoD, and Census data.

Population loss is the norm, but the greatest population losses over time are expected in the Ohio River Valley and upper Midwest areas, as well as rural regions of the West. Several regions are expected to see population gains, however. Washington, D.C.; Charlotte, North Carolina; Columbia, South Carolina; Tallahassee/Panama City, Florida; San Antonio and Austin, Texas; and Montgomery, Alabama, are all particularly notable, as population gains are projected for the cities themselves, whereas most other population growth is projected to occur in areas encircling cities.

One implication of the projected population growth is that some of these areas currently do not have local VAMC facilities; growth in Montana, Wyoming, and Colorado occurs where VAMCs do not currently exist. Similarly, growth in the Florida Panhandle is in the absence of any VAMCs. It is important to note that (a) these areas have relatively small Veteran populations to begin with, and that higher percentage growth in these regions may not translate to large absolute increases, and (b) at least part of the growth in the North Dakota, Montana, South Dakota, and Wyoming High Plains region is related to current trends in the shale oil boom that will be sensitive to the economics of oil production. Regardless, the projected growth trends are worth noting, given their relatively stark differences to the overall national population loss trend.

3.3 Summary of Key Findings

The population of U.S. Veterans will decrease by 19 percent over the next 10 years. The Veteran population has been decreasing for more than three decades, and this trend will continue. According to the U.S. Census, in 1970, there were 28.1 million Veterans; in 1990, there were 27.5 million Veterans. We estimate that there were 21.6 million Veterans in 2014. Over the next 10 years, our projections, drawing on Census, VA, and DoD data, show that the Veteran population will decline to 17.5 million. This represents a 19-percent decrease and is in keeping with declines in the size of the total military end-strength since the 1980s. The large cohorts that served prior to the all-volunteer military in 1973 are aging and dying off. The newer Veterans entering the system reflect smaller, all-volunteer service cohorts.

Vietnam Veterans will no longer constitute the largest service cohort by 2024. The share of Vietnam-era Veterans (1964–1975), currently the largest service cohort, will decline slightly from 32 percent of the Veteran population in 2014 to 29 percent by 2024. Pre-Vietnam-era Veterans constituted 25 percent of the total Veteran population in 2014, but by 2024, their share is projected to fall to 13 percent. The proportion of Veterans from the Gulf War and post-9/11 eras will grow from 26 percent in 2014 to 41 percent of the total Veteran population by 2024; post-9/11 Veterans alone will account for 24 percent of Veterans in 2024.

The age mix among Veterans will shift slightly. One consequence of this declining service cohort replacement is that the age mix among Veterans will shift slightly over the next 10 years; Veterans will become somewhat older on average. This is particularly pronounced for female Veterans; male Veterans' average age will rise slightly from 62.8 in 2014 to 64.3 in 2024, while female Veterans' average age will rise from 51.4 to 55.2 over the same period. Middle-age Veterans will decline in share; the share of Veterans ages 45–64 will decline from 34 percent to

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31 percent of the Veteran population, while the share of both younger and older Veterans will increase.

The racial/ethnic mix will also change modestly. Another consequence of the changing cohort mix will be that the race/ethnic mix of the Veteran population will change modestly. The proportion of Veterans who are non-Hispanic white will decline slightly from 80 percent in 2014 to 76 percent by 2024, while all other race/ethnic groups see slight increases in proportion (with the largest gain among Hispanics).

The Veteran population will become more concentrated in urban areas, and the relative share of the Veteran population in the Ohio River Valley region will diminish. Another consequence of the changing cohort mix will be that the Veteran population will shift away from the largest cities of the Ohio River Valley region, while becoming more concentrated in the major urban centers in other regions. However, migration is less frequent among Veterans than non-Veterans and will not play a substantial role in the geographic distribution of Veterans between 2014 and 2024. While migration rates vary with a range of demographic characteristics, the overall trend is one of slow decline in migration rates generally. VAMC facilities in the Ohio River Valley region will face more-rapid declines in the total Veteran population base they serve than the Southwest region, where our projections suggest that relative Veteran population concentration will not be as well matched in 2024 to existing VAMC locations.

The 2024 projections indicate a 19-percent decline in overall Veteran population. Despite this decline, the 2024 geographic distribution will not be drastically different from the current distribution, and we do not project that overall distance to existing VA facilities will increase substantially. The existing CBOC coverage puts almost all Veterans (92 percent) within 40 miles of some type of VA facility in 2024. However, the total numbers and characteristics of Veterans will change within the overall geographic distribution. Looking forward, it does not necessarily seem to be a matter of building new facilities, but rather anticipating the types of services that will need to be provided at existing VA facilities.

First, in terms of the total Veteran populations to be served there are some anticipated changes to plan for. The Ohio River Valley and upper Midwest will see the greatest declines in Veteran population; it may be possible to consolidate the relatively proximal VA facilities in those regions as the population shrinks. At the same time, several regions are expected to see population gains. Most regions with gains, such as near Washington, D.C.; Charlotte, North Carolina; and San Antonio and Austin, Texas, are currently near VA facilities. Other growth areas, such as Montana, Wyoming, and Colorado, are not currently well covered. In these latter growth areas the population will remain relatively small, and access to telehealth and CBOC services may be important ways to meet Veteran needs. Similarly, rural areas in northwestern Washington State, northern Michigan, and northern Texas will remain areas with rural Veteran populations in 2024 that could also benefit from continued or expanded services.

Second, while the total Veteran population will be growing older on average through 2024, and health services related to aging will be needed everywhere, Veterans under age 35 will be concentrating in areas surrounding Los Angeles, Dallas, Washington, D.C., and northern New Jersey by 2024, and they will also constitute a greater proportion of the population in Northern

California, central Washington state, the Midwest, and Wyoming and Utah. In these areas it may be of particular importance to provide services relevant to younger Veterans compared to elsewhere. Much of the Southeastern seaboard, from Virginia Beach through the coast of Georgia will see a decrease in the proportion of the population that is under age 35 at the same time, and focus on services for younger Veterans may need to be shifted West and North.

Overall, the Veteran population in the Southwest has the most uneven alignment and most risk of future geographic misalignment by 2024. The Southwest has seen, and will continue to see, relatively strong population growth (Veteran and non-Veteran civilian alike). Because VAMCs in the Southwest are far more widely spaced apart, population centers in the Southwest are less likely to fall within a short distance of an existing facility, and less likely to have an alternative VAMC in proximity. Combined with the relatively younger Veteran population anticipated in this region relative to others by 2024, particular awareness of potential future service demand by this population is important for planning. Detailed analysis of access to specific types of services and VA facilities is presented in Assessment B, Section 4.

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4   Enrollment in and Reliance on the VA Health Care System

4.1 Introduction

Understanding the volume and mix of VA health care services that Veterans will use in the future is critical for VA's resource and capability planning. The main challenge in measuring and describing Veterans' use of health care services is that many Veterans obtain some or all of their health care from non-VA sources, as described in Section 2. Understanding the future volume of VA health care services requires calculating (1) the number of Veterans enrolled in the VA health care system; (2) the number of Veterans who seek health care at a VA facility; and (3) Veterans' reliance on the VA health care system (i.e., the share of health care services that VA patients receive from VA versus from other sources).

The conceptual model of VA health care use, discussed in Section 2, highlights Veteran characteristics and VA policy as the main determinants of enrollment in and use of the VA health care system. Veteran characteristics that affect enrollment and use include the Veteran's sociodemographic characteristics, health care needs (including service-connected disabilities), and access to other health insurance. The "Combat Veteran" Authority of 2008, which extended enhanced eligibility and expedited enrollment for VA health care for Veterans of Afghanistan and Iraq, is an important policy affecting current patterns of enrollment and use among Veterans. This policy allows Veterans who served in a theater of combat operations after November 11, 1998, to enroll in VA without first establishing their priority group for a period of five years post-discharge. These Veterans are placed in priority group 6 unless they qualify for a higher priority group and, at the end of the five-year period, may be shifted to priority group 7 or 8.

Once Veterans enroll and are deemed eligible to receive care, they must make a choice about whether to use VA health care and how much care to consume. The majority of enrolled Veterans have access to other health care coverage, and approximately half of enrolled Veterans are also enrolled in Medicare or Medicaid (Congressional Budget Office, 2009; Goldberg, 2015). Enrolled Veterans receive the majority of their health care outside of VA (Goldberg, 2015). Based on EHCPM, VA estimates that current VA patients have on average about 21 percent of their total physical medicine (that is, physical therapy and occupational therapy) visits with VA, 38 percent of their emergency room visits with VA, and 66 percent of their prescriptions from VA.

In this section, we project future enrollment in the VA health care system and the future size of the VA patient population. We include the factors outlined in the conceptual model to the extent possible given the available data. These projections are used in Section 5 to project the future health care needs of the VA patient population. The primary task for Assessment A was to describe the current and projected demographics and unique health care *needs* of Veterans rather than current and future VA health care *use*. There are significant practical data and analytic challenges in measuring and projecting the health care services that Veterans demand or use. Nonetheless, we measure reliance for a select set of health care service categories in MEPS data and compare these reliance estimates with those used in EHCPM. We also introduce

a new reliance concept—population reliance—to convey the share of health care services that all Veterans (rather than only VA patients) receive from VA.

4.2 Analytic Approach

Overview of Methods and Data for Enrollment and Reliance Analysis

- We estimated the **probability of a Veteran enrolling** in the VA health care system taking into account age, sex, deployment status, service era, and a time trend using aggregated data from multiple sources.
- We estimated **the number of VA patients** from 2014 through 2024 by multiplying the number of enrollees by the probability of use among enrollees, which was calculated using the SoE.
- We estimated **VA patients' reliance on VA health care** using MEPS data from the household survey, the Prescribed Medicines file, the Office-Based Medical Provider Visits file, and the Inpatient Stays file.
- To compare our reliance estimates with VA's, we evaluated **reliance factors used by VA** by combining three separate EHCPM files.

4.2.1 Projecting the Number of Veterans Enrolled in the VA Health Care System

As described in the conceptual model of VA health care use in Section 2, the decision to use VA for health care services is dependent on a number of factors, including VA policies, Veteran characteristics, cost, access, and perceptions of the care available through VA's health care system. The first step in the process of receiving VA health care services is enrollment in the VA health care system. Just as with the decision to seek care, the decision to enroll is a complex process influenced by many of the same factors. Ideally, we would have modeled an individual Veteran's decision to enroll in the VA health care system based on the factors included in the conceptual model, but we did not have access to a single data source linking all of these factors. We instead used data aggregated by age, sex, and deployment status (with respect to Afghanistan and Iraq) to model enrollment rates.

We estimated the probability of new enrollment in the VA health care system (given that a Veteran has yet to enroll) using a logistic regression model that incorporated age, sex, deployment status, service era (e.g., Vietnam War era), and a time trend.[27] Starting with 2015, predicted enrollment probabilities based on this model were applied to the population of yet-to-enroll Veterans to estimate the number of new enrollees. These new enrollees were added to the previous year's surviving population of enrolled Veterans. This process was repeated for each subsequent year. In Figure 4-1, we present a conceptual model of enrollment in the VA health care system that depicts this process.

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[27] We estimated and projected VA enrollment using RAND Veteran population projections, DoD data, and VA administrative data. These data sources do not uniformly include information on income (or priority group), so we could not include income as a predictor of enrollment.

Figure 4-1. Conceptual Model of Enrollment in the VA Health Care System
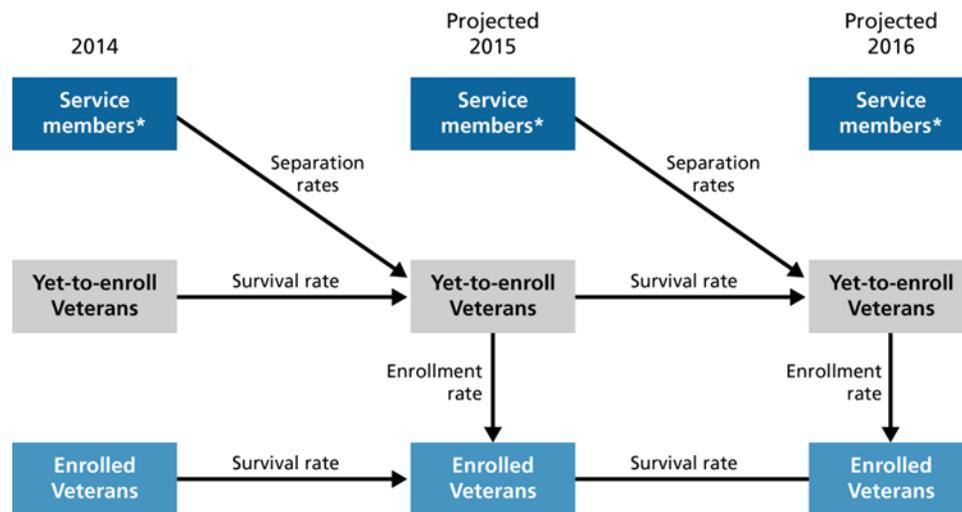
NOTES: Survival rate is the probability that an individual survives to the next year

* Number of separations among service members are projected in Section 3.

We considered three different sets of assumptions about the probability of new enrollment in future years and compared the projected number of enrollees under each of these assumptions. First, we assumed that the probability of enrollment will continue to follow the recent pattern of enrollment, which we refer to as the *status quo* assumption. Second, we assumed that the probability of enrollment among Veterans who were deployed to Afghanistan and Iraq will follow the recent pattern of enrollment among Veterans who never deployed to Afghanistan or Iraq, which we refer to as the *never deployed* assumption. Third, we assumed that the probability of enrollment among Veterans who deployed to Afghanistan and Iraq will decrease over time by allowing the effect of deployment on future enrollment to decrease by 5 percent each year, which we refer to as the *decreasing enrollment* assumption. The never deployed and decreasing enrollment assumptions reflect the fact that we do not anticipate enrollment to remain at the current historical levels as we move away from the operations in Afghanistan and Iraq. There are several reasons why we postulate that this may occur: (1) the number of separating service members with deployment experience will decrease over time; (2) the number of all deployed Veterans within the five-year window of enhanced enrollment eligibility will decrease over time; (3) the percentage of separating service members with more than 19 years of experience (i.e., retiring and eligible for TRICARE) and with deployment experience will increase over time; and (4) the health status of separating service members who were deployed will improve because military personnel with more-serious deployment-related medical conditions are likely to leave earlier than those without such conditions. Each of these factors, among others, is expected to decrease enrollment rates among future Veterans who deployed. Further discussion is provided in Section 4.5.

Our projections of enrollment in the VA health care system do not account for the effects of the Great Recession. We used VA administrative data from 2008 to 2014 to model new enrollment, which does not provide us with sufficient data before the recession to properly account for its

impact on enrollment. Assuming that the Great Recession increased the probability of enrollment in the VA health care system, our projected enrollee counts are too high.

4.2.2 Projecting the Number of VA Patients

We projected the number of VA patients from 2014 to 2024 by multiplying the number of enrollees by the probability of use among enrollees. These VA patient projections account for mortality because they are based on the VA enrollee projections, which account for mortality as described in Section 4.2.1.

We estimated the probability of VA use among enrollees using the SoE from 2010–2014. We fit a logistic regression model for the probability of VA use that included age, sex, service era, Iraq-Afghanistan deployment status, and a linear time trend.[28] These characteristics were chosen to model VA use among enrollees because they aligned with the characteristics that were used to project enrollment. We present the predicted probabilities of using VA health care services using the estimated model in Appendix B, Table B-1. We also present the results of an extended model in Table B-2.

Ideally, we would have modeled an individual Veteran's decision to use VA health care services based on the factors included in the conceptual model, but using factors that were not included in our enrollment projections would have required additional modeling. For example, a Veteran's income is related to VA use; if we wanted to include income in our projections of VA use, it would have been necessary to project Veterans' future income. There are significant practical data and analytic challenges in projecting the future income of Veterans, which is why we decided against this approach.

Veterans who served in a theater of combat operations after November 11, 1998, are eligible for an enhanced period of enrollment for five years post-discharge. We checked the sensitivity of our results by including an indicator that a Veteran who deployed is within five years of separation in our VA use model; however, this indicator was not associated with use.

4.2.3 MEPS Analyses of Reliance

We calculated reliance using the 2008 to 2012 MEPS data, specifically data from the household survey, from the Prescribed Medicines file listing all prescriptions filled by MEPS respondents, the Office-Based Medical Provider Visits file, and the Inpatient Stays file. Prescribed medicine, office visit, and inpatient stay data from MEPS are based on self-reported utilization by survey respondents. MEPS staff audit a sample of prescriptions and visits. Our general approach followed four steps:

1. Identify Veterans and VA patients in the MEPS household files.

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[28] We projected the number of VA patients from 2015–2024 by multiplying the number of projected enrollees by the probability of VA use among enrollees. Enrollees are not projected with income (or priority group) information, so we could not incorporate income-specific probabilities of VA use into the projections.

2. Identify in the MEPS data the prescribed medicines, office-based visits, and inpatient stays that were provided or paid for by VA.

3. Aggregate the number of services received by VA patients overall and those that were provided by or paid for by VA for each health care service category (e.g., physical and occupational therapy).

4. Calculate reliance by dividing the sum of services provided by or paid for by VA by the total number of services received.

We also calculated a *population reliance* factor (described below) for all Veterans in addition to our measure that is restricted to VA patients only. Further, we report reliance for multiple health care service categories: prescribed medicines, all office visits, specific office visit categories (evaluation and management, laboratory tests, radiology, kidney dialysis, and physical and occupational therapy), and inpatient stays involving surgical procedures. This selection of health care service categories is meant to give a sense of the variation in reliance across broad categories of health care services. Our selections were driven by the feasibility of roughly aligning health care service categories in MEPS with service categories in EHCPM; however, we do not imply that the MEPS and EHCPM health care service categories are identical. We also recognize that the unit of measurement in MEPS and EHCPM are not always consistent—for example, EHCPM counts prescriptions normalized to a 30-day supply, whereas we simply count prescription drug fills in MEPS.

For this analysis, we identified VA patients in MEPS by inferring whether an individual in MEPS is a VA patient based on the respondents' source of payment for health care. Specifically, we defined active VA patients as those respondents who had any payment by VA for services used. Unfortunately, MEPS data do not enable us to identify all Veterans who are eligible for VA services; we can identify only those eligible Veterans who use VA services. We defined health care service categories and identified services that were provided by or paid for by VA, as described in Table 4-1. The remaining services in each category were assumed to be provided and paid for by some other source. For each category and population, we defined reliance as the ratio of the sum of services provided by or paid for by VA to the sum of total services received by the population, weighted appropriately.

Our reliance measures can be interpreted as the proportion of care in a service category that VA patients receive from VA. We calculate a second reliance measure, a *population reliance* estimate, that is identical to the formula above but calculates reliance for all Veterans, including Veterans who are not VA patients. The interpretation of population reliance is the proportion of care in a service category that all Veterans (rather than VA patients) receive from VA. We focused on utilization—measured in events—rather than spending, in part for consistency with the VA definition of reliance and in part to control for differences in health care costs or prices across payers and systems.

Table 4-1. Data Sources and Category Definitions

Service Category	Data Source	Criteria
Prescription drugs	MEPS Prescribed Medicines files, 2008–2012	All prescription events with VA paid amount > $0. We did not adjust MEPS prescribed medicine events to account for differences in days supplied across events. While this might be feasible for some MEPS events (e.g., events with 90 days supplied), a significant share of MEPS events have an "unknown" number of days supplied.
Office visits	MEPS Office-Based Medical Provider Visits files, 2008–2012	All office visits with place of service = "VA facility" OR VA paid amount > $0
Office-based evaluation and management visits	MEPS Office-Based Medical Provider Visits files, 2008–2012	All office visits with visit type = "General checkup" or "Follow-up or post-operative visit" AND (place of service = "VA facility" OR VA paid amount > $0)
Office-based laboratory services	MEPS Office-Based Medical Provider Visits files, 2008–2012	All office visits with "this visit patient had lab tests" = 1 AND (place of service = "VA facility" OR VA paid amount > $0)
Office-based dialysis services	MEPS Office-Based Medical Provider Visits files, 2008–2012	All office visits with "this visit patient had dialysis" = 1 AND (place of service = "VA facility" OR VA paid amount > $0)
Office-based radiology services	MEPS Office-Based Medical Provider Visits files, 2008–2012	All office visits with "this visit patient had…" one of the following = 1: sonogram, x-rays, mammography, or MRI, AND (place of service = "VA facility" OR VA paid amount > $0)
Office-based physical/occupational therapy services	MEPS Office-Based Medical Provider Visits files, 2008–2012	All office visits with ("this visit patient had physical therapy" = 1 OR "this visit patient had occupational therapy") AND (place of service = "VA facility" OR VA paid amount > $0)
Inpatient stays involving surgical procedures	MEPS Hospital Inpatient Stays files, 2008–2012	All inpatient stays with imputed VA facility or provider payments > $0 and an indicator for "any operation or surgery performed while the respondent was in the hospital"

4.2.4 EHCPM Analyses of Reliance

While we did not have access to the underlying data used to replicate the EHCPM reliance calculations from the ground up, we were able to evaluate reliance factors provided by VA. We combined three separate EHCPM files to adjust VA-provided reliance factors so that they are more analogous to those that we calculated in MEPS. These files contained the following:

- Reliance estimates for 25 health care service categories by priority group, age category, whether or not the Veteran enrolled prior to eligibility reform, sex, and submarket (subdivisions of Veterans Integrated Service Networks)
- Utilization, measured in units relevant to individual health care service categories and defined using the same criteria as the reliance factors

- Counts of unique Veterans who used at least some services in each health care service category.

Because different VA-provided EHCPM output files were formatted differently, we applied a set of adjustments so that the different input files used the same age categories and priority groups.

4.3 Results

4.3.1 Projection of Veterans Enrolled in the VA Health Care System

Currently, the most important driver of enrollment in the VA health care system is the flow of separating Veterans who were deployed in Afghanistan and Iraq. This is occurring, in part, because of the enhanced period of eligibility for deployed service members and an increased need for health care due to combat experience. As of the end of FY 2014, 67 percent of eligible Afghanistan and Iraq Veterans were enrolled in the VA health care system, and 60 percent of these eligible Veterans had obtained VA health care (Epidemiology Program Office of Public Health, 2015). Both of these indicate that current enrollment rates among Veterans who were deployed in Afghanistan and Iraq are high.

We estimate that the percentage of all Veterans who deployed to Afghanistan or Iraq will increase from 9.1 percent in 2014 to 15.1 percent in 2024, corresponding to an increase of approximately 700,000 Veterans. Veterans who served in Afghanistan or Iraq will make up an increasing share of the total Veteran population and, as already stated, are much more likely to enroll in the VA health care system. Understanding the future pattern of enrollment among these 700,000 yet-to-separate Veterans who deployed is the first step in understanding the volume and mix of VA health care services that Veterans will use in the future. Assuming that all of these yet-to-separate Veterans join the VA patient population would increase the population by more than 10 percent.

As we move away from these combat operations, fewer separating Veterans will have deployment experience, and the overall new enrollment rates in the VA health care system will likely decrease. Figure 4-2 illustrates that the percentage of separating service members who were deployed is estimated to decrease from 61.7 percent in 2014 to 12.8 percent in 2024.

Figure 4-2. Percentage of Separating Veterans Who Were Deployed
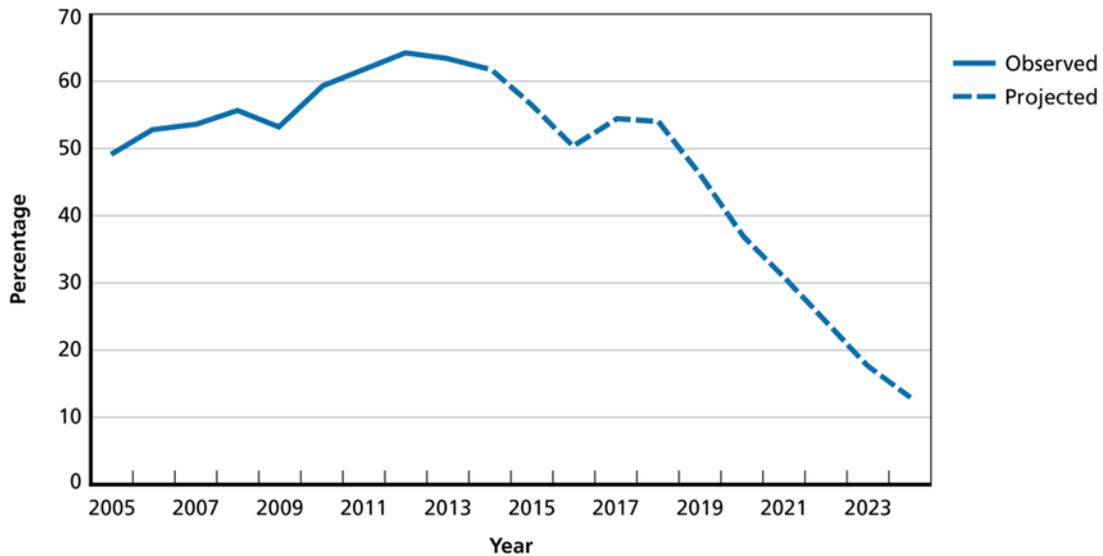
SOURCE: RAND analysis of DoD data.

In addition, the characteristics of separating Veterans with deployment experience will change as we get further away from the operations in Afghanistan and Iraq. We describe three specific examples. First, separating Veterans will become older and more experienced between 2015–2024. These Veterans are more likely to be retiring from the military and are eligible for TRICARE. 85 percent of military retirees under age 65 have no private health coverage and are reliant on TRICARE (Office of the Assistant Secretary of Defense (Health Affairs), 2015). In 2010, 23 percent of Veterans with TRICARE-only coverage used some VA health care; an unknown amount of this care was provided through a DoD-VA sharing agreement. Figure 4-3 illustrates that by 2024, nearly 50 percent of separating Veterans who were deployed are separating with at least 19 years of experience and are likely to have TRICARE, compared with less than 25 percent in 2014. Although the flow of separating Veterans eligible for enhanced enrollment will continue, they will be fewer in number, less dependent on VA health care services due to eligibility for TRICARE, and less likely to enroll in the VA health care system.

Figure 4-3. Percentage of Separating Veterans with 19+ Years of Service Among Those Who Were Deployed
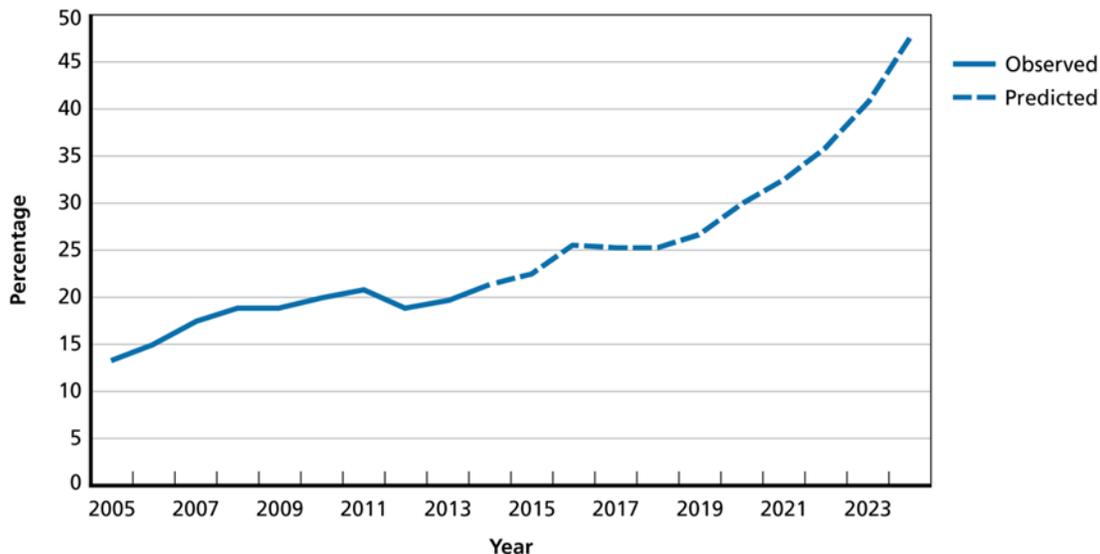
SOURCE: RAND analysis of DoD data

Second, fewer Veterans will be within the five-year window of enhanced enrollment eligibility. Figure 4-4 illustrates a steep decline in the projected number of Veterans who were deployed and are within five years of separation. It is expected that enrollment rates will decline as a result.

Figure 4-4. Number of Veterans Within 5 Years of Separation Among Those Who Were Deployed
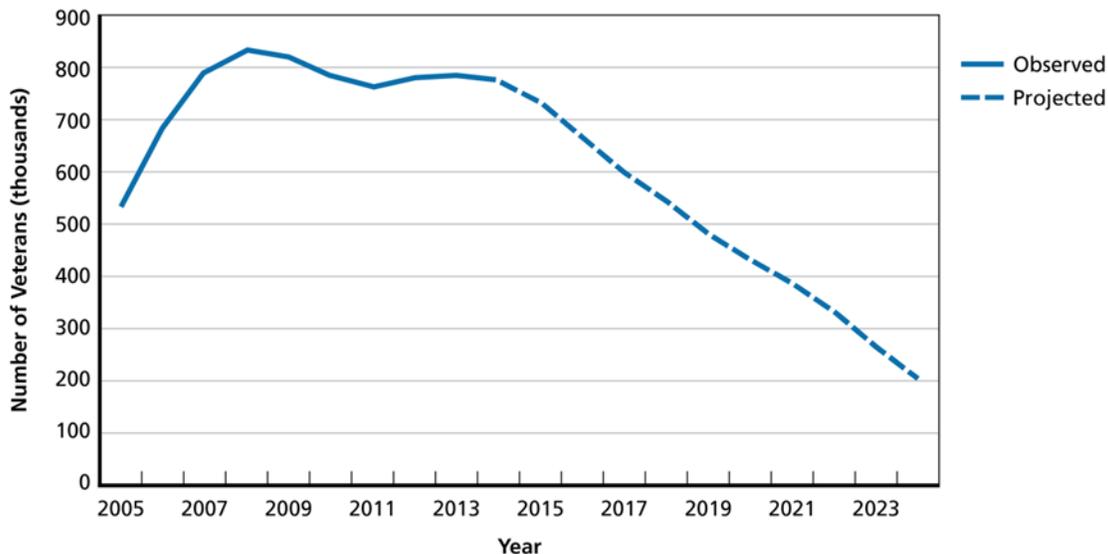
SOURCE: RAND analysis of DoD data.

Third, we expect the health status of separating Veterans to improve over time. Veterans with service-connected health care needs as a result of deployment are likely to separate earlier if they do not meet medical retention standards, and once separated, are more likely to seek care

for the service-connected health need that contributed to their separation. In addition, selection of service members to continue in military service may be based on their overall health due to the military health and fitness standards. We expect that as the number of active duty service members who were deployed decreases, the overall health status of these service members will improve. If true, the overall health status of future separating Veterans who were deployed will improve over time. As indicated in the conceptual model in Section 2, a Veteran's need of health care is associated with his or her decision to seek care. If separating Veterans' health statuses are improving over time, we expect lower enrollment rates as a result.

We did not have access to data that would allow us to incorporate this type of information into our projections. Therefore, we took a sensitivity analysis approach when projecting the number of enrollees. Our three sets of assumptions provide us with a range of plausible projections and inform us on the sensitivity of our final results to these assumptions. Recall that our status quo assumption is that the recent pattern of enrollment will continue in the future. While a reasonable baseline, we expect this assumption to overestimate the number of enrolled Veterans moving forward due to the previously stated reasons. The never deployed assumption attempts to account for the expected decline in enrollment among Veterans who were deployed by aligning their pattern of enrollment with Veterans who were never deployed. This can be considered as a lower bound, as the probability of new enrollment among yet-to-enroll Veterans is much lower among Veteran who were never deployed (in 2014, 2.7 percent versus 18.3 percent). The decreasing enrollment assumption is a trade-off between the first and second. We assume that the effect of deployment on enrollment rates will decrease by 5 percent each year and reflects the previously described changes in the characteristics of separating Veterans over time.

Note that these assumptions focus on the enrollment rates of Veterans who were deployed. This is because the probability of enrollment among Veterans who never deployed is much lower than their deployed counterparts, as demonstrated in Figure 4-5. In addition, the probability of new enrollment appears to be much more consistent for non-deployed Veterans among those age 30 and older.

Figure 4-5. Probability of New Enrollment, by Age (2009–2014)
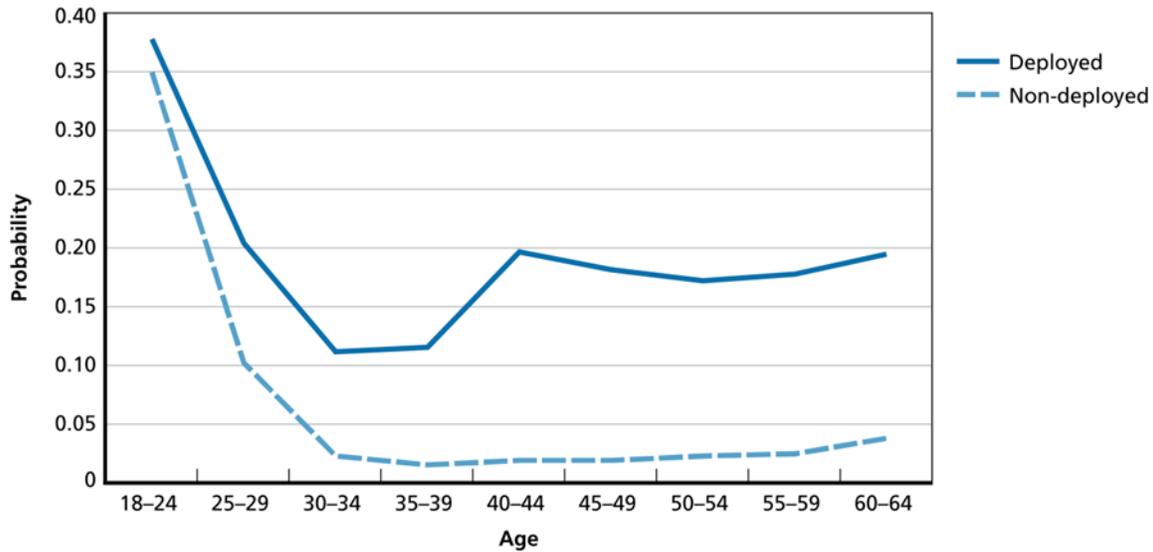
SOURCE: RAND analysis of VA, DoD, and Census data.

Figure 4-6 illustrates the historical trend and projected number of VA enrollees under our three sets of assumptions. We project the number of VA enrollees to increase under all three of our projection assumptions, but by varying degrees. The number of VA enrollees in 2014 was 9.1 million Veterans, and our projections predict increases to 10.0 million, 9.8 million, and 9.3 million in 2024. All three sets of assumptions show an increase in the projected number of enrollees for several years, but these increases are projected to level off or reverse around 2020. This occurs as enrollment rates among younger Veterans are unable to offset the mortality rates of older Veterans and as most Veterans who were deployed in Afghanistan or Iraq have already made their initial decision on enrollment.

Figure 4-6. VA Enrollee Trends and Projections (2008–2024)
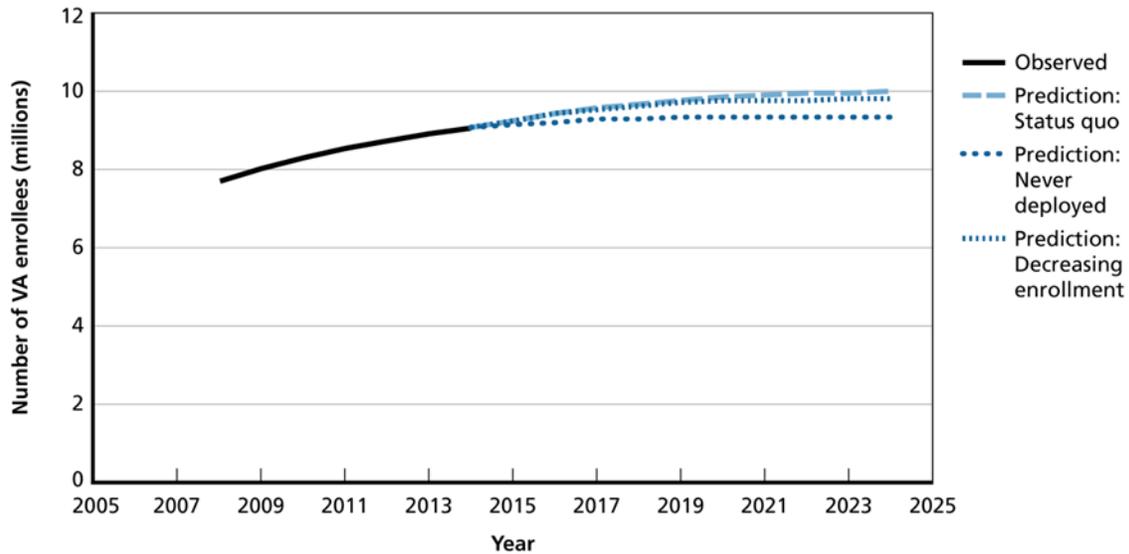
SOURCE: RAND analysis of VA, DoD, and Census data.

The difference between the projection under the status quo assumption and the never deployed assumption is about 670,000 enrollees by 2024, amounting to about 7 percent of the current enrollee population. This difference is driven by the pattern of enrollment among Veterans who deployed in Afghanistan and Iraq and serves as a range of plausible projections. That is, we expect the actual pattern of enrollment to fall in between these two projections. The difference between the projected enrollee population under the status quo assumption and the decreasing enrollment assumption is even smaller, approximately 200,000 enrollees by 2024.

Enrollment in the VA health care system is only the first step toward understanding the volume of VA health care services that Veterans will use in the future.

4.3.2 Projection of VA Patients

We projected the number of VA patients by multiplying the number of enrollees by the probability of use among enrollees. While we estimate only one model for the probability of VA use conditional on enrollment, we apply these estimates to the enrollee projections under each of the three sets of assumptions to produce three sets of projections for the number of VA patients. The differences in the projected number of VA patients are caused by differences in the total number of projected enrollees and the demographic composition of projected enrollees. The probability of using VA health care services conditional on enrollment, age, sex, service era, deployment status, and year does not differ.

Figure 4-7 illustrates the historical trend in the number of VA patients and our projections. We project little change in the total number of VA patients. The number of VA patients in 2014 was 5.9 million, and we project the number of VA patients will be between 5.8 million and 6.2 million in 2024. The pattern in the observed and projected number of VA patients roughly

follows the pattern in enrollment. While the number of VA patients increased nearly 20 percent between 2008–2014, we project that this trend will flatten out and reverse over the next 10 years. This predicted trend is largely driven by the trend in the number of VA enrollees.

Figure 4-7. VA Patient Trends and Projections (2008–2024)
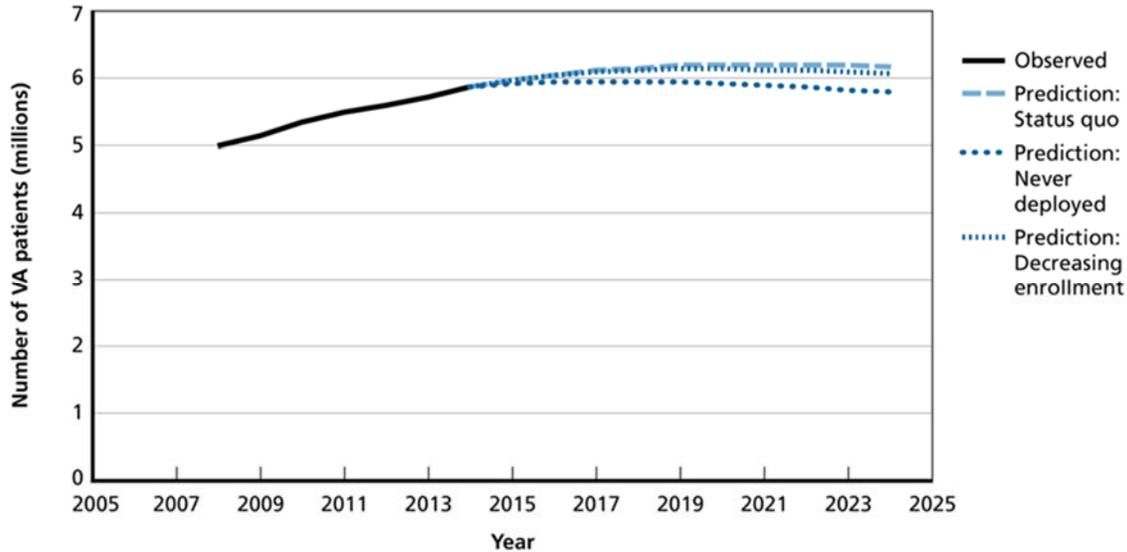
SOURCE: RAND analysis of VA, DoD, and Census data.

The difference between the projected number of VA patients under the status quo assumption and under the never deployed assumption is about 370,000 patients by 2024, amounting to 6.5 percent of the current VA patient population. The difference between the projected enrollee population under the status quo assumption and the decreasing enrollment assumption is even smaller, only 110,000 patients by 2024.

The percentage of VA patients who served in Afghanistan is projected to increase over the next decade, as illustrated in Figure 4-8**.** By 2024, 19 percent of VA patients are projected to have served in Afghanistan and Iraq. The long-term health effects of service in Afghanistan and Iraq are unknown, and it is imperative that VA monitor trends in health care utilization among these Veterans to ensure adequate resources and capabilities to meet their unique and changing health care demands.

Figure 4-8. Percentage of VA Patients Who Served in Afghanistan and Iraq (2008–2024)
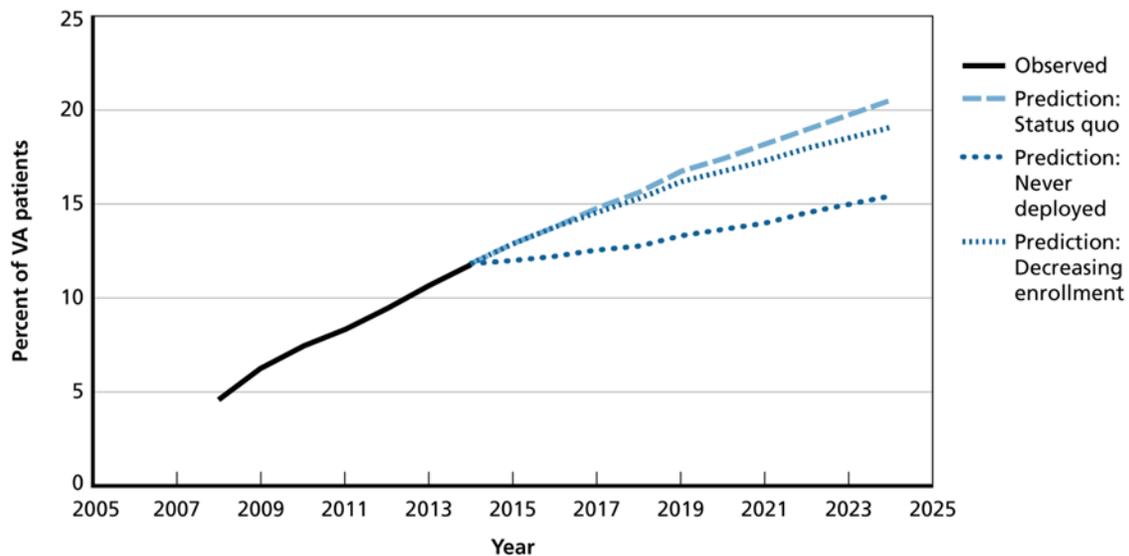
SOURCE: RAND analysis of VA, DoD, and Census data.

We explored whether or not the period of enhanced eligibility was related to VA use among enrollees. Veterans who enrolled in priority group 6 during the period of enhanced eligibility are most likely to be shifted to priority group 7 or 8 at the end of the enhanced eligibility period. Among VA enrollees who were deployed in Afghanistan and Iraq, there is no difference in the percentage of Veterans using VA health care services between priority group 6 enrollees within the period of enhanced eligibility (35 percent) and priority group 7 or 8 enrollees outside the period of enhanced eligibility (37 percent). This indicates that the probability of VA use is not different between enrollees within and outside the period of enhanced eligibility, but it does not provide any information on how reliance may change when the period of enhanced eligibility ends. Veterans who move to a lower priority group will have co-pays, but these are modest; otherwise, there is little to no change in access to care or service availability. One explanation of the continued use of VA health care is that the enhanced eligibility policy gets Veterans to enroll in the VA health care system who would have otherwise not enrolled. Once these Veterans enroll and begin receiving VA health care, they are satisfied with the quality of care that they are receiving and continue seeking VA health care.

In addition to the factors and trends that affect the health care needs of the Veteran population overall, the health care needs in the VA patient population are determined in part by who uses VA health care services. Changes in VA policies—such as new priority group cutoffs for enrollment eligibility, additions of new presumptive service-connected conditions, or changes to the enhanced eligibility benefits for new combat Veterans—will directly affect the number and composition of Veterans who are eligible to receive VA health care services. External factors that affect access to affordable health care, such as fluctuations in the economic climate or changes in the eligibility rules for other public health programs (e.g., Medicare) have the potential to affect VA use rates and the composition of the VA patient population. We assumed that these factors remain constant over the next 10 years in these baseline projections. The

effects of policy changes on future Veteran, enrollee, and patient counts are considered in the scenario analyses in Section 6.

4.4 Reliance Analysis Results from MEPS Data

4.4.1 Overall Veteran and VA Patient Reliance on VA

Reliance on VA varies across the select health care service categories that we examined using MEPS data, ranging from 15 percent for all office-based visits to 34 percent for office-based laboratory services (see Figure 4-9). Because many Veterans do not use care provided or paid for by VA, there are also important differences between reliance calculated only for VA patients and population reliance calculated across all Veterans. Adding non-patient Veterans to the reliance calculation increases the reliance denominator but not the reliance numerator. As a result, each population reliance estimate is lower than the corresponding VA patient-only reliance factor. For example, while VA patients obtain 30 percent of prescription fills from VA (according to MEPS), across all Veterans, the prescription drug reliance rate falls to 16 percent. Both reliance factors may be relevant to policymakers depending on the context.

Figure 4-9. Reliance for VA Patients and All Veterans, by Service Category
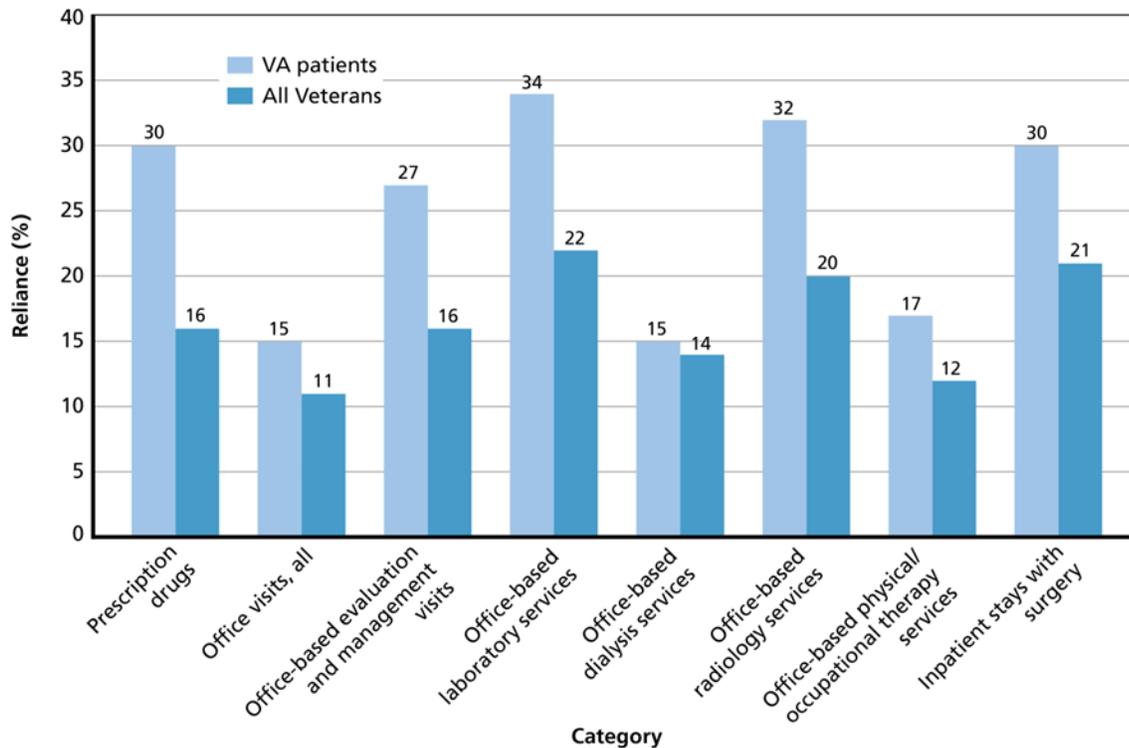
SOURCE: RAND analysis of 2008–2012 MEPS data.

4.4.2 Veteran and VA Patient Reliance on VA by Age, Demographics, and Health Status

There are important differences in reliance across Veterans with different demographic, health status, and insurance coverage characteristics. Figures 4-10 through 4-15 report prescription drug, office visit, and inpatient surgery reliance rates for VA patients and all Veterans, both overall and across a range of Veteran subpopulations. Notably, reliance for all three health care service categories is significantly higher for younger age groups (who are less likely to have other health insurance) than for older Veterans who are likely to have access to other sources of coverage, such as employer-sponsored insurance or Medicare.

While reliance for office visits is similar across male and female Veterans, male Veterans have higher prescription drug reliance than female Veterans (35 percent versus 26 percent), and female Veterans have considerably higher inpatient surgery reliance than male Veterans. The inpatient surgery result—as well as several large swings in reliance across age groups, such as the change in inpatient stays with surgical procedures across the mid-30s to late-40s age categories—could reflect cohort effects, availability of other coverage, changing health care needs, or small sample sizes. Lower-income Veterans have generally higher reliance rates across health care service categories. Finally, Veterans who self-report being in fair or poor health or who are uninsured have relatively high reliance rates compared with other Veterans.

Reliance rates for all Veterans (Figures 4-11, 4-13, and 4-15) are lower than reliance rates calculated just among VA patients (Figure 4-10, 4-12, and 4-14).

Figure 4-10. Reliance for VA Patients, by Health Care Service Category and Age
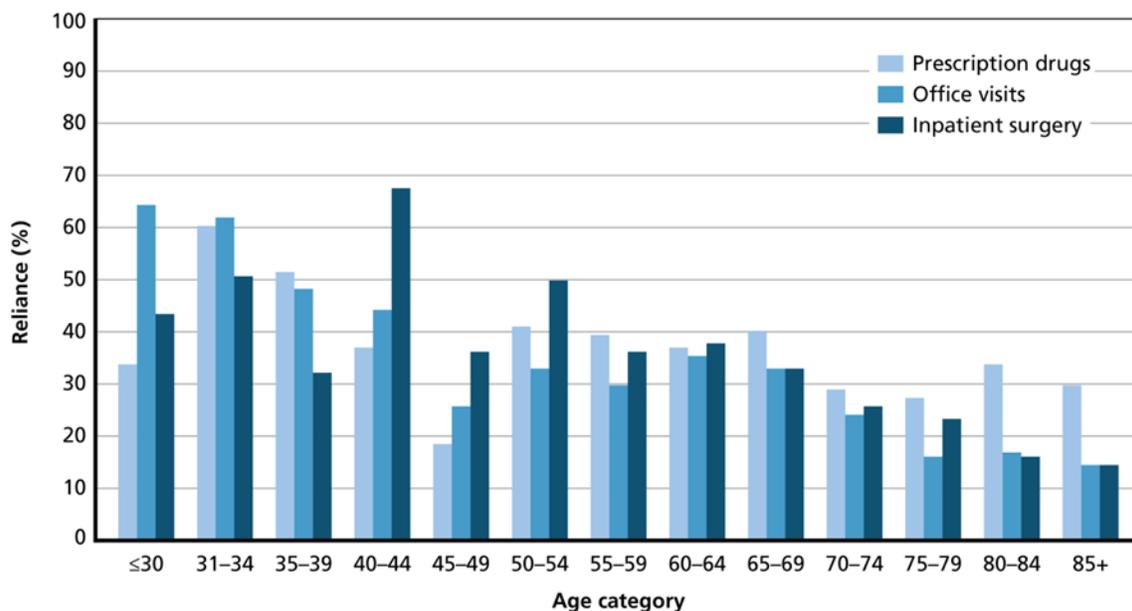
SOURCE: RAND analysis of 2008–2012 MEPS data.

Figure 4-11. Reliance for All Veterans, by Health Care Service Category and Age
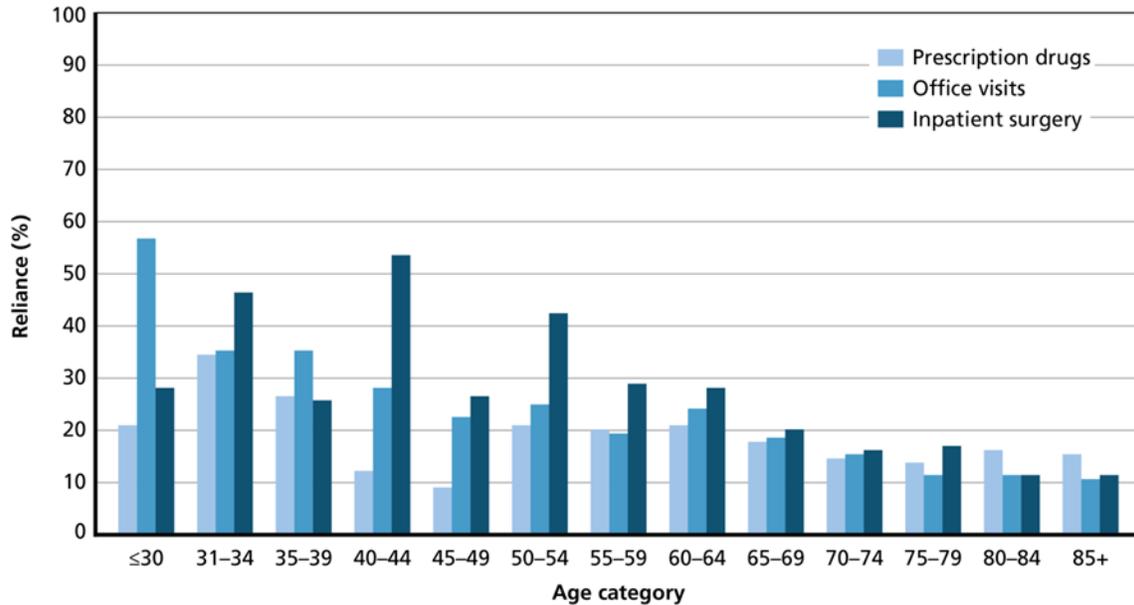
SOURCE: RAND analysis of 2008–2012 MEPS data.

Figure 4-12. Reliance for VA Patients, by Health Care Service Category, Sex, and Income
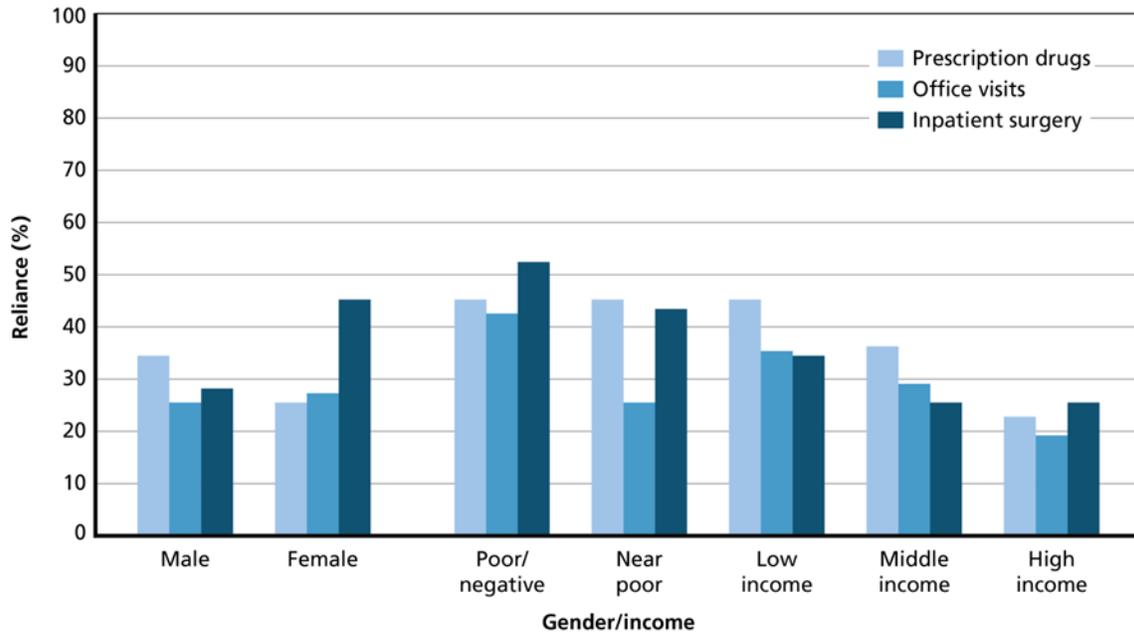
SOURCE: RAND analysis of 2008–2012 MEPS data.
NOTE: Income categories are defined as follows: Negative or poor: Less than 100% of poverty line based on family size and composition; Near poor: 100% to less than 125% of the poverty line; Low income: 125% to less than 200% of the poverty line; Middle income: 200% to less than 400% of the poverty line; High income: 400% of the poverty line or higher.

Figure 4-13. Reliance for All Veterans, by Health Care Service Category, Sex, and Income
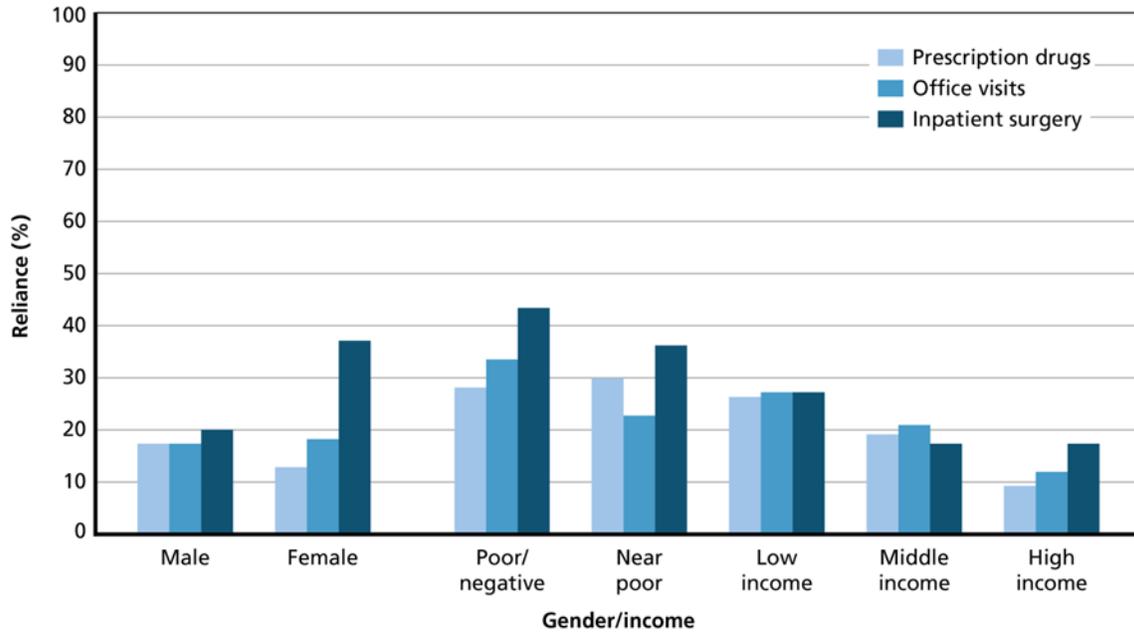
SOURCE: RAND analysis of 2008–2012 MEPS data.
NOTE: Income categories are defined as follows: Negative or poor: Less than 100% of poverty line based on family size and composition; Near poor: 100% to less than 125% of the poverty line; Low income: 125% to less than 200% of the poverty line; Middle income: 200% to less than 400% of the poverty line; High income: 400% of the poverty line or higher.

Figure 4-14. Reliance for VA Patients, by Coverage and Self-Reported Health Status
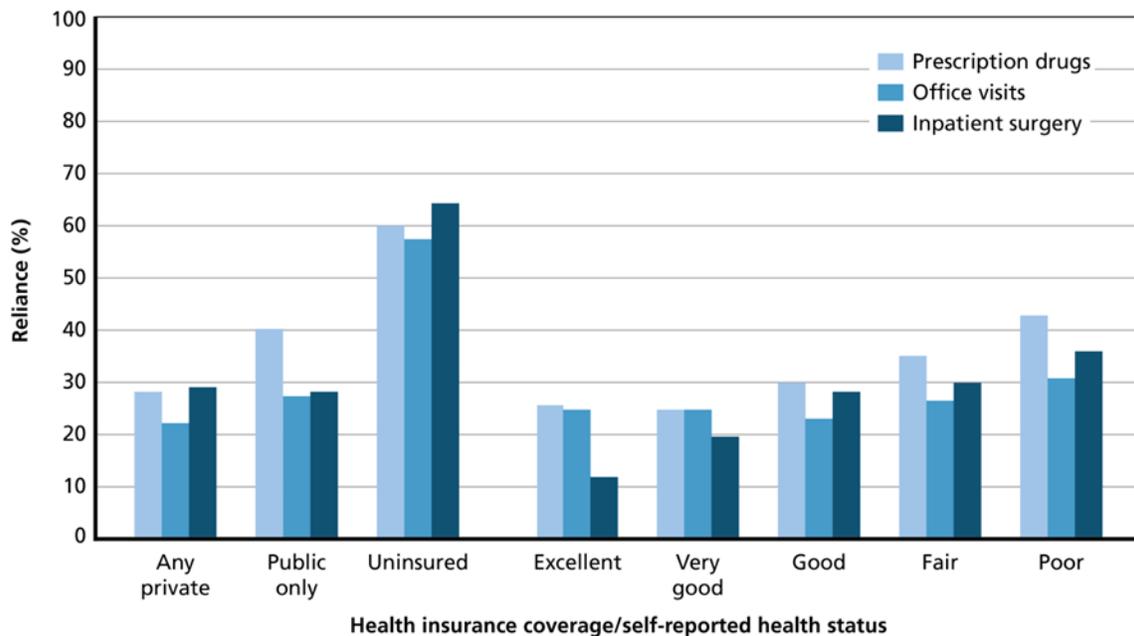
SOURCE: RAND analysis of 2008–2012 MEPS data.

Figure 4-15. Reliance for All Veterans, by Coverage and Self-Reported Health Status
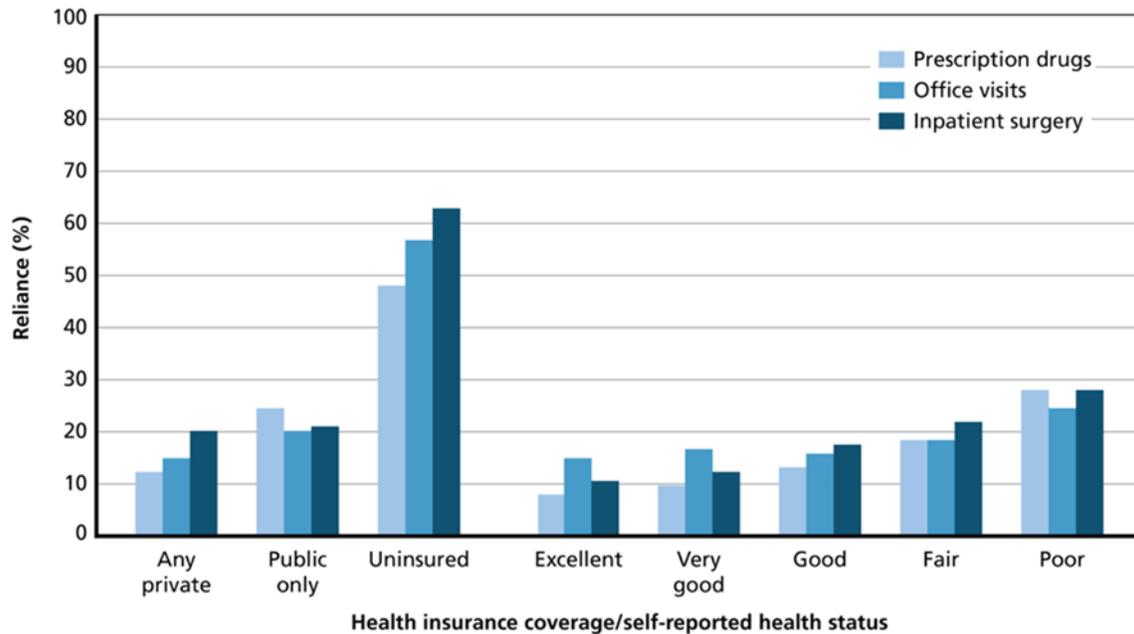
SOURCE: RAND analysis of 2008–2012 MEPS data.

4.5 Reliance Analysis Results from EHCPM

This analysis, which draws on output from the ECHPM, addresses VA enrollees rather than patients. Figure 4-16 presents reliance rates among enrollees for each health care service category that is projected in EHCPM using information from the private sector rather than only information from VA. We omit other health care service categories that are projected based on VA historical utilization patterns, such as outpatient mental health, because EHCPM does not separately estimate reliance for these categories. Reliance ranges from a high of 66 percent for prescription drugs to a low of 3 percent for chiropractic service visits.

Figure 4-16. EHCPM-Reported Reliance, by Service Category
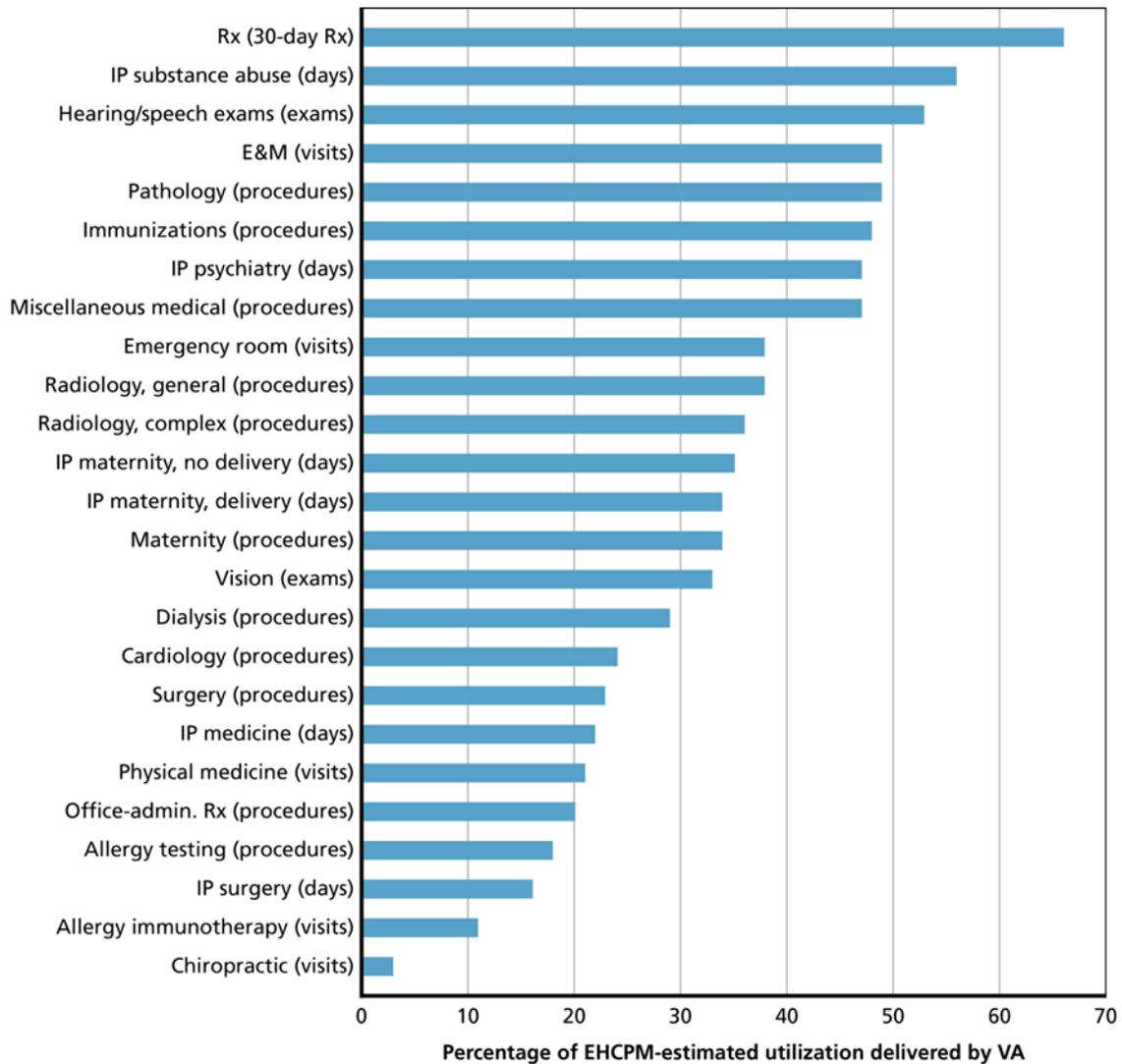
SOURCE: RAND analysis of EHCPM reliance factors and data.
NOTES: Rx = prescription; IP = inpatient; E&M = evaluation and management.

There is significant variation in reliance rates among different Veteran subpopulations. For example, reliance for prescription drugs and for outpatient evaluation and management visits (i.e., outpatient visits that do not involve any procedures) generally decreases across Veteran age categories, with a consistent "bump" in reliance for Veterans at age 45 through Medicare eligibility at age 65 (Figures 4-17 and 4-18).

Figure 4-17. EHCPM-Reported Prescription Drug (30-Day Rx) Reliance, by Age
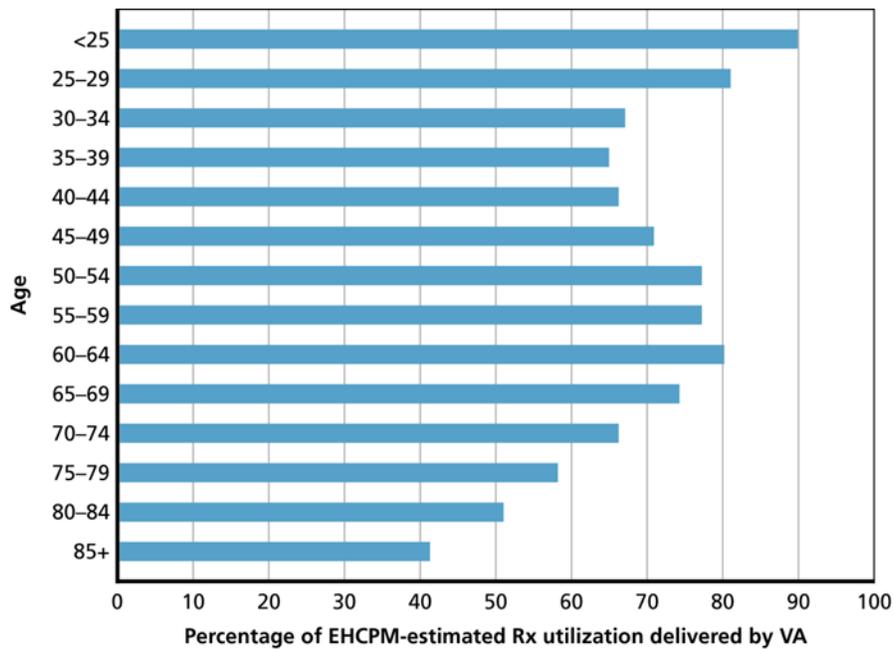
SOURCE: RAND analysis of EHCPM reliance factors and data.
NOTE: Rx = prescription.

Figure 4-18. EHCPM-Reported Evaluation and Management (Visits) Reliance, by Age
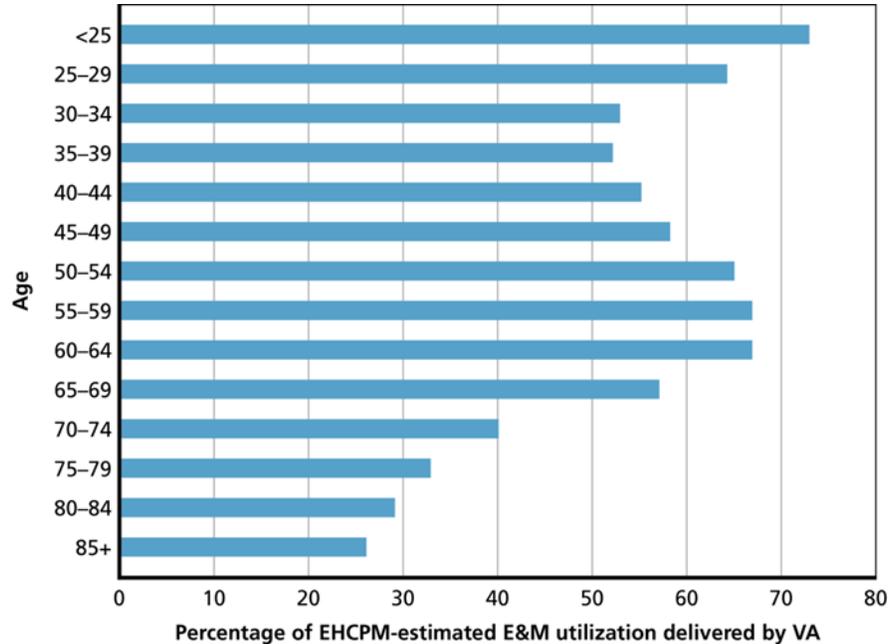
SOURCE: RAND analysis of EHCPM reliance factors and data.
NOTE: E&M = evaluation and management.

4.6 Discussion of Reliance Analysis Results

When measured using external data from MEPS, reliance of VA patients on VA care tends to be lower than reliance calculated from EHCPM. For example, for prescription medications, reliance measured in MEPS is roughly 30 percent, compared with 66 percent in EHCPM—meaning that using the MEPS analysis, VA patients use VA services for a smaller proportion of their prescription medications. The differences are particularly stark given that the EHCPM focuses on enrollees, while the MEPS analysis focuses on VA patients. Because some enrollees do not use VA health care at all, one might expect that reliance rate would be higher among patients than enrollees. The one exception to this finding is inpatient stays with surgical procedures— where reliance measured with MEPS is nearly twice as high as that measured with EHCPM. This difference could be due in part to the different unit of measurement across these two data sources—days in EHCPM and stays in MEPS. A lower EHCPM reliance rate could be explained by shorter VA stays on average compared with the average length of stay across all of Veterans' surgical inpatient stays.

For prescribed medicines, whether or not drugs paid entirely out of pocket are included in the reliance denominator has a significant impact on the reliance estimate. In MEPS, prescriptions paid entirely out of pocket account for more than one-third of VA patient prescription drug events overall, and nearly half of prescription drug events for VA patients over age 85 (Figure 4-19). These prescriptions may be low-cost generic drugs (such as $5 generics offered at chain pharmacies and "big box" retailers). For the health care service categories that we analyzed in this section, reliance in EHCPM is calculated using inputs from Medicare for the over-65 population and from commercial benchmarks and the SoE for the under-65 population. Based on these data sources, it is not clear whether the significant share of cash transactions observed in MEPS is accounted for in VA's reliance estimates.

Figure 4-19. MEPS-Based Coverage for Prescription Drug Events, VA Patients
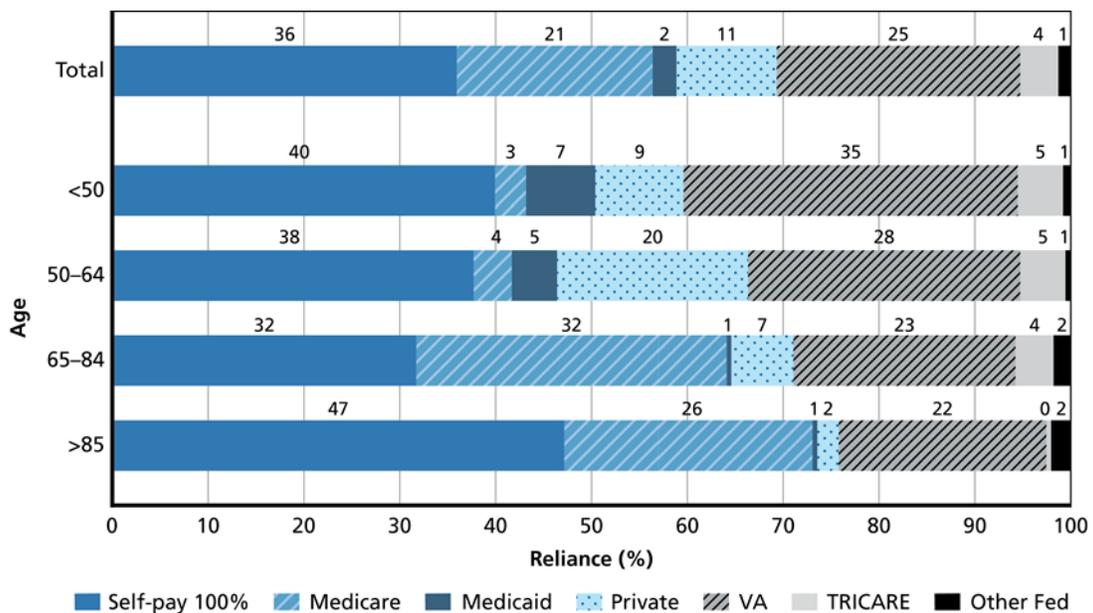
SOURCE: RAND analysis of 2008–2012 MEPS data.

MEPS-based reliance estimates across health care service categories suggest that lower-income Veterans, Veterans in rural areas, Veterans without other sources of coverage, and Veterans with poorer self-reported health status have higher reliance rates than other Veterans. That is, these groups obtain a larger proportion of their care from VA than other groups of Veterans.

The MEPS reliance estimates capture all health care utilization regardless of payer and regardless of whether the service is captured in VA encounter and claims data. However, there are important limitations when using MEPS to calculate reliance. First, MEPS contains relatively limited information on the specific health care services that patients receive. Second, the MEPS sample is small and for some health care service categories includes few Veterans, especially when restricting to specific Veteran subpopulations defined by age or other characteristics. Third, it is not always fully apparent in MEPS when services were (a) delivered by VA or (b) paid for by VA and delivered by private providers (i.e., purchased care). Fourth, MEPS estimates of health care utilization are based on respondents' recollections of the care they received, not on transactional data. Finally, some severely ill, high-utilization patients may drop out of MEPS when they die or experience an extended hospitalization. As a result, MEPS may omit utilization for the sickest patients.

Calculating reliance across the full range of health care service categories and for all Veteran subpopulations—as is done in EHCPM—is currently a considerable undertaking due to the lack of data sets describing the complete health care utilization of Veterans. Despite these limitations, MEPS provides comprehensive data that can be used to estimate reliance for Veterans directly rather than through analogy to non-Veteran populations. Future VA surveys or partnerships between VA and AHRQ (the organization that runs MEPS) could be designed to generate data for this purpose.

4.7 Summary of Key Findings

The number of Veterans receiving VA health care is projected to peak over the next 10 years. While the Veteran population is projected to decline by 20 percent over the next 10 years, the VA patient population is projected to reach its peak level in 2019. Use of VA has increased across all demographic groups since 2005, and the portion of Veterans under age 35 who are VA patients has increased threefold. The growth of VA use by Veterans may be related to outreach efforts on the part of VA, policies that have expanded the list of conditions granting presumptive eligibility for VA services, and streamlined enrollment processes. Continued increases in the rates of VA use are expected to slow the decline in the number of VA patients.

Understanding the future demand of health care services among Veterans who served in Iraq or Afghanistan is critical. By 2024, about 19 percent of VA patients are projected to have served in Afghanistan or Iraq. The long-term health impacts of service in Afghanistan and Iraq are unknown. It is imperative that VA monitor trends in health care utilization among these Veterans to ensure adequate resources and capabilities to meet the unique and changing health care demands of these Veterans

Veterans continue to seek VA health care after the period of enhanced eligibility closes. Among VA enrollees who were deployed in Afghanistan or Iraq, there is no difference in the percentage of Veterans using VA health care services between priority group 6 enrollees within the period of enhanced eligibility and priority group 7 or 8 enrollees outside the period of enhanced eligibility. This indicates that Veterans continue to use VA health care services after being shifted to a lower priority group at the end of the enhanced eligibility period. One plausible explanation for this pattern is that the enhanced eligibility policy encourages some Veterans who otherwise would not have used VA to seek care there. Then, if their needs are being met, or if employment or other circumstances do not present other health care options, they may continue to use VA beyond the enhanced eligibility period.

Health status and demographic factors influence reliance. Reliance estimates from MEPS, a nationally representative survey of the noninstitutionalized population, suggest that lower-income Veterans, Veterans in rural areas, Veterans without other sources of coverage, and Veterans with poorer self-reported health status have higher reliance rates than other Veterans.

Estimates from MEPS data show lower rates of reliance than those derived from VA's EHCPM model. For example, for prescription drugs, reliance measured in MEPS indicates that Veterans rely on VA to obtain roughly 30 percent of their prescription drugs compared with an estimate of 66 percent from EHCPM, although there are important differences between the two sources of reliance estimates.

The decision to include or exclude Veterans who are not VA patients influences reliance rates. Including Veterans who are not VA patients in reliance estimates yields lower "population reliance" rates. For example, reliance for prescription drugs among VA patients is 30 percent, while reliance for prescription drugs across all Veterans is 16 percent. Both statistics may be useful to decision-makers.

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5 Health Care Needs of the Veteran Population

5.1 Introduction

Health care needs are an important determinant of demand for health care services. The aim of this section is to examine the health care needs of all Veterans, and of Veterans who use VA health care services in particular, so that VA can better anticipate and meet Veterans' needs.

Using the most recent data available, we first assessed the health care needs of all Veterans and of Veterans who have used VA health care services in the past year. We then projected the health care needs of both populations forward over a 10-year time horizon. We discuss the findings in three main sections:

An assessment of the unique health care needs of current Veterans relative to non-Veterans. As in earlier sections, we define the unique health care needs of Veterans as those that disproportionately affect Veterans relative to non-Veterans. These include both service-connected conditions, such as PTSD, and other conditions that are more prevalent among Veterans than non-Veterans, including diabetes and cancer. Veterans with such conditions may be better served by specialists located at VA facilities if the prevalence in the national population is low and if non-VA providers are less equipped to address these conditions. To identify the unique non-combat-related health care needs of Veterans, we compared the prevalence of key health conditions among the current Veteran population with those among the non-Veteran population.

An assessment both of the health care needs of VA patients relative to Veterans who are not VA patients and of factors related to VA use. Veterans who meet VA basic eligibility and minimum service duty requirements (U.S. Department of Veterans Affairs, 2015c) can apply to claim VA benefits. Veterans, therefore, must choose to apply, enroll if deemed eligible, and finally choose to use VA services (*take-up*) if enrolled. Although we cannot observe all of this information in the data sources we analyzed, we can differentiate between Veterans who use VA services (whom we define as *VA patients*) and those who do not in a given year. An understanding of why Veterans become VA patients is needed to predict how changes in VA policy and other factors external to VA will affect the size and composition of the patient population. We therefore compared the prevalence of health conditions among VA patients with Veterans who were non-VA patients and analyzed which Veteran characteristics (including the presence of particular health conditions) were associated with receiving care at VA facilities.

Projections of the future health care needs of Veterans and VA patients for the years 2015–2024. The population of Veterans and VA patients may change substantially in the next decade as the current population ages and as new Veterans with different demographic characteristics and military service experiences choose to use VA services. We projected the prevalence of the health conditions of Veterans and VA patients forward over the next 10 years, accounting for predicted changes in their demographic composition and their service experiences.

5.2 Overview of Methods

Overview of Methods and Data for Veteran Health Care Needs Analysis

- We compared the unadjusted prevalence of diagnosed health conditions among Veterans with the unadjusted prevalence of the same conditions among non-Veterans.
- We then compared the same prevalence rates adjusted for demographic characteristics, including age, sex, and race/ethnicity.
- Similarly, we compared the unadjusted and adjusted prevalence of diagnosed health conditions among VA patients with the prevalence of the same conditions among Veterans who do not use VA health care services.
- We projected the prevalence of diagnosed health conditions among Veterans and VA patients by applying our prevalence estimates to the projected Veteran population (Section 3) and the projected VA patient population (Section 4).
- Data for this analysis came from MEPS, supplemented with encounter data from VA and MHS.

5.2.1 Data Sources

Our analyses relied on several data sources, including Veteran and nationally representative survey data. We highlight some of the primary sources of health data here. Further details about the data used are available in Section 2 and Appendix C.1.3.

We relied primarily on MEPS. The individual-level data contain information on Veteran status (but does not include information on service era), age, sex, race/ethnicity, marital status, education, and income. Health information is obtained using open-ended questions about medical conditions present during the past year. These open-ended responses are then collapsed into ICD-9 codes.

MEPS is the only publicly available data source from which we could estimate diagnosed prevalence rates for all Veterans (who are defined based on self-report of being honorably discharged by the military). We inferred whether an individual in MEPS is a VA patient based on the respondents' source of payment for health care. Specifically, we defined active VA patients as those respondents who had any payment by VA for services used. Unfortunately, MEPS data did not enable us to identify all Veterans who are eligible for VA services; we could identify only those eligible Veterans who use VA services. There were also some specific conditions for which MEPS was incapable of providing reliable estimates due to sample size limitations; these primarily consisted of relatively rare conditions, such as polytrauma, TBI, and medically unexplained illness.

We augmented MEPS with two administrative data sources. VA encounter data include individual-level information on diagnoses, demographic characteristics, and geographic location (state). VA encounter data are used to estimate current and prior condition prevalence patterns among active VA patients. This data set has larger sample sizes than MEPS, which allowed us to estimate the prevalence of service-connected health conditions that have a low prevalence rate

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in the national population. A limitation of the VA encounter data is that the data only include information on VA patient encounters and may miss diagnoses and conditions that were treated in non-VA settings. This includes Veterans not enrolled in VA, Veterans who were enrolled but did not use VA services in the survey year, and Veterans who were only partially reliant on VA. We therefore consulted the existing literature to find estimates of the prevalence of particular conditions. These instances are noted in the text. We also used MHS encounter data, which include information on the diagnoses and demographic characteristics of active component military personnel. The prevalence of health conditions among separating personnel predicts the health conditions of the newest Veteran cohorts and VA patients.

5.2.2 Analytic Approach

The main analyses in this section focus on comparisons of the prevalence of diagnosed health conditions between populations and on projections of health conditions among Veterans. We compared diagnosed prevalence rates between Veterans and non-Veterans, and between VA patients and non-VA patients. We made projections for both the general Veteran population and the VA patient population. A full description of the methods can be found in Appendix C.1.5.

Ideally, to understand the relative health care needs of Veterans versus non-Veterans and VA patients versus non-VA patients, we would estimate the underlying ("true") prevalence of health conditions for each population. Such estimates would allow us to assess more accurately the unique health care needs of Veterans and to understand how changes in where Veterans access care will affect the care they receive and the demands on health care service providers, including VA. However, it is not possible to measure underlying health status and undiagnosed conditions, so we focus on the prevalence of diagnosed health conditions.

The diagnosed prevalence rates are determined by the underlying prevalence of health conditions, access to/use of health care, and the propensity of the health care providers to diagnose particular conditions. For example, if Veterans are more likely to seek health care services than non-Veterans because they are more likely to have health insurance coverage (Section 3), their underlying health conditions will be diagnosed at higher rates. On the provider side, VA specializes in Veterans' health care, so VA staff may be more likely to recognize health conditions that are significant for the Veteran population but are relatively rare in the non-Veteran population (e.g., PTSD) and diagnose these at a higher rate. This would cause the diagnosed prevalence rates of such conditions to be higher among Veterans who use VA health care services than among Veterans (and non-Veterans) who seek health care from other providers, even if the underlying prevalence was the same.

With these limitations in mind, we consider three alternative estimates of diagnosed prevalence: (1) unadjusted observed prevalence rates, (2) prevalence rates adjusted to account for the demographic differences between the two populations, and (3) prevalence rates adjusted to account for demographic differences and differences in access to health care. The unadjusted observed prevalence rates (alternative 1) are estimated as the proportion of the population with a particular health condition. The adjusted prevalence rates (alternatives 2 and 3) are estimated with a generalized linear regression model applied to individual-level data

(MEPS, 2006–2012). The demographic-adjusted model includes age, sex, race/ethnicity, census region of residence, an indicator for residence in a metropolitan area (the MSA), and a time trend as predictors of the probability of having each diagnosed health condition. The health access–adjusted model extends the demographic-adjusted model to include educational attainment, health insurance coverage, marital status, and employment/full-time student status. The appropriate approach for estimating prevalence of diagnosed health conditions depends on the question being addressed. We describe what can be learned from each approach for the comparison of Veterans to non-Veterans and VA patients to non-VA patients below.

We first compare disease prevalence among Veterans with non-Veterans to assess the unique health care needs of the Veteran populations. The simple comparison of the observed *diagnosed* prevalence rates among Veterans and non-Veterans provides insights about actual differences in health care needs across the two populations. The differences in diagnosed prevalence rates do not necessarily reflect the differences in the underlying health care needs of Veterans and non-Veterans, but they do represent differences in the conditions that Veterans and non-Veterans are being treated for, and thus shed light on differences in the types of conditions that community and VA health care providers need to be prepared to treat, given status quo policies.

The simple comparison of diagnosed prevalence rates between Veterans and non-Veterans does not allow us to disentangle differences in health status that are due to the different demographic composition of Veterans and non-Veterans or differential access to health care from differences due to other factors. For example, because Veterans are older on average, we would expect higher prevalence rates among Veterans in conditions correlated with age, such as hypertension. For a complete summary of the demographic differences between Veterans and non-Veterans, see Section 5.3.1 and Appendix C.2.3.

In order to identify the unique health care needs of Veterans, it is therefore necessary to adjust statistically for these differences in demographic characteristics. Adjusted rates allow us to compare prevalence among non-Veterans and Veterans who "look alike" based on their demographic characteristics (age, sex, race/ethnicity, and residential location, as described above). We did this by predicting the prevalence of each health condition among Veterans and non-Veterans with the same demographic characteristics. Adjusted estimates use the Veteran population as our reference population, so that adjusted non-Veteran prevalence rates are predicted "as if" non-Veterans had the same demographic characteristics as Veterans. Therefore, we can attribute any differences remaining after adjustment to factors other than the demographics we include in our model (e.g., military service or deployment, environmental risks, occupational health risks, and unobserved individual-level characteristics that underlie the decision to join the armed forces, such as sense of duty to the country). This provides insight into health conditions that are unique to Veterans and not simply attributable to the demographic composition of the Veteran population.

Finally, to try to estimate diagnosed prevalence rates that are closer to the underlying prevalence of each health condition, we also adjust for such factors as health insurance, employment, and education (as described above), some of which are likely related to health

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care access and use. However, the results from this approach are difficult to interpret. Unlike the basic demographic characteristics, these additional controls are potentially influenced by the experience of being a Veteran, by DoD and VA policies, and by individual health status. For example, access to health care coverage may be associated with better or worse health, and differentially so across Veterans and non-Veterans. VA specifically targets health coverage to Veterans with worse health outcomes (e.g., service-connected disabilities), ensuring that health coverage is available. On the other hand, health insurance coverage is often tied to employment, so non-Veterans who find it difficult to work due to a health condition will be less likely to have health insurance coverage. For these reasons, we focus on the adjusted model that controls for demographic characteristics only. However, we provide results for the extended model that also controls for health care access in Appendix C.3. In practice, the two adjusted models produce very similar results.

Similarly, comparisons between VA patients and non-VA patients are made using both unadjusted and adjusted prevalence estimates. The reference population for the adjusted prevalence remains the entire Veteran population. All comparisons made between VA patients and non-VA patients using adjusted prevalence account for the different demographic composition of the two populations. Therefore, we can attribute any remaining differences after adjustment to factors other than the demographics we include in our model. As with Veterans, the unadjusted prevalence rates are the best indicators of the current health care needs among each population and the needs facing the health care providers that serve these populations. The adjusted prevalence rates allow us to better understand the disproportionate prevalence of health conditions among VA patients after controlling for predisposing demographic characteristics.

We projected the future prevalence (and counts) of key health conditions among *Veterans* in three main steps. First, we projected forward the Veteran population, categorized by demographic group, as described in Section 3. Second, we projected forward the prevalence of key health conditions, categorized by demographic group using MEPS. We also incorporated a nonlinear trend to account for unobservable trends in risk factors. See Appendix C.1.5 for details. Finally, we multiplied the number of Veterans in each demographic group by the corresponding prevalence to yield the projected number of Veterans with a particular health condition from 2015–2024.

We also projected the future prevalence (and counts) of key health conditions among *VA patients* in four main steps. First, we projected the Veteran population forward, categorized by demographic group, as described in Section 3. Second, we projected forward the number of VA patients, categorized by demographic group in Section 4. Third, we projected forward the prevalence of key health conditions, categorized by demographic groups using MEPS and VA encounter data. We also incorporated a nonlinear trend to account for unobservable trends in risk factors. Finally, we multiplied the number of VA patients in each demographic group by the corresponding prevalence to get the projected number of VA patients with a particular health condition from 2015–2024. See Appendix C.1.5 for details.

5.3 Current Health Care Needs of Veterans and Non-Veterans

In this subsection, we present the estimates of the prevalence of select health conditions among Veterans and non-Veterans using the most recent data available. There are several data limitations that should be kept in mind when viewing the results. Most of the results reported here use ICD-9 diagnosis codes in MEPS data to determine each individual's health conditions. These ICD-9 codes were derived from professional coders' abstractions of respondents' interviews; they are not derived from claims. Prevalence rates may be underestimated in respondents with limited access to health care, who may not know which conditions they have (see Appendix A for further discussion). In addition, ICD-9 codes do not indicate severity of illness or the complexity of a patient's situation. Fully analyzing the severity and complexity of patients' conditions would have required abstracting medical records, a task that was not possible given data constraints and the time frame available to complete this report. MEPS does not include information about service era or service-connected disability, so we are not able to look at differences in the prevalence of health conditions along these dimensions.[29] However, MEPS is the only data source that provides health condition information for all Veterans independent of health care provider.

5.3.1 Demographic Differences Between Veterans and Non-Veterans

Veterans and non-Veterans differ not only by military service experiences but also by demographic characteristics that are associated with the prevalence of particular health conditions. This subsection evaluates the state of Veterans' health relative to that of non-Veterans. In addition, we identified conditions that disproportionately affect Veterans after accounting for demographic differences between the populations.

Using MEPS data, we also examined the demographic profile of Veterans and non-Veterans (see also Table C-18 in Appendix C), which may explain differences in disease prevalence. We found significant differences in age, sex, and race/ethnicity composition. Veterans and non-Veterans also differ in their geographic distribution.

Figure 5-1 shows the age distribution among Veterans and non-Veterans in the MEPS sample. These data demonstrate that Veterans are older; nearly 70 percent of Veterans are age 55 or older, compared with 31 percent of non-Veterans. When we examined the sex composition among Veterans and non-Veterans in our sample, we found that Veterans are predominantly male; more than 93 percent of Veterans are men, compared with 40 percent of non-Veterans.[30] These differences are consistent with those reported by VA (Smith, 2014; U.S. Census Bureau,

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[29] MEPS began including service era in 2011; however, the Veteran and VA patient sample sizes for 2011 forward were not large enough for this analysis.

[30] The proportion of the non-Veteran population that is male is lower than the proportion of the U.S. population that is male (49 percent) (U.S. Census Bureau, 2014) because it excludes Veterans, who are about 7 percent of the population and 93 percent male (U.S. Census Bureau, 2012a). MEPS also excludes individuals in military and correctional institutions, juvenile institutions, military housing, and other institutions, who are more likely to be male.

2014; U.S. Department of Veterans Affairs, 2014a; U.S. Government Accountability Office, 2009).

Figure 5-1. The Age Distribution for Veterans and Non-Veterans
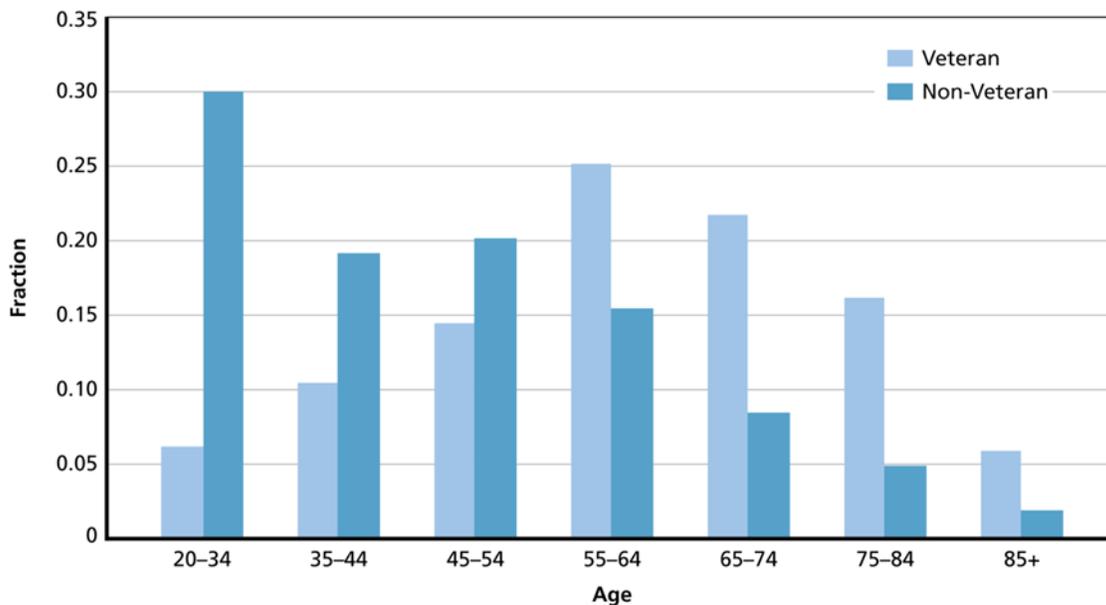
SOURCE: MEPS, 2006–2012.
NOTES: ** indicates a statistically significant difference between Veterans and non-Veterans at p-value < 0.05. Sample size, non-Veterans = 150,225, and sample size, Veterans = 12,313.

When we compared the race/ethnicity composition of Veterans and non-Veterans, we found that, consistent with tabulations from other sources (Lee & Beckhusen, 2012; National Center for Veterans Analysis and Statistics, 2014c), Veterans are predominantly non-Hispanic white men. In our sample, more than 82 percent of Veterans identified themselves as non-Hispanic white, compared with 66 percent of non-Veterans. Because access to medical services can vary by geographic area, we also included adjustments for Census region of residence. For example, VA has noted that the largest populations of Veterans are in the South (9.9 million) and Midwest (6.1 million) (National Center for Veterans Analysis and Statistics, 2012a). MEPS data include an indicator for whether each respondent resides in an MSA. We used this as a proxy for rural versus urban residence, because previous studies have shown that rural Veterans are different from Veterans living in urban areas. For example, rural Veterans are more likely than urban Veterans to have at least one disability or to have a service-connected disability rating of 50 percent or more (National Center for Veterans Analysis and Statistics, 2012a). MEPS data indicate that about 81 percent of Veterans live in a metropolitan area versus about 85 percent of non-Veterans.

In the next subsection, we present the prevalence of diagnosed health conditions among Veterans and non-Veterans as estimated in MEPS. Differences in demographic characteristics of Veterans and non-Veterans likely account for a substantial proportion of the unadjusted differences in health care needs between the two populations. This comparison provides insights about actual differences in health care needs across the two populations, as discussed

in Section 5.2.2. However, given that we aim to identify the *unique* health care needs of Veterans that result from the total experience of military service, it is important to estimate differences between Veterans and non-Veterans that are not driven by differences in the demographic characteristics of the two groups. Thus, in the remainder of Section 5.3, all comparisons made between Veterans and non-Veterans will use "adjusted" estimates, which are statistically corrected to account for the different demographic composition of the two populations.

There are also socioeconomic characteristics that differ between Veterans and non-Veterans and that may be related to diagnosed disease prevalence through impacts on underlying prevalence, access to health care, or provider type. For example, Veterans are more likely to be married than non-Veterans, a finding that is consistent with previous research documenting higher rates of marriage among military relative to civilian populations (Karney, Loughran, & Pollard, 2012). These additional characteristics are summarized by Veteran and VA patient status in Table 5-1. As discussed in Section 5.2, we do not adjust for these additional differences between Veterans and non-Veterans in our main adjusted model because they may be affected by the experience of being a Veteran and by DoD and VA policies, making the results difficult to interpret. However, we provide results for the extended model that controls for these additional characteristics in Appendix C.3.1. Our baseline adjusted model and the extended model produce very similar results.

Table 5-1. Socioeconomic Characteristics of Non-Veterans, Veterans, Non-VA Patients, and VA Patients in MEPS

Demographic Group	Distribution by Demographic Characteristics (Standard Errors)			
	Veterans	**Non-Veterans**	**Veterans, VA Patients**	**Veterans, Non-VA Patients**
Marital status				
Married	0.659	0.523	0.626	0.680
	(0.009)	(0.004)	(0.010)	(0.011)
Student status				
Student or currently in school	0.008	0.094	0.008	0.008
	(0.001)	(0.001)	(0.001)	(0.001)
Educational attainment				
Less than high school	0.071	0.176	0.091	0.058
	(0.004)	(0.003)	(0.006)	(0.004)
High school diploma or GED	0.340	0.308	0.350	0.333
	(0.009)	(0.004)	(0.011)	(0.010)
Some college	0.210	0.180	0.203	0.214
	(0.006)	(0.002)	(0.009)	(0.007)
College	0.380	0.336	0.356	0.396

Demographic Group	Distribution by Demographic Characteristics (Standard Errors)			
	Veterans	**Non-Veterans**	**Veterans, VA Patients**	**Veterans, Non-VA Patients**
	(0.008)	(0.005)	(0.010)	(0.010)
Employment status				
Employed (not on active duty)*	0.546	0.707	0.413	0.628
	(0.009)	(0.003)	(0.012)	(0.010)
Income				
Total household income ($)	41,708	33,546	35,981	45,278
	(541.29)	(304.78)	(753.76)	(646.53)

SOURCE: RAND analysis of MEPS, 2006–2012.

NOTES: Veterans, VA patients and Veterans, non-VA patients are mutually exclusive categories of Veterans. Sample size, Veterans = 12,313; sample size, non-Veterans = 150,225; sample size, VA patients = 4,871; and sample size, non-VA patients = 7,442.

* Non-employed individuals includes both people who are unemployed and people who are out of the labor force, such as retirees.

5.3.2 Prevalence of Health Conditions for Veterans and Non-Veterans

Analysis of MEPS data showed that the diagnosed prevalence of many health conditions is greater for Veterans than non-Veterans. In Appendix C, Table C-6, we list the health conditions examined and report adjusted and unadjusted prevalence rates for Veterans and non-Veterans. Differences in unadjusted prevalence rates vary by condition. For example, the diagnosed prevalence of asthma among Veterans is about 1.4 percentage points lower than among non-Veterans, but the prevalence of hypertension and lipid disorders among Veterans is more than 20 percentage points higher than for non-Veterans. We illustrate the pattern of our findings in Figure 5-2 for a subset of conditions examined. Differences that are statistically different from zero at $p < 0.05$ are marked with two asterisks (**). Except for mental health conditions, Veterans exhibit higher unadjusted prevalence rates than non-Veterans. However, demographic characteristics affect the prevalence of many health conditions; the prevalence of hypertension and many other chronic conditions increases with age, and some conditions are more prevalent in men than in women. In the next subsection, we adjust the prevalence estimates for the demographic differences between Veterans and non-Veterans described in the previous subsection. The difference between the unadjusted and adjusted rates reflects the portion of the differences in prevalence rates that can be explained by demographic differences.

Figure 5-2. Diagnosed (Unadjusted) Prevalence of Selected Health Conditions for Veterans and Non-Veterans
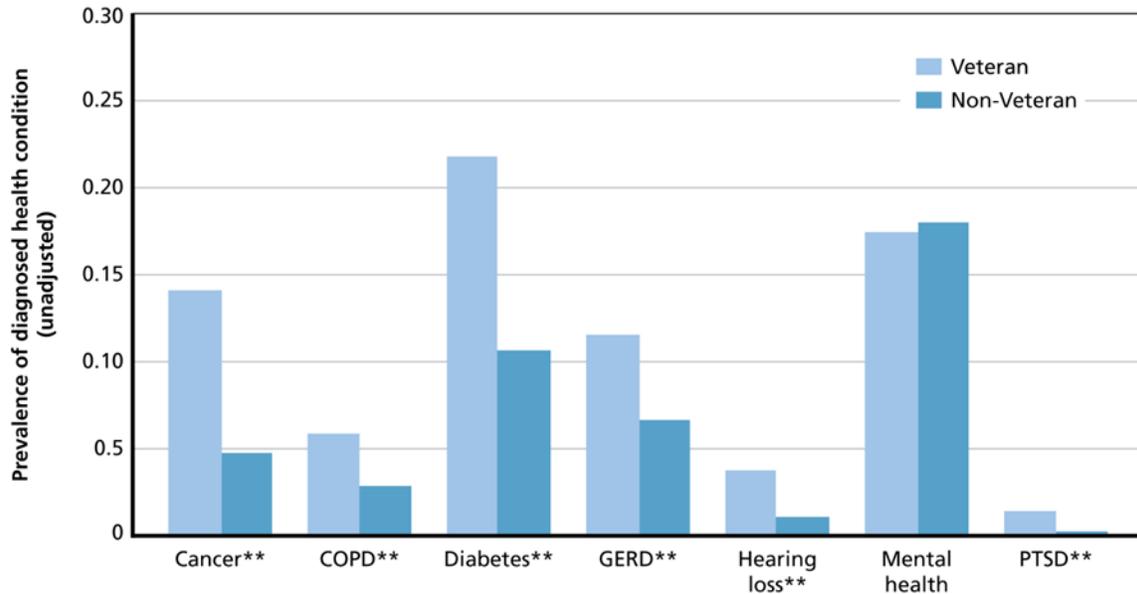
SOURCE: RAND analysis of MEPS, 2006–2012.

NOTES: ** indicates a statistically significant difference between Veterans and non-Veterans at p-value < 0.05. Sample size, non-Veterans = 150,225, and sample size, Veterans = 12,313. Sample sizes may be smaller for some conditions due to missing values. Cancer includes any malignancy, and Mental Health includes any mental health condition.

5.3.3 Prevalence of Health Conditions for Veterans and Non-Veterans, Adjusting for Demographic Differences

In this subsection, we present estimates of the prevalence of health conditions for Veterans and non-Veterans, adjusting for a set of demographic characteristics and time trends (changes in disease prevalence over time). We adjusted for age, sex, race/ethnicity, Census region, whether an individual resided in an MSA, and calendar year. We adjusted for age to account for changes in the development of health conditions over the life cycle and for the differential age composition of Veterans and non-Veterans, as seen in Figure 5-3. We adjusted for Census region of residence and whether an individual resided in an MSA to account for the differences in where Veterans and non-Veterans reside. We adjusted for sex and race/ethnicity to account for the demographic differences of Veterans and non-Veterans. Finally, we adjusted for differences in health conditions over time due to secular changes in disease prevalence. For example, a public health campaign to increase awareness of preventive treatments for a particular condition could cause a decline in prevalence that is not related to Veteran status (see Appendix C.2). We refer to this baseline model of adjusted disease prevalence as Model 1.

Overall, we found smaller differences in adjusted diagnosed disease prevalence rates in Model 1 relative to the unadjusted differences, but results still suggest that the adjusted prevalence of many chronic conditions is higher for Veterans than it is for non-Veterans of the same age, sex, and race/ethnicity. Figure 5-3 shows the results for cancer, COPD, diabetes, GERD, hearing loss, any mental health condition, and PTSD (see full results in Table C-6). The

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largest absolute difference in prevalence is for cancer at 4.3 percentage points, followed by diabetes, mental health conditions, PTSD, and GERD at 2.5 percentage points.

Figure 5-3. Adjusted Diagnosed Prevalence of Selected Health Conditions for Veterans and Non-Veterans
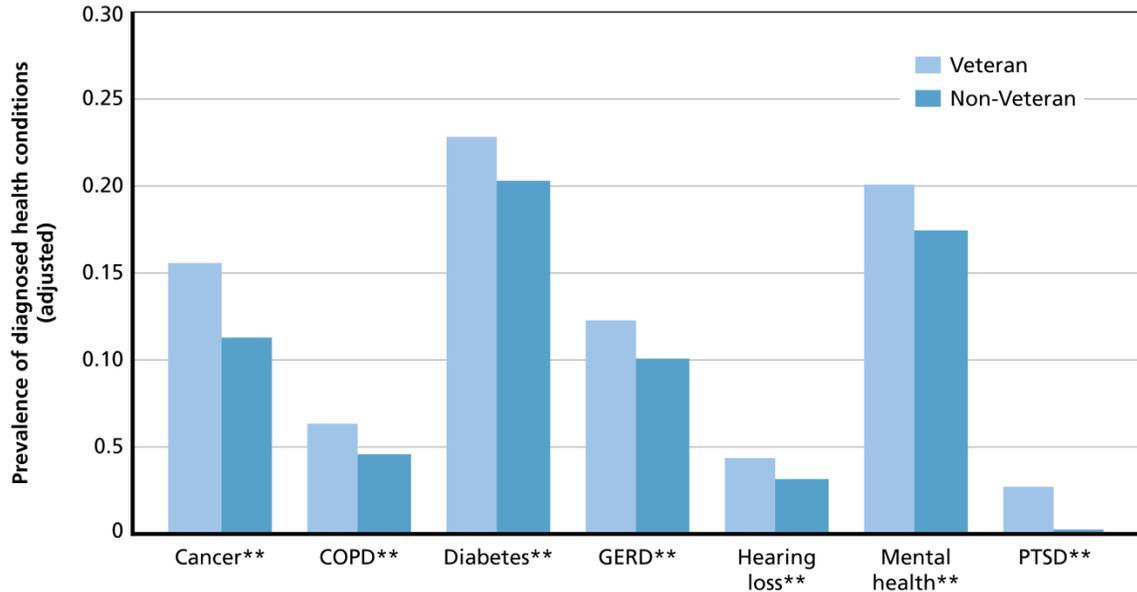
SOURCE: RAND analysis of MEPS, 2006–2012.
NOTES: ** indicates a statistically significant difference between Veterans and non-Veterans at p-value < 0.05. Sample size, non-Veterans = 150,225, and sample size, Veterans = 12,313. Sample sizes may be smaller for some conditions due to missing values. The prevalence rate of each health condition is the predicted prevalence in 2014 for the populations of Veterans and non-Veterans, both with age, sex, race/ethnicity, region, and urbanicity, adjusted to match the demographic composition of Veterans in 2012. Cancer includes any malignancy, and Mental Health includes any mental health condition.

Another way to compare prevalence rates is to examine relative risk of being a Veteran; that is, the prevalence rate for Veterans divided by the prevalence rate for non-Veterans. The largest relative risk in prevalence is for PTSD, which is 13.5 times more prevalent among Veterans than non-Veterans. The prevalence of cancer, hearing loss, and COPD are more than 1.3 times more prevalent for Veterans than non-Veterans. Hypertension, which is excluded from Figure 5-3 due to scale, has the highest prevalence (at 47 percent) for both Veterans and non-Veterans (see Table C-6.)

We examined the full set of estimable health conditions in MEPS. The pattern of results is qualitatively similar to those reported here (see Table C-6). Moreover, the differences in the prevalence of health conditions between Veterans and non-Veterans are not sensitive to different specifications of the statistical model. In a second model, Model 2, we adjusted for additional individual factors, including marital status, education level, employment and student status, health insurance coverage, and interactions between race/ethnicity and sex (see Appendix C.3.1). Differences in predicted prevalence rates are qualitatively similar to those reported here. Model 2 results showed that marriage, college completion, and employment are associated with a lower probability of having been diagnosed or treated for most health conditions. Health insurance coverage is associated with higher probability of having been

diagnosed or treated for most health conditions. This finding is consistent with the notion that insured Veterans and non-Veterans use more health care services than uninsured persons because, in MEPS, measures of health conditions identified by providers reflect only those conditions for which individuals received health care.

Next, we examined the extent to which Veterans and non-Veterans differ in disease burden and comorbidities, based on adjusted differences in the Charlson Comorbidity Index, measures of functional status, and the prevalence of comorbid mental health (a mental health diagnosis in addition to one other diagnosis). Our results are descriptive and not indicative of a causal relationship between Veteran status and comorbidity.

The Charlson Comorbidity Index is a measure that assigns weights to chronic conditions based on their severity (adjusted risk of mortality) or resource use and then is summed to produce an index ranging from zero to 41 (Charlson, Pompei, Ales, & MacKenzie, 1987); having fewer or lower-risk chronic conditions translates into a lower Charlson score, which is in turn correlated with lower risk of death.[31] In Figure 5-4, we report the predicted likelihood that Veterans and non-Veterans have multiple co-morbid or co-occurring conditions based on the Charlson Comorbidity Index. We found that Veterans' and non-Veterans' health had similar index values. This finding holds when we use an indicator of having a Charlson Comorbidity Index greater than one rather than the index value (see Table C-7).

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[31] The 16 Charlson conditions included in our index are as follows (points/weights in parentheses): myocardial infarction (1), congestive heart failure (CHF) (1), peripheral vascular disease (1), cerebrovascular disease (1), COPD (1), dementia (1), paralysis (1), diabetes (1), chronic renal failure (2), mild liver disease (1), moderate/severe liver disease (3), ulcers (1), rheumatic disease (1), malignant cancer (3), metastatic carcinoma (6), and human immunodeficiency virus (HIV)/acquired immune deficiency syndrome (AIDS) (6).

Figure 5-4. Adjusted Means of Disease Burden Measures for Veterans and Non-Veterans

SOURCE: RAND analysis of MEPS, 2006–2012.

NOTES: ** indicates a statistically significant difference between Veterans and non-Veterans at p-value < 0.05. Sample size, non-Veterans = 150,225, and sample size, Veterans = 12,313. Sample sizes may be smaller for some conditions due to missing values. Predicted or adjusted means were obtained from estimating logistic regressions with the following additional covariates included: sex (male is the omitted category), five race/ethnicity categories, 14 age categories, four Census regions, an MSA indicator, and year fixed effects using the margins command in Stata treating Veterans as though they had similar observable characteristics as civilians. The Charlson Comorbidity Index model was estimated using a Poisson regression.

To assess the extent to which Veterans and non-Veterans differ in disease burden, we also examined adjusted differences in functional status. Measures of functional status included the ability to perform self-care tasks, such as bathing and dressing—that is, activities of daily living (ADLs)—and the ability to complete tasks necessary for living independently, including housework, using the phone, and buying groceries—that is, instrumental activities of daily living (IADLs). Veterans were less likely to need assistance with one or more ADLs or with one or more IADLs relative to non-Veterans. Although it may seem counterintuitive, our finding that Veterans are less likely to report an ADL or IADL limitation than non-Veterans is consistent with other studies using data from the Census and the Panel Study of Income Dynamics. For example, one study reported that although Veterans were more likely to have *any* type of disability or limitation, they were less likely to have a memory, personal care (similar to ADL measure), mobility, or work (precluding) disability than non-Veterans (Wilmoth, London, & Parker, 2011). Another study found that non-combat Veterans actually have significantly lower rates of disability than both non-Veterans and combat Veterans (MacLean, 2010). We are unable to distinguish between non-combat and combat Veterans in the MEPS data, but if our sample contains a disproportionate share of non-combat Veterans, this could also explain why we find lower rates of ADL and IADL limitations.

Finally, we investigated adjusted differences in comorbid mental health, the likelihood of having both a mental health diagnosis and any other diagnosis or limitation. Specifically, we estimated whether Veterans were more or less likely to have a mental health diagnosis and

(1) any of the 16 Charlson conditions, (2) any of the other 29 conditions we examined in preparing this section (see Table C-2 for the full list), (3) any ADL limitation, or (4) any IADL limitation. We found that Veterans were nearly 3 percentage points more likely than non-Veterans to have a diagnosed mental health condition and any of the 29 other conditions we examined in this section, but there were no other statistically significant differences. We report these results in Figure 5-5.

Figure 5-5. Adjusted Means of a Comorbid Mental Health Condition (Mental Health Condition + Another Condition/Limitation) for Veterans and Non-Veterans

SOURCE: RAND analysis of MEPS, 2006–2012.
NOTES: ** indicates a statistically significant difference between Veterans and non-Veterans at p-value < 0.05. Sample size, non-Veterans = 150,225, and sample size, Veterans = 12,313. Sample sizes may be smaller for some conditions due to missing values. Predicted or adjusted means were obtained from estimating logistic regressions with the following additional covariates included: sex (male is the omitted category), five race/ethnicity categories, 14 age categories, four Census regions, an MSA indicator, and year fixed effects using the margins command in Stata treating Veterans as though they had similar observable characteristics as civilians.

Our findings are consistent with previous literature that suggests that, compared with non-Veterans, Veterans have worse overall health and higher rates of many health conditions. For instance, male Veterans ages 45–54 are significantly more likely to report being in fair or poor health and to report serious psychological distress than non-Veteran males (Kramarow, 2012). Other studies have suggested that Veterans tend to consume more alcohol, are more likely to smoke, and are less likely to exercise (Bohnert et al., 2012; Centers for Disease Control and Prevention, 2014b; Lehavot, Hoerster, Nelson, Jakupcak, & Simpson, 2012).[32]

We assessed the robustness of our findings that the prevalence of many chronic conditions is higher among Veterans than non-Veterans by carrying out similar analyses of BRFSS and NHIS

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[32] One exception is that our estimates, using BRFSS (2013), show that Veterans are *more* likely to have exercised in the past 30 days (see Appendix C.3.3.3).

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under both the basic model and alternative specifications (Appendix C.3). Results from BRFSS and NHIS corroborate findings from analysis of MEPS data.

5.3.4 Heterogeneity by Demographic Characteristics

As discussed, there are significant differences in the health care needs of Veterans and non-Veterans, some of which can be explained by differences in demographic characteristics. In this section, we examine the extent to which diagnosed disease prevalence rates differ across Veterans and non-Veterans within a given age, sex, or race/ethnicity category. In Figure 5-6, we illustrate how differences in the prevalence of chronic conditions between Veterans and non-Veterans vary by age. The selected conditions are those for which the overall prevalence for Veterans is statistically higher than the prevalence for non-Veterans and for which there is evidence that the difference varies across age groups. Asthma exhibits similar patterns for both Veterans and non-Veterans, except that it is slightly lower for younger Veterans (< 45 years). Differences in diagnosed disease prevalence across Veterans and non-Veterans across age categories reflect both the changing relative health status with age and differences by service cohort, which is highly correlated with age. The lower prevalence of asthma observed among younger Veterans is consistent with the physical requirements for enlisting in the military (Boyle, 2014). The difference in the prevalence of cancer between Veterans and non-Veterans is statistically higher for those 65 and older, but not in younger age groups. The difference in the prevalence of COPD appears to grow with age, but the trend is not statistically significant. For PTSD, the difference in prevalence (statistically significant) is highest for the 20–34 age-group, and it decreases for the 35–44 and 55–64 cohorts.

We also found differences in disease prevalence by sex, race/ethnicity, and geographic area of residence (see Appendix C.2.1, Tables C-9 and C-10 for the full set of results). Among men, diagnosed disease prevalence rates are typically greater for Veterans relative to non-Veterans, whereas this is not consistently the case among women. For most health conditions, the prevalence rates are similar across race/ethnicity groups. We observe differences for cancer and mental health conditions, including PTSD. Veterans living in a metropolitan area tended to have greater diagnosed disease prevalence rates relative to their non-Veteran counterparts for most conditions. Whether these differences exist because access to care may be different across rural and urban areas or because sicker Veterans needing care may live in urban areas is unclear.

Figure 5-6. Prevalence of Selected Diagnosed Health Conditions for Veterans and Non-Veterans, by Age
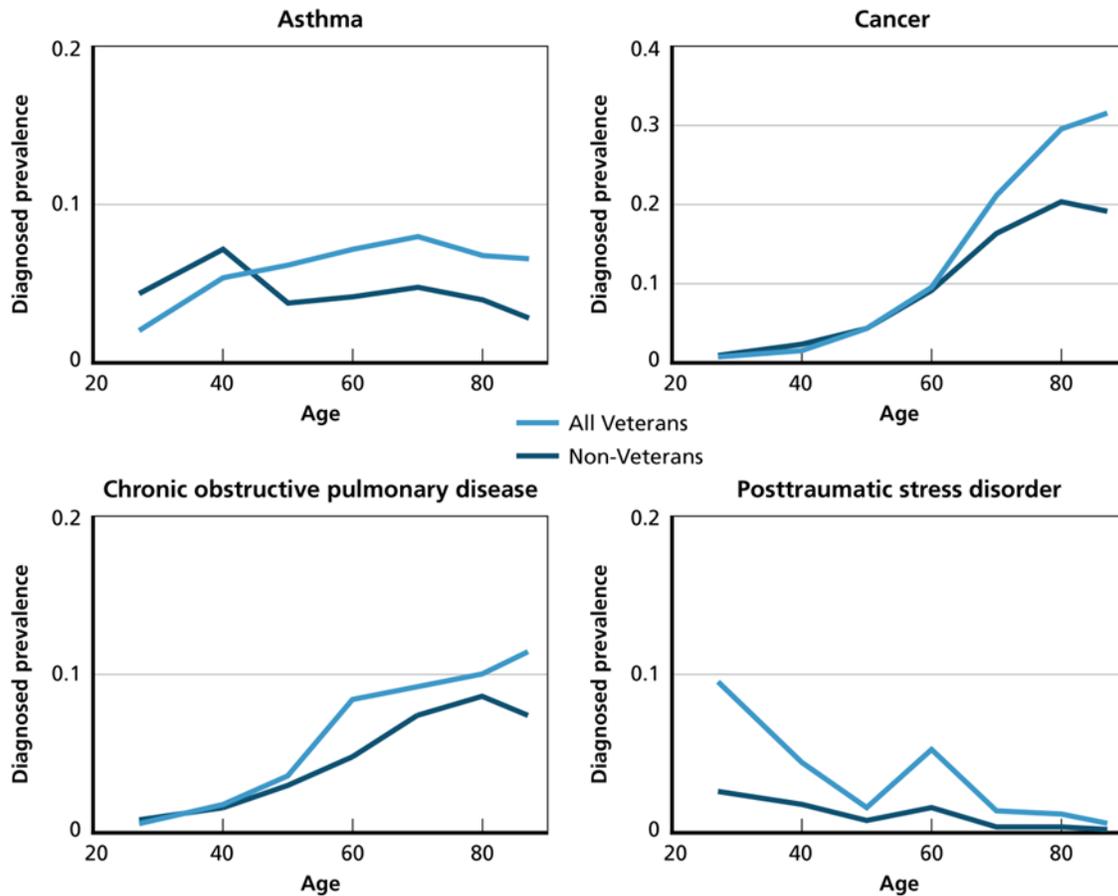
SOURCE: RAND analysis of MEPS, 2006–2012.
NOTES: Sample size, non-Veterans = 150,225, and sample size, Veterans = 12,313. Sample sizes may be smaller for some conditions due to missing values. The adjusted prevalence rates are the predicted prevalence from a logit estimation that included indicators for sex, five race/ethnicity categories, seven age categories, four Census regions, residential location in an MSA, and a nonlinear time trend. These estimated differences control for the demographic differences between Veterans and non-Veterans and across age groups. Cancer includes any malignancy.

Previous studies have suggested that while the overall difference in unemployment rates for Veterans and non-Veterans is similar, there is notable variation by era of services and age; for example, 59 percent of unemployed Veterans are younger than 45 (Bureau of Labor Statistics, 2015). Veterans, accounting for approximately 10 percent of the adult population, represent a disproportionate share of the homeless adult (16 percent) and sheltered homeless adult (13 percent) populations (National Center for Veterans Analysis and Statistics, 2012b). Thus, we considered whether poverty, income, and employment status were associated with differences in prevalence of health conditions between Veterans and non-Veterans (Table C-11). We used the MEPS categorical measure of poverty based on family income as a percentage of the poverty line (poor or negative income, near poor, low income, middle income, and high income). In Figure 5-7, we show that unemployed Veterans tend to have higher prevalence rates of most conditions relative to unemployed non-Veterans, but employed Veterans also

tend to have greater disease prevalence relative to their employed non-Veteran counterparts. The figure presents the results for mental health and PTSD. The prevalence of any mental health condition and PTSD were higher by approximately 4 percentage points for Veterans who were categorized as poor based on family income.

Figure 5-7. Difference in the Prevalence of Diagnosed Health Conditions for Veterans and Non-Veterans: Vulnerable Populations
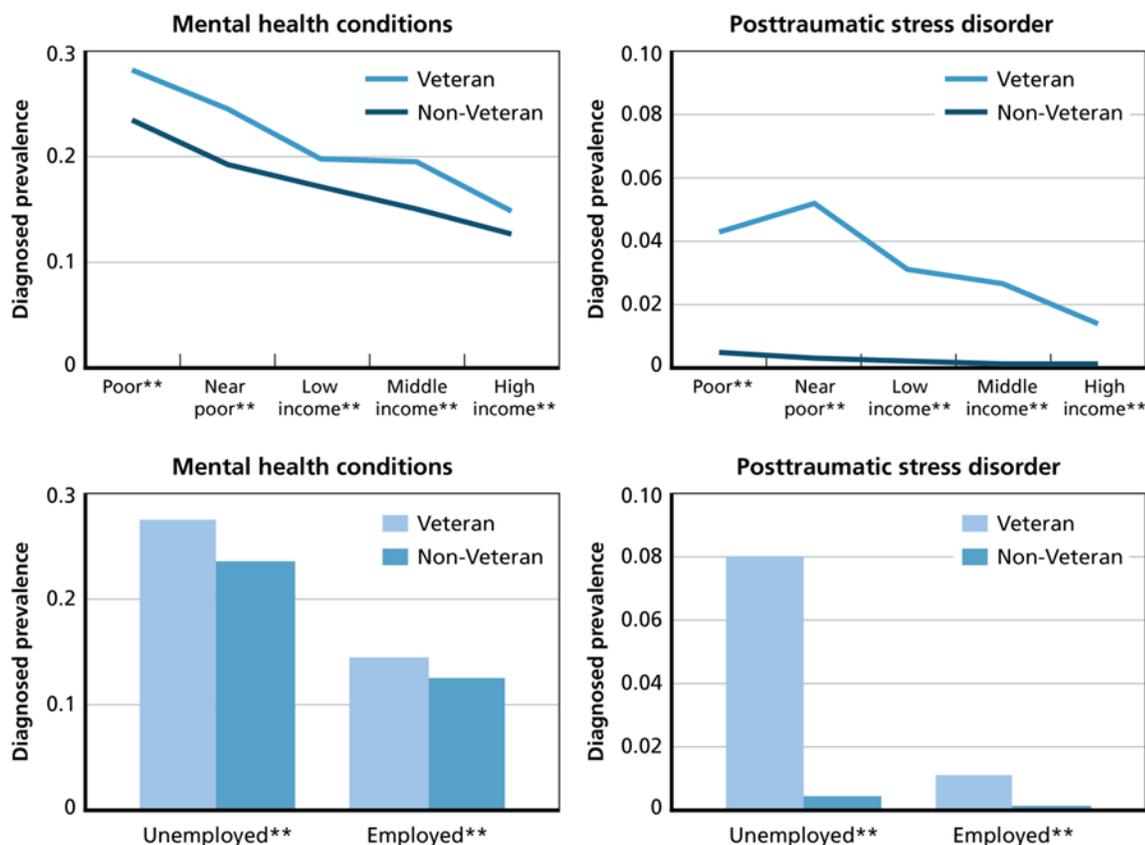
SOURCE: RAND analysis of MEPS, 2006–2012.
NOTES: ** indicates a statistically significant difference between Veterans and non-Veterans at p-value < 0.05. Sample size, non-Veterans = 150,225, and sample size, Veterans = 12,313. We use the MEPS categorical measure of poverty based on family income as a percentage of the poverty line. The adjusted prevalence rates are the predicted prevalence from a logit estimation that included indicators for sex, five race/ethnicity categories, seven age categories, four Census regions, residential location in an MSA, and a nonlinear time trend. These estimated differences control for the demographic differences between Veterans and non-Veterans and across age groups.

Using NHIS data, we investigated the extent to which there were significant differences in financial insecurities for Veterans and non-Veterans. Specifically, we examined the differences in the probability of being moderately to severely worried about paying bills, health care costs, and housing costs, and in participation in the Temporary Assistance for Needy Families program for Veterans and non-Veterans. Generally, the probability of being moderately to severely worried about financial insecurities was lower for Veterans than non-Veterans (Panel A of Table C-12). These findings persisted when we focused on those individuals reporting any chronic

condition (Panel B of Table C-12) or a health problem requiring special equipment (Panel C of Table C-12).

5.3.5 Prevalence of Rare Health Conditions and Other Risks Among Veterans

Due to the relatively small sample size of Veterans in MEPS, we could not include rare conditions in our analysis. To fill this gap in the preceding analysis, we briefly discuss the results of other studies to provide a more complete picture of the unique health care needs of Veterans; of note, the studies did not compare prevalence rates between Veterans and non-Veterans, so we cannot comment on whether these conditions disproportionately affect Veterans.

We highlight injuries and conditions that are more likely to be prevalent among Veterans due to their association with military service. The unique nature of combat in Afghanistan and Iraq, including improvised explosive devices, is associated with severe combat injuries, including amputation, burns, spinal cord injury, and TBI. The survival of injured Afghanistan and Iraq Veterans is approximately 90 percent, due in part to improvements in medical care and protective gear (Golding, 2011). The prevalence of serious injuries remains low; however, these Veterans have complex long-term health care needs.[33] From 2001 to 2010, there were approximately 1,500 amputations among service members who served in Afghanistan, Iraq, and unaffiliated conflicts, 1,200 of which were major limb amputations (Fischer, 2010). TBI has been labeled a "signature injury" for the Afghanistan and Iraq conflicts (Taylor et al., 2012), and while there may be a deployment-related risk for experiencing a TBI (such as being exposed to blast explosions), service members may also experience a TBI in non-deployed settings. Between 2000 and 2014, more than 300,000 service members were diagnosed with TBI (U.S. Defense and Veterans Brain Injury Center, 2014). TBI frequently occurs in conjunction with polytrauma and other disabling conditions, such as amputation, burns, spinal cord injury, auditory and visual damage, spinal cord injury, and PTSD.[34] Based on an analysis of VHA administrative data from 2004 to 2009, approximately 5 percent of Veterans treated by VA were diagnosed with both PTSD and TBI. This polytrauma occurred in 75 percent of diagnosed TBI cases and in approximately 20 percent of diagnosed PTSD cases (Congressional Budget Office, 2012).

Medically unexplained illnesses—also referred to as "chronic multisymptom illness" and formerly known as Gulf War Syndrome—are a critical concern for many Veterans who served during the 1990–1991 Gulf War. Medically unexplained illnesses involve a cluster of medically

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[33] Several DoD databases record information on battlefield injuries or medical care that is delivered in theater that would allow for a study of the type of care that is needed for patients who would not have survived their injuries in previous conflicts. However, examination of these sources was beyond the scope of this analysis. In some cases, additional clinical work would be required to determine whether the patient would have died from injuries in previous conflicts. In all cases, data constraints in this particular study prohibited a linked analysis of theater records with subsequent care delivered by VA. For instance, DMDC maintains data on casualties that occurred during the conflicts in Iraq and Afghanistan. Joint Trauma System also maintains a DoD Trauma Registry that contains information on health care delivered to trauma cases in theater.

[34] Polytrauma occurs when a person experiences injuries to multiple body parts and organ systems, often as a result of a blast.

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unexplained chronic symptoms—such as fatigue, headaches, joint pain, indigestion, insomnia, dizziness, respiratory disorders, and memory problems—that Veterans attribute to their deployment (Institute of Medicine of the National Academies, 2014a). Survey data from 1999 and 2001 showed a prevalence of 28.9 percent of Veterans deployed during the Gulf War period, compared with a prevalence of 15.8 percent among Veterans who were not deployed (Blanchard et al., 2006).There are also several diseases that warrant special attention among Veterans. In 2011, VA cared for more than 25,000 Veterans with HIV/AIDS (U.S. Department of Veterans Affairs, 2012), and VA is the nation's largest single provider of HIV health care (U.S. Department of Veterans Affairs, 2011). Wang et al. (2015) found a total of 25,648 VA users ages 18–64 who had been diagnosed with HIV from 2007–2012, of which 11,371 had not been previously treated with anti-retroviral therapy. Chronic hepatitis C, caused by the hepatitis C virus, is a recognized public health issue among Veterans (Zuniga, Chen, Lane, Allmer, & Jimenez-Lucho, 2006). Among the 5.6 million Veterans accessing care in the VA system in 2008, prevalence was 2.6 percent (Office of Public Health and Environmental Hazards, 2010).

Suicide and substance abuse are two important risks for the Veteran population. Suicide risk is elevated for those who have participated in military service, particularly for males, who are at a higher risk of suicide compared with non-Veterans in all age groups except the oldest (Kaplan, McFarland, Huguet, & Valenstein, 2012). A population-based study of pre-9/11 male Veterans also found that Veterans were at an increased risk of suicide compared with non-Veterans (Kaplan, Huguet, McFarland, & Newsom, 2007). Veterans engage in higher rates of alcohol use than civilians. The prevalence of heavy drinking (consuming on average at least 15 drinks per week in the prior year) and smoking is higher among Veterans ages 25–74 compared with non-Veterans (Centers for Disease Control and Prevention, 2014b, 2015; Lehavot et al., 2012).

5.4 Current Health Care Needs of Veterans, by VA Patient Status

Veterans' use of VA health care depends on many factors, including service experience, socioeconomic status, and health insurance options. This section considers how VA patients[35] differ from other Veterans in their health care needs to understand current demand for VA health care services and to project the health care needs of the VA patient population through 2024. As in Section 5.3, we present estimates of the prevalence of selected health conditions using the most recent data available, and most of the results reported here use ICD-9 diagnosis codes in MEPS data to determine each individual's health conditions, which may underestimate

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[35] VA patients are Veterans identified in MEPS as having any health care expenditures paid for by VA or the Civilian Health and Medical Program of the Department of Veterans Affairs (CHAMPVA). Medical expenditures in the MEPS data are derived from both household survey information and information provided from the medical provider component (if available). They include direct payments for care provided during the year (payments both out of pocket and by insurance or other sources). As noted, the medical provider component includes data collected from a sample of office-based visits to physicians, hospital visits, and prescription drugs. If this information was incomplete or a respondent did not consent to contacting providers, then expenditures were based on household reports. In this analysis, we denote Veterans (honorably discharged and not on active military duty) who have any medical expenditures paid for by the "Veterans Administration/CHAMPVA, excluding TRICARE (VA)" as "VA patients." For more details on the expenditure data in MEPS, see Medical Expenditure Panel Survey, 2014, Section 2.5.11.

prevalence among respondents with limited access to health care. We supplement the MEPS analysis with analysis of VA encounter data and MHS encounter data. Like MEPS, VA encounter data do not include information about service era.[36] We cannot address differences in health care needs by service-connected disability using MEPS, but we do provide results by priority group using VA encounter data. A limitation of the estimates using VA encounter data is that many Veterans use non-VA providers of health care services. The VA administrative data include only conditions diagnosed or treated at VA, so comorbidity analysis would be difficult to interpret.

5.4.1 Demographic Differences by VA Patient Status

There are some differences in the demographic composition of the VA patient population and the population of Veterans who do not use VA services. Most notably, the VA patient population is older, as seen in Figure 5-8. The difference in the proportion of VA patients and non-VA patients in each age group is statistically different in all but the 55–64 age group. We briefly highlight the key findings here, but we report differences across other demographic characteristics in Appendix C.2.3, Table C-18. The percentage of VA patients who are male (94 percent) is not statistically different from the percentage of non-VA patients who are male (93 percent). The percentage of the VA patient population that is black (non-Hispanic) is slightly higher and the percentage that is Asian is slightly lower than the non-VA patient population. It is unlikely that differences in disease prevalence by race/ethnicity or sex are driving the large differences in the disease prevalence by VA patient status.

**Figure 5-8. Age Distribution of Veterans, by VA Patient Status**

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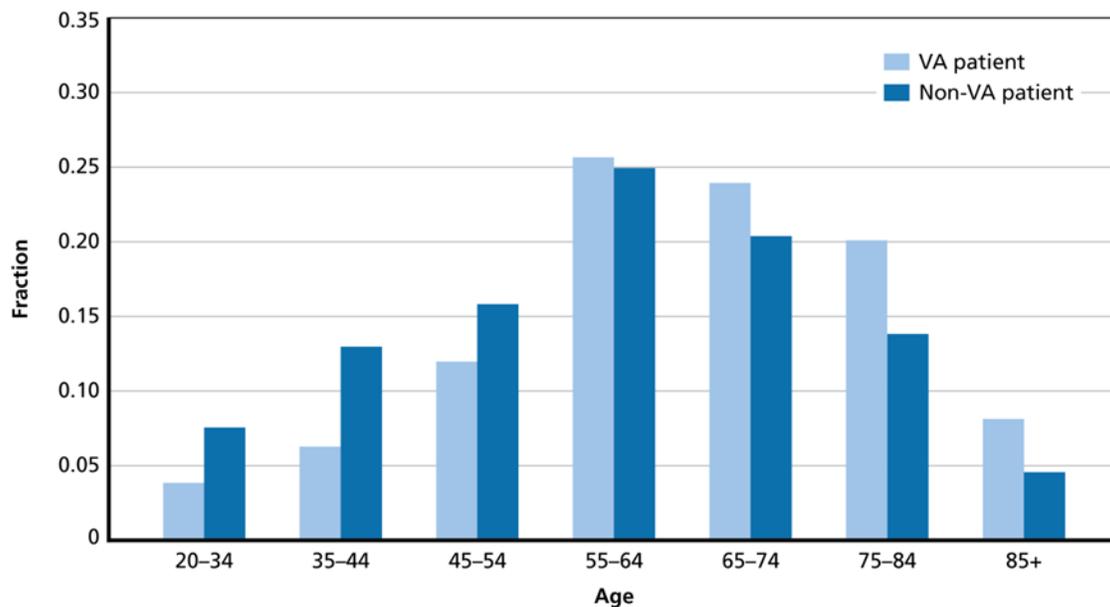
[36] MEPS began including service era in 2011; however, the Veteran and VA patient samples sizes for 2011 forward were not large enough for this analysis.

SOURCE: RAND analysis of MEPS, 2006–2012.
NOTES: Sample size, VA patients = 4,871, and sample size, non-VA patients = 7,442. Sample sizes may be smaller for some conditions due to missing values.

Differences in demographic characteristics may explain some proportion of the unadjusted differences in health care needs between Veterans and non-Veterans. Following our earlier analyses comparing Veterans and non-Veterans, we adjusted prevalence rates for VA patients and non-VA patient Veterans to account for these demographic differences.

There are also differences in the socioeconomic characteristics of VA patients and non-VA patients that may be related to diagnosed disease prevalence (Table 5-2). VA patients are older, have lower incomes, are less likely to be employed, and are less likely to be married than Veterans who do not use VA health care.

Table 5-2. Socioeconomic Characteristics of Veterans by VA Patient Status, 2006–2012

Characteristic	Veterans, VA Patients	Veterans, Non-VA Patients
Over age 65	52.2%	38.7%
Married	62.6%	68.0%
Less than high school education	9.1%	5.8%
Employed*	41.3%	62.8%
Average household income	$35,981	$45,278

SOURCE: RAND analysis of MEPS, 2006–2012.
NOTES: Veterans, VA patients and Veterans, non-VA patients are mutually exclusive categories. Sample size, VA patients = 4,871, and sample size, non-VA patients = 7,442.
* Non-employed individuals include both people who are unemployed and people who are out of the labor force, such as retirees.

5.4.2 Prevalence of Health Conditions of Veterans, by Use of VA Health Care Services

The results from the previous subsection showed that the prevalence of most health conditions is higher for Veterans than for non-Veterans, even after adjusting for demographic composition of these two populations. The analysis also showed that there is variation within Veterans across some demographic characteristics, such as age. In this section, we compared diagnosed disease prevalence rates between VA patients (as defined above) and Veterans who have not had any medical expenditures paid for by VA or CHAMPVA during the past year ("non-VA patients").

In Figure 5-9 and Figure 5-10, we present the results for selected high- and low-prevalence conditions among VA patients and non-VA patients. Conditions are grouped for scaling (see Appendix C.2 for a more comprehensive list of health conditions). The unadjusted prevalence rates of diagnosed diseases are consistently statistically greater for VA patients than for non-VA

patients, both among high- and low-prevalence conditions. Among the high-prevalence health conditions differences in unadjusted diagnosed disease prevalence rates range from 7.7 to 19.5 percentage points (for cancer and hypertension, respectively). Among low-prevalence conditions, differences in unadjusted diagnosed disease prevalence rates range from 2.8 to 8.0 percentage points (for asthma and GERD, respectively).

Figure 5-9. Unadjusted Prevalence of Diagnosed High-Prevalence Health Conditions Among Veterans, by VA Patient Status

SOURCE: RAND analysis of MEPS, 2006–2012.
NOTES: ** indicates a statistically significant difference between VA patients and Veterans who are not VA patients at p-value < 0.05. Sample size, VA patients = 4,871, and sample size, non-VA patients = 7,442. Sample sizes may be smaller for some conditions due to missing values. Cancer includes any malignancy, and Mental Health includes any mental health condition.

Figure 5-10. Unadjusted Prevalence of Diagnosed Lower-Prevalence Health Conditions Among Veterans, by VA Patient Status
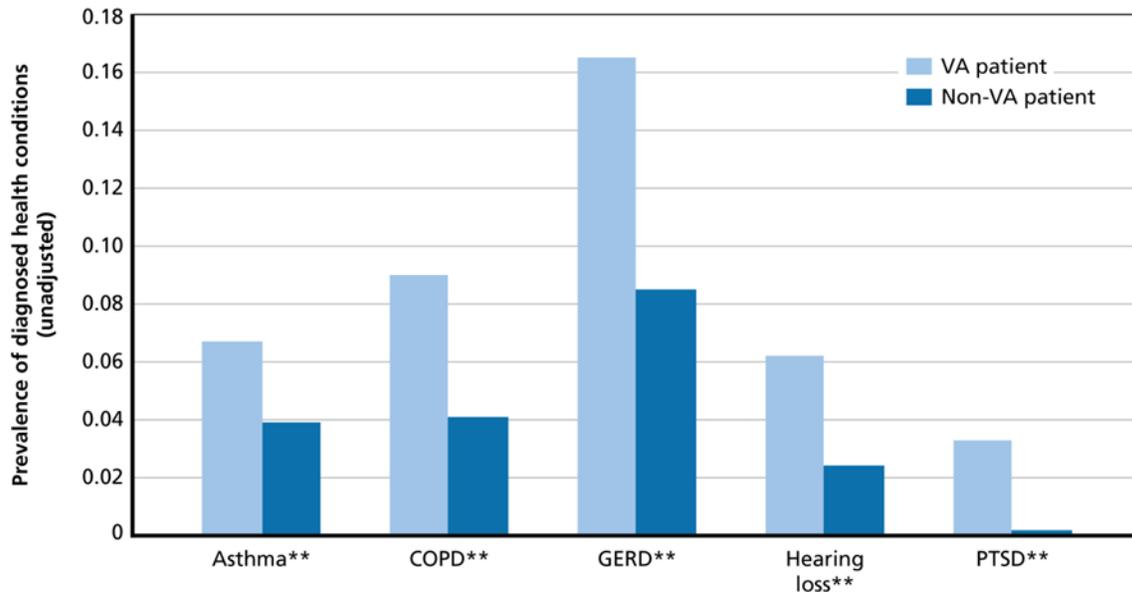
SOURCE: RAND analysis of MEPS, 2006–2012.
NOTES: ** indicates a statistically significant difference between VA patients and Veterans who are not VA patients at p-value < 0.05. Sample size, VA patients = 4,871, and sample size, non-VA patients = 7,442. Sample sizes may be smaller for some conditions due to missing values.

In the next subsections, we examine the extent to which differences in the demographic characteristics of VA and non-VA patients are driving these results.

5.4.3 Prevalence of Health Conditions, by VA Patient Status, Adjusted for Demographic Differences

As noted in Section 5.4.1, VA patients tend to have greater unadjusted rates of diagnosed diseases relative to Veterans who are not VA patients. Because use of VA health care services may be correlated with key demographic characteristics, we estimated disease prevalence for Veterans who are VA patients and for those who do not use VA services, adjusting for age, sex, race/ethnicity, geographic residence, and time trends (as described for comparisons of Veterans and non-Veterans in Section 5.3.2). Again, we refer to this estimation specification as Model 1.

We present predicted prevalence rates for several key conditions in Figures 5-11 and 5-12, grouped by prevalence level for scale (see Table C-13 for full results). In general, adjusting for demographic characteristics reduced the differences in prevalence rates between VA and non-VA patients, but VA patients still appear to have significantly greater rates of diagnosed diseases. Among high-prevalence conditions, the differences in prevalence rates among VA and non-VA patients range from 5.0 to 16.6 percentage points (for cancer and any mental health condition, respectively). Among low-prevalence conditions, the differences in prevalence rates

range from 3.8 to 8.2 percentage points (for hearing loss and PTSD, respectively). The predicted prevalence of chronic conditions that are potentially related to military service for Veterans exposed to Agent Orange is higher for VA patients (U.S. Department of Veterans Affairs, 2015f).

Figure 5-11. Adjusted Prevalence of Diagnosed High-Prevalence Health Conditions Among Veterans, by VA Patient Status

SOURCE: RAND analysis of MEPS, 2006–2012.

NOTES: ** indicates a statistically significant difference between VA patients and Veterans who are not VA patients at p-value < 0.05. Sample size, VA patients = 4,871, and sample size, non-VA patients = 7,442. Sample sizes may be smaller for some conditions due to missing values. The adjusted prevalence rates are the predicted prevalence rates from a logit estimation that included indicators for sex, five race/ethnicity categories, 14 age categories, four Census regions, residential location in an MSA, and a nonlinear time trend. VA patient status is defined as having any expenditures paid by VA at the person, not condition, level. Cancer includes any malignancy, and Mental Health includes any mental health condition.

Figure 5-12. Adjusted Prevalence of Diagnosed Lower-Prevalence Health Conditions Among Veterans, by VA Patient Status

SOURCE: RAND analysis of MEPS, 2006–2012.
NOTES: ** indicates a statistically significant difference between VA patients and Veterans who are not VA patients at p-value < 0.05. Sample size, VA patients = 4,871, and sample size, non-VA patients = 7,442. Sample sizes may be smaller for some conditions due to missing values. The adjusted prevalence rates are the predicted prevalence rates from a logit estimation that included indicators for sex, five race/ethnicity categories, 14 age categories, four Census regions, residential location in an MSA, and a nonlinear time trend. VA patient status is defined as having any expenditures paid by VA at the person, not condition, level.

There are several potential factors that may drive the differences in prevalence rates between VA patients and Veterans who do not use VA health care. First, Veterans who use VA health care services may be sicker than Veterans who do not use VA health care. Second, Veterans may be more likely to seek out and use VA health care services if they have health conditions that they believe VA is better equipped to treat, such as PTSD. Finally, VA providers may diagnose some conditions, particularly those that are service-connected, at a higher rate than other health care providers.

We examined the sensitivity of our Model 1 findings by including additional individual-level characteristics, including marital status, educational attainment (four categories), current student status, current employment status, health insurance coverage, and interactions of sex and race/ethnicity (full results are available in Table C-27). Again, we refer to this more detailed estimation specification as Model 2. The gap between VA patients and non-VA patients closes for most conditions using Model 2, except for cerebrovascular disease and lipid disorder, for which the gap widens slightly, and for cancer, hearing loss, and hypertension, for which the prevalence gap remains the same. The largest decrease in gap is observed in the prevalence of any mental health condition, followed by PTSD. Health insurance coverage was associated with a higher prevalence of most conditions, though many of the differences were not statistically different from zero. Having a college degree was associated with lower prevalence rates, particularly for COPD, hypertension, and IHD.

We examined the extent to which VA patients have greater disease burden, as measured by the Charlson Comorbidity Index and the presence of a limitation in IADLs (Figure 5-13). Due to sample size limitations, we were unable to estimate differences in the presence of ADLs across VA and non-VA patients. VA patients were more likely to have at least one Charlson condition and one IADL limitation relative to non-VA patients. Full results are available in Appendix C.2. We also found that VA patients are more likely to have a comorbid mental health condition (Figure 5-14).

Figure 5-13. Adjusted Means of Disease Burden Measures for Veterans, by VA Patient Status
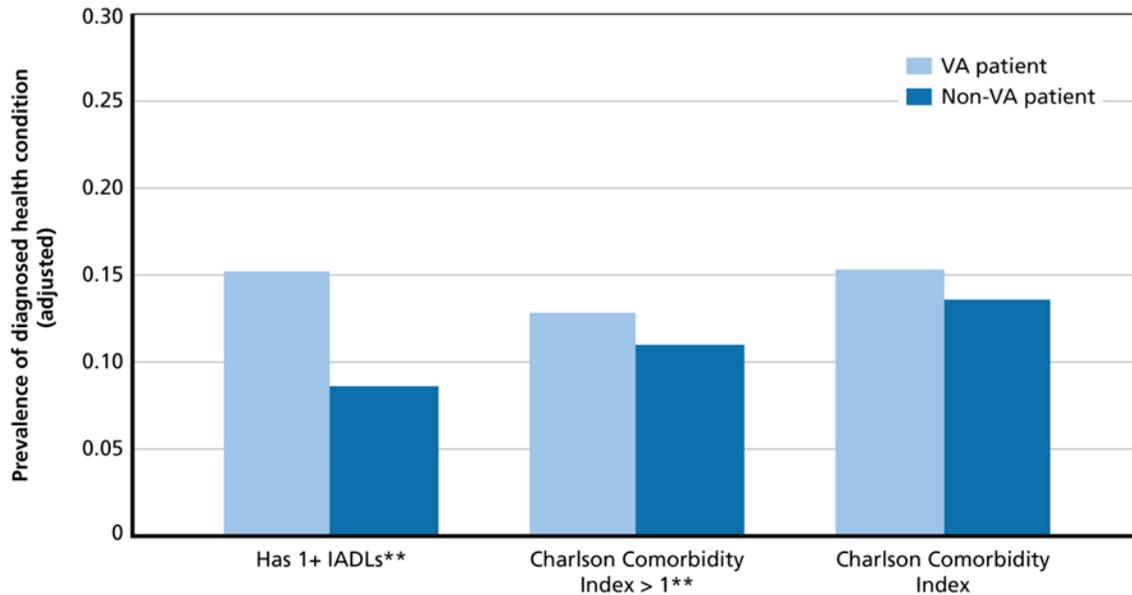
SOURCE: RAND analysis of MEPS, 2006–2012.
NOTES: ** indicates a statistically significant difference between VA patients and Veterans who are not VA patients at p-value < 0.05. Sample size, VA patients = 4,871, and sample size, non-VA patients = 7,442. Sample sizes may be smaller for some conditions due to missing values. The adjusted prevalence rates are the predicted prevalence rates from a logit estimation that included indicators for sex, five race/ethnicity categories, 14 age categories, four Census regions, residential location in an MSA, and a nonlinear time trend. VA patient status is defined as having any expenditures paid by VA at the person, not condition, level.

Figure 5-14. Adjusted Means of Comorbid Mental Health Condition (Mental Health Condition + Another Condition/Limitation) for Veterans, by VA Patient Status

SOURCE: RAND analysis of MEPS, 2006–2012.

NOTES: ** indicates a statistically significant difference between VA patients and Veterans who are not VA patients at p-value < 0.05. Sample size, VA patients = 4,871, and sample size, non-VA patients = 7,442. Sample sizes may be smaller for some conditions due to missing values. The adjusted prevalence rates are the predicted prevalence rates from a logit estimation that included indicators for sex, five race/ethnicity categories, 14 age categories, four Census regions, residential location in an MSA, and a nonlinear time trend. VA patient status is defined as having any expenditures paid by VA at the person, not condition, level.

5.4.4 Heterogeneity by Demographic Characteristics

As noted, Veterans who use VA health care services have many health care needs that are distinct from those of Veterans who do not use VA health care services. This section explores how VA patients' health conditions vary by demographic characteristic and how the differences vary by demographic characteristic, including age, sex, and race/ethnicity.

In Figure 5-15, we present adjusted diagnosed disease prevalence for VA patients and for non-VA patient Veterans by age category for diabetes, hypertension, hearing loss, and PTSD (full results are in Tables C-16 and C-17, respectively). The changes in diagnosed disease prevalence of diabetes, hypertension, and hearing loss across the age distribution are similar for both VA and non-VA patients. Veterans using VA services, however, tend to be diagnosed with PTSD at significantly greater rates than non-VA patients, particularly at younger ages and between ages 55 and 64. Given that MEPS data cover 2006 to 2012, these ages align with service in the post-9/11 and Vietnam eras.

Figure 5-15. Prevalence of Selected Diagnosed Conditions Among Veterans, by VA Patient Status and Age
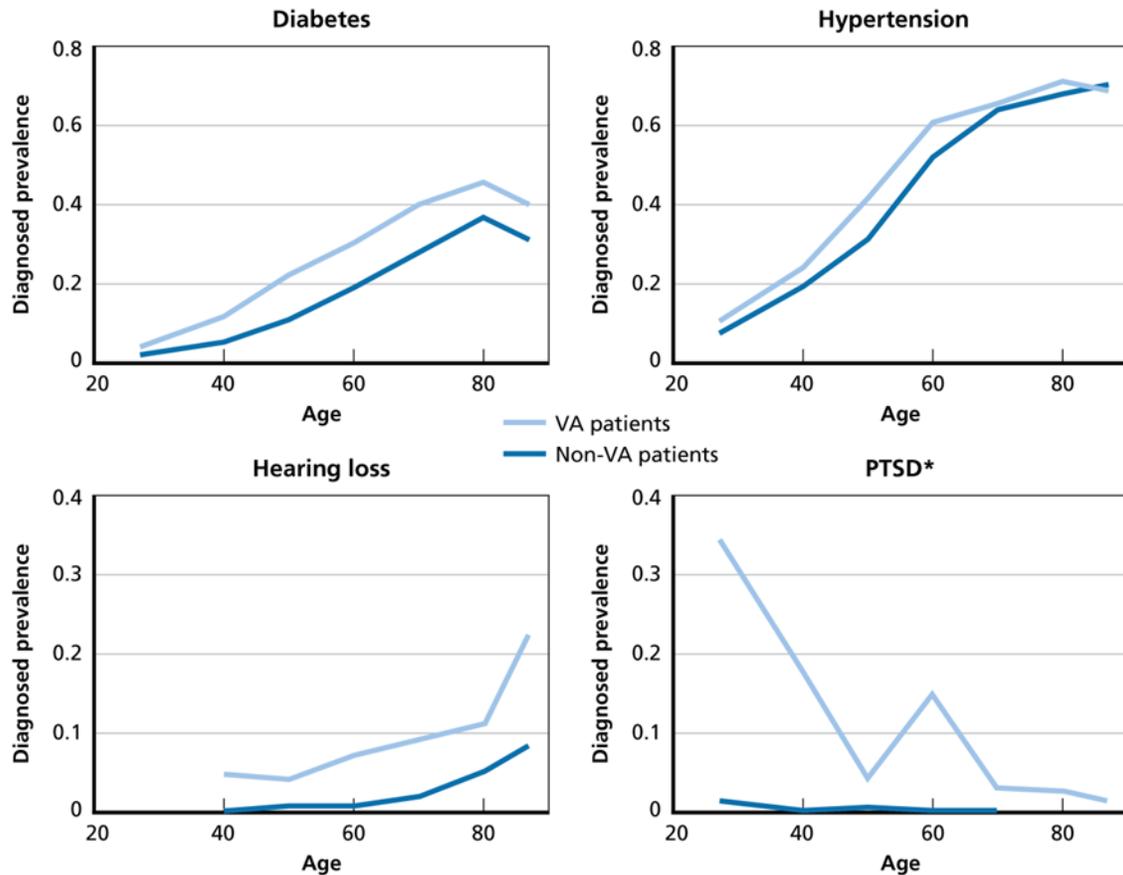
SOURCE: RAND analysis of MEPS, 2006–2012.

NOTES: Sample size, VA patients = 4,871, and sample size, non-VA patients = 7,442. Sample sizes may be smaller for some conditions due to missing values. The adjusted prevalence rates are the predicted prevalence rates from a logit estimation that included indicators for sex, five race/ethnicity categories, 14 age categories, four Census regions, residential location in an MSA, and a nonlinear time trend. VA patient status is defined as having any expenditures paid by VA at the person, not condition, level.

* Due to sample size, prevalence of PTSD among older Veterans who are not VA patients could not be estimated.

In Appendix C.2.2, Tables C-16 and C-17 show the prevalence of differences by age, sex, and race/ethnicity. Among both women and men, VA patients consistently have higher prevalence of health conditions than non-VA patients.

5.4.5 Prevalence of Rare Health Conditions Among VA Patients

Due to the small sample size of VA patients in MEPS, we could not include rare conditions in our analysis. To fill this gap in the preceding analysis, we utilized VA encounter data to provide a more complete picture of the unique health care needs of VA patients. An important caveat is that prevalence estimates using VA encounter data only capture conditions *treated at VA*. However, as noted in Section 2, most Veterans with service-connected conditions use VA health

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care services. The unadjusted prevalence estimates using 2014 VA encounter data are presented in Figure 5-16.

Figure 5-16. VA Encounter-Based Prevalence of Diagnosed Health Conditions Among VA Patients
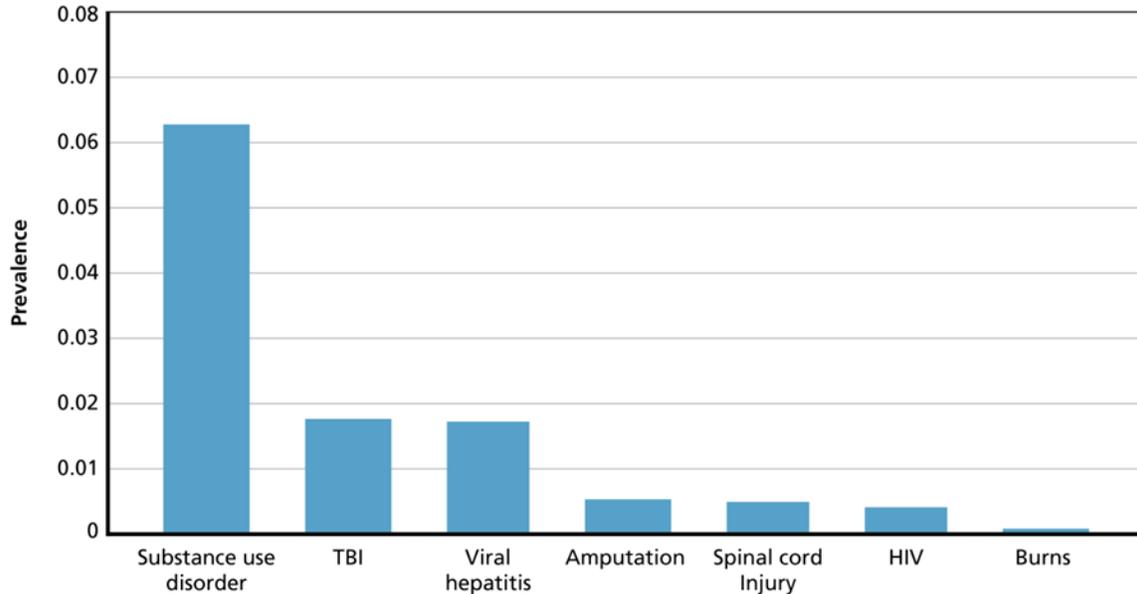
SOURCE: RAND analysis of VA encounter data (2014).
NOTES: VA encounter sample size, VA patients = 5,871,766.

5.4.6 Prevalence of Health Conditions among VA Patients, by VA Priority Group and Reliance

In this subsection, we explore the associations between the prevalence of health conditions among VA patients and the patients' interactions with VA. Specifically, we consider the prevalence of health conditions by priority group and one measure of VA reliance.

It may also be informative to understand how the health conditions of VA patients vary by priority group. Figure 5-17 shows the prevalence of selected health conditions among VA patients in 2014, by priority group (PG), and Table C-20 shows the full results. These prevalence estimates are based on VA encounter data, so they capture only the *VA-diagnosed* prevalence rates, which may be different from the total prevalence rates based on diagnosis independent of provider. The estimates show that prevalence for hypertension, diabetes, and cancer are highest among VA patients in priority group 4. This could be because these patients have higher rates of disease or because they are more reliant on VA health care services. We cannot disentangle the two. Not surprisingly, PTSD and TBI, which are highly connected to service, have the highest prevalence among VA patients in priority group 1.

Figure 5-17. VA Encounter-Based Prevalence of Diagnosed Health Conditions, by Priority Group
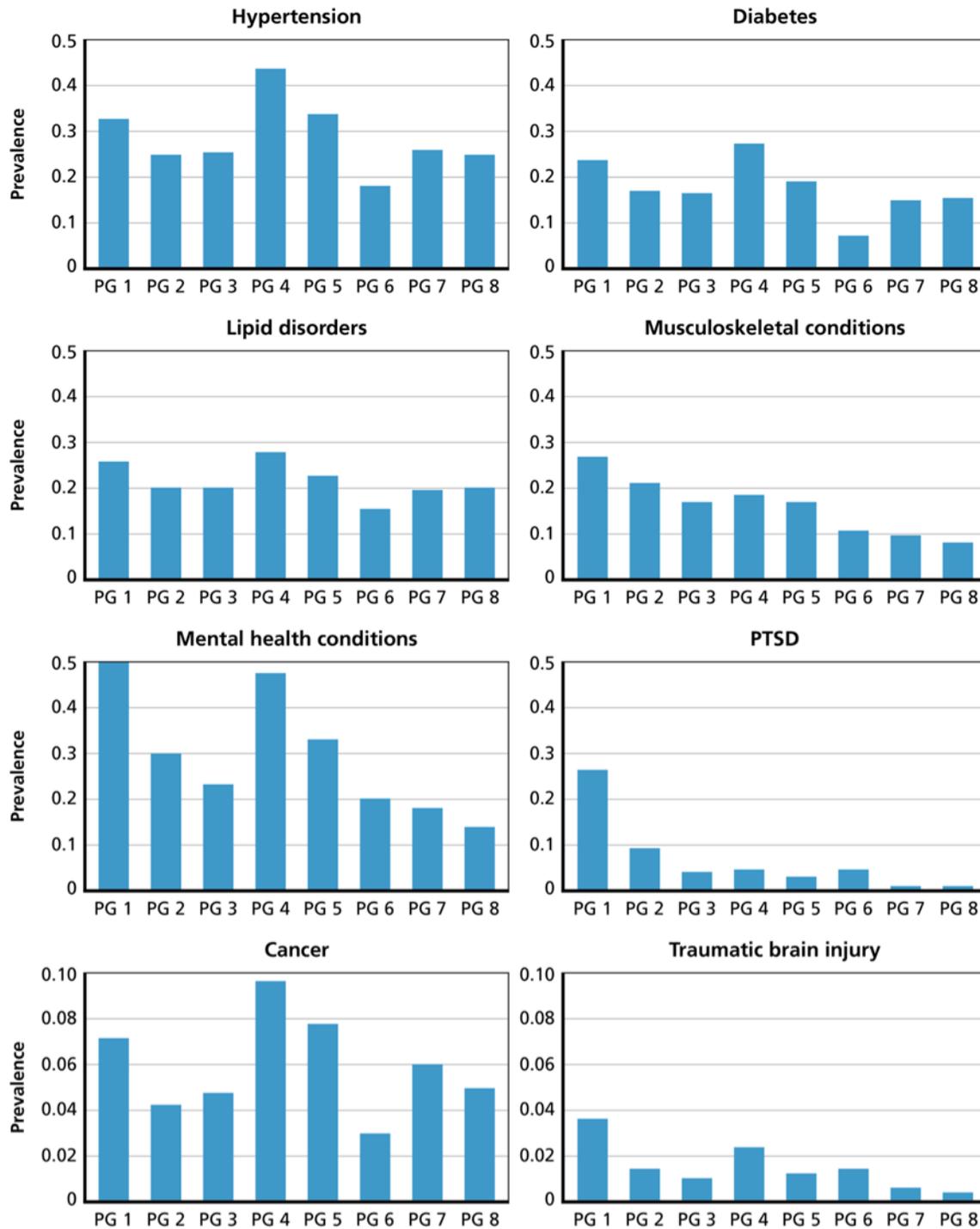
SOURCE: RAND analysis of VA encounter data (2014).
NOTES: VA encounter sample size, VA patients = 5,871,766.

In Table 5-3, we use MEPS data to explore how VA patients whose medical expenditures are paid only by VA differ from VA patients who have some health expenditures paid by other sources of health coverage (e.g., Medicare). We define VA patients as "VA reliant" if all medical expenditures, independent of provider, were VA paid or VA and self or family paid. According to our estimates using MEPS, approximately 13 percent of all VA patients can be classified as reliant. VA-reliant patients are younger than those who also use other sources of health coverage (Appendix C-21).

Due to demographic differences between the two groups, we present adjusted prevalence rates in Table 5-3. The results suggest that even after adjusting for differences in characteristics that may be related to disease prevalence, the prevalence rates for some health conditions, including diabetes, GERD, and cancer, are lower for VA-reliant patients than other VA patients. However, it is difficult to draw any inferences from these estimates because they are imprecise due to the small sample size of VA reliant patients.

Table 5-3. Prevalence of Diagnosed Health Conditions among VA Patients, by VA Reliance

Health condition	All Ages		p-value of Difference	Age < 65		p-value of Difference
	VA Reliant (13%)	VA Non-Reliant (87%)		VA Reliant (20%)	VA Non-Reliant (80%)	
Cancer	0.115 (0.026)	0.210 (0.030)	< 0.000	0.062 (0.022)	0.113 (0.039)	0.064
COPD	0.120 (0.029)	0.105 (0.024)	0.423	0.098 (0.037)	0.075 (0.030)	0.239
Diabetes	0.267 (0.037)	0.350 (0.036)	0.001	0.223 (0.047)	0.288 (0.051)	0.035
GERD	0.116 (0.025)	0.180 (0.032)	0.003	0.110 (0.033)	0.158 (0.044)	0.072
Hearing Loss	0.093 (0.031)	0.092 (0.024)	0.971	0.071 (0.045)	0.085 (0.037)	0.566
Mental Health Conditions	0.273 (0.037)	0.321 (0.036)	0.050	0.358 (0.055)	0.411 (0.055)	0.107
PTSD	0.081 (0.025)	0.078 (0.022)	0.821	0.119 (0.039)	0.118 (0.038)	0.973

SOURCE: RAND analysis of MEPS, 2006–2012.

NOTES: ** indicates a statistically significant difference between VA-reliant patients and VA non-reliant patients at p-value < 0.05. Sample size, VA patients = 4,871; VA-reliant patients = 740; VA non-reliant patients = 4,131. A VA patient is considered reliant if all medical expenses in the year were VA and family/self-paid. A VA patient is considered non-reliant if he or she has some medical expenses paid by a non-VA health insurance source. The adjusted prevalence rates are the predicted prevalence rates from a logit estimation that included indicators for sex, five race/ethnicity categories, 14 age categories, four Census regions, residential location in an MSA, and a nonlinear time trend. VA patient status is defined as having any expenditures paid by VA at the person, not condition, level.

5.4.7 Health Care Needs of Recently Separated Veterans and VA Patients

The preceding analysis indicates that Veterans who become VA patients have greater rates of diagnosed disease prevalence than Veterans who do not use VA health care, even after controlling for key demographic characteristics. A combination of Veteran characteristics and VA policies may lead Veterans with greater health care needs or specific health conditions to use VA health care services at higher rates than healthier Veterans.

We explored the association of specific health conditions with VA use by comparing the prevalence of health conditions among recently separated Veterans, estimated with MHS encounter data, to the prevalence of the same health conditions among VA patients, estimated with VA encounter data. We assumed that nearly all health care for active military is provided by MHS and, thus, health condition prevalence estimates based on MHS encounter data reflect the true prevalence of diagnosed health conditions in this population. We used these estimates as a benchmark to determine whether some health conditions are over- or underrepresented in VA encounters. We did not have the permissions necessary to match MHS encounter data to VA encounter data at the individual level; therefore, we compared national prevalence rates (or rates in comparable large demographic groups). To match samples from MHS and VA as closely as possible, we focused on Veterans under age 35. We further restricted the MHS sample to Veterans who separated from service in 2012 or 2013. Separation dates and VA enrollment dates are not available in the VA encounter data. A limitation of this approach is that the prevalence of age-related chronic conditions is very low for this age group, so it is difficult to discern whether Veterans with these conditions disproportionately choose to use VA health care.

Figure 5-18 shows the unadjusted prevalence of health conditions estimated separately using MHS and VA encounter data. We report results on health conditions for which there are differences in prevalence rates between MHS and VA patients and on common chronic conditions with non-zero prevalence estimates. A table with the full set of conditions is available in Appendix C.2.

Figure 5-18. Health Condition Prevalence in MHS and VA Encounter Data for Young Veterans
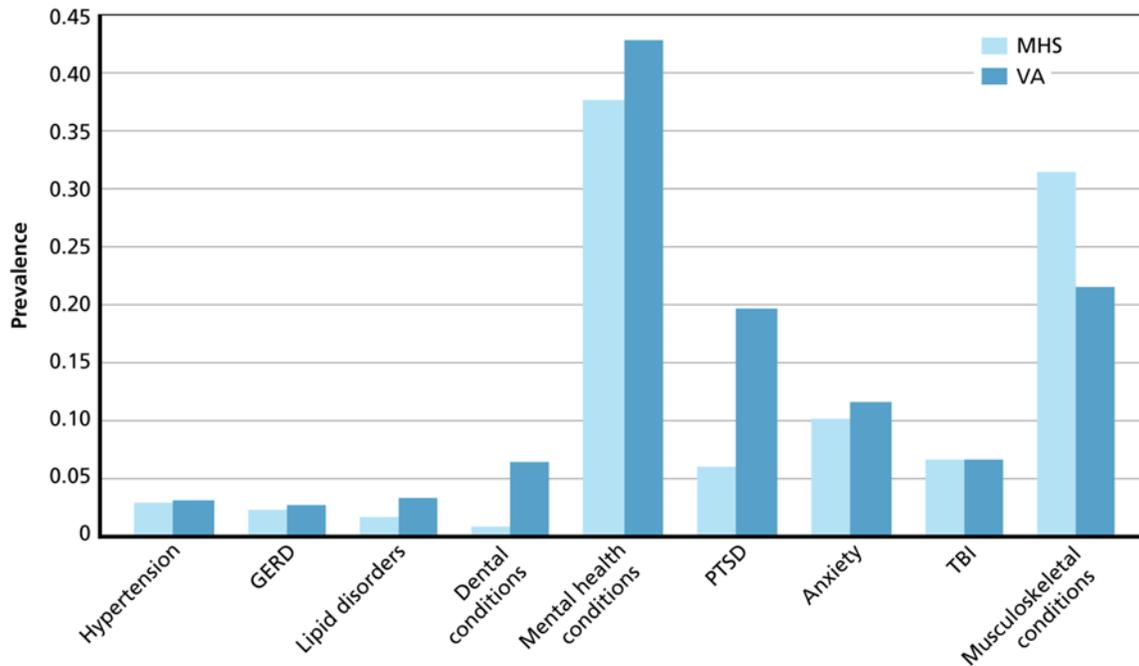
SOURCE: RAND analysis of MHS encounter data (2012–2013) and VA encounter data (2014).
NOTES: Sample size, separating military personnel aged less than 35 in MHS = 325,849, and sample size, VA patients in the VA encounter data aged less than 35 = 503,205. Mental Health includes any mental health condition. Musculoskeletal conditions are those associated with chronic pain.

The results suggest that young Veterans' use of VA may be affected by health status. Specifically, although the prevalence of diagnosed mental health conditions overall is slightly higher among VA patients than newly separated Veterans, the prevalence of diagnosed PTSD among VA patients in particular is disproportionately larger among VA patients than among the full population of service members separating from DoD. This finding is consistent with differences in PTSD prevalence by VA patient status in the MEPS analysis. This may in part reflect disincentives for active duty military personnel to seek mental health services, including stigma and fear of negative career repercussions. Veterans with musculoskeletal conditions appear to be underrepresented in the VA patient population. However, some musculoskeletal conditions are not permanent or require less treatment over time, which could explain the difference in prevalence rates. Given the data limitations, it is not clear whether these differences are driven by individual choice or VA policy, or whether diagnosis of some conditions is more likely in particular health care systems.

5.5 Future Health Care Needs of Veterans

5.5.1 Factors Driving Veteran Health Care Needs

Changes in the demographic composition of the Veteran population are likely to play a prominent role in determining future health care needs. For example, the prevalence rate of many chronic health conditions, such as diabetes, IHD, and many types of cancer, increases with age (Figures 5-6 and 5-15), and we predict that the average age of Veterans will increase over the next 10 years, especially for women (Figure 3-6). The number of female Veterans is also predicted to increase (Section 3), which could cause an increase in the overall prevalence of health conditions that disproportionately affect women. However, the number of female Veterans as a proportion of the total Veteran population will remain small, suggesting that this change in demographic composition is not likely to cause major shifts in Veterans' health conditions over the next 10 years.

Another plausible predictor of Veterans' future health conditions is their experience while in active military service. In particular, deployment and exposure to combat may increase the risk of injury and chronic health conditions and exacerbate existing conditions, although the evidence is mixed (Buckman et al., 2009; Kline et al., 2010; Hoge, Auchterlonie, & Milliken, 2006; Dobkin and Shabani, 2009). This is particularly important for considering demand for VA health services, because Veterans with service-connected disabilities are placed in a higher priority group for enrollment in VA than those without such conditions. The results in Section 5.3 indicate that the prevalence of mental health conditions, especially PTSD, is much higher among Veterans than among similar non-Veterans. The prevalence of these conditions is even higher among Veterans who use VA (Figure 5-12), making this an important factor to consider for future VA demand. Other conditions, such as TBI and musculoskeletal conditions, have also been tied to military service.

Deployment rates have been consistently high among recently separated Veterans, as seen in Figure 5-19. If the scope and intensity of U.S. military operations continue to decline, we expect fewer new Veterans in the future to have been deployed while on active duty. The projected separations under the assumption of no conflicts over the next 10 years show a steep decline in the fraction of new Veterans that deployed during service. As a result, we expect an associated decline in service-connected injuries and chronic health conditions among newly separated Veterans in the future. We also expect that those who deployed but did not separate from service soon after deployment and will be observed separating over the next 10 years are likely to have fewer health problems than those who did separate immediately, compounding this effect.

Figure 5-19. Fraction of Recently Separated Veterans Under Age 35 Who Deployed on Active Duty
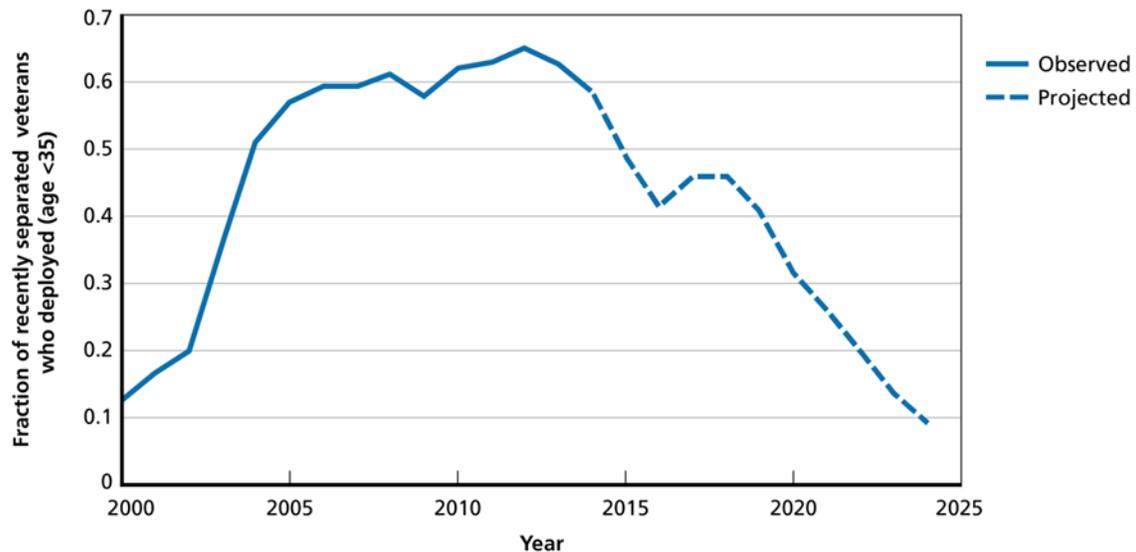
SOURCE: RAND analysis of DoD data.

5.5.2 Projected Health Care Needs of Veterans

The projections of health condition prevalence among Veterans incorporate a time trend of the prevalence of each health condition and account for changes in the demographic composition of the Veteran population. Because health conditions may be affected by service experience, the projections of conditions that are likely to have a substantial service connection—PTSD and mental health conditions, which include PTSD—are adjusted to account for this. This adjustment assumes that the prevalence of the condition remains constant within five-year birth cohorts rather than within five-year age bands and assumes a prevalence rate for future newly separated Veterans. For example, the prevalence of PTSD is higher among Veterans in their 60s than it is among Veterans just younger and older, probably because this cohort was more likely to have served in Vietnam. As a result, we do not expect that current 50-year-olds will suddenly have a higher prevalence of PTSD in 10 years when they turn 60. We used estimates of the health conditions of current military service members and among Veterans who have recently separated from service to inform the prevalence of health conditions among those who will separate from service and become Veterans during 2015–2024. The details of this empirical methodology are in Appendix C.1.5, and the sensitivity of the results to our assumptions is explored in Appendix C.4.3.

Figure 5-20 shows the projected trend in prevalence for selected health conditions among Veterans. The dashed lines around the projection line are conservative bounds (described in detail in Appendix C.1.5.6). Based on our projections, chronic health conditions that afflict both Veterans and non-Veterans are expected to increase moderately over the next 10 years. The projected increases in the prevalence of hypertension, diabetes, and cancer are centered around 10 percent, while the prevalence of lipid disorders remains relatively stable. Given that these conditions are more common among older adults, the projections are consistent with the

projected aging of the Veteran population over the next 10 years. However, while aging does tend to increase the prevalence of IHD, we estimated that prevalence rates for IHD will actually decline during 2015–2024. This finding is consistent with long-standing trends toward decreasing prevalence of acute coronary syndrome across all age groups in the U.S. population (Krumholz, Normand, & Wang, 2014; Talbott et al., 2013). However, this decline largely represents an extrapolation of recent declines in the prevalence of IHD noted in MEPS; this finding assumes that the previous trend toward reduced prevalence of IHD will continue. The relatively large confidence bands suggest that the trend is uncertain and actual prevalence may not decline as sharply (Appendix C.4.5).

Figure 5-20. Projected Prevalence of Selected Health Conditions Among Veterans (2015–2024)
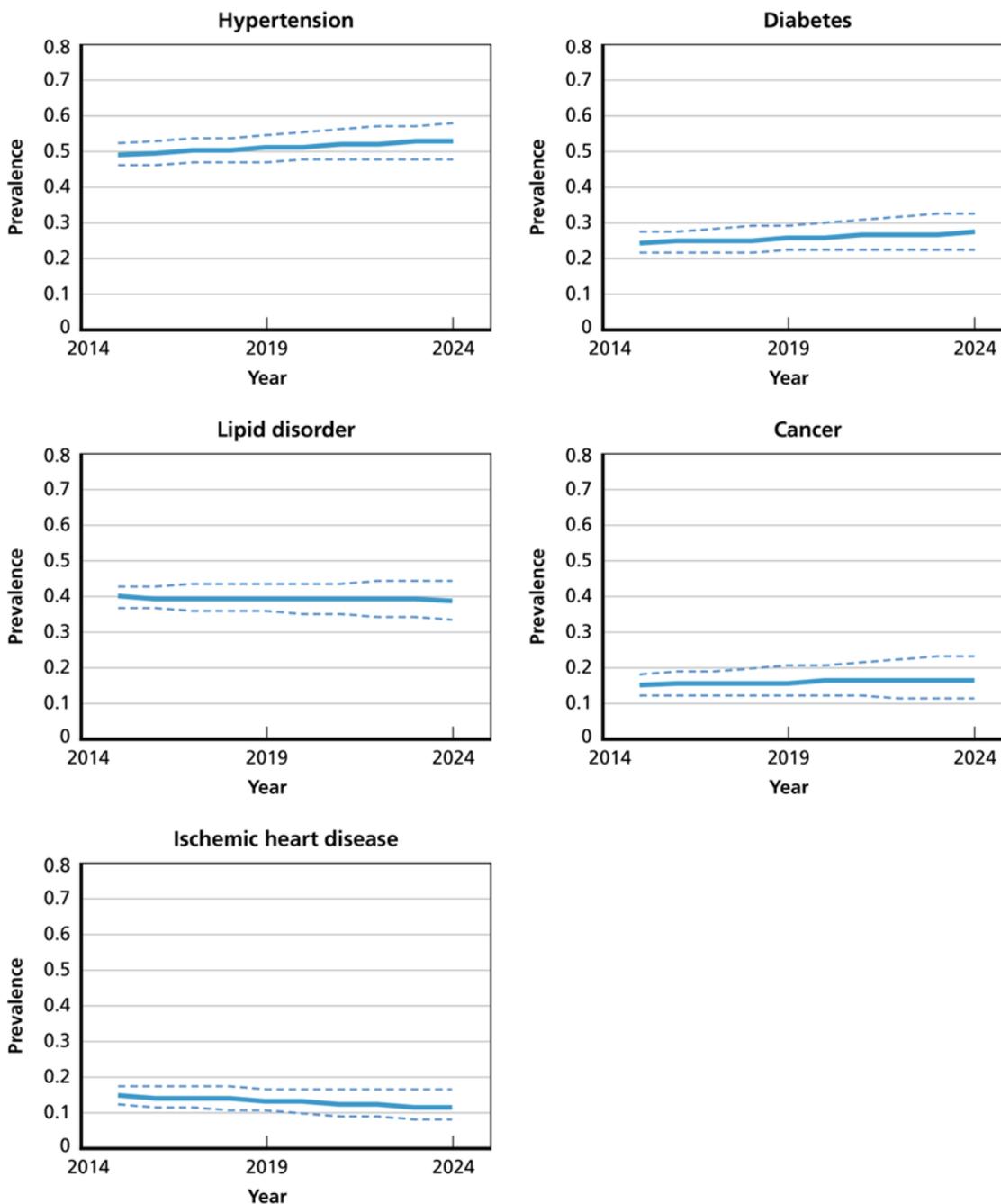
SOURCE: RAND analysis of VA, DoD, Census, and MEPS data.
NOTES: MEPS sample size, Veterans = 12,313. Solid lines indicate the projected prevalence for each health condition, which accounts for the changes in the composition of the Veteran population by age, sex, race/ethnicity, Census region, and MSA. The dashed lines indicate conservative bounds for the projected prevalence rates. (See Appendix C.1.5 for methodological details.)

PTSD has been connected to military service experiences, particularly deployment-related combat exposure (Ramchand, Rudavsky, Grant, Tanielian, & Jaycox, 2015). Given that this condition is caused by specific trauma more generally, it is likely that this condition is predominantly determined by military experience rather than age among the Veteran population. We adjusted the projection of the prevalence of PTSD by linking estimated prevalence to birth cohorts rather than age, as discussed above. In order to make this adjustment, we assumed a prevalence rate of 5.4 percent for newly separated Veterans from 2015 to 2024. This prevalence rate, estimated using MHS data, is the average of the annual prevalence of PTSD among service members separating between 2009 and 2014. We also assume 35 percent of Veterans with PTSD remit in the first year post-service. The adjusted results are in Figure 5-21, and we project that the prevalence of PTSD will remain about the same from 2015 to 2024.[37]

Figure 5-21. Projected Prevalence of Service-Connected Conditions Among Veterans (2015–2024)
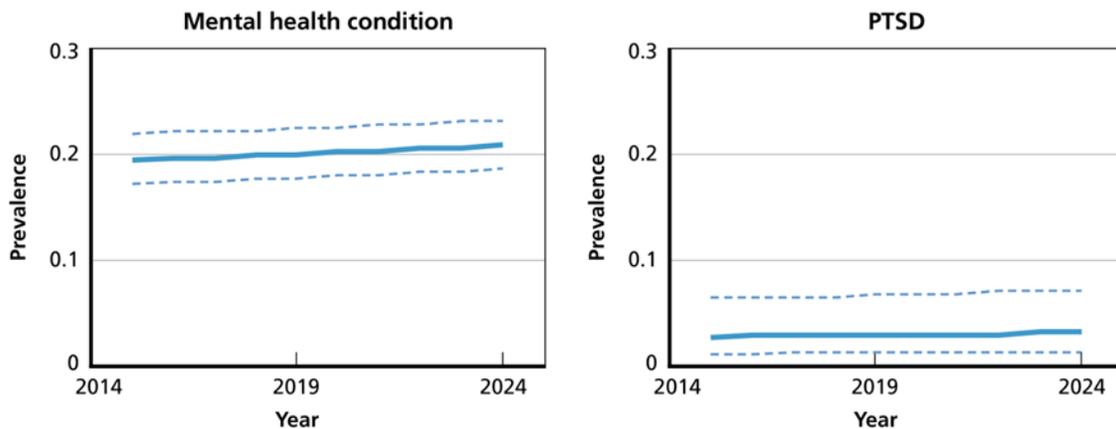
SOURCE: RAND analysis of VA, DoD, Census, and MEPS data.
NOTES: MEPS sample size, Veterans = 12,313. Solid lines indicate the projected prevalence for each health condition, which accounts for the changes in the composition of the Veteran population by age, sex, race/ethnicity, Census region, and MSA. The dashed lines indicate conservative bounds for the projected prevalence rates. (See Appendix C.1.5 for methodological details.)

PTSD is also included in the umbrella of any mental health condition, and for this population, PTSD is likely to have a strong effect on the prevalence of mental health conditions. Therefore, we also present adjusted results for the prevalence of any mental health condition in Figure 5-21. We used the same adjustment approach as for PTSD and assumed that the prevalence of any mental health condition among new Veterans will be 32.5 percent (also estimated with MHS). For mental health conditions, we assume a remission rate of 6.3 percent in the first year post-service, and zero thereafter. The remission rate is based on the fraction of Veterans with mental health conditions that have PTSD and the PTSD remission rate. With the adjustment, the prevalence of mental health conditions among Veterans is projected to

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[37] Without the cohort adjustment, PTSD is projected to be 9.2 percent among Veterans in 2024, a 6-percentage-point increase.

increase to 20.7 percent by 2024. However, the umbrella of mental health conditions includes conditions that may not be related to service or that may have higher or lower remission rates than PTSD. If we treat mental health conditions like other predominantly age-related chronic conditions, such as hypertension, we project that the prevalence of mental health conditions among Veterans will be 26.1 percent by 2024. The details of these projection results are in Appendix C.4.3.

One particular limitation of our projections of health conditions relates to the timing of when a condition presents or when the individual seeks treatment from VA for the condition. For instance, if a Veteran experiences a hidden wound of war, such as PTSD or TBI, and either does not experience symptoms right away (e.g., delayed onset), does not enroll in VA and therefore does not receive treatment for some time after the injury, or does not file a claim for the condition soon after separating from the military, there may be a gap between injury or separation and when VA will treat the condition. Our projections are unable to account for this pattern. The data used to project health care needs (MEPS, MHS encounter, and VA encounter) lack information on when an injury occurred, when the Veteran separated from service, when the Veteran filed a disability claim, and when the Veteran enrolled in VA. Therefore, we are unable to determine if receipt of treatment for these hidden wounds of war occurred shortly after the injury or experience or if there was a delay. Using historical data on the time between separation and either when a disability claim was filed or when the condition was first treated by VA would allow for an adjustment to our projections that accounts for future cases of hidden wounds of war for which VA does not yet have visibility.

The projection results for the full set of conditions that could be estimated using MEPS are included in Appendix C.4. Many service-connected injuries and chronic conditions of interest have low prevalence in the general population and cannot be reliably estimated using MEPS, so they are excluded from the projections.

5.6 Future Health Care Needs of VA Patients

5.6.1 Factors Driving VA Patient Health Care Needs

VA patients are a subset of the Veteran population; thus, the same factors and trends that affect the health care needs of Veterans overall will also affect the needs of VA patients. To project VA patient health care needs, we used the same approach and the same set of assumptions that we used for the Veteran population.

In addition to the factors and trends that affect the health care needs of the Veteran population overall, the needs in the VA patient population are determined in part by who uses VA health care services. Changes in VA policies—such as new priority group cutoffs for enrollment eligibility, additions of new presumptive service-connected conditions, or changes to the enhanced eligibility benefits for new combat Veterans—will directly affect the number and composition of Veterans who are eligible to receive VA health care services. External factors that affect access to affordable health care, such as fluctuations in the economic climate or changes in the eligibility rules for other public health programs (e.g., Medicare) have the potential to affect VA use rates and the composition of the VA patient population. We assumed

that these factors remain constant over the next 10 years in these baseline projections. The effects of policy changes on future Veteran, enrollee, and patient counts are considered in the scenario analyses in Section 6.

5.6.2 Projected Health Care Needs of VA Patients

We projected the health care needs of VA patients using MEPS and VA encounter data (data sources are detailed in Section 2.6). MEPS was used to estimate and project prevalence of more-common chronic conditions based on receipt of care from any provider. We used VA encounter data to estimate and project demand for VA health care services and to estimate and project the prevalence of predominantly service-connected conditions, which cannot be reliably estimated using MEPS because of their low prevalence.

Figure 5-22 shows projected VA patient health care needs. The prevalence rates of hypertension and diabetes are projected to increase, and the prevalence rates of lipid disorders and cancer are projected to remain constant. As for Veterans overall, the prevalence of IHD is projected to decline among VA patient (see Appendix C.4.5 for further discussion).

As noted, the prevalence of PTSD, which is also a component of mental health conditions, is more likely linked to military experience than age. We adjusted the projections of mental health conditions and PTSD among VA patients using the same approach we used to adjust the projected prevalence of these conditions for all Veterans. However, we assumed a higher prevalence of mental health conditions and PTSD among newly separated Veterans *who become VA patients* than we did among newly separated Veterans overall. We assumed that the prevalence rates are 48.8 percent for any mental health condition and 17.3 percent for PTSD. These prevalence rates were derived from VA encounter data, MHS encounter data, and recently published work comparing prevalence rates between Veterans who use VA health care services and those who do not (Dursa, Reinhard, Barth, & Schneiderman, 2014). We also assume a PTSD remission rate of 30 percent in the first year post-VA enrollment and a mental health condition remission rate of 10 percent in the first year post-VA enrollment. The approach is detailed in Appendix C.1.5. Despite their magnitude, the prevalence rates for newly separated Veterans who become VA patients will not have a large effect on the overall prevalence rates for the VA patient population, because new patients are a small portion of the total VA patient population.

Figure 5-22. Projected Prevalence of Selected Health Conditions Among VA Patients (2015–2024)
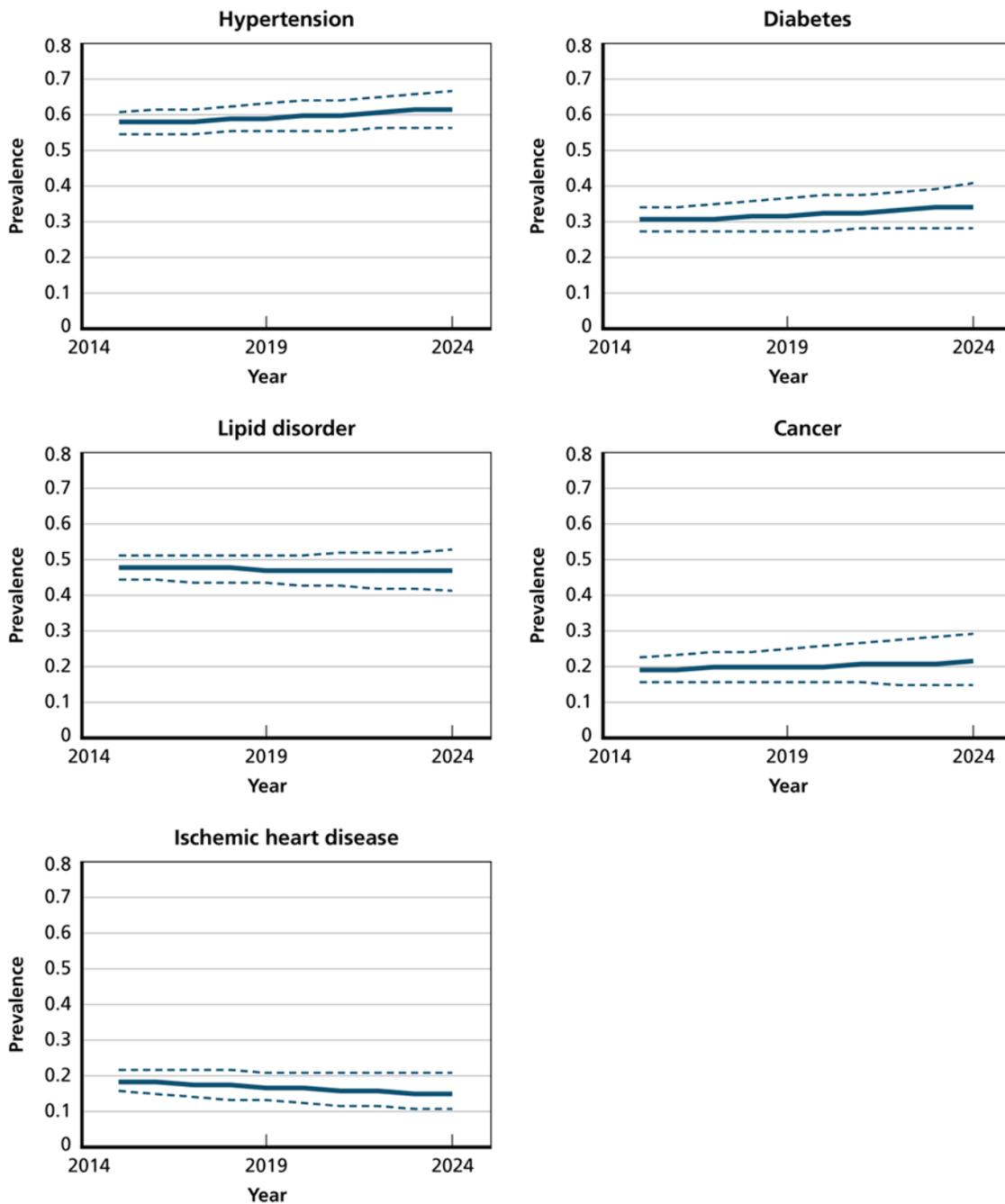
SOURCE: RAND analysis of VA, DoD, Census, and MEPS data.
NOTES: MEPS sample size, VA patients = 4,871. Solid lines indicate the projected prevalence for each health condition, which accounts for the changes in the composition of the VA patient populations by age, sex, race/ethnicity, Census region, and MSA. The dashed lines indicate conservative bounds for the projected prevalence rates. (See Appendix C.1.5 for methodological details.)

The projected prevalence rates of mental health conditions and PTSD among VA patients are presented in Figure 5-23. The overall prevalence of any mental health condition among VA patients is projected to be 33 percent by 2024, and the prevalence of PTSD is projected to increase to be just over 10 percent in 2024. As with all Veterans, mental health conditions are not purely service-connected. If we treat mental health conditions like other predominantly age-related chronic conditions, such as hypertension, we project that the prevalence of mental health conditions among VA patients will be about 37 percent by 2024. The details of these projection results are in Appendix C.4.

Figure 5-23. Projected Prevalence of Service-Connected Conditions of VA Patients (2015–2024)
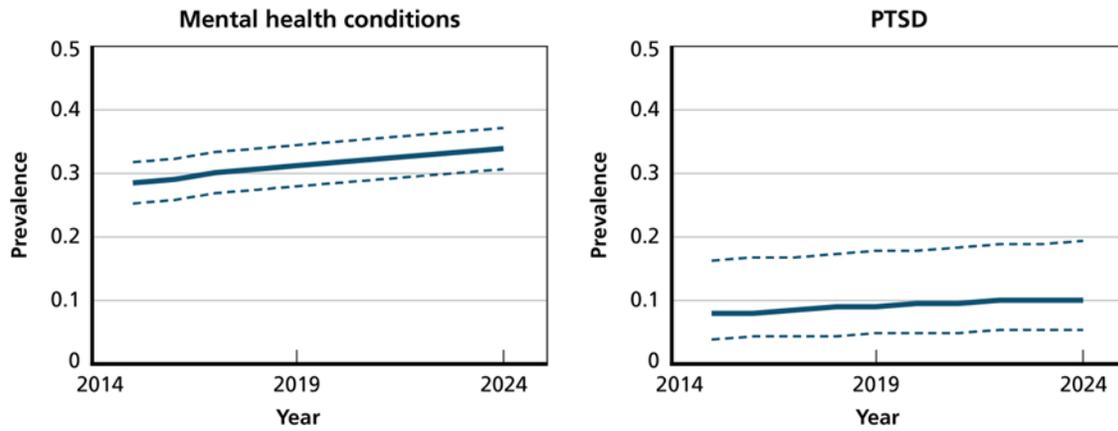
SOURCE: RAND analysis of VA, DoD, Census, and MEPS data.
NOTES: MEPS sample size, VA patients = 4,871. Solid lines indicate the projected prevalence for each health condition, which accounts for the changes in the composition of the VA patient populations by age, sex, race/ethnicity, Census region, and MSA. The dashed lines indicate conservative bounds for the projected prevalence rates. (See Appendix C.1.5 for methodological details.)

We used VA encounter data to estimate the prevalence of two conditions of particular interest to VA: TBI and musculoskeletal conditions. VA encounter data were used to estimate the prevalence of *VA-diagnosed/treated* health conditions among VA patients.[38] MEPS prevalence estimates include diagnoses made by VA and non-VA providers, and because many VA patients use non-VA providers for some health care services, MEPS provides a more comprehensive estimate of diagnosed prevalence rates among VA patients. However, the VA encounter estimates provide a better picture of the condition-based demand for VA health care services.

Our projections are presented in Figure 5-24. We project increases in the number of VA patients with both conditions. The prevalence of TBI, like PTSD and mental health conditions, is more likely linked to military experience than age. We used the same approach to adjust the projected prevalence of TBI. The projected trend in the prevalence of musculoskeletal conditions reflects historical trends in the prevalence of these conditions, as measured with VA

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[38] Additionally, the prevalence of TBI is too low to be reliably estimated with MEPS.

encounter data and projected changes to the age and sex composition of the VA patient population. The fit of the model is discussed in Appendix C.5.

It is important to note that the trends may be partially driven by increases in VA use for these conditions, rather than trends in true diagnosed prevalence. In addition, the rates of diagnosis of these conditions may have increased due to heightened awareness and improved understanding of these conditions. We are not able to disentangle these effects.

Figure 5-24. VA Encounter-Based Projections of Health Conditions Among VA Patients (2015–2024)
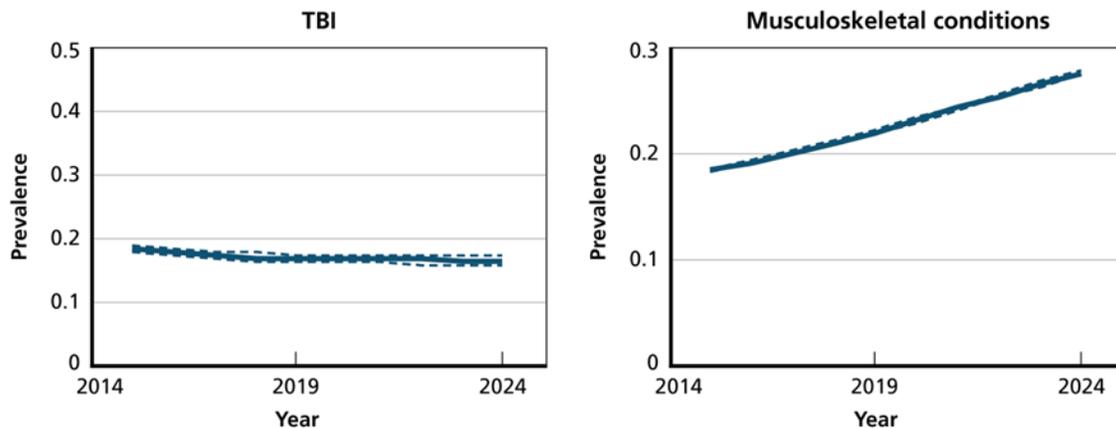
SOURCE: RAND analysis of VA, DoD, Census, and MEPS data.
NOTES: VA encounter sample size, VA patients = 5,871,766. Solid lines indicate the projected prevalence for each health condition, which accounts for the changes in the composition of the VA patient populations by age, sex, race/ethnicity, Census region, and MSA. The dashed lines indicate conservative bounds for the projected prevalence rates. (See Appendix C.1.5 for methodological details.) Musculoskeletal conditions are those associated with chronic pain.

5.7 Summary of Key Findings

Veterans have a higher prevalence of many chronic physical health conditions than non-Veterans, in part because they are older. The prevalence of many chronic conditions, including cancer, diabetes, and GERD, is higher among Veterans than non-Veterans. This difference diminishes after adjusting for the differences in the demographic composition (particularly, age and sex) of the Veteran and non-Veteran populations. The remaining differences are small for most physical health conditions, including the prevalence rates of hypertension, heart disease, and lipid disorders, which are nearly identical across the two populations.

Veterans have a higher prevalence of mental health conditions than demographically matched non-Veterans. In contrast to the physical health conditions, the relative mental health status of Veterans worsens when they are compared with demographically matched non-Veterans. PTSD stands out as an important unique health need; the prevalence among Veterans is 13.5 times that of non-Veterans.

VA patients have a higher prevalence of chronic health conditions than Veterans who do not use VA health care services. Among Veterans, the prevalence rates (adjusted for demographic differences) of most chronic conditions we examined, including cancer, heart-related conditions, diabetes, and hypertension, are higher for VA patients than for Veterans who do not use VA health care services. This is at least partially the result of VA prioritizing enrollment by Veterans with higher prevalence of chronic health conditions (including those with service-connected conditions, disabilities, and lower incomes). The prevalence of any mental health condition among VA patients is nearly twice the prevalence among non-VA patients, and the prevalence of PTSD is 17.4 times larger. PTSD is associated with combat experience, which is an important predictor of Veterans' use of VA health care services.

The prevalence of diabetes, hypertension, and cancer among Veterans is projected to increase moderately over the next 10 years. For Veterans, we project moderate increases in the prevalence of diabetes (3 percentage points) and hypertension (4 percentage points), but a moderate decline in the prevalence of IHD (3 percentage points). These projections follow the recent trends in these conditions among the U.S. population.

The prevalence of mental health conditions among Veterans and VA patients is projected to increase. The prevalence of any mental health conditions and PTSD among Veterans is projected to increase by about 0.5 percentage points. Among VA patients, the prevalence of mental health conditions is projected to increase by 5.3 percentage points, while the prevalence of PTSD will increase by approximately by 2.4 percentage points. The expected declines in deployment and combat exposure among the newest Veterans and VA patients over the next 10 years will contribute to a slowing of the rate of increase of mental health conditions and somewhat smaller increases for PTSD in particular.

The gap in the prevalence of many health conditions between VA patients and Veterans who do not use VA health care services is projected to widen over the next 10 years. The projected increases in the prevalence of mental health conditions and PTSD among VA patients is larger than that among all Veterans, as cited above. The prevalence of diabetes, GERD, and cancer are also projected to increase more among VA patients than all Veterans, while the prevalence of other chronic conditions are projected to change by the same amount for the two populations.

6 Scenario Development and Evaluation

6.1 Introduction

Estimates of changes in populations and health care needs over time rely on a set of assumptions about how the policy environment and world will change over time. The demographic projections in this report are driven by historical information on military separation, Veteran mortality, and migration. For the health care needs analyses in Section 5, we inferred the future prevalence of health conditions from historical prevalence rates. These analyses assume that the future will resemble the recent past in many important dimensions, including the general size and function of the armed forces, migration patterns, the health care options and coverage available to Veterans, and the mission and function of VA in terms of health care delivery.

What if these dimensions change? The purpose of this section is to describe how changes to the status quo could affect Veteran, enrollee, and patient populations, and more broadly influence demand for VA care. To do this, we analyzed a range of policy scenarios. Policy scenarios are a tool that can help decision-makers understand the effects of "what ifs" as they plan for the future, especially when considered in conjunction with robust, validated baseline projections. We first identified a set of plausible scenarios, as described below, and then used modeling techniques to estimate the effect of each scenario on the size of the future VA patient population. As part of our evaluation of each scenario, we assessed how the scenario and impacts could be integrated into current VA modeling efforts, and, if it would not be possible to incorporate these changes into existing models, we propose a range of policy or modeling options to integrate and mitigate scenario impacts as appropriate.

Despite the usefulness of policy scenarios, there are two important caveats that apply to this section. First, each individual scenario is speculative and is based on assumptions that may diverge from actual conditions in the future. Second, due to time and data constraints, we were able to describe and evaluate only a limited set of policy scenarios. We chose these scenarios to be illustrative of important "what ifs" that VA could face in the future. However, specific details, such as the nature of a potential future conflict, cannot be reliably predicted.

6.2 Scenario Methodology Overview

Overview of Scenario Analysis Data and Methods

- To select scenarios for analysis, we generated candidate scenarios by reviewing scenarios that had been previously explored in VA analyses, conducting a targeted literature review, and consulting with other assessment teams and RAND subject-matter experts.
- We categorized scenarios by whether they would result in a change in (1) the population of eligible or enrolled Veterans or (2) the proportion of enrollees who use VA health care services.
- We selected analysis scenarios that were most likely to have substantive impacts on the size of Veteran or patient populations or Veterans' health care needs. These are:
  - Changes to VA eligibility by priority group
  - Changes in presumptive VA eligibility
  - Impact of future conflict on VA use
  - Improving access to VA Care
  - The ACA's coverage expansion.
- We used scenario-specific methods to develop and evaluate each scenario.
- These scenario-specific methods are described below and in more detail in Appendix D.

The research described in this section reflects two methodological steps. First, we developed five specific scenarios. Next, we developed scenario-specific evaluation methodologies to estimate the impact of each scenario on populations and demand for VA health care. The scenario-specific methodologies are described in detail in the following subsections and in Appendix D. The last subsection in this section discusses key results and conclusions from our scenario analyses. See Section 2 for a summary of VA's current use of scenarios in modeling and planning processes, focusing in particular on EHCPM.

This paragraph describes our methodology for choosing and defining specific scenarios for analysis. As a first step, we generated a list of candidate scenarios by reviewing scenarios that had been previously explored in VA analyses,[39] conducting a targeted literature review, and consulting with other assessment teams and RAND subject-matter experts. Candidate scenarios involved either a change in VA policy, a change in policy elsewhere in the government, or an external trend. We explored candidate scenarios that would have plausible impact on either the size of Veteran and patient populations or Veterans' health care needs. Through this process, we identified 12 candidate scenarios. Next, we developed a framework to help organize and guide our selection of five scenarios for analysis. The framework is described below. We selected for analysis those scenarios that were most likely to have substantive impacts on the size of Veteran or patient populations or Veterans' health care needs. Some of the candidate scenarios that were not selected for inclusion are discussed at the end of this section.

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[39] The VA EHCPM analysts and the VA OACT have conducted scenario analysis; we reviewed documentation on these analyses and notes from our meetings with these offices.

6.3 Scenario Typology and Framework

We first categorized scenarios by whether they would result primarily in a change in (1) the population of eligible or enrolled Veterans or (2) the proportion of enrollees that are VA patients (i.e., that use VA health care services). These potential changes align with the analyses presented earlier in this report, including projections of the demographics of the Veteran population (Section 3) and projections of VA health care enrollees and patients (Section 4).

The primary outcome for all scenarios was the estimated *change in the number of VA patients by calendar year*. Following the framework laid out in Section 2, the number of VA patients is the product of the number of eligible Veterans, the enrollment rate, and the use rate, or, with the y subscript denoting year:

$$Patients_y = Eligible\ Veterans_y * Enrollment\ Rate_y * Use\ rate_y$$

Changes in the Veteran population—either in the number of Veterans or shifts in the composition of the Veteran population—can have important implications for the demand for VA health care. Even if the number of Veterans remains constant, shifts in the age, sex, priority group, or health status of Veterans can change demand for VA services to the extent that Veteran subpopulations utilize VA services differently.

Changes that directly affect how many VA enrollees choose to be VA patients would also influence the number of VA patients. As described in Section 4, demographic and other characteristics of Veterans, including whether Veterans have access to other sources of health coverage, are significant predictors of whether they use VA health care.

We also categorized scenarios into one of two types of policies or trends: (1) VA policies or legislation focusing on VA, or (2) broader policy changes outside of VA's control and external trends. We differentiated between these two policy or trend types to help describe whether VA has direct, indirect, or no control over the scenario.

The five specific scenarios are listed in Figure 6-1, a two-by-two framework incorporating the scenario types and change types introduced above. As shown in Quadrant A, we selected two scenarios that would change Veteran eligibility for health benefits. Other VA-focused policies or trends that directly influence the number of Veterans eligible for health benefits would likely share many characteristics and aspects of these two scenarios. As shown in Quadrant B, the hypothetical future conflict scenario describes how an influx of service members in response to a new conflict could translate into a flow of Veterans and ultimately VA patients. The future conflict analyses assess a range of plausible military manpower scenarios and their effect on projections of VA patients. In Quadrant C, the scenario analyzes policy options that could influence Veterans' decisions to use VA health care by changing actual or perceived access and quality of care in the VA system. Finally, the ACA coverage expansion scenario in Quadrant D describes the potential impacts of major shifts in the non-VA coverage available to Veterans on their decision to use or not use VA care. A range of other policies external to VA—such as changes in state Medicaid policy and the generosity and cost of employer-sponsored insurance—share characteristics with this fifth scenario.

Figure 6-1. Assessment A Scenario Framework
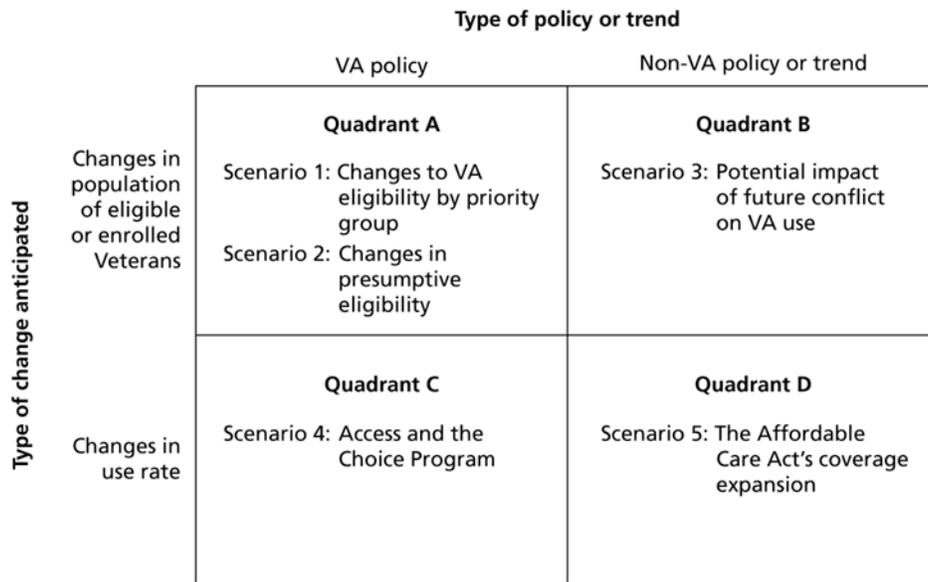
The following sections describe each scenario in more detail. We included contextual factors and details that could be important in determining the impact of these scenarios on demand for VA health care.

6.4 Changes to VA Eligibility, by Priority Group

6.4.1 Description

Under current VA policy, Veterans in priority groups 8e and 8g are not eligible to enroll for VA health care services. These Veterans satisfy the length-of-service requirement and the discharge criteria but do not have a service-connected disability rating, do not have a disability rendering them housebound, and do not qualify for Medicaid, and they have household income exceeding 110 percent of their GMT income limit. We modeled changes to VA eligibility by priority group by estimating the effects of a change in which these lower priority groups gained eligibility for health care services. In the first subscenario, we examined how many Veterans would become eligible for services if eligibility was extended to priority group 8e and the expected number of VA patients that would result. Second, we further examined how many Veterans would become eligible for services if eligibility was extended to the next-lowest priority group, 8g, and estimated the expected number of VA patients that would result.

6.4.2 Approach

Data and Methods for Scenario One, Changes to VA Eligibility by Priority Group

- We sorted all Veterans eligible for priority group assignments into priority groups in order to both estimate the size of the 8e and 8g Veteran populations and to test use rates for each eligible priority group.
- We used the 2013 ACS Public Use Microdata Sample (PUMS), which contains self-reported information on service-connected disability rating, VA health service use, family and household income, family and household size, individual income from a variety of sources, area of residence and Medicaid use.
- We employed an algorithm that assigns a priority group to each Veteran contained in the 2013 ACS, based on available data and adjustment factors drawn from administrative records.

In order to sort all Veterans into priority groups, this analysis had two essential components:

1. The identification of all U.S. Veterans in a nationally representative data set. To do this, we used the 2013 ACS PUMS, or 2013 ACS, which contains self-reported information on service-connected disability rating, VA health service use, family and household income, family and household size, individual income from a variety of sources, area of residence, and Medicaid use. The 2013 ACS, with demographic adjustments from VA administrative records, identifies approximately 21.9 million Veterans in the United States, with slightly more than 6 million Veterans using VA health services.

2. A priority group classification algorithm that assigns a priority group to each Veteran contained in the 2013 ACS, based on the available data described above and several adjustment factors drawn from administrative records (see Appendix D.1 for a thorough description of this algorithm).

Testing subscenarios in which eligibility for VA health services is expanded to new priority groups amounts to taking the algorithm's estimates of these ineligible priority groups and applying a use rate, estimated from the most similar eligible priority group, to arrive at an estimate of new VA patients.

Table 6-1 shows the baseline ACS estimates of Veterans *using* VA health services—that is, VA patients, by priority group, in comparison with VA administrative records of this population, along with a brief description of each priority group's eligibility requirements (for a thorough description of the eligibility requirements for each priority group, see U.S. Department of Veterans Affairs, 2015c). This comparison provides a validity test: The ACS estimates of VA patients should match administrative records. Indeed, these baseline ACS estimates are very close to the administrative records, with much of the deviation attributable to sampling error and comparisons across two distinct years.

However, the advantage of this approach is not in replicating administrative records, but in estimating the number of potentially eligible Veterans by priority group in the general Veteran population, a task for which administrative records are ill-suited. Although the administrative

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data have records of Veterans in these priority groups who are eligible to use VA health services (e.g., 8e Veterans who are eligible for services for their 0-percent service-connected disability care), there are otherwise no estimates of the size or composition of this 8e and 8g population.

Table 6-1. VA Patients According to 2014 VA Administrative Data and 2013 ACS Estimates, by Priority Group

Priority Group	VA Patients, 2014	VA Patients in ACS, 2013
1 – Service Connected 50% +	1,599,076	1,641,000
2 – Service Connected 30% - 40%	489,192	502,000
3 – Service Connected 20%/POW/Special	741,713	761,000
4 – AA/Housebound or Catastrophic	191,342	117,000
5 – Non-Service Connected Below Income	1,315,317	1,350,000
6 – All Other Not Required to Make Co-Pay	276,275	304,000
7 – Non-Compensable Non-Service Connected Below GMT	174,810	192,000
8a, 8b, 8c, 8d – Non-Compensable Non-Service Connected Below GMT + 10%, or previously VA eligible	1,055,685	1,124,000
8e, 8g – Users	26,115	32,000
Priority Group Not Assigned	2,241	
Total	**5,871,766**	**6,022,000**

SOURCE: RAND calculations using 2013 ACS PUMS.

We tested two subscenarios for Scenario 1. The first estimated the number of new VA patients under the condition that Veterans in priority group 8e were eligible for these services; they currently are not eligible. The 8e subscenario uses the estimates of the number of Veterans classified as 8e and average priority group 8 use rates to estimate how extending eligibility to 8e would affect the number of eligible Veterans and the number of expected VA patients. Veterans in priority group 8g are also currently ineligible for VA health care services, so the 8e and 8g subscenario estimates the effects of expanding enrollment eligibility to both these priority groups.

6.4.3 Results

Table 6-2 shows estimates of all 21.9 million Veterans in the 2013 ACS by priority group[40], compared with the corresponding number of ACS-estimated VA patients by priority group. These two numbers allow us to calculate priority group–specific use rates, which are the ratios of VA patients to eligible Veterans in each priority group.

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[40] In Section 3, we report that there are 21.6 million Veterans. This estimate was calculated using the 2014 ACS, whereas the 21.9 million reported here uses the 2013 ACS.

When the subscenarios below result in shifts in the number of eligible Veterans by priority group, these use rates will then translate the change in eligible Veterans into a change in expected VA patients in that priority group.

Table 6-2. 2013 ACS Estimates and Use Rates, by Priority Group and Eligibility Status

Priority Group and Eligibility Status	All Veterans in ACS, 2013	VA Patients in ACS, 2013	Average Use Rate in ACS (Patients/Eligible)
1	1,961,000	1,641,000	0.84
2	745,000	502,000	0.67
3	1,310,000	761,000	0.58
4	377,000	117,000	0.31
5	4,151,000	1,350,000	0.33
6	1,073,000	304,000	0.28
7	749,000	192,000	0.26
8a, 8b, 8c, 8d	2,572,000	1,124,000	0.44
8e, 8g users	32,000	32,000	1.00
8e nonusers	78,000		
8g nonusers	4,727,000		
Ineligible due to discharge status	1,246,000		
Ineligible due to length of service	2,903,000		
Total eligible for services	12,970,000		
Total eligible to apply for enrollment[a]	17,775,000		
Total Veterans	21,924,000	6,022,000	

SOURCE: RAND calculations using 2013 ACS PUMS.

[a] Not all Veterans who are eligible to apply for VA health care services are eligible to enroll and receive VA health care services under current policy.

Priority group 8e subscenario. Table 6-2 shows that there are 78,000 Veterans who, whether enrolled or not, would be categorized into priority group 8e if they applied for VA health care benefits. Thus, if eligibility to enroll in VA health care were extended to priority group 8e, there would be 78,000 newly eligible Veterans. Given that Veterans in priority group 8 overall have an average use rate of 0.44, there would be an expected 34,000 new VA patients as a result (78,000 × 0.44), increasing the overall number of VA patients by 0.6 percent. [41]

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[41]It is possible that higher income Veterans who are not currently eligible to enroll would have lower use rates than Veterans currently enrolled in priority group 8. If this were the case, we may overestimate that number of Veterans that would be likely to use care if the VA expanded eligibility to all Veterans in priority group 8.

Priority group 8e and 8g subscenario. Table 6-2 shows that there are 4,727,000 Veterans who would be categorized into priority group 8g if they applied for VA health care benefits.[42] Thus, when combined with the 78,000 Veterans in 8e, there would be 4,805,000 newly eligible Veterans if eligibility to enroll in VA health care were extended to both 8e and 8g. As above, given the average priority group 8 use rate of 0.44, there would be an expected 2,114,000 new 8e and 8g VA patients as a result (4,805,000 × 0.44), an increase of 35.1 percent over the current VA patient population.

6.4.4 Discussion

We estimate that expanding enrollment eligibility for VA health care to include priority group 8e would bring in a modest number of new Veteran users, increasing the number of patients by 0.6 percent. However, we estimate that there are a substantial number of Veterans in priority group 8g. An expansion to include this group would markedly increase the current number of eligible Veterans and users. Expanding eligibility to enroll in VA health care to include both groups of Veterans (priority groups 8e and 8g) would bring in a large number of new Veteran users, increasing the number of patients by 35.1 percent. However, such an estimate is based on current priority group 8 use rates, and this estimate may be different if the population of Veterans in this priority group changes.

The subscenarios tested here correspond to expansions of eligibility or generosity of the VA program. We did not test any contractions in eligibility or generosity for two reasons. First, historically, such contractions have been accompanied by grandfathering in currently eligible Veterans, and because this analysis is static in its analysis of 2013 Veterans, these future dynamics are outside the scope of this analysis's capabilities. Second, such a contraction-based analysis does not require estimates of eligible Veterans, just current and projected enrollees and users, for which administrative records are well-suited. Nevertheless, our baseline counts of all eligible Veterans by priority group give estimates of the overall size of each of these priority groups, which may be useful for other scenario-based models.

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[42] This estimate of the size of potential priority group 8g Veterans is determined by sorting Veterans into higher priority groups. The next step is to subtract those who do not satisfy length-of-service or discharge requirements from the remaining unsorted Veteran population. See Appendix D for a description of determining how many Veterans do not satisfy these criteria. However, it should be noted that the length-of-service and discharge requirements are treated independently and thus represent an overestimate of the ineligible Veteran population.

6.5 Changes in Presumptive Eligibility

6.5.1 Description

When a Veteran's military service has resulted in physical or mental impairment, that Veteran is granted such benefits as compensation and health care depending on the extent of impairment. However, not all impairments can be factually linked by evidence to military service. Since 1921, Congress has authorized VA to establish criteria for impairments that are likely (but unproven) to be service-connected. Since that time, more than 150 conditions have been categorized as service-connected. In the Agent Orange Act of 1991, Congress directed VA to periodically review the quality of the evidence for presuming service-connection for impairments experienced by Veterans (Samet & Bodurow, 2008). If VA finds that there has been a systematic impact on Veteran health, VA then revises its eligibility criteria. The revised eligibility standard typically specifies that when a Veteran served in a particular location during a particular time frame and has a particular condition—that condition is presumed to have been caused by military service and the Veteran is now eligible to enroll in VA health care.

VA contracts with IOM to review every two years the medical literature on Vietnam-era Veterans. Table 6-3 shows IOM's latest evidentiary findings for Vietnam Veterans for a variety of health conditions. In 2006, IOM moved hypertension from "Inadequate or Insufficient Evidence to Determine an Association" to "Limited or Suggestive Evidence of an Association." As of the writing of this report, VA had not added hypertension to the list of presumptive conditions for Veterans who served in Vietnam. This scenario examines the potential impact of adding hypertension to the list of conditions that would allow VA to presume that a Vietnam-era Veteran with hypertension is service-connected.

Table 6-3. IOM's Assessment of the Evidence Connecting Certain Health Conditions to Military Service in Vietnam

Sufficient Evidence of an Association
Soft-tissue sarcoma (including heart); non-Hodgkin lymphoma; chronic lymphocytic leukemia (including hairy cell leukemia and other chronic B-cell leukemias); Hodgkin lymphoma; chloracne
Limited or Suggestive Evidence of an Association
Laryngeal cancer; cancer of the lung, bronchus, or trachea; prostate cancer; multiple myeloma; AL amyloidosis (category change in 2006); early-onset peripheral neuropathy (category change in 2010); Parkinson disease (category change in 2006); porphyria cutanea tarda; hypertension (category change in 2006); ischemic heart disease (category change in 2008); stroke (category change in 2012); Type 2 diabetes (mellitus); spina bifida in offspring of exposed people
Inadequate or Insufficient Evidence to Determine an Association
Cancers of the oral cavity (including lips and tongue), pharynx (including tonsils), or nasal cavity (including ears and sinuses); cancers of the pleura, mediastinum, and other unspecified sites in the respiratory system and intrathoracic organs; esophageal cancer (category change in 2006); stomach cancer (category change in 2006); colorectal cancer (including small intestine and anus) (category change in 2006); hepatobiliary cancers (liver, gallbladder, and bile ducts); pancreatic cancer (category change in 2006); bone and joint cancer; melanoma; nonmelanoma skin cancer (basal-cell and squamous-cell); breast cancer; cancers of reproductive organs (cervix, uterus, ovary, testes, and penis; excluding prostate); urinary bladder cancer; renal cancer (kidney and renal pelvis); cancers of brain and nervous system (including eye); endocrine cancers (thyroid, thymus, and other endocrine organs); leukemia (other than chronic B-cell leukemias, including chronic lymphocytic leukemia and hairy cell leukemia); cancers at other and unspecified sites; infertility; spontaneous abortion (other than after paternal exposure to TCDD [tetrachlorodibenzodio], which appears not to be associated); neonatal or infant death and stillbirth in offspring of exposed people; low birth weight in offspring of exposed people; birth defects (other than spina bifida) in offspring of exposed people; childhood cancer (including acute myeloid leukemia) in offspring of exposed people; neurobehavioral disorders (cognitive and neuropsychiatric); neurodegenerative diseases, excluding Parkinson disease; chronic peripheral nervous system disorders; **hearing loss (added in 2010)**; respiratory disorders (wheeze or asthma, chronic obstructive pulmonary disease, and farmer's lung); gastrointestinal, metabolic, and digestive disorders (changes in hepatic enzymes, lipid abnormalities, and ulcers); immune system disorders (immune suppression, allergy, and autoimmunity); circulatory disorders (other than hypertension, ischemic heart disease, and stroke); endometriosis; disruption of thyroid homeostasis; **eye problems (added in 2010)**; **bone conditions (added in 2010)**
Limited or Suggestive Evidence of No Association
Spontaneous abortion after paternal exposure to TCDD [tetrachlorodibenzodio]

SOURCE: Institute of Medicine of the National Academies, 2013. Underlined modifications from earlier editions published in 2005, 2007, 2009, and 2011.
NOTES: Underlined: Category change in response to additional evidence. **Bold**: Additional conditions added to the conditions being monitored.

6.5.2 Approach

Data and Methods for Scenario Two, Changes in Presumptive Eligibility

- We used data from MEPS to estimate the maximum number of Veterans who would newly use VA health care if VA included hypertension presumptively as a service-connected condition for Veterans who served in Vietnam.
- We employed an algorithm that assigns a priority group to each Veteran contained in the 2013 ACS, based on available data and adjustment factors drawn from administrative records.

The purpose of this scenario was to estimate the maximum number of Veterans who would newly utilize VA health care if VA decided that hypertension could be presumptively included as a service-connected condition for Veterans who served in Vietnam. We relied on estimates from NSV for information about the number of Veterans who served in Vietnam. We used VA business intelligence data to determine the proportion of these Veterans who are currently VA patients (we use age as a proxy for service in the Vietnam era). For the prevalence of hypertension in Veterans and current VA patients, we relied on MEPS. (See Section 5 and Appendix C for more information.) We applied the ratios of service in theater and hypertension to the Veteran populations who were eligible to receive VA health care but were not enrolled in VA health care, or were enrolled in the higher priority groups (7 and 8). Our detailed methods are described in Appendix D.

6.5.3 Results

The progression from Vietnam-era Veteran to likely enrollee is illustrated in Figure 6-2. The total height of the first bar represents the 7 million living Veterans who served during the Vietnam era, and the blue portion represents the approximately 3 million who served in theater. Of the 3 million, 61 percent are not enrolled or are in priority group 7 or 8 (where care is not free) (second bar). Among those not enrolled (but eligible for enrollment with other-than-dishonorable discharges) or in priority group 7 or 8, we estimate that 65 percent have hypertension (third bar). This hypertension prevalence rate is an average of the prevalence rate for enrolled Veterans in priority groups 7 and 8 (70 percent) and the rate for the non-enrolled Vietnam-era Veterans (62 percent). The height of the fourth bar is equivalent to those who could enroll as a result of a presumptive service connection for hypertension. Of course, not all of those who are eligible will enroll, so we therefore estimate that of the non-enrollees who have hypertension, 31 percent are likely to enroll and become patients (approximately 363,000 new patients).

Figure 6-2. Progression from Vietnam-Era Veterans to Likely New VA Patients If Hypertension Is Adopted as a Presumptively Service-Connected Condition
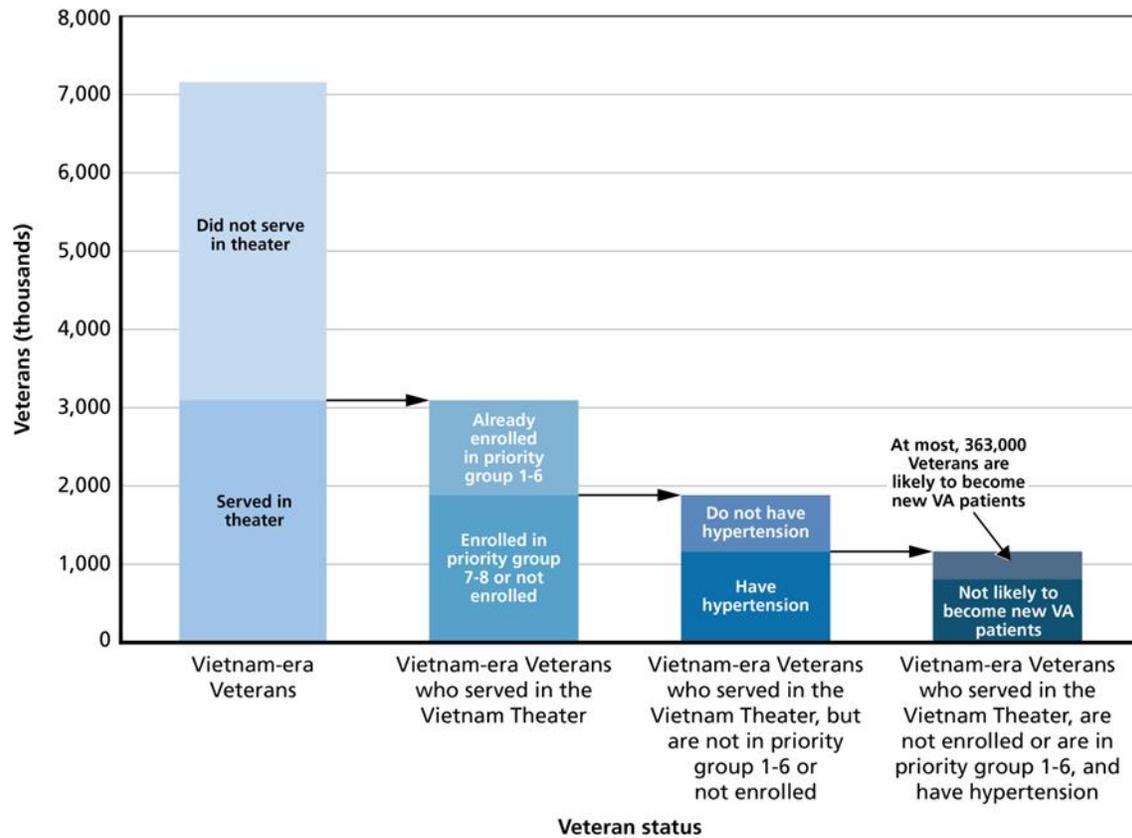
SOURCE: RAND analysis of NSV, MEPS, ACS, and VA Business Intelligence (Enrollment) data.

6.5.4 Discussion

An increase of 363,000 new patients would represent an increase of 6.4 percent in VA's total patient population (5.7 million in 2014 as reported in EHCPM output). The key driver of our estimate is the use rate for Veterans with hypertension: While we calculated use rates for the relevant Veteran population in MEPS, actual enrollment and use rates by the newly eligible may be higher or lower than our assumptions.

6.6 Potential Impact of Future Military Conflict on VA Use

6.6.1 Description

The United States has spent roughly 25–35 percent of the past 115 years engaged in some form of armed conflict. If past experience is any guide, the chances of future conflict are high (Kavanagh, 2013). Conflict affects the size of the VA patient population in three significant ways. First, the authorized end-strength of the military may grow larger, which translates into larger cohorts of Veterans when those additional personnel eventually separate. Second, conflict may increase the number of service members who will qualify for VA health benefits, through a wide range of mechanisms, including activation of reserve/National Guard units, deployment into a theater of combat, increased risk of service-connected disability, and automatic placement into higher VA priority groups. Third, exposure to the conflict environment may carry unique health risks that are rare among the non-Veteran population. Consequently, Veterans with conflict-related health conditions are likely to rely on VA for a larger portion of their care. Taken together, this suggests that future conflict is both likely to occur and likely to affect the demand for VA health care.

In the future conflict scenario, we examined the potential consequences of future conflict on demand for VA health care over the next 10 years. These analyses are not models of war itself. Rather, they are models of how changes in both the size of the military and the average exposure to conflict among service members have consequences for the number of new patients using VA health care services. We examined 36 future conflict scenarios based on different assumptions about how end-strength would be affected, how widely service members would be exposed to conflict, and how rates of VA health care enrollment or reliance on VA for health care would vary. We then observed the commonalities across scenario assumptions— which patterns tended to hold, regardless of the specific assumptions made.

In projecting the implications of conflict for VA health care, we are not breaking new ground. VA, DoD, and Congressional Budget Office analysts are among those who have built models to examine this contingency. However, conflict consequences are difficult to model, and transparency on current modeling approaches is relatively scarce,[43] so there is significant room for contributions to this type of modeling. In addition, we examined how different combinations of assumptions interact to produce different consequences, which may aid future model consumers in understanding how models differ, and when those differences matter. We also built on previous RAND research on force planning and personnel patterns, which imbues our model with unique insights into service member separation choices and how these would be shaped by the near-term policy environment. This includes research into the poor performance of stop-loss (Brady, 2014), positive impact of deployment on retention rate (Hosek & Martorell, 2009), difficulties maintaining deployment readiness among reserve components (Brauner, Jackson, & Gayton, 2012; Pint et al., 2015), and the effectiveness of incentive-based retention strategies (Asch et al., 2010).

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[43] Some of this is by necessity. Much of the defense modeling on this topic is understandably classified.

6.6.2 Approach

Data and Methods for Scenario Three, Impact of Future Conflict on Demand for VA Care

- We used data from DMDC and the U.S. Census Bureau, DoD planning documents, the NSV, and the SoE to examine 36 potential future conflicts and their impact on demand for VA health care between 2015 and 2024.
- We employed a conversion process that begins with a starting population (current Veterans in VA's model) and winnows this down to the segment that will eventually rely on VA for at least part of its health care. Our projections involved two conversions: how end-strengths of the U.S. military translate into separations from the military and how separations from the military translate into VA patients.

As in VA's own models, ours modeled a conversion process by which a starting population (service members in these projections; Veterans in VA's model) is winnowed down to just the segment that will eventually rely on VA health care for at least part of its care. Many of these conversions are difficult to predict (e.g., when the next war will break out, and how widespread exposure to the conflict environment will be), so we calculate conversion rates under different assumptions, and then examine the resulting range of outcomes. Our projections involved two conversions: (1) how the end-strength of the U.S. military translates into separations from the military, and (2) how separations from the military translate into VA patients. In our models, the first conversion and final projection figures were calibrated and validated against the VA population projections in Section 3. The second conversion was validated against the enrollment and reliance rates in Section 4.

Military end-strength scenarios. The total size of the U.S. military is difficult to forecast, because it can change rapidly to accommodate the current security needs of the United States. Therefore, we created six potential scenarios of end-strength for the 2015–2024 period. These projections included the active, reserve, and National Guard components of the Army, Navy, Air Force, and Marine Corps—about 2.2 million service members in 2014. Each scenario extrapolated from manpower statistics and planning documents.

Three scenarios ("build up") started from historical data (Defense Manpower Data Center, 2014; U.S. Census Bureau, 2012b) for the post-2000 period to estimate how high end-strength could rise. They projected the total end-strength that would result if each component of each service rose to its highest historical level for the post-2000 period, peaked, and then steadily declined afterward. This rise-peak-decline pattern is typical for a war-time surge. For the Army and Marine Corps, maximum end-strength occurred between 2009 and 2011, to better meet the challenges of the wars in Afghanistan and Iraq. For the Navy and Air Force, this occurred between 2002 and 2004, before a new wave of technological improvements allowed both services to reduce the quantity of personnel necessary to operate their respective fleets. While reduction from those levels was driven by technical change, it is conceivable that new roles and

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technologies could lead to these staffing levels being re-attained in future conflicts. In fact, an air and sea war, perhaps fought over the Pacific, could exceed these force size projections.[44]

The other three end-strength scenarios ("draw down") estimated how low end-strength could fall. They follow a similar strategy as the "build-up" scenarios, but project the end strength that could result from the sequestration cuts scheduled to occur by 2019, as described in DoD planning documents (Office of the Under Secretary of Defense (Comptroller), 2015), the Quadrennial Defense Review (U.S. Department of Defense, 2014), and the Congressional Budgeting Office's analysis of them (Congressional Budget Office, 2014a). The planned cuts formed the backbone of these projections because, with few exceptions, they are lower than any historical force level in the 2000–2014 period. In the cases where they are not (active duty Marine Corps and Army Reserve/National Guard in 2000), we used historical lows instead of the sequestration cuts. Figure 6-3 reports the total end-strength for each scenario over time.[45] Appendix D reports all historical/planned maximums and minimums for each segment of the U.S. military.

For all scenarios, the drawdown to minimum or buildup to maximum was implemented over the course of three years. Given the minimum, maximum, and current end-strengths observed, this approximates the end-strength rate of change observed during the 2007–2010 surge.

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[44] Because the United States has not fought an air and sea war since World War II (and that was fought concurrently with a large land war), there is not enough historical performance data to project an end-strength scenario.

[45] The equivalent 2024 figures for the active duty Army are as follows: 622,000 (increase × 110 percent), 566,000 (increase, starting 2016), 538,000 (ramp up, starting 2018), 510,000 (temporary decrease), 420,000 (permanent decrease), and 378,000 (decrease × 110 percent).

Figure 6-3. End-Strength Scenarios (total non-civilian U.S. military personnel)
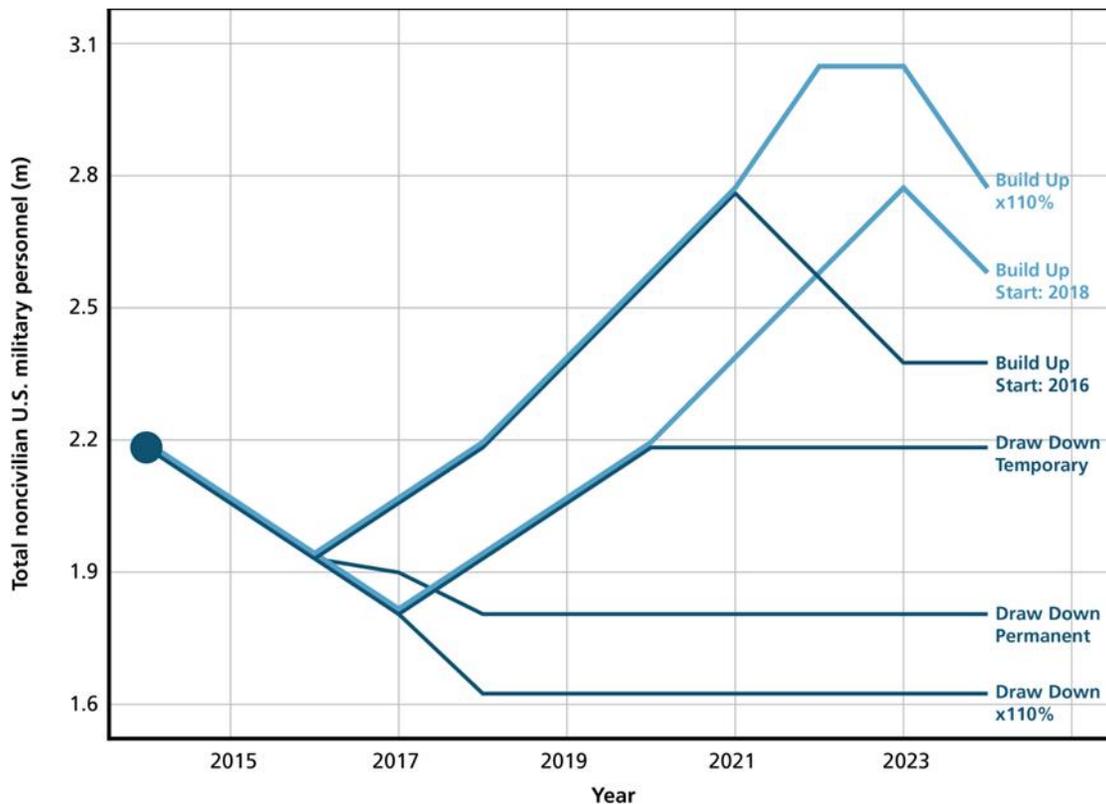
SOURCE: RAND calculations based on DoD administrative data (2015), Census Bureau data (2012), Congressional Budget Office analysis (2014), and U.S. Army posture statements (2014).

Combat exposure scenarios. While end-strength could have consequences on the demand for VA care, the total size of the U.S. military is not necessarily related to how much combat exposure service members will receive. To capture those potential effects, we created three potential scenarios of possible combat exposure. Each scenario projected the total number of combat exposures that would result if each component of each service experienced the maximum, minimum, and average rate of hostile deployment that it witnessed between 2000 and 2014 for each year of the 2015–2024 period.[46] Appendix D reports all historical ranges for each segment of the U.S. military.

Separating service members. A great deal of research has examined service member separation patterns. This research suggests a complex relationship between personal expectations, life situation, deployment, and the chances of re-enlisting. While extended hostile deployments tend to decrease the chances of reenlistment, moderate deployments actually increase those chances (Hosek & Martorell, 2009). Moreover, the current system of targeted incentives has proven an effective tool for shaping these chances to meet current personnel

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[46] In these scenarios, the combat exposure rates do not vary with surges in end-strength, because they do not correspond strongly in the historical data for the 2000–2014 period. While surges in end-strength may correspond with a more intense war effort, they also lower each service member's chance of being deployed.

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needs (Asch et al., 2010). Consequently, rates of separation tend to reflect DoD personnel needs, much more than individual factors. Therefore, we modeled separation patterns from the perspective of DoD. Under average conditions, what rates of separation are typical among the various ranks, components, and services? When end-strength needs change, how are these cuts or increases typically realized among the various ranks, components, and services? We formulated a regression model to examine the relationship between total end-strength, changes in end-strength, and separation rates for each service, component, and officer/enlisted segment. This model contained 48 separate coefficients to characterize all of these features, and the interactions between them. However, the basic patterns they revealed can be summarized in just four points:

- Enlisted service members average less time on active service than officers before separating, and account for most of the extra separation changes when required end-strength declines. To be precise, DMDC separation records suggest that, in 2013, 75 percent of enlisted service members separated within eight years, while 75 percent of officers separated over the course of 16 years. Among active component service members, those figures were 11 years and 22 years, respectively.

- Active component and reserve/guard component personnel levels experience some countervailing movement over time. It is not unusual to see the active component swell when the reserve/guard component shrinks, and vice versa. This is especially common at the beginning and end of conflicts, as service members from one are converted into service members in the other. However, it is also common during cutbacks.

- Reserve/guard component personnel spend less time on active duty than active component personnel, and tend to experience proportionally larger swings in total size. DMDC separation records suggest that, in 2013, 75 percent of active component service members separated within 12 years of active service, while 75 percent of reserve component service members separated with less than a year of active duty service.

- Soldiers and Marines had fewer years of active service at the time of separation than did airmen and sailors, on average. DMDC separation records suggest that, in 2013, 75 percent of airmen/sailors separated within 12 years, but 75 percent of soldiers/Marines separated within seven years. Among active component service members, those figures were 15 years and 10 years, respectively.

Model predictions for the cumulative number of separating service members[47] were calibrated against the demographic models discussed in Section 3. Our minimal conflict, permanent drawn scenario assumptions produced the same predicted increase in the size of the post-9/11 Veteran cohort by 2024. Appendix D reports the typical years of service at time of separation for active and enlisted personnel over this time period.

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[47] Minus those with less than two years of active duty services, and no hostile deployments. For the reserves and National Guard, we made some allowances for those who served a full term for which they were called up, qualifying for VA without serving a full 24 months.

Enrolled VA health care users. Combining these projections with various survey sources, we then calculated how many of these separating service members might go on to rely on VA for at least some of their health care needs. This analysis involved using VA's NSV to calculate the probability that Veterans with different characteristics would enroll in VA health care, and also VA's SoE to ascertain the probability that Veterans with different characteristics would rely on VA for at least some portion of their health care needs. Implicitly, these probabilities are modeling both the chances that a Veteran would be eligible for VA health benefits, and that he or she would choose to enroll and rely upon VA care.

However, implicit in this conversion rate is the assumption that future conflicts will affect the chances of enrollment and reliance in the same way that they did during the 2000–2014 period. For example, one of the reasons why conversion rates are higher for deployed Veterans is that deployed Veterans are more likely to suffer a service connected disability. However, differences in the weapons technology, battlefield medicine, and geographic location of futures conflicts can alter the chances of acquiring such a disability.

To examine the consequences of such variation, we crafted two scenarios of the chances that separating service members would become VA users. One scenario assumed a 10 percent increase in the conversion rate, while the other assumed a 10 percent decrease in those rates. Our baseline rates were validated against the rates calculated in Section 4. See Section 4 for a more detailed treatment of reliance and enrollment rates.

6.6.3 Results

Figure 6-4 reports the results of 18 projections (the doughnut plots) of separating service members for each of six end-strength scenarios (the rows), and three conflict exposure scenarios (the columns). The size of each doughnut is proportional to the total number of separations projected to take place between 2014 and 2024. The three colors divide the separations into three broad categories: (1) *ineligible*—those with less than 24 months of active duty service and no combat exposure (light gray); (2) *served two or more years*—those who separated with at least 24 months of active duty service, but no combat exposure (medium blue);[48] and (3) *deployed*—those who experienced at least one deployment into a conflict zone before separating (dark blue). These categories are based on the historical maximum, average, and minimum observed deployment rates for each segment of the military during the post-9/11 period. The precise historical figures are reported in Appendix D.

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[48] Reservists and National Guard personnel who were called-up and served for their full term are counted as having served 2+ years.

Figure 6-4. Cumulative Separations (2015–2024)
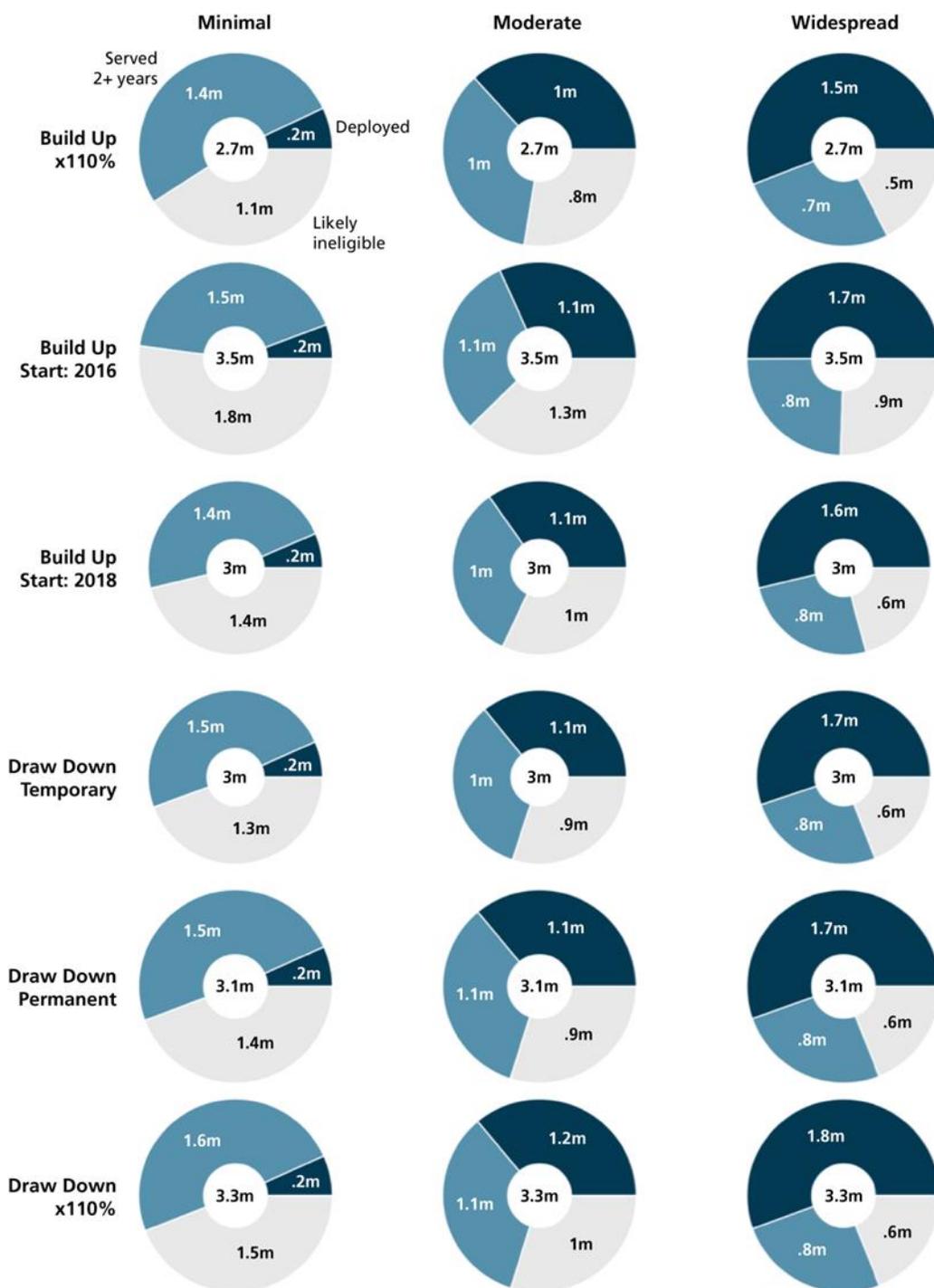
SOURCE: RAND calculations based on DoD administrative data (2015), Census Bureau data (2012), Congressional Budget Office analysis (2014), and U.S. Army posture statements (2014).

Across scenarios, the number of projected service members who will separate between 2015 and 2024 varies from 2.7 to 3.5 million. However, a substantial portion, mostly reservists, will not have been on active duty long enough to qualify for VA benefits. That leaves between 1.6

and 2.6 million that will be on active duty for at least two years before separation and/or have experienced a deployment to a hostile area.[49]

Looking across scenarios, the largest increase in end-strength did not necessarily translate into the sharpest increase in separations, because many of those new recruits will remain in service for a number of years afterward. According to DMDC records, 50 percent will still be in service six years later, and 25 percent will still be in service 12 years later. Because the impact of a recruiting surge is diffused over a number of years, the number of separations rises gradually, rather than abruptly. In contrast, drawdowns have a much more immediate effect. When end-strength decreases, additional separations are encouraged through changes in incentives, and these excess separations fully enter the Veteran pool within the first couple of years. Consequently, a recruitment surge would need to be more than three times as large as a drawn down to have the same near-term consequences for VA.

Conflict can have a major impact on how separation translates into potential users of VA services. One major mechanism is activation. Reservists who would not otherwise qualify for VA benefits would become eligible through deployment and active duty service. Conflict exposure itself also carries consequences for eligibility and the chances of relying on VA to provide care. The net result is that conflict can allow even a relatively small cohort of new separating service members to translate into a larger impact for VA, because proportionally more are likely to become users of VA health care. The "Build Up Start: 2016" row examines the volume of separations that might result if the United States began surging toward its historical maximum size in 2016, and then slowly started drawing back down after reaching that maximum. Between 2014–2024, 3.5 million service members were projected to separate. In a minimal conflict scenario, historical rates of deployment (the lowest observed in the post-9/11 period) and reenlistment suggest that approximately 200,000 of them might be deployed, and 1.5 million might spend enough time on active duty to meet VA requirements. In a widespread conflict scenario, historical rates of deployment (the highest observed in the post-9/11 period), 1.7 million might be deployed, and an additional 800,000 would be projected to serve sufficient time on active duty. This would amount to nearly a 50 percent increase in the number of potentially eligible Veterans, and an 850 percent increase in the number of likely deployed Veterans.

Figure 6–5 estimates how many of these separating service members would likely become VA patients under various scenario assumptions. The 36 lines are cumulative, charting how many new users would be likely to have used VA health care by that year under a given set of assumptions. The lines are colored to reflect the end-strength scenario. The black bars on the right identify which subset of lines reflects different sets of conflict exposure and enrollment and reliance assumptions (marked on the chart as E&R). For example, the bar labeled "High War Exposure, E&R x 90%" denotes the assumption that a larger percentage of separating service members will have experienced at least one hostile deployment, but that the conversion rate of separating services members to VA patients will be lower than it was during

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[49] For reservists and National Guard officers, we account for some basic exceptions to the threshold of 24 months of active service.

the 2000–2014 period. It spans from 700,000 VA patients to a little more than 800,000 VA patients, because all of the scenarios that make this assumption project between 700,000 and 830,000 new VA patients by 2024.

Figure 6-5. Cumulative New VA Patients Under Various Scenario Assumptions
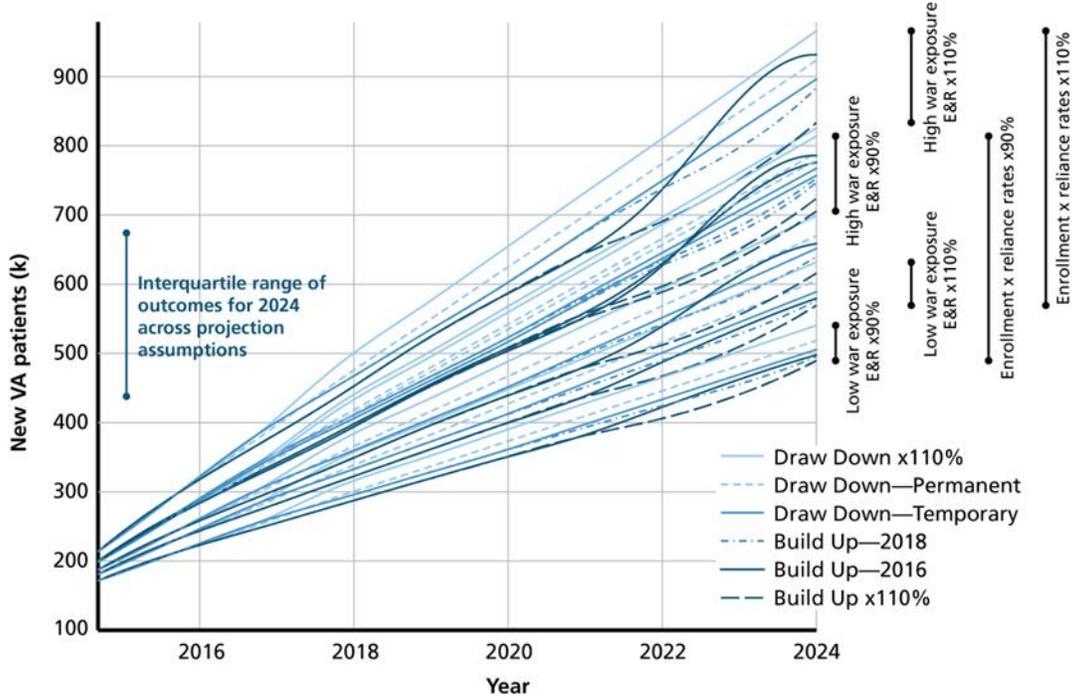
SOURCE: RAND calculations based on DoD administrative data (2015), Census Bureau data (2012), Congressional Budget Office analysis (2014), U.S. Army posture statements (2014), NSV survey responses, and SoE survey responses.

In terms of end-strength, the biggest impacts on the number of additional VA patients occurred in scenarios that involved either a massive drawdown in the size of the military or a surge happening within the next couple of years, followed by ample time to draw back down. However, the total impact of the end-strength scenarios is relatively small compared with the other assumptions—at most generating a difference of about 100,000 patients by 2024.

Our two enrollment and reliance scenarios considered a 20-percent difference in the assumed rate at which eligible separating service members would become VA patients. The projected effect varied greatly, depending on the other scenario assumptions, but may generate up to 150,000 additional patients by 2024.

However, all of these pale in comparison with the effects of conflict exposure as a driver of demand for VA health care. Military conflict affects these projections at multiple stages—raising the number of eligible reservists and National Guard officers, increasing the rate of conversion to VA patients, and so on. Cumulatively, these effects could raise the number of VA patients by 200,000–300,000 over the next decade.

6.6.4 Discussion

Our analysis reveals three major findings. First, while a military buildup would produce more Veterans in the long term, drawdowns create a much steeper annual rise in the size of the Veteran population, because the population impact of a buildup is spread over a larger number of years. Drawdowns are much more likely to require VA to quickly and significantly increase its capacity. A sharp drawdown after a large buildup affects VA more than any other end-strength scenario. Second, conflict exposure increases demand for VA health care more than any other projection assumption. Looking across projections, the smallest wartime cohort of separating Veterans generates more VA usage than the largest peacetime cohort. Third, only some service members will become VA patients. The conversion process—from service member to eligible Veteran to VA patient—plays a significant role in determining how much demand VA would need to meet.

If we reflect on the Afghanistan and Iraq experiences, the past 15 years have witnessed the sequence of events most likely to generate a rise in demand for VA services. The combination of war and sequestration increases future eligibility and demand for VA health care among service members, and then quickly moves those service members into the Veteran pool.

Looking forward to the near future, the majority of our scenarios predicted 500,000 to 925,000 new VA patients by 2024. However, most high-conflict projections estimated 750,000–925,000, while most low-conflict projections estimated just 500,000–600,000 new patients. This suggests that even moderate levels of hostile deployment can have big repercussions for the size of the incoming cohort of VA patients.

However, previous cohorts, especially the Vietnam cohort, were much larger than recent cohorts, so the difference would be small relative to the entire VA user population. To be precise, of the 21.6 million Veterans in 2014, only 2.6 million served during the post-9/11 period. Projecting forward, 1.7 million new post-9/11 Veterans are expected to join that cohort by 2024, while the overall size of the Veteran population declines to 17.5 million. These projections suggest that, depending on end-strength and conflict intensity, the number of new Veterans may vary between 1.6 million and 2.6 million. That amounts to approximately a 50 percent difference in the projected size of the post-9/11 cohort, but only a 5 percent difference in the size of the 2024 Veteran population.

6.7 Improving Access to VA Care

6.7.1 Description

VA has a range of policy tools at its disposal to address actual and perceived barriers to access. The Choice Program, which enables Veterans meeting certain criteria to receive VA-paid care from community providers, is one example. However, other, more-expansive policies are also possible. For example, the Choice Program, which is a temporary three-year program that applies to previously enrolled Veterans only, could be made permanent or expanded to all Veterans. In this scenario, we modeled the potential impact on VA (in terms of new patients) of eliminating all actual and perceived barriers to access, regardless of the policy tool or approach

used. This analysis is a useful bounding exercise for the potential impacts of the policies to improve access. As in other scenarios, we assumed that the underlying VA health care delivery system and access to health care through non-VA channels remain constant over time.

6.7.2 Approach

Data and Methods for Scenario Four, Improving Access to VA Care

- We analyzed Veterans' responses to the 2010 NSV to calculate (1) the proportion of Veterans who selected an access-based reason for never using VA health care and (2) the proportion of Veterans who were VA patients.
- We calculated the number of Veterans who would use VA health care if those who reported access-related reasons for not using VA health care started using VA health care at the same rate as their peers. We did this by multiplying the number not using VA for access-related reasons by the use rate among Veterans who were patients or did not report access-related reasons for not using VA health care.
- We conducted a similar analysis using data from the SoE to determine the number of enrolled non-users who might become VA patients if access barriers were lifted.

We analyzed Veterans' responses to the 2010 NSV to calculate the proportion of Veterans who are not enrolled to receive VA care and who selected an access-related reason for not using VA health care. We also used NSV data to calculate VA use rates for each Veteran subgroup, excluding from the denominator those who reported an access-related reason. In a separate analysis, we used ACS data to estimate the proportion of Veterans in each health insurance coverage subgroup who are eligible to receive VA services. Our approach for this last analysis is outlined in detail in Section 6.4 and Appendix D.

We combined these inputs to calculate the number of Veterans who might enroll in and use VA health care if access improved. More specifically, we calculated the number of potential new VA patients if Veterans who we estimate to be eligible for VA care and who reported access issues started using VA services at the same rates as Veterans who did not report access problems.

We repeated these steps for Veterans who are enrolled to receive VA care but are not current VA patients using the 2013 SoE. While NSV and SoE both describe Veterans' reported access-related reasons for not using VA health care, the two surveys sample different populations and offer complementary insight into how use of VA health care might change if access improved. Unlike SoE, NSV surveys Veterans who are not currently enrolled to receive VA health care services. This population of Veterans is important in our analyses because if access to VA care improved, we would expect additional Veterans to enroll to receive VA health care services. While SoE has a larger sample size and is more recent than NSV (2013 versus 2010), it is limited to enrolled Veterans only. Both surveys have information on enrolled Veterans who choose not use VA health care services. We present results from both surveys in an effort to present a range of plausible impacts if VA were to improve access to its health care.

In addition to the analyses described above, we fitted multivariate logit models using NSV data to describe how various characteristics of Veterans predicted the likelihood of self-reporting one or more access-related reasons for non-use.

Using this approach, we acknowledge that some Veterans would choose not to use VA health care even if there were no actual or perceived access, quality, or other differences between VA care and community-based care. The number of Veterans who choose to become new VA patients is affected by many factors, including access to other sources of health coverage and other features of the conceptual model described in Figure 2-1.

6.7.3 Results

6.7.3.1 NSV Analyses

We found that a significant share of Veterans reported an access-related reason for not using VA health. Of the 14.8 million Veterans who self-reported that they never used VA health care benefits, 1.8 million (or 12.4 percent of non-users) reported not using VA care because either "VA care is difficult to access (parking, distance, appointment availability)" or there was "too much trouble or red tape" (Figure 6-6).[50] Many of the choices available to respondents—for example, "never considered getting any health care from VA" or "don't think VA health care would be as good as that available elsewhere"—are broad responses that could reflect access, convenience, amenity, and quality of care reasons for not receiving care. The actual number of Veterans not using VA care who experienced access problems may be higher than the 12.4 percent noted above, to the extent that these Veterans selected more-general responses in lieu of specific responses related to access.

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[50] Note that some respondents selected both reasons, and therefore the combined rate is not the sum of the two rates reported in Figure 6-6.

Figure 6-6. Selected Reasons for Not Utilizing VA Care (percentage of non-user Veterans)
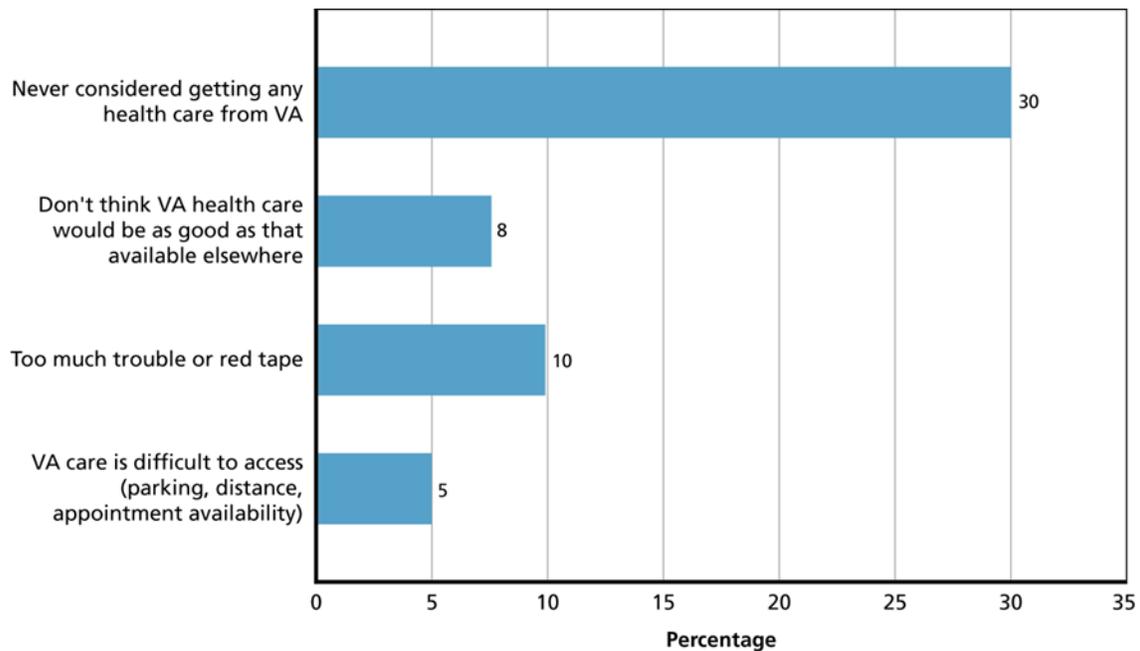
SOURCE: RAND analysis of 2010 NSV data (Item E2).

Next, we considered whether certain Veteran characteristics were associated with self-report of an actual or perceived access issue. The results from multivariate models suggested that some Veteran characteristics increased the odds of a Veteran reporting either "VA care is difficult to access" or "Too much trouble or red tape" as the reason why he or she has not used VA health care in the past (Figure 6-7). Non-patient Veterans with incomes greater than 133 percent of the federal poverty level (FPL) were less likely to report one of these two reasons than non-patient Veterans with incomes under 133 percent of the FPL. Non-patient Veterans with poorer self-reported health status had increasingly higher odds of reporting one of these two reasons compared with non-patient Veterans self-reporting that they were in excellent health. Odds ratios for age, sex, service branch, and residence Census region were not statistically distinguishable from 1 and were not included in Figure 6-7.

Figure 6-7. Relationship Between Veteran Characteristics and Self-Reported Access Barriers
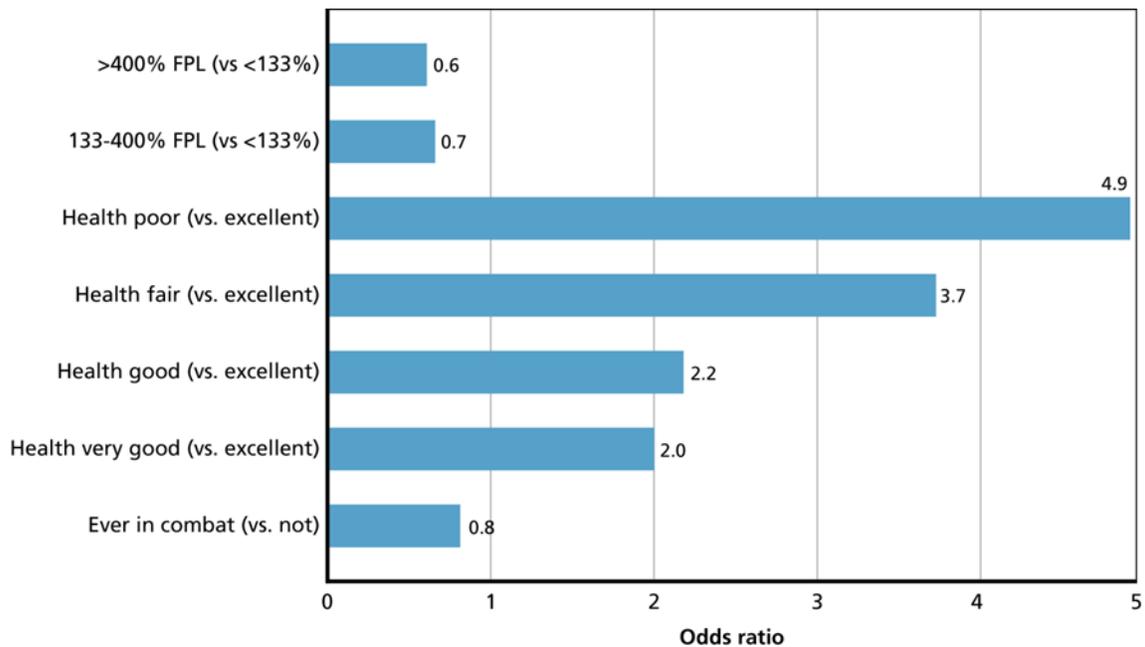
SOURCE: RAND analysis of 2010 NSV data.
NOTES: Odds ratios less than 1 imply that the Veteran subgroup has a lower likelihood of reporting an access-related reason for non-use than the reference group noted in parentheses. For example, Veterans at or about 400 percent of the FPL are 60 percent as likely to report an access-related reason than Veterans below 133 percent of the FPL. Likewise, odds ratios greater than 1 indicate that the group has a higher likelihood of reporting an access-related reason for non-use than the reference group.

Table 6-4 reports estimates of the number of Veterans who are not VA patients and who report an access-related reason for their non-use in NSV; the proportion of Veterans in each coverage category that we estimate are eligible to receive care; the utilization rate for Veterans in subgroups by other health insurance coverage who did not report an access issue; and an upper bound estimate of new patients that VA should expect if all non-patients reporting access-related reasons for their non-use became VA patients at the same rates as their peers. The bulk of new patients would have private health insurance, Medicare coverage, or no coverage other than VA. We estimated that an upper bound of 235,000 Veterans who were formerly not VA patients might start using VA care if there were no access barriers in the VA health care system.

Table 6-4. Upper Bound of New Patients Responding to Improved Access

Population	Non-Patients Reporting an Access Reason (thousands)	Proportion of Veterans Eligible to Receive Care (%)	Use Rate (%)	Upper Bound of New Patients (thousands)
No Coverage or VA only	122	60	52	**38**
Private only	811	28	19	**43**
Medicare only	172	53	42	**39**
Medicaid only	44	98	48	**21**
TRICARE only	89	47	39	**16**
Other (single) coverage only	11	62	32	**2**
Private and Medicare only	390	39	17	**25**
Medicare and TRICARE only	49	47	51	**12**
All other combinations	151	71	34	**37**
Total	**1,837**	**44**	**29**	**235**

SOURCE: RAND analysis of 2010 NSV data.

6.7.3.2 SoE Analyses

In order to explore how the elimination of access-related barriers would influence patient counts among current enrollees, we identified five SoE items that are most closely aligned with Veteran access to care:

1. "Veterans like me can get in and out of an appointment at VA in a reasonable time."
2. "When Veterans like me go to VA for an appointment, they do not wait a long time to see the doctor."
3. "It is easy to get to my local VA facility."
4. "There is a VA provider in my area that offers all of the health care services that Veterans like me need."
5. "It is easy for Veterans like me to get around in the VA health care facility."

Overall, 13 percent of Veterans who are not patients reported that they "completely disagreed" or "disagreed" with at least one of the five items listed above.

We multiplied SoE estimates of the number of enrolled Veterans who were not 2013 VA patients by the proportion of non-patient Veterans in each age category reporting a potential access problem (columns A through C in Table 6-5). We then assumed that, at most, these Veterans would begin using VA health care at the same rates as Veterans in the same age band,

excluding all Veterans who reported potential access problems (column D).[51] The resulting estimate is 212,000 new VA patients if all access barriers were eliminated.

Table 6-5. Upper Bound of New Patients Among Enrolled Veterans Responding to Improved Access

Population	A. Total Enrollees who were Not Patients in 2013 (thousands)	B. Proportion of Veterans Responding "Disagree" or "Completely Disagree" to an Access Item (%)	C. Non-Patients Reporting Access Reason (thousands)	D. Use Rate (%)	E. Upper Bound of New Patients (thousands)
Age 18–44	399	11.8	47	70.6	33
Age 45–64	735	11.5	85	78.8	67
Age 65+	1,047	14.0	148	75.4	111
Total	**2,181**	**12.8**	**279**	**76.0**	**212**

SOURCE: RAND analysis of 2013 SoE data.

6.7.4 Discussion

Even with nearly 2 million Veterans reporting an access-related reason for not using VA care in NSV, low use rates overall imply relatively small changes in new VA patients if access barriers were lifted. If non-patient Veterans reporting access issues started using VA care at the same rates as their peers who do not report access problems, we estimate that 235,000 Veterans will become new VA patients. Our complementary analysis of SoE data suggests that improving access to VA care could lead to an additional 212,000 currently enrolled Veterans opting to use VA care. The estimates from SOE are slightly lower than the estimates from NSV, in part because NSV includes all Veterans, while SOE focuses on enrolled Veterans only.

Our analysis made two important assumptions. First, we assumed that NSV and SoE accurately identified the proportion of non-VA-patient Veterans with an actual or perceived barrier to access. Neither survey is explicitly designed for this purpose, and neither directly asks Veterans to report or describe access barriers. VA would benefit from future surveys focusing specifically on the relationship between Veterans' perceptions of VA care and their decision of whether to receive care from VA. Second, we assumed that Veterans reporting access issues would use VA services at the same rates as their peers if actual or perceived access issues were to disappear. The actual use rate for these Veterans might be higher or lower than what we observed in survey data.

Despite these limitations, our analysis suggests that policies to improve access will have a modest impact on number of new VA patients. The relatively small effect reflects that many Veterans choose to receive some or all of their care from non-VA sources for reasons that do not appear to be entirely related to access. Additional data collection and analysis are needed

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[51] We calculated this hypothetical use rate by dividing the number of VA patients in each age band by the sum of the number of patients and the number of non-patients who did not report an access issue in each age band.

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to better understand the drivers of Veterans' decisions to use VA care rather than their other coverage. These inputs could be used to better predict how Veterans would respond—in terms of enrollment and utilization—to specific improvements in access to VA-provided care or wider availability of VA-purchased care.

6.8 The Affordable Care Act's Coverage Expansion

6.8.1 Description

The ACA introduced dramatic changes to the U.S. health insurance and health care delivery landscape. The ACA aimed to increase health insurance rates through several channels. First, the ACA as originally implemented would have expanded Medicaid eligibility to 133 percent of the FPL across the United States.[52] A 2012 Supreme Court decision (*National Federation of Independent Business v. Sebelius*, 2012) left the decision to expand or not expand Medicaid to the states. As of April 2015, 33 states have expanded or are considering to expand Medicaid. Second, the ACA created insurance Marketplaces operated by the states or federal government, paired with subsidies for low-income individuals and penalties for individuals who remain uninsured (Kaiser Family Foundation, 2015). The ACA also instituted an individual mandate requiring most people to obtain insurance, an employer mandate requiring that businesses with 50 or more workers offer coverage, and numerous other reforms.

The specific scenario that we evaluate focuses on the ACA's coverage expansion provisions. These include:

- *Medicaid expansion* enabling all individuals in participating states with family incomes at or below 133 percent of the FPL to enroll in the Medicaid program.
- *Subsidies for Marketplace insurance*, which are available to individuals with incomes between 100 and 400 percent of FPL who are not eligible for Medicaid and who do not have an affordable offer of coverage from an employer. The ACA's Marketplaces are online portals for buying and selling individual market (that is, non-employer) coverage. Individuals with incomes between 100 and 133 percent of the FPL are eligible for Medicaid in expansion states and Marketplace subsidies in non-expansion states.
- *The individual mandate,* which requires most Americans to obtain health insurance or pay a tax penalty.
- *The employer mandate,* which requires businesses with 50 or more workers to offer health insurance coverage or face penalties. In practice, the employer mandate has little effect on our analysis, because most employers with 50 or more workers offered insurance before the ACA was enacted and will continue to do so in the future.

The ACA includes a wide range of other provisions, including payment and delivery demonstrations, prohibitions on co-payments for preventive care, and taxes on expansive

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[52] Due to a 5-percent income "disregard" that is part of the modified adjusted gross income threshold used to determine Medicaid eligibility, the effective income threshold is 138 percent of the FPL. We use 133 percent of the FPL throughout this report for consistency.

employer-provided health insurance plans. While these dimensions of the ACA are not explicitly considered in our coverage expansion scenario, we touch on many of these issues in this subsection.

By February 2015, 11.7 million people were enrolled in Marketplace plans (Office of the Assistant Secretary for Planning and Evaluation, 2015b) and an additional 11.7 million people were newly enrolled in Medicaid and the Children's Health Insurance Program (Centers for Medicare & Medicaid Services, 2015a). Recent survey-based research confirms significant gains in coverage (Carman & Eibner, 2014; Long et al., 2013; Sommers et al., 2014), although the net decrease in uninsured rates reflects the fact that some people gaining Medicaid or Marketplace coverage previously had other sources of coverage. One group that is of particular interest to policy-makers and researchers is the set of people in the so-called "coverage gap"—that is, low-income individuals who lack affordable coverage options because they may not qualify for Marketplace subsidies and are in a state that opted not to expand Medicaid (Garfield, Damico, Stephens, & Rouhani, 2014).

While the ACA did not directly affect Veterans' eligibility to enroll in or receive VA care, there are important spillover effects of the ACA coverage expansion on Veterans and, ultimately, VA. Some uninsured Veterans may choose to enroll in VA health care to obtain qualifying coverage and avoid individual mandate penalties (U.S. Department of Veterans Affairs, 2015d). Other uninsured low-income Veterans, including some who were previously enrolled to receive VA health care or expect to use VA health care in the future,[53] may qualify for subsidies to purchase coverage in insurance Marketplaces, or they may live in states that opted to expand Medicaid. These individuals may transition out of the VA health care system and into the community setting to receive some or all of their care.

The net impact of the coverage expansion on VA depends on the number of Veterans who face new incentives to enroll in VA health care compared with the number of current VA patients who obtain new private or Medicaid coverage and opt to shift to non-VA, community-based providers. Analysis of Veterans' incomes in the 2013 ACS suggests that more than half of Veterans report family income of less than 400 percent of the FPL, which is the threshold for eligibility for Marketplace subsidies (Table 6-6). Approximately 13 percent of Veterans fall below 133 percent of the FPL threshold for Medicaid eligibility in expanding states. These proportions are similar in states that are and are not expanding Medicaid. Based on self-reported income alone, it appears that the health care decisions for a significant share of Veterans could be influenced by Marketplace subsidies or Medicaid expansion. Because our analysis considered states' decisions to expand Medicaid, it also took into account the geographic distribution of Veterans. Veterans who live in non-expansion states are therefore

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[53] Individuals who have an offer for "qualifying coverage" are not eligible to receive ACA subsidies. Enrollment to receive VA health care is considered qualifying coverage (U.S. Department of Veterans Affairs, 2015d). However, it is not clear whether there are processes in place to prevent a Veteran currently enrolled in VA health care from receiving subsidies to purchase care through an insurance Marketplace. Veterans may need to dis-enroll from VA health care in order to qualify for ACA subsidies.

less likely to gain a new source of insurance under the ACA than Veterans who live in expansion states.

Table 6-6. Distribution of Veterans by Income and State Medicaid Expansion Decisions

Income Relative to the Federal Poverty Limit	States Expanding Medicaid,[a] Percentage of Veterans	States Not Expanding Medicaid,[a] Percentage of Veterans
< 100% FPL	4.8%	4.1%
100–133% FPL	2.5%	2.2%
134–400% FPL	23.3%	19.4%
> 400% FPL	24.8%	18.8%
Subtotal	**55.4%**	**44.6%**
Total	**100%**	

SOURCE: RAND calculations using 2013 ACS PUMS.

[a] States announcing expansion by April 2015 are included in the expanding category (Kaiser Family Foundation, 2015). Four states (Alaska, Florida, Missouri, and Utah) that are considering expansion are included in the not expanding category.

The net impact also hinges on the proportion of Veterans in different populations who use VA services at all each year, or the *use rate*. Many Veterans have at least one other source of health insurance coverage other than VA health care, and Veterans with other coverage have markedly different use rates than Veterans without other sources of coverage. Slightly more than half of Veterans reporting no non-VA sources of coverage have used VA health care services in the past, and 43 percent report using VA health care services in the past six months (Figure 6-8). Only 8 percent of Veterans reporting private coverage alone report using VA health care in the past six months.

Figure 6-8. VA Health Care Use Rates, by Veteran Health Insurance Coverage
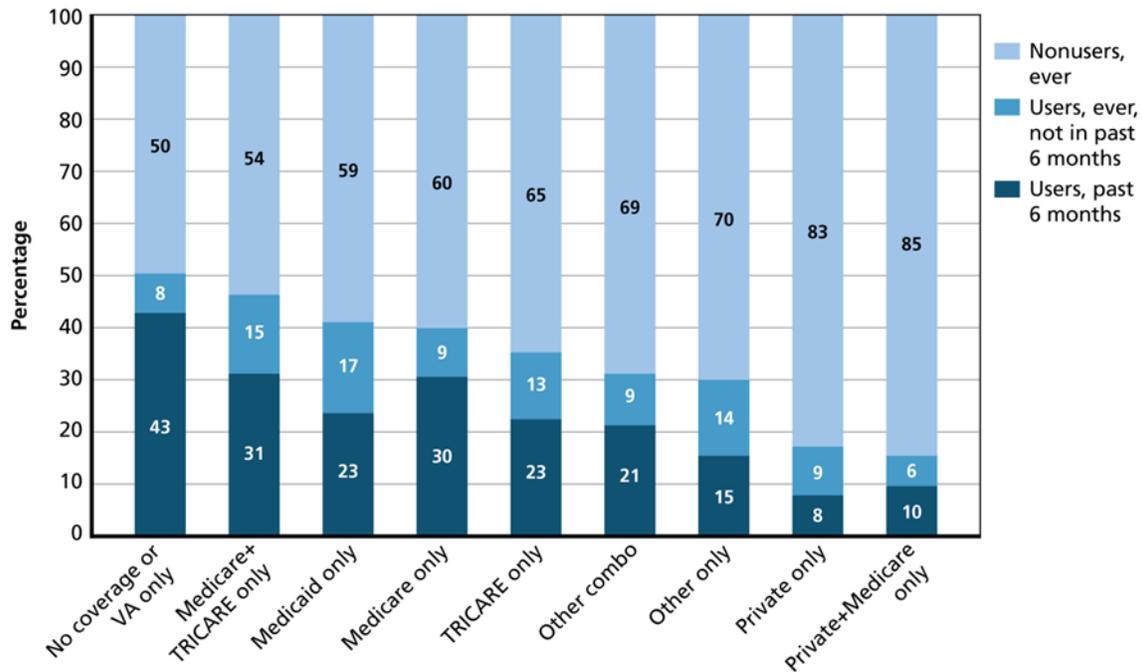
SOURCE: RAND analysis of 2010 NSV, items E2, E3, and F1, weighted by sampling weights.

The key assumptions underlying the ACA coverage expansion scenario center on whether and how Veterans who change their coverage status will change the way that they use VA health care. For example, VA health care enrollees who gain Marketplace or Medicaid coverage could continue to use VA health care as before the ACA, or they could shift to community providers and reduce or stop using VA health care. Many of the ideal inputs for evaluating the impact of the coverage expansion on VA are not yet available for analysis. We propose a set of "base case" coverage changes, enrollment rate, and use rate assumptions to illustrate key analytic steps and impacts. We also describe the implications of different assumptions in Appendix D.

6.8.2 Approach

Data and Methods for Scenario Five, Impact of the Affordable Care Act (ACA)

- We estimated the impact of two effects of the ACA's coverage expansion: (1) enrollment of previously uninsured Veterans in response to the individual mandate and (2) uptake of new private and Medicaid coverage by Veterans currently enrolled in and using VA health care. We used NSV data to estimate both the number of uninsured, under-65 Veterans (those not enrolled in VA and with no other source of coverage) and the number of under-65 Veterans enrolled in VA care but with no other source of coverage.
- We then analyzed these estimates to determine how many Veterans would obtain coverage through the ACA and assessed whether and how Veterans who change their coverage status because of the ACA will change the way they use VA health care services.

We separately estimated the impact of two countervailing effects of the coverage expansion: (1) enrollment of previously uninsured Veterans to gain qualifying health coverage and avoid individual mandate penalties, some of whom will actually use VA services and some of whom will enroll only to avoid penalties, and (2) uptake of new private and Medicaid coverage by Veterans currently enrolled in and using VA health care. Figure 6-9 illustrates these effects. If the outcome of interest is the number of VA patients, then the two key flows are those to and from VA patients. The net impact of the coverage expansion is the flow of new, previously uninsured patients minus the flow of current patients who transition entirely to other sources of care.

Figure 6-9. Coverage Expansion Patient Flows
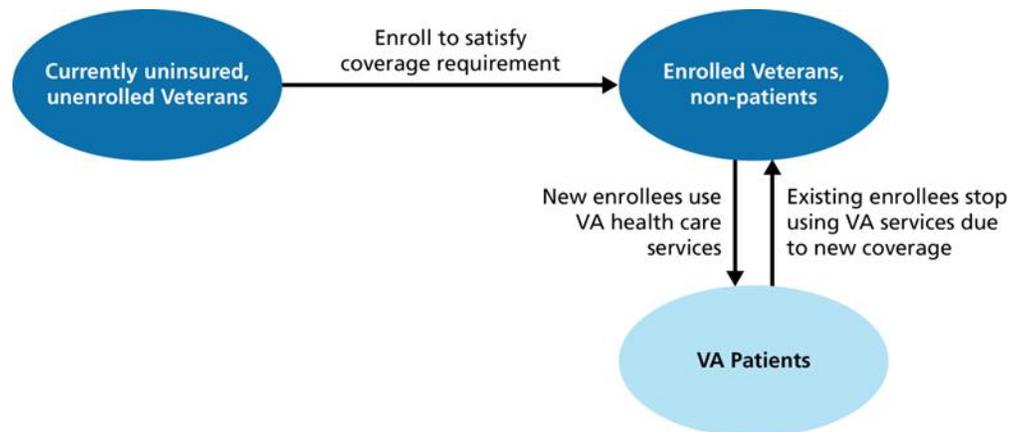
The net change in terms of patient counts nationally may be small when considering both impacts. However, individual shifts within demographic and priority group categories may be significant and important for VA to incorporate into its modeling activities. For example, low-income Veterans in states that chose to expand Medicaid eligibility may be less likely to use VA health services than their peers in states that opted not to expand Medicaid. Based on our

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review of the 2014 EHCPM model documentation, we do not believe that the most-recent VA projections of demand reflect any ACA-related changes in the enrolled population or use rates.

We used NSV data to estimate the number of uninsured Veterans—that is, Veterans who are not enrolled in VA health care and have no other source of coverage. We also used NSV data to estimate the number of Veterans who are enrolled in VA health care but have no other source of coverage. We then estimated how many of these Veterans would enroll in health insurance coverage in 2016 as a result of the ACA, ignoring their eligibility for VA health care. This analysis allowed us to separate the uninsured, non-enrolled Veteran population into two groups: (1) those who without VA eligibility would gain health coverage through the ACA and (2) those who would remain uninsured. We limited our analysis to Veterans under age 65, because most Veterans over age 65 are enrolled in Medicare, and because those age 65 and over are ineligible for the ACA's Medicaid expansion and Marketplace subsidies.

The estimate was based on results from the RAND COMPARE (COMPrehensive Assessment of Reform Efforts) microsimulation model, which is a model built to estimate the effects of the ACA (Cordova, Girosi, Nowak, Eibner, & Finegold, 2013). The model takes into account the four coverage expansion provisions described above, as well as changes to insurance regulations that will affect health insurance premiums and, consequently, enrollment decisions. The model also accounts for the ACA's effects on employers, although, in net, we estimate little impact on employer health insurance provision. We focused on individuals in the general population with the same age distribution as uninsured, non-enrolled Veterans. We calculated the number of Veterans who would be expected to enroll in Medicaid, Marketplace plans, or other private coverage by combining the estimates of Veteran populations with the coverage change estimates from COMPARE.

While we could estimate with some accuracy the number of Veterans who would be eligible for Medicaid and for subsidized health coverage through the Marketplaces, predicting their choice to take up this coverage, enroll for VA coverage, or remain uninsured is much more difficult. This is true for both those Veterans currently enrolled at VA and those not enrolled. While we begin with a set of baseline enrollment and use rates with some grounding in observed rates in the Veteran population, it is important to recognize that actual enrollment and use rates are not known and may deviate from the enrollment and use patterns observed in current Veteran and patient data.

We expect that Veterans with different health coverage options will enroll in VA health care at different rates; we assume that Veterans who are eligible for Marketplace subsidies will be less likely to enroll in VA than Veterans who are not eligible for subsidies, and Veterans who gain access to Medicaid will be less likely to enroll in VA than Veterans who gain Marketplace subsidies. We began by setting a base rate for the percentage of uninsured, non-enrolled Veterans who we predict will not gain coverage under the ACA. We applied this same base rate to Veterans over 400 percent of the FPL who we predict will gain coverage. These Veterans will not have access to subsidized coverage under the ACA. We set the enrollment rate for Veterans who we predict will gain coverage and can receive Marketplace subsidies at half of the base rate, to reflect that subsidies may make Marketplace coverage an attractive option, particularly for Veterans who had not enrolled previously in VA care. We assumed that Veterans who will

gain coverage through Medicaid will enroll in VA health care at one-quarter of the base rate, reflecting Medicaid's minimal cost-sharing requirements.

We assumed that Veterans induced by ACA to enroll in VA health care use VA services at the rate observed for the entire under-65 Veteran population with private insurance only. While this is lower than the use rate for enrolled Veterans overall, it reflects the fact that some Veterans will enroll solely for the purpose of obtaining qualifying coverage. As we note below, the use rate for these Veterans may increase over time. We report results for a range of enrollment and use rates in Appendix D.

Finally, we did not explicitly account for changes in use rates due to ACA-driven changes in VA priority group assignment. For example, in theory, Veterans could move from priority group 7 to priority group 5 if they live in a state with Medicaid expansion and now qualify under the higher-income threshold. The move to priority group 5 would face no cost-sharing for VA health care. However, the income threshold for priority group 5 is considerably higher than the higher Medicaid threshold, so we do not believe Medicaid expansion will affect the number of Veterans in priority group 5. More generally, the larger change for these Veterans is that they are gaining a new source of coverage from Medicaid, and we expect this change rather than a reduction in VA cost-sharing to be the more important driver of whether the Veteran chooses to become a VA patient.

6.8.3 Results

The following two subsections report separate results for the two flows of patients in Figure 6-9—first, a flow of new enrollees and patients from previously uninsured Veterans, and second, a flow of patients away from VA health care as they gain other coverage. A third subsection reports net results after combining these two components.

6.8.3.1 New Enrollees and Patients from the Previously Uninsured

If the post-ACA coverage transitions of Veterans were to resemble those for the general population, we estimate that half of the 1.1 million uninsured, non-enrolled Veterans in 2013 would enroll in another source of coverage—for example, Medicaid coverage or coverage through a Marketplace plan—by 2016. This rate would be lower for uninsured Veterans under 133 percent of the FPL, because not all states have expanded Medicaid. The remaining half of uninsured Veterans would be expected to remain uninsured through 2016. Table 6-7 reports the number of non-enrolled, uninsured Veterans by income category, the proportion of Veterans in each category to gain coverage, and the resulting number of Veterans predicted to gain other coverage. As a reminder, these results predict what uninsured Veterans would do if they did not have the option to enroll at VA. They are useful for identifying how many uninsured Veterans would choose to gain coverage and face a decision between ACA options and VA coverage, and how many would only consider whether to enroll at VA to avoid paying the penalty for being uninsured.

Table 6-7. Coverage Changes Under ACA for Previously Uninsured Veterans, by Income Category

Income Category	Non-Enrolled, Previously Uninsured Veterans (thousands)	Proportion Predicted to Gain Other Coverage (%)	Non-Enrolled, Previously Uninsured Veterans Predicted to Gain Other Coverage (thousands)
≤ 133% FPL	588	34.4	202
134–400% FPL	390	68.8	268
> 400% FPL	132	62.7	83
Total	**1,109**	**49.9**	**553**

SOURCE: Authors' analysis based on 2010 NSV data and the RAND COMPARE microsimulation model.

Not all uninsured Veterans are eligible to receive VA health care. We used eligibility rates calculated from ACS data and for specific income bands (as described in more detail in the changes to VA eligibility scenario) to estimate the proportion of Veterans eligible to enroll in VA care (Table 6-8).

Table 6-8. Eligibility for Previously Uninsured Veterans, by Income Category

Income Category	Non-Enrolled, Previously Uninsured Veterans (thousands)	Proportion Eligible to Receive VA Health Care (%)	Eligible, Non-Enrolled, Previously Uninsured Veterans (thousands)
Veterans Not Predicted to Gain Coverage Under ACA			
≤ 133% FPL	386	100.0	386
134–400% FPL	122	57.6	70
> 400% FPL	49	13.1	6
Subtotal	556	83.0	462
Veterans Predicted to Gain Coverage Under ACA			
≤ 133% FPL	202	100.0	202
134–400% FPL	268	57.6	154
> 400% FPL	83	13.1	11
Subtotal	553	66.4	367
Total	**1,109**	**74.8**	**829**

SOURCE: Authors' analysis based on 2010 NSV data, 2013 ACS PUMS data, and the RAND COMPARE microsimulation model.

The next steps estimate what proportion of Veterans will (1) enroll in VA health care and (2) become VA patients. Table 6-9 (column A) tracks these steps, starting with estimates of VA eligible, non-enrolled, previously uninsured Veterans from Table 6-8. Approximately one in four Veterans is currently enrolled to receive health care services, although the enrollment rate is significantly higher (47 percent) for Veterans without other sources of coverage. We apply a 50-percent enrollment rate for Veterans not predicted to enroll in another source of coverage as a result of the ACA. For Veterans who we predict will enroll in other coverage, we apply the same 50-percent enrollment rate for Veterans in the highest income category and lower enrollment rates for Veterans in lower income categories (because these individuals are ineligible for the ACA's subsidies), as discussed above: 25 percent for those who are eligible for Marketplace subsidies and 12.5 percent for those who enroll in Medicaid. With these enrollment

assumptions, we estimate an increase of 300,000 Veterans enrolled in VA health care (column C in Table 6-9).

Table 6-9. Predicted VA Enrollees and Patients

Income Category	A. Non-Enrolled, Previously Uninsured Veterans Gaining Coverage Under ACA (thousands)	B. Enrollment Rate (%)	C. Predicted Enrollees (Thousands)	D. Use Rate (%)	E. Predicted Patients (Thousands)
Veterans Not Predicted to Gain Coverage Under ACA					
≤ 133% FPL	385	50.0	192	24.2	47
134–400% FPL	70	50.0	35	21.2	7
> 400% FPL	6	50.0	3	14.4	< 1
Subtotal	462	50.0	231	23.6	54
Veterans Predicted to Gain Coverage Under ACA					
≤ 133% FPL	202	12.5	25	24.2	6
134–400% FPL	154	25.0	39	21.2	8
> 400% FPL	11	50.0	5	14.4	1
Subtotal	367	18.9	69	21.8	15
Total	**829**	**36.2**	**300**	**23.2**	**70**

SOURCE: Authors' analysis based on 2010 NSV data, 2013 ACS PUMS data, and the RAND COMPARE microsimulation model.

Our next step was to convert these estimates of new enrollees to estimates of new patients. We used a real-world use rate—calculated across enrolled and non-enrolled Veterans with private insurance—for this analysis (column D in Table 6-9).[54] In the short term, Veterans enrolling only to satisfy the ACA's individual mandate may have relatively low use rates compared with patients with private coverage. At a 50-percent base enrollment rate and the use rates described above, we estimated that ACA coverage expansion will result in 70,000 new VA patients who were previously uninsured and not enrolled (column E in Table 6-9).

A limitation of this analysis is that we had to make relatively strong assumptions about which Veterans would enroll and use care due to the ACA's individual mandate requirements. In Appendix D, we conduct sensitivity analyses to estimate how the results might change under a variety of alternative assumptions about enrollment and use rates.

6.8.3.2 Transitions Away from VA Health Care Due to New Coverage Options

Using NSV data, we estimated that there were 1.4 million Veterans enrolled in VA health care without another source of health coverage (column A in Table 6-10). Of these Veterans, approximately half would gain another source of coverage as a result of the ACA (column A in Table 6-10). How many would take up this other coverage is unknown.

The current use rates for this subpopulation of Veterans—that is, Veterans who are enrolled in VA health care and have no other source of coverage—are high (column D in Table 6-10). We

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[54] We used the private use rate rather than a combination of private and Medicaid use rates because there are very few Veterans with Medicaid coverage only in the NSV data.

assumed that use rates would fall by 25 percent for Veterans who gain other coverage (column E in Table 6-10). If all VA-enrolled Veterans who could enroll in ACA coverage do so and immediately shift to this lower use rate, we would expect 164,000 fewer VA patients each year (column F in Table 6-10). The magnitude of this impact hinges on the ACA take-up rate and the use rate assumption. We discuss the impacts of different use rate assumptions in Appendix D.

Table 6-10. Predicted Coverage Changes for Veterans Enrolled in VA Health Care Only, by Income Category

Income Category	A. Veterans Enrolled in VA Health Care Only (thousands)	B. Proportion Gaining Coverage (%) (RAND COMPARE)	C. Veterans Enrolled in VA Health Care Only and Gaining Other Coverage (thousands)	D. Use Rates, VA Health Care Only (%)	E. Change in Use Rate for Veterans Gaining Other Coverage (%)	F. Estimated Reduction in VA Patients (thousands)
≤ 133% FPL	728	34.4	251	97.9	-25.0	61
134–400% FPL	462	68.8	318	98.3	-25.0	78
> 400% FPL	191	62.7	119	80.6	-25.0	24
Total	**1,381**	**49.8**	**688**	**95.1**	**-25.0**	**164**

SOURCE: Authors' analysis based on ACS and the RAND COMPARE microsimulation model.

6.8.3.3 Net Impacts and Medicaid Expansion in All States

The net overall change in VA patients hinges on assumptions for enrollment and use rates. Using the base rates described above, we estimated a net decrease of 94,000 VA patients (70,000 new users, minus 164,000 current users who stop using VA care). However, other rates can lead to increases in the number of VA patients.

We looked separately at the impact of Medicaid expansion in every state. Some states that have yet to expand Medicaid are considering doing so, and it is possible that others will follow suit. If we apply the change in Medicaid enrollment that we have observed to date in expanding states to non-expanding states, Medicaid expansion in all states results in 28,000 fewer VA patients.[55] The net impact on VA from broader Medicaid expansion—including the decrease from the base case analysis—is a decrease of 122,000 VA patients.

6.8.4 Discussion

Our analysis suggests that the net impact of the ACA coverage expansion in terms of VA patients is modest, with a net decrease of about 94,000 VA patients per year. However, this net result combines separate flows of Veterans in and out of VA health care, and different assumptions can result in a range of net impacts, including increases in the number of VA patients. We expect that Veterans enrolling in Medicaid to gain qualifying coverage will use VA

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[55] Our estimate of 30,000 fewer patients includes 8,000 fewer new patients, as more Veterans opt for Medicaid to gain qualifying coverage, as well as 22,000 fewer patients among the already enrolled, as more Veterans access care through Medicaid.

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care at rates different from current enrollees without other sources of coverage. Specifically, we predict that they will use VA care at rates that more closely resemble current enrollees with access to private care or lower. A large proportion of these Veterans may not need or want to receive VA care, but rather are enrolling to satisfy the ACA individual mandate. Over time, these Veterans may start using VA care at higher rates. Finally, whether current VA patients take up offers for coverage through Medicaid or Marketplace plans hinges in part on their satisfaction with VA health care as their primary source for care, on Marketplace subsidies, and on family composition. For example, Veterans seeking coverage for themselves and dependents may be better served by enrolling in a Marketplace or other commercial family plan rather than enrolling in VA.

6.9 Summary of Scenario Impacts

Table 6-11 and Figure 6-10 summarize impacts of all scenarios on projected patient counts. The table shows only mid-range estimates for each scenario. However, there is considerable uncertainty about the factors behind these estimates. More-sophisticated analysis of Veteran health coverage decisions given the characteristics of the choices available to Veterans was not possible in the limited time for this study, but such analysis could help VA anticipate future changes in its patient population under these and other possible scenarios.

Table 6-11. Scenario Impacts on Projected VA Patient Counts

Scenario	VA Patients, 2014-2024										
	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Baseline (from Section 4)	5.87	5.99	6.06	6.11	6.14	6.16	6.15	6.14	6.12	6.09	6.07
Scenario 1: Changes to VHA Eligibility by Priority Group											
Priority Group 8e Eligibility	5.87	6.02	6.09	6.14	6.17	6.19	6.18	6.17	6.15	6.13	6.10
Priority Group 8e and 8g Eligibility	5.87	8.10	8.20	8.26	8.30	8.33	8.32	8.30	8.28	8.24	8.21
Scenario 2: Changes in Presumptive Eligibility	5.87	6.35	6.42	6.48	6.51	6.53	6.52	6.51	6.49	6.46	6.44
Scenario 3: Impact of Future Conflict on VA Use											
Minimal Conflict	5.87	5.99	6.03	6.07	6.10	6.13	6.17	6.20	6.24	6.27	6.32
Median Conflict	5.87	6.01	6.08	6.14	6.20	6.26	6.31	6.36	6.41	6.47	6.53
Widespread Conflict	5.87	6.03	6.12	6.20	6.28	6.36	6.43	6.51	6.59	6.68	6.75
Scenario 4: Improving Access to VA Care	5.87	6.23	6.30	6.35	6.38	6.40	6.39	6.38	6.36	6.33	6.31
Scenario 5: ACA Coverage Expansion											
ACA Overall	5.87	5.99	5.96	6.01	6.04	6.06	6.05	6.04	6.02	6.00	5.97
ACA Medicaid Expansion	5.87	5.99	5.94	5.98	6.01	6.03	6.03	6.01	5.99	5.97	5.95

Figure 6-10. Scenario Impacts on Projected VA Patient Counts
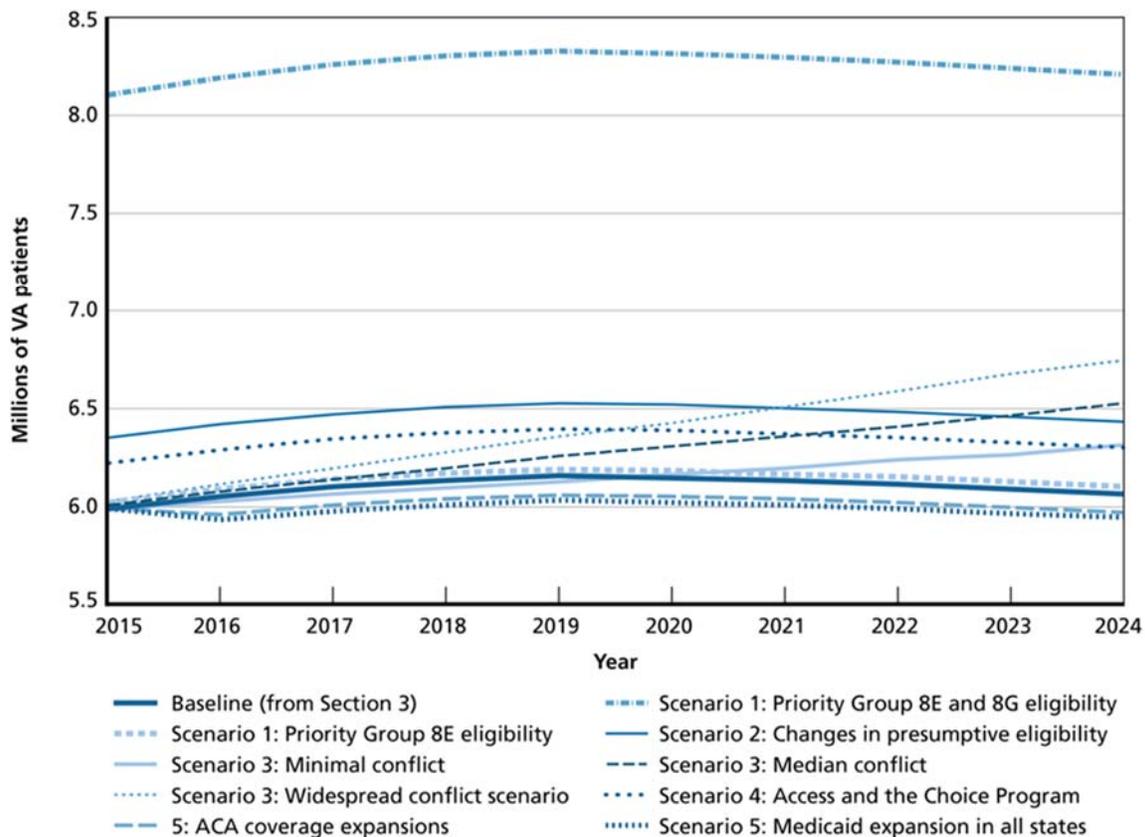
6.10 Discussion

The five specific scenarios help quantify the impacts of "what if" policy and trend questions on baseline projections. The impacts of some scenarios, like the priority groups 8e and 8g scenario and, to a lesser extent, the access and presumptive eligibility scenarios, suggest significant increases in the VA patient population. We estimate that increasing eligibility to receive VA health care services to include priority groups 8e and 8g would increase the number of VA patients by nearly 40 percent. Not coincidentally, the scenarios with the largest potential impact on VA in terms of patient counts are those that address eligibility, access, and patient choices. These scenarios could come about as the result of VA policy or congressional action rather than external policies or trends. Other scenarios, such as the ACA coverage expansion scenario, suggest more-modest effects, with changes in projections of VA patients over time on the order of tens or hundreds of thousands of patients per year, in the context of a base of approximately 6 million patients. Still, the impacts that we describe are potentially important for VA's resource allocation and planning, and for improving access and quality of care.

We considered a range of other potential drivers of change in VA patient projections that were not evaluated as formal scenarios.

Changes to the cost of employer-sponsored insurance: For example, the so-called "Cadillac tax" on high-cost employer-sponsored health plans introduced in ACA will go into effect in 2018

and could affect the non-VA coverage options available to some Veterans. More generally, ACA's employer mandate could drive some small and large firms to change the way that they provide coverage to their employees, or whether they provide coverage at all. Veterans could increasingly rely on VA for care if employers drop coverage or reduce the generosity of coverage over time, or if premiums for employer-sponsored insurance increase significantly over time.

Changes in the generosity of specialty drug coverage: Other trends in commercial insurance could drive Veterans to access more of their care through VA than through other sources. Commercial insurers increasingly place expensive biologic and other specialty prescription drugs on formulary specialty tiers, which are then often tied to significant cost-sharing, including co-insurance rates. Eligible Veterans can avoid paying hundreds or thousands of dollars in cost-sharing for specialty drugs by accessing these drugs through VA. This kind of "wrap around" use of VA increases enrollment and patient counts (because we define a VA patient as a Veteran using any VA health care services, even if it is only prescription drugs), and results in a considerable cost to VA in terms of the purchase and administration cost of the drug, but in the short-term, it introduces few new demands on the VA health care system. However, for Veterans enrolling in VA to receive a single "gateway" service like expensive specialty drugs, their proportion of care may expand over time. Current VA projections on the impact of specific specialty drugs (for example, expensive new hepatitis C treatments) focus on direct drug costs only and not on the impact of changes in specialty drug coverage outside of VA on projections of demand for VA care overall.

Changes in access to mental health services: The evolving mental health landscape is an example of a change that could lower VA patient projections over time. Recent legislative changes have increased non-Veterans' access to and coverage for mental health care. The implementation of the Mental Health Parity and Addiction Equity Act in 2010, combined with the inclusion of mental health coverage as an essential benefit in 2014, has greatly increased the mental health coverage available through private insurance plans. The Office of the Assistant Secretary for Planning and Evaluation in the U.S. Department of Health and Human Services has estimated that this 2010 law, combined with the ACA, will lead to greater mental health and substance abuse treatment coverage for more than 62 million Americans. Additionally, mental health coverage has now been fully phased in to parity in Medicare (wherein cost-sharing for mental health care must be on par with medical and surgical care) in 2014, increasing coverage of these services for 48 million Medicare beneficiaries. Given traditionally high levels of reliance on VA mental health services amid the limited availability of civilian coverage, these large changes may manifest in markedly different trends. In our analyses of MEPS data through 2012, Veterans who have access to employer-provided insurance or Medicare had modest increases in VA mental health spending over time compared with considerable increases for Veterans without other sources of coverage, suggesting that Veterans may be increasingly accessing mental health services outside VA. Given this expansion in the civilian sector and this early evidence of differential responsiveness depending on Veterans' alternative health service coverage statuses, careful attention should be paid to the projected utilization of VA mental health services going forward.

Changes in assistance programs and Veteran income: The Social Security Disability Insurance (SSDI) program provides Medicare coverage and monthly cash benefits to more than 13 million Americans and, according to counts from the 2013 ACS, more than one-third of 1 million Veterans or their households. However, this program is facing impending insolvency, and in the exhaustion of the SSDI Trust Fund, projected by the Congressional Budget Office to occur in the last quarter of 2016, all benefits currently being paid out would be immediately cut by 20 percent in the current-law framework. Because this income is included in household income when determining VA priority groups, such a decline could cause Veterans otherwise ineligible for enrollment to now fall under priority group 8b or 8d income thresholds, as well as reassign currently eligible Veterans to higher priority groups with lower or no co-pays, both of which would directly affect program costs. In our analysis of 2013 ACS data in combination with the priority group classification algorithm described in this section, we found that of the 335,000 Veterans in the 2013 ACS either receiving SSDI benefits themselves or residing in a household with an SSDI beneficiary, 260,000 were eligible for VA health services (among whom slightly more than half [132,000] were VA patients), while 75,000 Veterans had household incomes too high to qualify for enrollment. Although a preliminary analysis suggests that there would be a limited number of newly eligible Veterans given a 20 percent SSDI benefit cut, there is the potential for substantial reshuffling from priority groups 7 and 8a–8d to priority group 5. Additionally, SSDI benefits will continue to fall in every year after 2016 if there is no policy action going forward, increasing the extent to which Veterans are affected. Due to the size of this population and the wide range of shifts that can occur in both the presence and the absence of policy changes, careful attention should be paid to how these shifts will affect Veterans receiving SSDI benefits in the years to come.

7 Conclusions and Recommendations

In this assessment, we estimated the current and future demographic characteristics of Veterans, estimated the current health care needs of Veterans and VA patients, projected future health care needs of the Veteran population, estimated the extent to which Veterans rely on VA for their health care, and considered how future policy changes or trends may affect the population of eligible or enrolled Veterans or the rate at which Veterans rely on VA for health care. In this section, we summarize the findings of these analyses and offer recommendations for consideration as VA plans to meet future needs for health care services.

7.1 Summary of Assessment A Findings

7.1.1 Current and Future Demographic Characteristics

We estimate the total number of Veterans in 2014 to be approximately 21.6 million. Over the 10-year projection horizon, we estimate that this number will decrease by 19 percent, to 17.5 million, by 2024. The most significant population decline will occur in the Ohio River Valley region (the Great Lakes region spanning from western New York through the Midwest), with some marginal increases in population size in parts of the Southeast. The share of female Veterans is expected to grow, and the average age of Veterans will also increase over this period. The largest change in the relative share of service era cohorts is a decrease in pre-Vietnam- and Vietnam-era Veterans and a large increase in the number of Gulf War and, especially, post-9/11 Veterans.

Between 2015 and 2024, the Veteran population is expected to become more geographically concentrated in urban areas, a result that is consistent with expectations about migration of the U.S. population more generally. The proportion of Veterans in both the youngest and oldest age groups is expected to increase over the same period, which will result in more variation in geographic age patterns. Trends in geographic distribution by age are expected to reflect cohort changes where Veterans reside rather than patterns of migration. Overall, the average age of the population is expected to rise slightly. In areas where the proportion of older Veterans is projected to decline over the 2015–2024 period, the cause is likely that insufficient numbers of younger Veterans are moving to these regions over time. On the other hand, areas that will see a larger proportion of older Veterans over time are those where middle-age Veterans currently live and are expected to stay as they age. While Veterans are mobile, our estimates suggest that migration is relatively small and not likely to be a major factor in Veteran demographics.

As mentioned in Section 3, Veterans are half as likely as non-Veterans to live below the poverty line, and they also enjoy higher median incomes. In addition, Veterans are less likely than non-Veterans to be unemployed. Disability status is a strong predictor of unemployment, and the rate of unemployment within the Veteran population varies widely by service era and age. Veterans are also more likely than non-Veterans to have health insurance, in addition to VA benefits, through both the public and private health insurance sectors. In fact, the majority of Veterans enrolled in VA health care have other health insurance options.

Although approximately one in 10 U.S. adults is a Veteran, Veterans account for 16 percent of homeless adults and 13 percent of sheltered homeless adults. Female Veterans are three to four times more likely than non-Veteran women to become homeless. Health conditions are more prevalent in homeless Veterans than they are in homeless non-Veterans, and these rates increase as time spent in homelessness increases. However, despite these concerns, the overall rate of homelessness among Veterans is low and has been declining over time. The U.S. Department of Housing and Urban Development reports that there were approximately 49,933 homeless Veterans in 2014 (less than 0.25 percent of the Veteran population), representing a 33-percent decline in homelessness among Veterans since 2010.

7.1.2 Enrollment in and Reliance on VA Health Care Services

7.1.2.1 Enrollee and Patient Projections

In order to project the number of VA enrollees and patients over the 2015–2024 period, we used a sensitivity analysis approach. We considered three different sets of assumptions, each of which accounts for factors that likely affect Veterans' enrollment decisions and VA use rates. In 2014, there were 9.09 million VA enrollees and 5.87 million VA patients, and by 2024, we project between 9.33 and 10.00 million VA enrollees and between 5.81 and 6.18 million VA patients. The differences in our projections are primarily driven by enrollment and use rates among Veterans who served in Iraq and Afghanistan. In 2009, 6 percent of VA patients deployed in Iraq or Afghanistan, but by 2014, this percentage increased to 12 percent. Assuming this pattern continues, we project that, by 2024, approximately 20 percent of VA patients will be Veterans of deployment in Iraq or Afghanistan.

Our estimates suggest that the Veteran population will shrink by 19 percent between 2015 and 2024. Over the same period, we project that the VA patient population will peak in 2019 and begin to taper off or decline through 2024. The less-pronounced decline in the size of the patient population relative to the Veteran population is related to recent increased enrollment and use of VA health care, particularly among younger Veterans. The rate of use among Veterans under age 35 has increased threefold since 2005. The growth in the younger VA patient population may be related to outreach efforts on the part of VA, streamlined enrollment processes, and enhanced eligibility rules for Veterans of Afghanistan and Iraq. These trends contributed to a significant growth in the total VA patient population between 2000 and 2014, despite a decline in the overall Veteran population. While we estimate that these growth rates will taper off in the near future, the projected declines in the size of the patient population are small relative to the projected declines in the total number of Veterans.

7.1.2.2 Reliance on VA

The goals of our health care needs analysis were to describe and project numbers of people (Veterans overall and VA patients in particular) and prevalence rates of health conditions—but not to estimate demand for or utilization of services. However, because MEPS captures all health care that is received by its respondents—from VA and from other sources—the data provide an opportunity to estimate Veteran reliance on VA. Reliance represents the share of health care services that patients receive from VA compared with other sources, and is

important to VA planners because it can have an effect on demand for VA services. For example, if reliance increases due to rising health care costs in the civilian sector, VA may need to provide more care even if the number of VA patients is unchanged. Because VA's EHCPM also estimates reliance, we were able to generate estimates of reliance on a subset of health care services, which can then be compared with the results of VA's model.

We computed two reliance rates: (1) the share of health care services that VA patients receive from VA and (2) the share of health care services that all Veterans receive from VA, where, by definition, the second rate will be smaller than the first because some Veterans receive none of their health care from VA. Reliance rates for both populations were calculated for prescribed medications, all office visits, inpatient surgery, and specific office visit categories.

Among both VA patients and all Veterans, the highest rate of reliance on VA services is for office-based laboratory services, at 34 percent and 22 percent, respectively. Office-based radiology services rank second, at 32 percent for patients and 20 percent for all Veterans, in terms of reliance. Younger Veterans (and patients) rely on VA for more of their prescription drug, office visit, and inpatient surgical care than do older Veterans (and patients), a result that can likely be explained by differences in other health insurance status. Veterans and patients with lower incomes also rely on VA for both of these services. Living outside of a metropolitan area, being uninsured, and being in relatively poorer health are characteristics that are associated with greater reliance on VA for prescription drug services and office visits.

For many service categories, EHCPM yields different reliance estimates from those calculated in MEPS. For example, EHCPM predicts that 66 percent of prescription drugs are delivered to enrollees through VA, whereas MEPS results suggest lower rates: 30 percent for patients and 16 percent for all Veterans. It is unclear what drives these differences between EHCPM and MEPS, although they may be partially related to differences in methodologies, including (1) the population for whom reliance is estimated (e.g., enrollees or patients), (2) the data used to produce these estimates (e.g., survey, administrative, or commercial), and (3) the extent to which all health care encounters are captured in the data (e.g., based on self-reports or payer information). While we know MEPS has limitations, we have only partial visibility into the strengths and weaknesses of the EHCPM approach. For these reasons, we cannot fully determine why the approaches differ, or speculate about which approach is preferable.

7.1.3 Current and Projected Health Care Needs

Our health care needs analysis compared diagnosed conditions of Veterans and non-Veterans, as well as those of VA patients and Veterans who do not use VA health care.

Without adjusting for demographic differences between Veterans and non-Veterans (for example, Veterans are older and predominately male), we found that the prevalence rates of many diagnosed health conditions are higher in the Veteran population. Veterans are more likely than non-Veterans to be diagnosed with cancer, diabetes, hearing loss, and PTSD. A limitation of our analysis is that we observed only diagnosed conditions rather than true underlying health status. Because Veterans are more likely to be insured than non-Veterans, they may be more likely to receive a diagnosis than their non-Veteran counterparts.

Veterans are also on average older than non-Veterans, and many conditions that we explored in our analysis are more likely to be diagnosed as individuals age. In addition, Veterans are predominantly male (greater than 90 percent), whereas only 40 percent of U.S. non-Veterans are male.[56] Therefore, conditions that are more likely to affect men will naturally have higher unadjusted prevalence rates in the Veteran population. Other characteristics that differ between the two populations may have similar effects on unadjusted rates. To compare health care needs for Veterans with their non-Veteran counterparts, we adjusted our estimates to account for age, sex, race/ethnicity, region of residence, and whether the individual resides in a metropolitan area.

After adjusting for these characteristics, we found that Veterans continue to have higher prevalence rates of most conditions, including mental health conditions. This result is particularly salient for PTSD. Veterans are 13.5 times more likely than non-Veterans to be diagnosed with the condition. Even though fewer than 5 percent of Veterans are diagnosed with PTSD, this condition is even rarer in the non-Veteran population. PTSD and mental health conditions more generally are negatively correlated with income and employment status; higher income and being employed are correlated with lower rates of PTSD and mental health problems. Yet, these Veteran to non-Veteran patterns hold even if we adjust for income and employment status, with Veterans still more likely than non-Veterans to be diagnosed with PTSD and mental health conditions. Unemployed Veterans have particularly high rates of PTSD, both overall and in comparison with unemployed non-Veterans.

Our adjusted estimates showed that Veterans are also more likely than non-Veterans to be diagnosed with chronic conditions, such as diabetes and hypertension. In general, differences between Veterans and non-Veterans become more pronounced with age, although, for mental health conditions, we found the greatest differences at younger ages.

Despite these higher rates of diagnosis among the Veteran population, an analysis of disease burden on daily living suggests that Veterans are less likely than non-Veterans to need help with ADLs, such as bathing and dressing, as well as IADLs, including such chores as housework, buying groceries, and using the phone. Veterans are no more likely than non-Veterans to have multiple co-morbid or co-occurring conditions. We offer a couple of explanations for why Veterans may be more likely to have chronic and other conditions, but less likely to experience difficulties with daily functions. One possibility is that the *types* of health conditions faced by Veterans are not the ones that create daily living challenges, such as memory, personal care, mobility, or work-disabling conditions. Alternatively, because we are unable to control for combat experience using survey data, our ADLs results may reflect better functioning among non-combat Veterans. We also examined adjusted differences in comorbid mental health and estimated that Veterans were approximately three percentage points more likely than non-

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[56] The entire U.S. population is nearly half male (49 percent), but that includes Veterans, most of whom are male. When the population is divided into Veterans and non-Veterans, data indicate that only 40 percent of non-Veterans are male. In addition, survey data used to generate these percentages exclude individuals in correctional, juvenile, and other institutions, who are most likely male and therefore drive the percentage of non-Veteran males down.

Veterans to have a diagnosed mental health conditions and any of the 29 other conditions we investigated in our health care needs analysis. Veterans were statistically neither more nor less likely than non-Veterans to experience comorbid mental health with any of the 16 Charlson conditions, any ADL limitation, or any IADL limitation.

Next, we examined how the diagnosed health care needs of VA patients differ from Veterans who do not use VA. Unadjusted prevalence rates of most conditions are higher among VA patients than they are among Veterans who do not use VA, with the largest differences exhibited in hypertension, diabetes, GERD, cancer, COPD, and PTSD. Even after controlling for a basic set of demographic variables, VA patients have higher rates of these conditions, although the differences between the two groups' prevalence rates are smaller. PTSD once again stands out as a condition that is much more common in VA patients than non-patients

We investigated whether disease burden was more prominent in VA patients than in Veterans who do not use VA. VA patients were more likely to have a Charlson comorbidity index greater than one and were more likely to have at least one IADL limitation, relative to Veterans who do not use VA. Similarly, VA patients with a mental health diagnosis are more likely than Veterans who do not use VA to also be diagnosed with one of the other health conditions examined in Section 5.

We used VA encounter data to examine rare, service-connected conditions that may uniquely affect Veterans. Among the conditions we considered, the prevalence rate—measured as the percentage of Veterans who receive treatment *from VA* for a particular condition—is highest for substance use disorder at 6.3 percent. Slightly less than 2 percent of Veterans who receive treatment at VA were diagnosed with TBI. Amputation and spinal cord injury were each diagnosed in 0.5 percent of VA patients, and the prevalence rate for burns was 0.1 percent.

We also projected the prevalence of health conditions over the 10-year time horizon, 2015–2024, using MEPS data covering health care received in all sectors, not just from VA. We predict an increase in the prevalence of chronic conditions that affect both Veterans and non-Veterans, such as hypertension, diabetes, and cancer, all of which become more common as an individual ages. Mental health conditions are expected to become slightly more common among Veterans, rising from 19.4 percent in 2015 to 20.7 percent in 2024. The prevalence of PTSD, however, is expected to remain relatively constant at around 3 percent. Like Veterans more generally, the prevalence of diagnosed hypertension, diabetes, and cancer is expected to rise among VA patients. The patterns of mental health and PTSD are also similar for Veterans and VA patients, though the levels and projected increases are higher among patients. The prevalence of diagnosed mental health conditions is expected to increase from 28 percent to 34 percent, and the rate of diagnosed PTSD is projected to grow from 8 percent to 10 percent.

7.1.4 Sensitivity of Projections to Policy Changes

Our estimates of the demographic characteristics of the current and future Veteran population, as well as our analysis of the health care needs of Veterans and VA patients, assumed, implicitly, that the policy arena and other characteristics of the current environment would continue into the future, with the exception of specific data inputs and trends. For example, our analysis accounted for DoD's planned reduction in the size of the active duty military. Our

baseline projections, however, did not account for future policy scenarios that might affect demand for VA health services. In order to test alternative assumptions about the future, we examined five scenarios that represent ways that policy changes may affect the number of eligible or enrolled Veterans or the rate at which Veterans rely on VA for health care.

Three scenarios involve VA policy changes—making priority groups 8e and 8g eligible to enroll in VA, changing presumptive eligibility that would make Veterans who served in Vietnam and who now have hypertension eligible for benefits, and making VA health care services more accessible by removing barriers. In all of these cases, the number of VA enrollees and VA patients would increase. Allowing groups 8e and 8g to enroll could have an enormous effect on the number of VA patients. Opening eligibility to these two groups could result in 4.8 million new enrollees, and more than 2.1 million new VA patients (a 35.1-percent increase in the patient population). Adding hypertension to the list of presumptive eligibility conditions would results in 363,000 new patients, or an increase of 6.4 percent.

Much attention has been paid in the last couple of years to access problems Veterans face in getting care from VA. Among respondents of NSV who report not using VA services, 12.4 percent (1.8 million) report that the barriers to access are a reason for non-use. If these obstacles are addressed, we estimate that up to 235,000 new patients might use VA for some of their health care needs.

The remaining two scenarios consider changes external to VA's control—a hypothetical future conflict and coverage expansion through the ACA.

We considered how the number of total Veterans and VA patients will increase if the U.S. military becomes engaged in a conflict in the next 10 years. Across different levels of combat exposure and policy environments, our results suggest that the number of new eligible Veterans may range from 1.6 to 2.6 million between 2015 and 2024—200,000 to 1.8 million of whom will have combat exposure. In terms of new patients, depending on the assumptions of the conflict scenario, most of our analyses predicts between 500,000 and 925,000 new patients between 2015 and 2024.

The ACA may have opposite effects on enrollment and patient status for VA. On the one hand, some eligible, unenrolled Veterans may enroll with VA to satisfy the ACA's individual mandate, and some of these new enrollees may then choose to use VA for their health care needs. On the other hand, some VA patients may secure other insurance through either ACA's Medicaid expansion or the law's new subsidies for private coverage. These Veterans might then rely on that new insurance option, thereby reducing or eliminating their reliance on VA. We estimate that approximately 307,000 Veterans could enroll with VA as a result of the ACA mandate, and, of those, approximately 74,000 could become patients. Simultaneously, we estimate that 172,000 fewer current patients will rely on VA for health care needs. We estimate a net decrease of 98,000 VA patients in 2016 under the ACA coverage expansion scenario. We also estimate that this decrease will be larger if more states opt to expand Medicaid to cover all low-income adults.

7.2 Limitations

Our analysis has several important limitations. One critical constraint is that the data sets available to conduct the analysis are themselves limited. There has not been a full accounting of the Veteran population since the 2000 Census, and we had to cobble together data from several sources to estimate the total number of U.S. Veterans and their demographic characteristics. Compounding this issue is that available data sources often define Veterans slightly differently. For example, ACS asks about whether the individual ever served on active duty in the U.S. armed forces, reserves, or National Guard. MEPS, in contrast, asks whether the respondent was honorably discharged from active duty in the U.S. Army, Navy, Air Force, Marine Corps, or Coast Guard. The lack of alignment in definitions makes it difficult to directly compare the data, and could in some cases cause us to overestimate the number of eligible Veterans (for example, because Veterans who were other than honorably discharged are not eligible for VA care.)

In addition to the data challenges associated with defining the Veteran population, there are data challenges in understanding Veterans' health care needs. First, VA administrative data do not capture health care utilization across all sectors, including VA-provided and civilian-provided care. While MEPS captures all types of care, the sample of Veterans is small and may not be fully representative of the population. Second, the data sets we analyzed did not address respondents' underlying health status, and could not shed light on undiagnosed conditions or health care needs. Collecting information on undiagnosed health conditions is difficult but not impossible—for example, the National Health and Nutrition Examination Survey combines interviews and physical examination. While access to such data for Veterans could be useful, it would also require a costly and complex data collection process in which respondents participated in health examinations. Additional analyses would be necessary to determine if collecting this type of data for Veterans would be worth the cost.

While a strength of our analysis is that we were able to combine both DoD and VA data to understand the diagnosed health conditions of new Veterans, we were unable to do a person-specific transition analysis between service member and Veteran. That is, the data available to use were not granular enough to allow us to observe individuals' transitions; all comparisons are at an aggregate level. More-granular information would allow for additional refinements, such as better understanding demographic differences in how active duty personnel transition into VA care.

Our analysis focused on projections of Veterans, their health and demographic characteristics, and the number of VA patients that can be expected over time. However, we did not address Veterans' demand for specific types of health care services. Understanding how demand for specific services will evolve in the future would be useful for VA planning purposes. Projecting demand, however, requires even more-detailed data and introduces additional uncertainty because changes in technologies, treatments, and scientific knowledge may influence the type of health care services that Veterans will require.

An additional limitation is that, in some cases, it is very difficult for us to distinguish between age and cohort effects. For example, recent Veterans are more likely to use VA health care than

other Veterans. In part, this reflects a general pattern that young Veterans are more reliant on VA than older Veterans, who are more likely to have access to outside health insurance through an employer or Medicare. However, higher utilization among newer Veterans may also reflect generational changes in utilization patterns that may persist over time. Even with sophisticated statistical methods, it is not always possible to differentiate these two possibilities. To some degree, only time will tell exactly how utilization of VA services will evolve among Afghanistan and Iraq Veterans as they age.

While not a limitation per se, the scenarios that we evaluated in this subsection are speculative and based on assumptions that may diverge from actual conditions in the future.

Finally, we are limited in our ability to compare our analyses with analyses conducted by VA due to limited documentation of existing VA models.

7.3 Recommendations for Consideration

Plan for a Changing Veteran Landscape

For decades, the number of VA enrollees and patients has been increasing, despite a declining Veteran population. Beginning in 2019, we project that the number of VA patients will begin to taper off (Figure 7-1). This is a change that VA has not experienced in several decades, and it suggests that planning for the future may require a new approach. If VA responds to increasing enrollee and patient counts, and to the health care demands that this population requires, by expanding facilities, infrastructure, staffing, and other resources, the result may be a larger-than-needed footprint after 2019, when the population begins to taper off. Rather, VA should begin to plan for a shrinking population now by considering alternative approaches to meeting the needs of its population, such as purchasing care from the civilian sector even while the patient population continues to grow.

Figure 7-1. Trends in the Veteran Population, Enrollment, and Use of VA Care
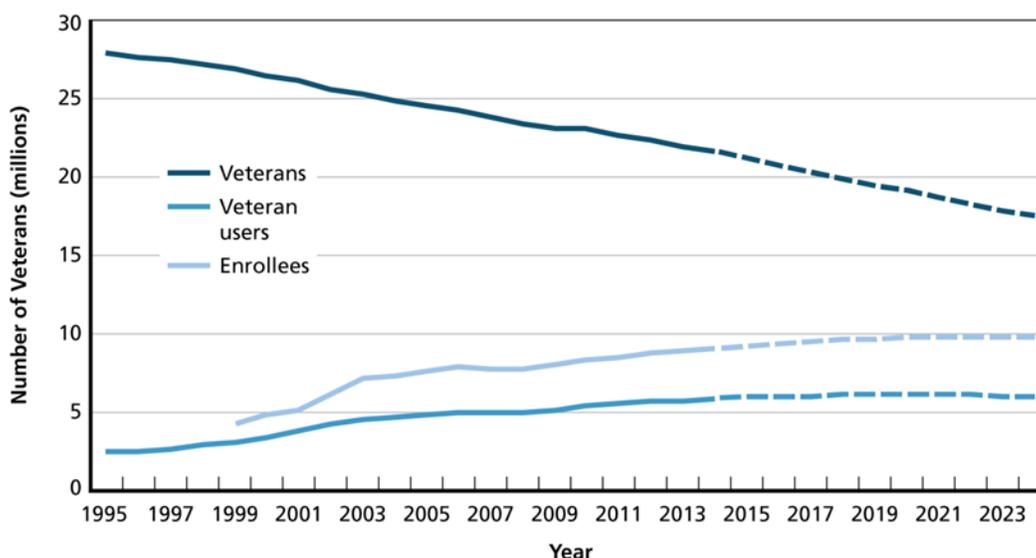
Improve Tracking of Some Veteran Populations

The U.S. Census is the most comprehensive source of information on Veteran status, but the most recent time these data were collected was 2000. Since then, detailed information on Veterans has been gathered only in ACS, which is known to underrepresent the Veteran population. Therefore, analyses that require full-scale accounting of the U.S. Veteran population rely on data that are 15 years old. While DoD data provide insight into the number of service members who become Veterans when they leave the armed forces, and a number of household surveys capture respondents' Veteran status and include socioeconomic, demographic, and health questions, current efforts to study the Veteran population require analysts to cobble together multiple data sources to augment the 2000 Census. Considering the duration of the post-9/11 conflicts and the number of service members and Veterans who have been exposed to combat during this period, as well as the policies that have been established to address the needs of the Veteran population, the nation is overdue for an update to the Veteran accounting that was possible in the 2000 U.S. Census. Recapturing Veteran information in the U.S. Census will also allow sampling strategies used in smaller surveys to be refined to reflect the current population of Veterans. We recommend re-implementing data collection on the Veteran population in the 2020 Census.

Relatedly, efforts should be taken to closely monitor the nation's newest Veterans, those who served in the post-9/11 era, many of whom have experienced combat. It has been several decades since a generation of Veterans has been exposed to combat in such large proportions and over such a long period of time, and VA and the nation as a whole must prepare to respond to their evolving needs. Policies—such as the five-year enhanced eligibility for VA benefits—are already in place to provide extra coverage to combat Veterans immediately after they separate from the military. While Veterans tend to rely on VA less as they age and gain access to other sources of health care, post-9/11 Veterans may continue to use VA at higher rates because of increased rates of service-connected conditions often related to combat and because enhanced eligibility policies encouraged early use of VA. Closely monitoring this new generation of Veterans will ensure that VA is able to respond rapidly and appropriately to a young population whose needs may be different and evolving in a way that VA has not seen in several decades.

Because current VA encounter data only provide visibility of care that is delivered within VA, little is known about the health care needs of several other groups of Veterans. For instance, many Veterans enroll with VA at some point after separating from the military but then never use VA for care. They represent a population of potential consumers of VA health care under certain future circumstances, which we explore in our scenario analysis. Additional tracking of this non-using enrolled population could be achieved through surveys—including "MEPS for Vets" as described below that address each Veteran's health care needs and where he or she is receiving treatment for these conditions.

VA policy currently prohibits Veterans in priority groups 8e and 8g, comprising higher-income Veterans without disabilities, from newly enrolling. There are no publicly available estimates of the number of Veterans in each of these priority groups. However, using the 2013 ACS, we estimated that there are 78,000 Veterans who meet the criteria for priority group 8e, and 4.7 million Veterans who meet the criteria for priority group 8g; none of these Veterans is currently eligible to enroll for VA health care services. We estimate that if VA were to allow priority group 8e Veterans to enroll, 34,000 new Veterans would become VA patients if they use VA at the

same rate as other priority group 8 Veterans. Because 8g is a much larger population (approximately 4.7 million Veterans), an extension of eligibility rules to include them would have a major impact on VA patient counts, by as many as 2.1 million new patients. Tracking these Veterans, especially for the purposes of being resourced to care for them if a policy change reopens enrollment privileges, is important.

Finally, requirements for eligibility for VA benefits are at least 24 months of military service, concluding with an honorable discharge, and for reservists, a period of activation. If future policies relax these requirements for Veterans who are not currently eligible for benefits, VA might experience an increase in the number of new enrollees and patients. For instance, service members who serve for fewer than 24 months are ineligible to receive VA benefits, but it is possible that someone may deploy to a combat zone before separating under these circumstances. If policy were changed such that the 24-month rule were relaxed if a Veteran had experienced combat, this may also result in an inflow of new VA patients. We did not have data on either of these groups for the analyses in this assessment, so we did not attempt to quantify how many Veterans may be affected by these hypothetical future policy changes.

Anticipate Potential Shifts in the Geographic Distribution of Veterans

Between 2015 and 2024, the geographic distribution of Veterans will experience only moderate shifts, but there are opportunities to improve VA coverage in response to some of the movement, particularly among certain age groups. The Ohio River Valley and upper Midwest are expected to experience declines in the Veteran population, which suggests existing facilities may be consolidated. Regions such as Washington, D.C.; Charlotte, North Carolina; and San Antonio and Austin, Texas, are projected to see growth in the total number of Veterans, but VA has already positioned health services in those areas. Other growth areas in the West, including Montana, Wyoming, and Colorado, do not have VA coverage and may therefore benefit from the installation of telehealth and CBOC services.

Because the overall Veteran population will continue to age over the projection horizon, health services related to aging will be needed everywhere. However, younger Veterans under age 35 are expected to become more concentrated in a number of areas—such as Los Angeles; Dallas; Washington, D.C.; northern New Jersey; northern California; central Washington state; the Midwest; Wyoming; and Utah—thereby creating a need for health care services geared toward young adults in these regions.

Finally, the Veteran population in the Southwest has the most uneven alignment between Veterans and VA health care services. Population growth is expected, including among young Veterans, and the region is already characterized by widely spaced facilities with limited access to alternative VAMCs in close proximity to the patient population. As the demand for services expands, the southwest region presents an opportunity for VA to grow to meet the health care needs of its growing population.

Improve Data Collection Regarding Health Care Utilization

The analyses in this report relied on a variety of data sources, including public use surveys that report whether a respondent is a Veteran, VA medical encounter data, other VA data sources, and DoD MHS claims data. While all of these data sources provided some of the information

that was required for this independent assessment, and together they enabled an analysis of our key questions, none provided a comprehensive overview of Veteran reliance on VA, defined as the share of health care services that VA patients (or Veterans more generally) receive from VA versus other sources.

In Section 4, we used MEPS to estimate Veteran and VA patient reliance on VA. However, our analysis has limitations. First, the number of Veterans and VA patients surveyed in MEPS is small. Second, we were able to define several health care services in these data, but not the full range of services that are delivered or that EHCPM estimates. One way to allow for a more thorough, independent analysis of reliance is to oversample Veterans in MEPS and, if necessary, collect additional information on more-detailed services received through VA and other health care sources. This "MEPS for Vets" could build upon the existing MEPS at a much lower cost than it would require to develop a new survey.

Incorporate Separation Patterns and Health Care Needs of Current Service Members into Projections

In this assessment, we incorporated data on current service members, who will become Veterans in the future, in several of our analyses. Our demographic projection model incorporates counts of service member separations to augment Census 2000 data on Veterans. To estimate Veterans' future health care needs, we acquired data on diagnosed health conditions among service members separating from active duty and who received care through the MHS. Finally, in our scenario analyses, we estimated the number of service members who might separate from active duty and become Veterans in the case of a hypothetical future conflict.

Similar to our demographic projections approach, VetPop2014 uses separation data to account for new Veterans as they leave the military. VetPop2014 uses information on age, sex, and active/reserve status. Our approach uses that same information but also includes service branch and race/ethnicity, both of which may be important factors in accurately estimating Veteran counts and health care needs of the Veteran population.

Incorporating service branch allows the model to capture variation in sex across the services— which ranges from 7 percent female in the Marine Corps to 19 percent female in the Air Force—and, consequently, estimates of the sex composition of the Veteran population. Additionally, if the model accounts for an individual's branch of service, projections of future Veteran counts can better handle changes in end-strength and differences in separation patterns (years of service, retirement rates, etc.), which vary considerably by service.

Both the RAND approach to modeling Veteran demographic characteristics and VetPop2014 predict greater race/ethnicity heterogeneity in future Veteran populations, with VetPop2014 predicting greater minority growth than RAND predicts. This difference may be a reflection of different approaches to controlling for minority mortality; the RAND model allows for race/ethnicity-specific mortality, and VetPop2014 does not. In addition, to the extent that there are differences in some health conditions by race/ethnicity, including this characteristic in models of health care projections will lead to more accuracy in predictions.

We estimate that future conflicts could lead to large increases in the number of Veterans who might seek care through VA, as well as large increases in the number of Veterans with combat exposure. For example, in some scenarios, we found that a conflict similar to those in Afghanistan and Iraq could lead to more than 2 million new Veterans and more than 500,000 new patients. Accounting for future conflicts is inherently uncertain. However, developing tools to estimate how conflicts could affect demand for VA services could make it easier for VA planners to respond in the event that a conflict scenario emerges. With an existing model in place, parameters and assumptions could be changed as policy details and information become available.

At present, VA does not have access to DoD MHS encounter data. For this study, we utilized MHS data from 2008–2014 to explore whether current service members (future Veterans) have different health care needs from current Veterans. We estimate that current service members are much more likely than current Veterans to have a diagnosed musculoskeletal condition at the time of separation from service. On the other hand, the rates of PTSD and mental health are higher in the existing Veteran population than they are among separating service members. This result may reflect a disincentive to present with mental health conditions while serving in the military. To the extent that individuals who separate from the military and become Veterans over our 2015–2024 projection window have different health care needs from the patients currently being served by VA, the addition of MHS data may be a crucial input to projecting the needs that VA must meet in the future.

Despite the important addition of MHS data to the analyses in this assessment, time constraints prevented us from conducting a longitudinal analysis of the transition from service member to Veteran. Ideally, the analysis would link medical records at the individual level to determine which health conditions that were diagnosed during an individual's time in service carry over to VA for follow-up and continued treatment. This analysis is feasible with the data used in this assessment, and we therefore recommend that it be undertaken to improve estimates of the types of health conditions and numbers of patients that VA should be prepared to treat as service members separate from the military.

Develop Analytic Framework to Perform Scenario Testing

Our analysis of five future scenarios highlights the importance of developing methods and models that can respond quickly and agilely to policy changes. While some of the policy changes we considered resulted in modest changes in the number of new Veterans and new VA patients, others estimated as many as hundreds of thousands of new Veterans and patients. VA OACT has a Veteran Healthcare Scenario Model that is able to estimate, for instance, how changes in demographic characteristics or economic conditions (such as employment or income) may affect demand for VA services and related costs. Expanding this model to include such events as future conflicts, changes in the civilian health sector, unanticipated changes in perceptions about health care quality, and groundbreaking new technologies, to name a few, will enable VA to address the types of uncertainties that current models may not address. Having methods in place to estimate the effects of these types of changes on Veteran demand for health care services will improve VA's efforts to meet the health care needs of its patient population.

7.4 Overall Assessment A Conclusions

Although the number of Veterans is expected to decline over the next decade, the number of Veterans seeking health care services through VA is expected to increase until its peak in 2019 and taper off or even decrease thereafter. These continued increases in VA utilization reflect changes in VA policies, such as outreach to enroll new patients and expansions to presumptive eligibility criteria, and may also reflect external trends, such as increasing costs in the private health insurance sector. We also estimate that VA patients will become somewhat older and sicker over time, a pattern that could increase demand for VA services despite the relative stability in the size of the patient population.

Reflecting VA patients' older age, the diagnosed prevalence of common chronic conditions (e.g., diabetes, cancer) is two to three times higher among Veterans than among non-Veterans. Thirty-three percent of all patients seen at VA have a mental health condition, and 8 percent have PTSD. When combined with the otherwise rare conditions related to combat— amputation, TBI, blindness, and severe burns—and the vulnerable circumstances of some patients, VA handles a patient mix that is uniquely different from what community providers are used to.

However, demand for VA health care services is sensitive to the size and demographics of the VA population, Veterans' underlying health conditions, changes in eligibility and access, and shifts in Veterans' reliance on VA. Limitations with current VA data systems make it difficult to fully account for all of these issues when estimating the future needs of the patient population. There has not been a full accounting of all U.S. Veterans since the 2000 Census. As a result, it is difficult to be fully confident in estimates of even the size of the Veteran population, let alone their mix of demographic characteristics. Current VA surveys provide limited information on Veterans' total health care utilization and health care needs, particularly for Veterans who do not currently access health care at VA. Yet, understanding the needs of patients who do not use VA care is critical for projecting how the patient mix might shift due to policy changes, such as eligibility expansions.

Even among VA patients who regularly use health care, current VA data sources inadequately capture patients' total health care utilization. Both our analysis using MEPS and VA's own analysis using EHCPM suggest that many VA patients rely only partially on VA for their health care services. Yet reliance is sensitive to factors that are both inside and outside of VA's control, including perceptions about the quality of care available at VA facilities, wait times, and the cost of private-sector care. Better data to understand the full profile of Veterans' health care needs could help VA plan for changes in demand that could arise due to these internal and external factors.

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Appendix A   Current and Projected Demographic Trends in the Veteran Population

A.1   Data and Analytic Approach

A.1.1   Definition

A.1.1.1   Veterans

For the population projection exercise the team defines Veterans consistently with ACS, which defines Veterans as having "ever served on active duty in the U.S. Armed Forces, military Reserves or National Guard. Active duty does not include training for the Reserves or National Guard, but does include activation, for example, for the Persian Gulf War." Once an individual has ceased to serve on active duty in any of these capacities, they are considered Veterans for the purposes of the projections. Note that the team does not have information on length of service (only eras of active duty), or on status of discharge. Thus, not all Veterans in the projection exercise may qualify for VA services. For example, Veterans who served less than two years, or Veterans with "bad paper" discharges (dishonorable discharges, other-than-honorable and bad conduct discharges) are all ineligible for VA services, but are included in the projection exercise. No federal agency publishes the numbers of "bad paper" discharges, but a range of sources suggests that dishonorable discharges represent 1 percent and other bad paper discharges are an additional 3 percent of all separations (Carter, 2013; Philipps, 2013; Wicker, 1991). Section 4 derives VA users from the overall population projection estimates.

A.1.1.2   Definition of Demographic and Geographic Characteristics

Table A-1. Demographic and Geographic Characteristics

Characteristic	Categories
Age	
	15–19
	20–24
	25–29
	30–34
	35–39
	40–44
	45–49
	50–54
	55–59
	60–64
	65–69
	70–74

Characteristic	Categories
	75–79
	80–84
	85+
Sex	
	Male
	Female
Race/Ethnicity	
	White (non-Hispanic)
	Hispanic
	Black (non-Hispanic)
	Asian (non-Hispanic)
	Other and multiple
Service Era	
	Pre-1950
	Korean War
	Feb. 1955–July 1964
	Vietnam
	May 1975–July 1990
	Aug. 1990–Aug. 2001
	Post 9/11
Geography	
	PUMA

Race/ethnicity is coded as: non-Hispanic white, non-Hispanic black, Hispanic, non-Hispanic Asian, non-Hispanic other. In cases where individuals report multiple race categories they are coded as "non-Hispanic other" as limited by the data.

The analysis defines seven service eras: pre-1950, Korean War (July 1950–January 1955), pre-Vietnam peace era (February 1955–July 1964), Vietnam era (August 1964–April 1975), post-Vietnam peace era (May 1975–July 1990), Gulf War era (August 1990–August 2001), post-9/11 (September 2001 or later). Individuals are grouped into the most recent active duty wartime era they served in (if they report multiple periods of service), or if they only served during peace time, they are grouped into their most recent peacetime era.

For units of geography the team uses PUMA: Public Use Microdata Area. Since 2005, the ACS has collected information based on PUMAs. PUMAs are geographic units used by the U.S. Census Bureau. The state governments drew PUMA boundaries for the 2000 Census to allow reporting of detailed data for all areas. There were a total of 2,071 PUMAs in the 2000 Census and 2,351 in the 2013 ACS. Because PUMA boundaries changed over time, the team generated geographical areas compatible across the surveys, taking the 2013 ACS boundaries as the baseline. These comparable areas are used throughout the population projection exercise. Note

that rural and urban areas may be simultaneously contained within a single PUMA (they are not necessarily 100 percent rural or 100 percent urban). Our use of PUMAs is partly driven by necessity (they are the smallest geographic unit available in the ACS data we rely on), but PUMAs also provide some benefits to our modeling approach. PUMAs are designed to contain populations of 100,000, which ensures that each PUMA contains population sizes amenable to even relatively small cell sizes (older Asian female Veterans, for example). Large cities, such as Los Angeles, contain several PUMAs. In areas with sparser populations, a single PUMA may contain multiple counties. In contrast, geographic units, such as county, are not based on population size; as of 2013 there were 3,144 counties and county equivalents in the U.S., and it is likely that many counties would have Veteran populations too sparse to model reliably. However, the use of PUMA does present some special challenges for mapping purposes. Since PUMAs are groups of 100,000 people (in practice, they can sometimes reach upwards of 150,000), they can be geographically small in dense urban areas. In fact, 25 percent of all PUMAs fall within a 40-mile radius of just 10 cities. For example, Figure A-1 depicts the PUMA that contain the population of Los Angeles, CA. There are 54 PUMAs within 20 miles of downtown LA—most of which would be near invisible on a page-size map of the United States. As such, rather than shading these maps by the population *inside* each PUMA, we shade them according to the total population *near* each PUMA. Specifically, we shade each PUMA based on the total population of the PUMA within 40 miles of each PUMA center.

Figure A-1. PUMA in Los Angeles CA

A.1.2 Data Sources

2000 Census: The 2000 Census collected information about the 115.9 million housing units and 281.4 million people in the United States on April 1, 2000. A 5-percent sample of people and housing units received a more detailed long form survey that contained questions including Veteran status and periods of service. As a starting point, the team used the 5-percent sample 2000 Census data to assess the baseline Veteran population in 2000. The 2010 Census did not include a long form, and did not collect information on Veteran status. The 2010 Census short form included only basic demographic questions (e.g., name, relationship with head of

household, sex, age, Hispanic origin, race) and household information (e.g., number of people in the household, whether the home is owned or rented). The 2000 Census long form asked detailed demographic and household questions, including Veteran status and time that person served on active duty in the U.S. Armed Forces. As of the 2010 Census, detailed sociodemographic and other information is collected in the ACS, rather than the Census.

Active Duty Master and Loss Files 2000–2014: The Active Duty Master File provides an inventory of all individuals on active duty (excluding reservists on active duty for training) for the Army, Navy, Marine Corps, Air Force, Coast Guard, Public Health Service, and National Oceanic and Atmospheric Administration Commissioned Corps at a point in time. Relevant personal data elements include date of birth, sex, race, and ethnic group. Relevant military data elements include months of service and basic active service date, as well as anticipated service contract end date. The Active Duty Military Personnel Transaction File contains a transaction record for every individual entrance, separation, or reenlistment in the Army, Navy, Air Force, Marine Corps, and Coast Guard within a specific time frame. The active duty loss files are subsets of the Master/Transaction file. The team used these data to supplement the 2000 Census counts for April 2000–December 2014. Each separation or "loss" indicates an incoming Veteran to the civilian population.

Work Experience (WEX) and Contingency Tracking System (CTS) Files 2000–2014: The WEX contains a longitudinal record for each individual who has served in the active or reserve forces since September 1990. For those individuals, the WEX includes information on service back to 1975. The file is organized by "transactions"; in other words, a new record is generated whenever there is a change in the key variables—service/component/reserve category, pay grade, occupation (primary, secondary, or duty), and unit identification code. The WEX is built from information in DMDC's Active Duty Master Personnel Edit File, equivalent reserve files, and the underlying service files. Information on actual deployment can be found in a sequence of "contingency files." The most recent of them is the Contingency Tracking System file. It contains one record for every activation or deployment in support of the conflicts in Iraq and Afghanistan. Using the WEX and CTS Files enables the team to identify Veterans who have served in the Reserves or National Guard and who were activated at some point and add them to the incoming Veteran population each year. Note that the CTS file will not identify Reserves or National Guard who were activated for other conflicts, such as Bosnia, for example, and the team acknowledges that the analysis will slightly underestimate the Reserve/National Guard Veteran population.

2005–2009 and 2009–2013 ACS 5-year estimates: ACS is an ongoing mandatory survey conducted by the U.S. Census Bureau that collects data each year to bridge intercensal periods and provide detailed information about the population, including Veteran status. The ACS also includes information on current location, and location in the previous year. The analysis uses the ACS to determine Veteran geographic distribution and migration patterns. It was not possible to use the ACS to accurately measure the number of Veterans in the population; the ACS is generally acknowledged to undercount Veterans, though it is assumed to accurately capture the distribution of Veteran characteristics (age, sex, race/ethnicity, service cohort, location). For example, the 2013 ACS estimates of total Veteran population are roughly equivalent to our own estimates of the number of Veterans observed in the 2000 Census who

are estimated to still be living in 2013—that is, the ACS estimates effectively undercount by the number of new Veterans who entered the population from 2000–2013. For this reason, the team produced a set of population projections using a combination of Census 2000 data, Department of Defense data, and ACS data. More specifically, the team used the 2005–2009 and 2009–2013 ACS 5-year estimates available through the American FactFinder website (U.S. Census Bureau, undated a). ACS prior to 2005 do not have information about residence in previous year, which is necessary for migration estimates.

Since 2005, the ACS has collected information on PUMAs of residence one year before the survey. PUMAs are geographic units used by the U.S. Census Bureau. The state governments drew PUMA boundaries for the 2000 Census to allow reporting of detailed data for all areas. There were a total of 2,071 PUMAs in the 2000 Census and 2,351 in the 2013 ACS. Because PUMA boundaries changed over time, the team generated geographical areas compatible across the surveys, taking the 2013 ACS boundaries as the baseline. These comparable areas are used throughout the population projection exercise. Note that rural and urban areas may be simultaneously contained within a single PUMA (they are not necessarily 100-percent rural or 100-percent urban).

A.1.3   Population Projection

The projection is estimated using a cohort component approach, a standard demographic method of projecting populations based on births and deaths over time (Preston, Heuveline, & Guillot, 2001). "Births" in this application of the model are new Veterans. Once the overall national projection has been estimated, the analysis then considers Veteran location and migration through the period. Broadly, the team begins with a comprehensive count of Veterans from the 2000 Demographic Census. The next step is to add observed new Veterans each year through 2014 using Department of Defense data, and apply annual age/sex/race-ethnicity specific mortality rates to everyone from 2000–2024. Once the total 2014 population is calculated, the analysis distributes the Veteran population geographically according to observed Veteran data (along a variety of characteristics). The team estimated annual Veteran migration, based on observed Veteran migratory movements, and applied those migration rates to the estimated 2014 population to derive the final 2014 population and distribution. The team then applied the derived 2014 geographic distribution to the 2015 population estimates, and applied migration adjustments to derive the 2015 population distribution. This process continues through 2024. Projections are calculated using the U.S. Census Bureau's Rural and Urban Projection software (See U.S. Census Bureau, undated b).

A.1.3.1   National Projection

The national population projection consists of two main components: baseline Veteran population (at 2000) and projected new Veterans (through 2024).

1. The analysis begins with a well-measured historical baseline Veteran population and adds the number of new Veterans entering the civilian population each year afterward.

2. From the initial year that the Veteran population is assessed, the baseline and incoming Veteran population is progressed through a cohort component projection model in

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which age-sex-race/ethnicity groups are subjected to age-sex-race/ethnicity specific mortality throughout the projection period (until 2024).[57]

3. Once the total Veteran population is projected through 2024, the team estimates location and migration of Veterans each year throughout the period based on observed and projected trends.

Projections are produced separately for each service era, and combined for national totals.

A.1.3.2   New Veterans

"Births" in the population projection are assessed using data containing a census of observed transitions to Veteran status, and are extrapolated for future periods. The majority of new Veterans 2000–2014 are measured using the Active Duty Master and Loss Files. We supplement this with the WEX and CTS Files to identify Reserves and National Guard who have been activated at some point (2000–2014). For the 2015–2024 period, we estimate the number of new Veterans each year using transition probabilities based on age, sex, race/ethnicity, and branch of service based on total force size derived from WEX. We also assume downsizing of the Armed Forces following announcements by the Army (Tan, 2015) and other information,[58] with a total active duty force of 1.25 million by 2018 (89 percent of 2010). Specifically, by 2018 we assume an Army of 445,000 (79 percent if 2010), Air Force 311,000 (96 percent of 2010), Navy 311,000 (97 percent of 2010), and Marines 186,000 (93 percent of 2010). We further assume that there will be no significant future conflicts during the projection period, which also impacts the number of Reserves and National Guard who will be activated during the period.

A.1.3.3   Mortality Rates

Mortality rates are based on a combination of mortality rates published by the Centers for Disease Control, and mortality rates obtained from the VA OACT. OACT estimates 2014 Veteran population mortality using a variety of administrative data, IRS data, and Social Security Administration data. The Veteran-specific rates are available by sex, but not race/ethnicity. Our analysis used the most recent (2011) CDC rates to derive race/ethnicity specific mortality rates that reflect OACT rates overall, proportionately distributing mortality rates across sex-race/ethnicity groups proportionate to differences observed in the national population. This approach is summarized below:

1. Calculate the proportion of Veterans in each age group for each race/ethnicity, e.g., for ages 20-24.

2. Multiply the proportion of Veterans in each age-race/ethnicity cell by the national mortality rate (deaths per 100,000) for that cell. This would be the death rates of Veterans if they had the same rates as civilians in each age-race/ethnicity cell.

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[57] Note that projections begin at 17; individuals may join the Armed Forces with parental consent at age 17.

[58] Personal communication from Air Force Enterprise Readiness Analysis Division (HQ USAF / A1PF) via email, September 9, 2014.

3. Calculate the ratio of overall Veteran mortality rate to the rate if Veterans had the same rates as civilians to get the proportional difference in rates.

4. Multiply the civilian race/ethnicity rates by this difference in rates at each age. This gives us the same mortality rates as the VetPop2014 model, but spread proportionately through the race/ethnicity groups based on civilian rates. It does assume that the inflation/deflation factor at each age is the same for each race/ethnicity.

A.1.4   Baseline Geographic Distribution, 2005–2024

While the ACS undercounts Veterans, the analysis assumes that it accurately captures Veterans' geographic distribution. The analysis applies Veteran geographic distribution (by five-year age group, sex, race/ethnicity, service cohort, and PUMA) from the 2005–2009 and 2009–2013 ACS five-year estimates to the national Veteran populations for 2005–2024 in order to assess initial geographic distribution. 2005–2009 ACS 5-year estimates were used to distribute 2005–2008 national population estimates. There are no multi-year ACS estimates for 2004–2008 or 2005–2008 periods. 2009–2013 ACS five-year estimates were used to distribute 2009–2013 national population estimates and 2014–2024 national population projections.

A.1.5   Migration, 2014–2024

Next the team applies migration to the initial 2014–2024 distributions, as outlined below:

- **Number of migrants (numerator of rates):** Calculate number of migrants by five-year age group, sex, race/ethnicity, service cohort, PUMA, and PUMA in previous year using 2009–2013 ACS.

- **Population of PUMA of origin at the beginning of the time interval (denominator of out-migration rates):** Calculate number of Veterans by five-year age group, sex, race/ethnicity, service cohort, and PUMA in previous year using 2009–2013 ACS. These data are merged to the number of migrants file.

- **Population of PUMA of destination at the end of the time interval (denominator of in-migration rates):** Calculate number of Veterans by five-year age group, sex, race/ethnicity, service cohort, and PUMA using 2009–2013 ACS. These data are merged to the number of migrants file.

- **Convert groups of PUMA in previous year to the PUMA level:** Some PUMAs in previous year are combined in groups of PUMAs in ACS for confidentiality reasons. The team converts groups of PUMAs back to the PUMA level by disaggregating the number of migrants and population at the beginning of the period. This distribution is performed based on the population at the end of the period as a weight for each combination of five-year age group, sex, race/ethnicity, service cohort, PUMA, and group of PUMA in previous year. The files with relationship between PUMAs of migration and PUMAs are available in the Integrated Public Use Microdata Series (IPUMS-USA) website (Integrated Public Use Microdata Series, undated).

- **Convert 2000 PUMAs into 2010 PUMAs:** The 2009–2011 PUMA codes are based on the 2000 Demographic Census classification. We convert these codes into the 2010

Demographic Census classification, based on a geographic correspondence engine developed by the Missouri Census Data Center (2012). This conversion is applied to both the PUMA of current residence and the PUMA in previous year (after the conversion procedure from the topic above). The 2012–2013 PUMA codes are already available in the 2010 Demographic Census classification.

- **Append 2009–2011 and 2012–2013 data and add distance:** The team appends back 2009–2011 and 2012–2013 data, after the 2000–2010 PUMA conversion. Information on distance between PUMAs is estimated based on shapefiles available in the Census Bureau website (U.S. Census Bureau, undated c, undated d). Distance is merged to the 2009–2013 data with migration information.

- **In-Migration rates:** Calculate in-migration rates of Veterans by five-year age group, sex, race/ethnicity, service cohort, PUMA, and PUMA in previous year using 2009–2013 ACS. The denominator of these rates is the population of PUMA of destination at the end of the time interval. The team divided the estimated rates by five to originate annual migration rates, because data relates to 2009–2013.

- **Out-Migration rates:** Calculate out-migration rates of Veterans by five-year age group, sex, race/ethnicity, service cohort, PUMA, and PUMA in previous year using 2009–2013 ACS. The denominator of these rates is the population of PUMA of origin at the beginning of the time interval. The team divided the estimated rates by five to originate annual migration rates, because data relates to 2009–2013.

- **Future in- and out-migration rates (gravity models):** The team estimates migration rates with Zero-inflated Poisson regression models, based on 2009–2013 ACS, and apply these rates to the 2014–2024 period. These models are appropriate when the count dependent variable has a high incidence of zeros. For instance, out of 2,909,616 cells in the in-migration model, 2,133,534 have zero migrants (73 percent) and 776,082 have non-zero observations (27 percent). This approach predicts in- and out-migrants as a function of age, sex, race/ethnicity, service cohort, and squared distance, using population at risk as exposure. For in-migration, population at risk is located in the PUMA of destination at the end of the time interval, while population in the PUMA of origin at the beginning of the time interval is used as a control variable. For out-migration, population at risk is located in the PUMA of origin at the beginning of the time interval, while population in the PUMA of destination at the end of the time interval is used as a control variable. Regression coefficients from this model are used to predict in- and out-migration rates for 2014–2024 by applying coefficients to projected Veteran populations. In effect, the analysis assumes that age, sex, race/ethnicity, and service cohort migration patterns remain constant over the next ten years. Regression models do not include year. Models that included year as a predictor (to capture time trends in migration) indicated that there were not significant time trends: the year effect was orders of magnitude smaller than other predictors and did not contribute meaningfully to predicted migration trends. More details about these gravity models are presented below.

- **Number of in- and out-migrants:** The analysis applies the predicted rates from the Zero-inflated Poisson regression models to the initial 2014 population projection to obtain the

number of in- and out-migrants in 2014 for each five-year age group, sex, race/ethnicity, service cohort, PUMA, and PUMA in previous year. Then the team collapses information on PUMA in previous year, in order to get the number of in- and out-migrants for each five-year age group, sex, race/ethnicity, service cohort, and PUMA.

- **Adjustment of the number of in-migrants:** The team adjusts the number of in-migrants in each cell based on the overall count of in-migrants and out-migrants in a specific year. More specifically, the adjusted number of in-migrants equals the original number of in-migrants, multiplied by the overall sum of out-migrants in 2014, divided by the overall sum of in-migrants in 2014. This procedure assures that overall net migration in 2014 equals to zero. The assumption behind this adjustment is that out-migration counts are more accurate than in-migration counts. Out-migration cells were estimated based on residence in a previous year, which is a group of PUMAs. The team allocates both the counts of migrants and the population of origin at the beginning of the time interval into the PUMAs within the group of PUMAs. This approach gives a higher chance of all cells having migrants, because the distribution is based on the population of Veterans in the area of destination at the end of the time interval, as described above. In-migration rates were estimated with information already at the PUMA level, which might generate more cells with small counts and affect the overall number of in-migrants.

- **Net migration:** The team subtracted adjusted in-migrants by out-migrants for each five-year age group, sex, race/ethnicity, service cohort, and PUMA cell and applied this net migration to the initial 2014 population, in order to get the final 2014 population.

- **Weight calibration of counts of Veterans:** The team performs a final adjustment of the counts of Veterans in all cells with a weight calibration procedure known as iterative proportional fitting (raking) of complex survey weights, through the ipfraking package in Stata. This procedure ensures that marginal counts of Veterans by five-year age group, sex, race/ethnicity, and service cohort at the PUMA level equal the national population projection in each year.

The analysis iterates through this process for subsequent years; i.e., use the final 2014 distribution (population after migration) as the baseline for the 2015 national population projection. The table below summarizes the overall counts of Veterans by projected year, number of in-migrants, adjusted in-migrants, out-migrants, and net migration. The final three columns give an idea of the migration rates. As discussed above, the team utilized out-migration rates as the standard, which decrease from 2.97 percent in 2014 to 1.61 percent in 2024 and is consistent with lower mobility through time within the national territory.

Table A-2. Counts of Veterans and Migration Variables, 2014–2024

Year	Veterans	In-migrants	Adjusted In-migrants	Out-migrants	Net Migration	In-Migration Rate (%)	Adjusted In-Migration Rate (%)	Out-Migration Rate (%)
2014	21,579,290	553,963	641,122	641,122	0.0	2.57	2.97	2.97
2015	21,179,305	553,188	612,482	612,482	0.0	2.61	2.89	2.89
2016	20,763,195	545,726	576,489	576,489	0.0	2.63	2.78	2.78
2017	20,346,285	533,323	537,150	537,150	0.0	2.62	2.64	2.64
2018	19,928,403	518,292	495,146	495,146	0.0	2.60	2.48	2.48
2019	19,511,393	503,313	452,512	452,512	0.0	2.58	2.32	2.32
2020	19,097,747	488,767	412,335	412,335	0.0	2.56	2.16	2.16
2021	18,689,523	476,259	374,713	374,713	0.0	2.55	2.00	2.00
2022	18,287,262	464,319	341,120	341,120	0.0	2.54	1.87	1.87
2023	17,888,878	453,210	310,196	310,196	0.0	2.53	1.73	1.73
2024	17,494,154	444,004	281,887	281,887	0.0	2.54	1.61	1.61

SOURCE: National projections and 2009–2013 ACS five-year estimates.

A.1.5.1   Gravity Models

As described above, gravity models were estimated with Zero-inflated Poisson regression models. Gravity models estimate migration rates based on population in the area of origin (at the beginning of the period), population in the area of destination (at the end of the period), distance between areas, and other control variables (age, sex, race/ethnicity, and service cohort). The implementation of gravity models is consistent with the study of internal migration determinants, which dates back to classical economic development theory, where migration is considered to be a mechanism that establishes regional spatial-economic equilibrium (Ravenstein, 1885, 1889). Migrants move from low income to high-income areas and from densely to sparsely populated areas. Population streams are expected to occur between the poorest and wealthiest places and countries. Migration decisions are determined by "push" and "pull" factors in areas of origin and destination. Intervening obstacles (such as distance, physical barriers, immigration laws), as well as personal factors also influence migration flows (de Haas, 2007, 2009; Greenwood, Hunt, Rickman, & Treyz, 1991; Lee, 1966; McDowell & de Haan, 1997; Passaris, 1989). Economic, environmental, and demographic factors are assumed to drive migrants away from their places of origin and attract them to new places of destination.

Based on the regional equilibrium framework, distance is expected to play an intervening role on the levels of population flows. Previous studies took distances between areas into account by utilizing gravity models to estimate migration (Head, 2000; Lowry, 1966; Pöyhönen, 1963; Tinbergen, 1962). Gravity models address the distance between areas, as well as the changing population in the areas over time. The idea behind these models is to use distance between areas and population trends as instrumental variables to estimate the level of migration, before

analyzing the migration rates. Gravity models consider the population in the area of origin (at the beginning of the period), the population in the area of destination (at the end of the period), distance between areas, and the proportion of migrants already living in a specific area (dependent variable). Distance is constant over time, but the population at the beginning and end of the period in each area has varying out- and in-migration trends over time.

Zero-inflated Poisson statistical regressions can generate gravity models for inter-regional migration flows, with a dependent variable measured in discrete units (integer counts of migrants) and a discrete probability distribution (Stillwell, 2009). These models are appropriate for this analysis, because they do not maintain error variances as constant for the different sizes of estimated flows, as is the case of "log-normal" models. In the case of migration flows between PUMAs, the model is also recommended because there are a significant number of smaller flows among the areas, as well as a small number of larger migration flows. The Poisson regression equation is:

$M_{ij} = b_0 + b_1 * P_i + b_2 * P_j + b_3 * d_{ij} + \varepsilon_{ij}$

where M_{ij} represents migrants at the end of the period between areas of origin (i) and destination (j); b_0 is the constant; b_1 is the regression coefficient associated with the population in the area of origin at the beginning of the period (P_i); b_2 is the coefficient associated with the population in the area of destination at the end of the period (P_j); b_3 is related to the distance between PUMAs (d_{ij}); and ε_{ij} is the random error term associated with all pairs of PUMAs.

In order to generate these flows, it is necessary to use migration information that indicates the location of residence at a specific previous moment. Information about the PUMA of previous residence (where the person was living one year before the survey) is included in the ACS since 2005. This migration information allows the estimation of: (1) the population at the beginning of the period by age group, sex, race/ethnicity, service cohort, and PUMA (P_i); (2) the population at the end of the period by age group, sex, race/ethnicity, service cohort, and PUMA (P_j); and (3) migrants at the end of the period by age group, sex, race/ethnicity, service cohort, and PUMA of both origin and destination (M_{ij}). This study utilized a matrix of distances between all PUMA centroids, in order to estimate the d_{ij} component of the Poisson regression equation. The cells with no migration flows or no population are replaced by zero in the regression. As a way to control for the high prevalence of cells with zero counts of migrants (dependent variable), a dummy variable indicates whether the cell has zero migrants within the "inflate" option in the Zero-inflated Poisson model.

The results from Zero-inflated Poisson regression models are illustrated in the following table. The first model deals with in-migration, in which population in PUMA of destination at the end of the period is taken as the exposure variable. The model about out-migration utilizes population in PUMA of origin at the beginning of the period as the exposure variable. The general trends of variables are similar between these models and can be better visualized in the figures below. Men have lower chances to migrate, compared to women. On one hand, Veterans in older service cohorts are less likely to migrate, compared to those in 9/11 Era. On the other hand, older Veterans are more likely to migrate, compared to younger Veterans (25-29 age group), specially starting at the 70-74 age group. These two results (service cohort and age) counterbalance each other, since Veterans in older service cohorts (less likely to migrate)

are older in age (more likely to migrate). All race/ethnicity groups are more likely to migrate than Whites. As expected, longer distances between PUMAs have negative impacts on the likelihood of migrating. This information was included as squared distance in order to make the variable more spread throughout the national territory, as well as to be consistent with gravity models. For the in-migration model, population in origin at the beginning of the period has a positive effect on migration, as we would expect of more populated areas sending more migrants. For the out-migration model, population in destination at the end of the period has a negative effect on migration, which is contrary to the original hypothesis, but this coefficient is not statistically significant.

Table A-3. Estimates from Zero-Inflated Poisson Regression Models for Number of Migrants (Dependent Variable)

Independent Variables	In-Migration Model	Out-Migration Model
Constant	-2.254***	-1.803***
	(0.0148)	(0.0138)
Female	ref.	ref.
Male	-1.168***	-1.321***
	(0.0117)	(0.0108)
9/11 Era	ref.	ref.
Gulf War Era	-0.313***	-0.264***
	(0.0154)	(0.0153)
Peacetime Post-Vietnam	-0.930***	-0.874***
	(0.0193)	(0.0190)
Vietnam Era	-2.014***	-1.836***
	(0.0304)	(0.0290)
Peacetime Pre-Vietnam	-2.237***	-2.031***
	(0.0419)	(0.0391)
Korean Conflict	-3.241***	-2.838***
	(0.0470)	(0.0446)
Pre-1950	-3.746***	-3.356***
	(0.0594)	(0.0563)
17–19 years	1.059***	1.891***
	(0.0745)	(0.0813)
20–24 years	0.574***	0.464***
	(0.0189)	(0.0189)
25–29 years	ref.	ref.

Independent Variables	In-Migration Model	Out-Migration Model
30–34 years	0.166***	0.222***
	(0.0158)	(0.0154)
35–39 years	0.240***	0.257***
	(0.0198)	(0.0196)
40–44 years	0.240***	0.295***
	(0.0203)	(0.0200)
45–49 years	0.317***	0.327***
	(0.0213)	(0.0210)
50–54 years	0.254***	0.265***
	(0.0236)	(0.0231)
55–59 years	0.759***	0.762***
	(0.0261)	(0.0255)
60–64 years	-0.180***	0.136***
	(0.0352)	(0.0333)
65–69 years	0.0651*	0.277***
	(0.0349)	(0.0337)
70–74 years	0.766***	0.777***
	(0.0415)	(0.0392)
75–79 years	1.406***	1.306***
	(0.0449)	(0.0423)
80–84 years	2.051***	1.813***
	(0.0492)	(0.0470)
85+ years	2.091***	1.982***
	(0.0619)	(0.0582)
White	ref.	ref.
Black	0.688***	0.752***
	(0.01000)	(0.00942)
Hispanic	0.285***	0.339***
	(0.0126)	(0.0120)
Asian	0.815***	1.187***
	(0.0250)	(0.0218)
Other	1.718***	1.968***
	(0.0218)	(0.0206)
Squared distance	-0.0000000222***	-0.000000012***
	(0.00000000233)	(0.00000000191)
Population in origin at	0.000963***	

Independent Variables	In-Migration Model	Out-Migration Model
the beginning of period	(0.0000236)	
Population in destination		-0.0000036
at the end of period		(0.000022)
Exposure variable	Pop. in destination at the end of period	Pop. in origin at the beginning of period
Inflate model		
Constant	-31.38***	-33.88***
	(0.00114)	(0.00114)
Indicator of cells	62.55***	67.48***
without migrants	(0.00305)	(0.00270)
Non-zero observations	776,082	776,082
Zero observations	2,133,534	1,132,194
Total observations	2,909,616	1,908,276

SOURCE: 2009–2013 ACS 5-year estimates.

NOTES: Robust standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Figure A-2. Coefficients from Zero-Inflated Poisson Regression Models for Number of Migrants (Dependent Variable)
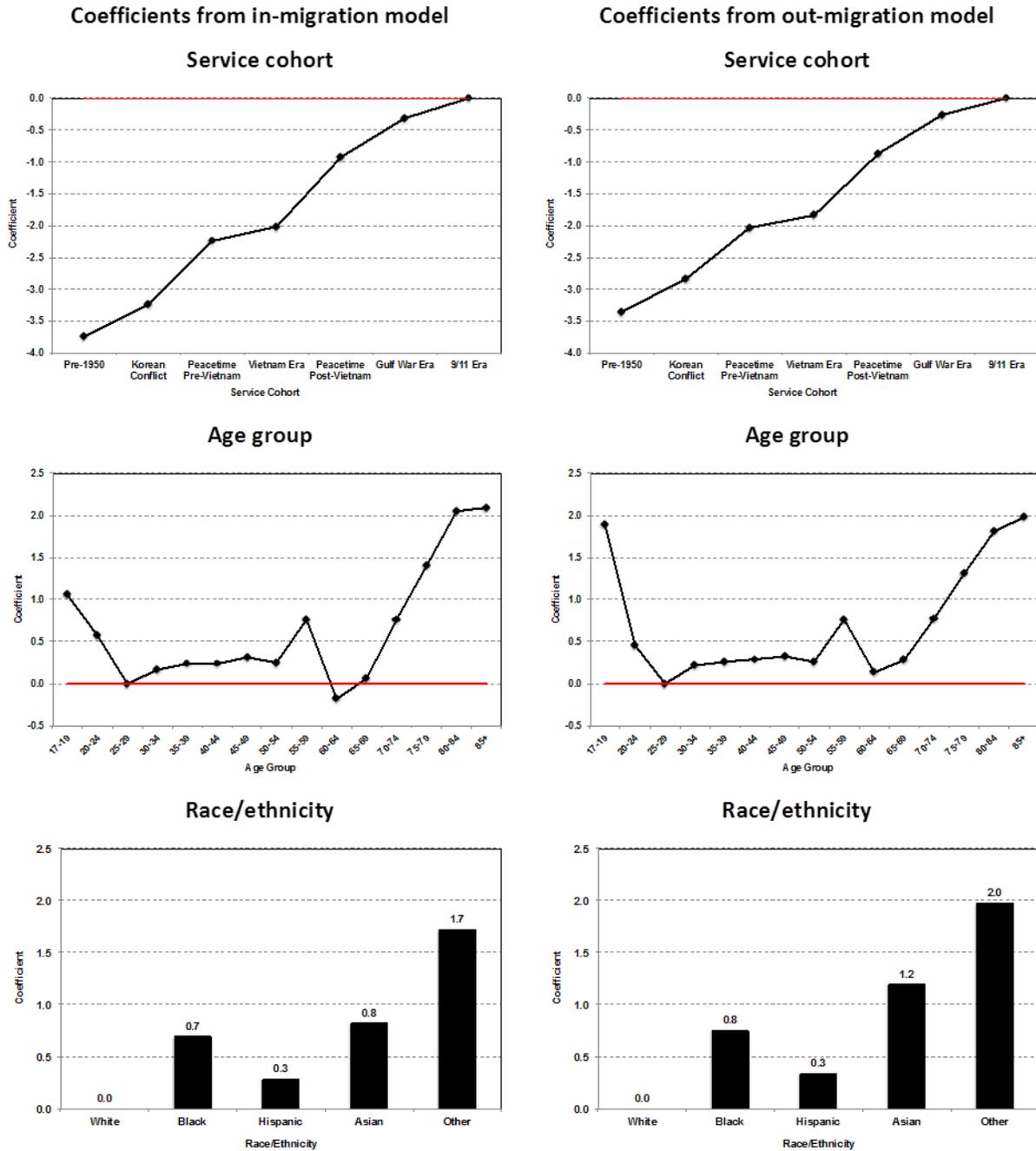
SOURCE: 2009-2013 ACS 5-year estimates.

A.1.6   Spatial Regression Models

The team used spatial regression models to examine how growth and movement in the Veteran population is related to the location of VA facilities. These models follow the standard linear modeling format except for two cases.

First, observations are weighted so that all observations of approximately the same location have weights that sum to one. For example, there are 19 PUMAs within a 10-mile radius of downtown Chicago. Each PUMA could be given a weight of 1/19th to indicate that all cases are observed Veterans located near the same set of VA facilities. The weighting procedure used here follows this same principle, but without using a hard cut-off. Instead, each observation receives a weight of:

$$\frac{\sum_i 2^{-D_{ij}/k}}{\sum_j \sum_i 2^{-D_{ij}/k}},$$

where D is a matrix of distances between observations i and j. K is a scaling constant that indicates roughly what distance i and j are far enough away that the location of j only counts as 50 percent the same as the location of i. This weighting allows observations to be scored along a continuum from "same location" to "different location" instead of using a hard cut-off.

Second, the population/net migration of each PUMA is predicted using the distance between its center and the nearest VA facility or other geographic feature. When the resulting coefficients are negative, it indicates that distance from a facility corresponds to smaller populations, i.e., more people tend to locate close to facilities. For estimation purposes, these distances are logged, because the effects of distance on behavior are known to be nonlinear. For example, the difference between 10mi and 20mi makes a significant impact on population behavior, but the difference between 210mi and 220mi has relatively little impact—both are about equally far away.

A.1.6.1   Spatial Regression Models of Migration in Relation to VA Facilities

Table A-4. Migration in 2014 as a Function of VA Facilities

	Adjusted Prevalence (Std. Errors)				
	Model 1	**Model 2**	**Model 3**	**Model 4**	**Model 5**
Covariate					
VAMC			59.28	53.71	52.59
			(5.75)	(5.94)	(6.74)
CBOC		64.22		39.33	37.85
		(10.56)		(10.74)	(11.17)
City 2million +					2.29
					(6.11)
South West					3.72
					(4.99)

	Adjusted Prevalence (Std. Errors)				
	Model 1	Model 2	Model 3	Model 4	Model 5
Intercept	79.78	-132.59	-156.40	-264.25	-289.74
	(4.55)	(64.22)	(23.35)	(37.54)	(48.47)
SOURCE: RAND analysis of VA, DoD, and Census data.					
NOTES: Results in Table A-4 indicate that overall, Veterans tend to move farther away from VAMC and CBOC VA facilities – not closer. Distances to VAMC and CBOC have significant positive associations with net migration, indicating that Veterans are moving to PUMAs that are farther from facilities.					

A.1.7   Comparison to the VetPop2014 Model

Two primary public sources of information regarding the complete current and projected Veteran population are the ACS, conducted by the U.S. Census, and the VetPop2014 model, produced by VA. According to the 2013 ACS there were 19.6 million Veterans[59]—which is somewhat below RAND's estimate of 21.9 million for the same time point. In contrast, the 2014 estimates from the VetPop2014 and RAND models are quite similar: 21.9 million and 21.6 million, respectively. The VetPop2014 model was developed by OACT for Veteran population projections from 2014 to 2043. The model provides Veteran counts by age, sex, service era, and race/ethnicity at the county level.

VetPop2014 is the culmination of years of work and refinement by OACT. VetPop2014 represents the seventh iteration of the OACT Veteran Population Projection Model (the previous iteration was developed in 2011). Here we highlight ways in which our approach differs methodologically from VetPop2014 and how our projection results differ. Documentation for the VetPop2014 model is scarce, and we rely on information contained in an online two-page abstract (Office of the Actuary, 2014) and discussions with the VetPop2014 team at OACT. As a result, we do not assess the quality of the VetPop2014 model here.

Broadly speaking, VetPop2014 shares a similar projection approach to our model: mortality rates are applied to a baseline population, new Veterans are added to the baseline population over time, and Veterans migrate throughout the projection period. The original baseline population for the VetPop model was Census 2000, as with our projections. (Recall that Census 2010 did not include Veteran status.) Key differences between the models are in data inputs and in migration modeling.

VetPop2014 applies age- and sex-specific mortality rates derived from mortality data that include: (a) Veteran specific information from VA administrative data and (b) U.S. population data from the Social Security Administration and the IRS. VetPop2014 assumes a slight mortality improvement for older Veterans due to longevity improvement, although by 2024 this is negligible. The VetPop2014 model does not incorporate race/ethnic-specific mortality rates. Our model differs here in that we apply race/ethnic-specific (in addition to age- and sex-

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[59] Based on the 2013 ACS.

specific) rates. As described in A.1.3.3, the mortality rates we use are a modification of the VetPop2014 rates we originally obtained from OACT that also incorporates the national race/ethnic differences in mortality reported by the Centers for Disease Control (CDC). We do not assume any improvement in mortality through the projection period.

VetPop2014 projects annual separations (new Veterans) by age and sex, and by active and reserve component, using Department of Defense data. The abstract states that "[b]ased on DoD's annual military separation data from FY1980 to FY2013 . . . VetPop2014 . . . developed a set of Time Series Models to project annual separations for various age and gender groups. . . . VetPop2014 Model then used historical county separation data based on VA administrative records along with migration information from the IRS to project the county level separation from FY2014 to FY2044 using predictive modeling techniques." VetPop2014 assumes that conflicts in the Gulf end by 2018, and that there are no other major conflicts in the next 30 years. Our model uses individual-level DoD administrative data to derive separation rates by age, sex, race/ethnicity, branch of service, and active and reserve status. Our projected separations reflect branch-specific trends in sex composition and separation rates, which is not reflected in VetPop2014 to our knowledge.[60] Our projected separations also assume no future major conflicts, but we also assume downsizing of the various branches by 2018 following announcements by the Army and our internal estimates for the other branches. It is not clear whether VetPop2014 similarly assumes downsizing. Our model also excludes separations from Reserves and National Guard if they have not served any active duty time (either in the other branches, or while in the Reserves/National Guard). This exclusion is based on the need for consistency with the way ACS measures Veterans as well as the requirement for active duty in order to qualify for VA access. We do not know whether VetPop2014 similarly excludes unactivated Reserves and National Guard. Unlike the VetPop2014 model, the RAND model does not derive geography-based separation rates, but rather geographically distributes new Veterans according to the Veteran age, sex, race/ethnicity, and service era distribution observed in the country at the time.

Finally, VetPop2014 models migration at the county level using historical data from VA, IRS, and the ACS. Predictive migration models are developed for various age (five groups) and sex cohorts. While we do not know more about the VetPop2014 migration models, this is where our models likely differ most. Our migration models are based only on data from the ACS, but the gravity models we use to predict migration from 2014–2024 reflect a wider range of Veteran characteristics: sex, service era, age (15 groups), and race/ethnicity—as well as distance and origin/destination population sizes. All of these characteristics were significant predictors of migration in our models. However, as we noted previously, migration plays a relatively minor role in overall population distribution in our models. We do not know how significant the role of migration is in the VetPop2014 model.

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[60] The sex composition of the various branches varied in 2014: Women comprised 12 percent of the Army, 19 percent of the Air Force, 16 percent of the Navy, and 7 percent of the Marines according to our data. Similarly, separation rates varied in 2014: 14 percent for the Army, 13 percent for the Navy, 11 percent for the Air Force, and 16 percent for the Marines.

Figure A-3 compares RAND's projections of the number of Veterans with those from VetPop2014. Despite the differences between VetPop2014 and our model, the projected 2024 Veteran populations are relatively similar in size (19 and 17.5 million, respectively) and sex composition (11 percent female in both models). However, there are differences in terms of race/ethnic composition of the Veteran population, as shown in Table 3-2. VetPop2014 predicts slightly higher percentages of black and Hispanic Veterans, while we predict higher percentages of white and Asian Veterans. This is most likely a result of our differing mortality rates (white and Asian Veterans have lower mortality rates than black and Hispanic Veterans in our model, consistent with national mortality rates).

Table A-5. Projected Race/Ethnicity of Veteran Population in 2024, RAND and VetPop2014

	RAND	VetPop2014
Race/Ethnicity		
White	75.8	73.4
Black	12.7	13.9
Hispanic	7.3	8.6
Asian	2.3	1.8
Other	1.9	2.3

Figure A-3. Comparison of RAND and VetPop2014 Projections
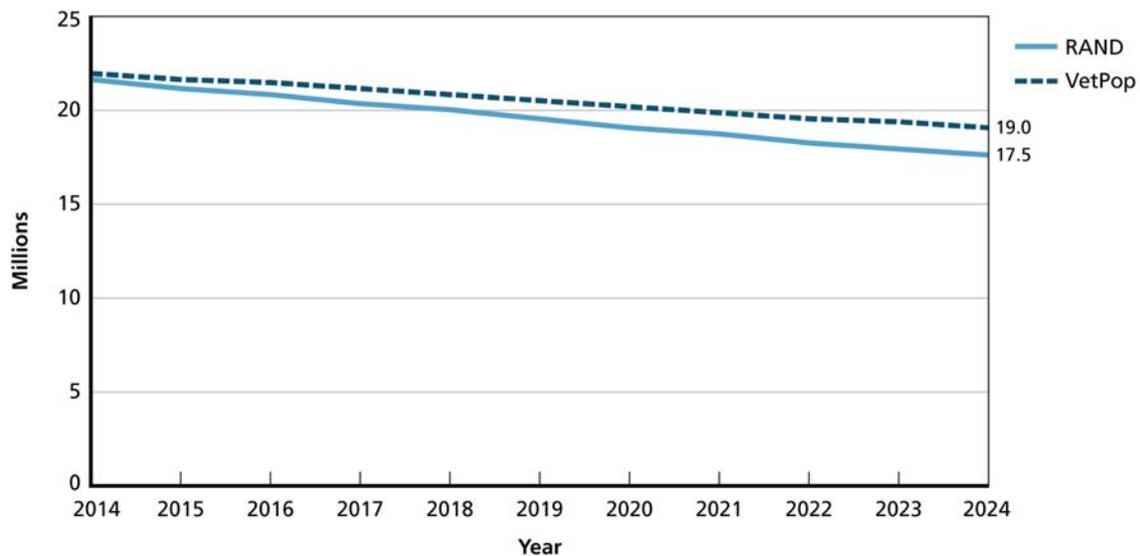
SOURCE: RAND analysis of VA, DoD, and Census data, and VetPop2014

As the Veteran population is projected to grow more diverse over time, we suggest that the VetPop2014 model consider race/ethnicity differences in mortality rates. We also encourage detailed methodological documentation of the VetPop2014 model to provide transparency regarding the assumptions and methodology used for VA's projections.

A.2 Detailed Results

To ease tabular presentation of data, we refer to Census Divisions. There are nine Census divisions:

1. Pacific: Alaska, Washington, Oregon, California, and Hawaii

2. Mountain: Montana, Idaho, Wyoming, Nevada, Utah, Colorado, Arizona, and New Mexico

3. West North Central: North Dakota, South Dakota, Nebraska, Kansas, Minnesota, Iowa, and Missouri

4. West South Central: Oklahoma, Texas, Arkansas, and Louisiana

5. East North Central: Wisconsin, Illinois, Indiana, Ohio and Michigan

6. East South Central: Kentucky, Tennessee, Mississippi, and Alabama

7. Middle Atlantic: New York, Pennsylvania, and New Jersey

8. South Atlantic: Maryland, Delaware, West Virginia, Virginia, Washington DC, North Carolina, South Carolina, Georgia, and Florida

9. New England: Vermont, New Hampshire, Maine, Massachusetts, Connecticut and Rhode Island.

Table A-6. Veteran Demographics by Census Division, 2014

Division	Total	Male	Female	Non-Hispanic White	Non-Hispanic Black	Hispanic	Non-Hispanic Asian	Non-Hispanic Other
Projected Populations								
Pacific	3,022,664	2,768,670	253,994	2,208,026	216,651	311,222	221,788	64,977
Mountain	1,774,653	1,613,843	160,810	1,443,094	79,193	187,154	29,381	35,831
West North Central	1,546617	1,434,679	111,938	1,412,166	75,838	30,530	9,123	18,960
West South Central	2,498,912	2,265,665	233,247	1,798,409	339,004	296,039	23,904	41,556
East North Central	3,053,885	2,852,543	201,342	2,633,206	307,780	69,691	16,749	26,459
East South Central	1,422,091	1,300,567	121,524	1,146,055	236,226	21,943	5,351	12,516
Middle Atlantic	2,269,477	2,121,759	147,718	1,894,593	227,448	108,235	22,759	16,442
South Atlantic	5,033,535	4,519,420	514,115	3,751,124	959,885	212,504	52,451	57,571
New England	957,457	893,680	63,777	887,186	32,867	23,093	6,259	8,052
National	21,579,294	19,770,826	1,808,465	17,173,859	2,474,892	1,260,411	387,765	282,364

SOURCE: RAND analysis of VA, DoD, and Census data

The views, opinions, and/or findings contained in this report are those of RAND Corporation and should not be construed as an official government position, policy, or decision.

Table A-7. Demographics by Census Division, 2024

Division	Total	Male	Female	Non-Hispanic White	Non-Hispanic Black	Hispanic	Non-Hispanic Asian	Non-Hispanic Other
Projected Populations								
Pacific	2,423,732	2,169,126	254,606	1,684,270	193,428	260,508	205,130	80,396
Mountain	1,588,614	1,413,787	174,827	1,247,369	90,259	177,953	34,305	38,728
West North Central	1,096,108	984,939	111,169	965,072	67,238	36,084	7,640	20,074
West South Central	2,328,168	2,075,496	252,672	1,598,352	331,036	316,979	30,299	51,502
East North Central	1,869,574	1,707,224	162,350	1,566,658	203,306	57,218	16,548	25,844
East South Central	1,267,367	1,133,034	134,333	1,007,906	211,958	26,432	5,171	15,900
Middle Atlantic	1,424,543	1,292,532	132,011	1,127,761	163,605	94,635	19,752	18,790
South Atlantic	4,847,982	4,274,631	573,351	3,481,203	930,933	282,458	72,950	80,438
New England	648,066	589,296	58,770	586,147	24,994	24,084	5,012	7,829
National	17,494,154	15,640,065	1,854,089	13,264,738	2,216,757	1,276,351	396,807	393,501

SOURCE: RAND analysis of VA, DoD, and Census data.

Over time, the East North Central and Middle Atlantic areas lose proportionately greater population (from 25 percent to 19 percent), while the South Atlantic area grows from 23 percent to 28 percent of all Veterans. There is slight movement of Asians from the Pacific to South Atlantic region (10 percent reduction/increase).

Table A-8. Age by Census Division, 2014

Division	Age 17-34	Age 35-44	Age 45-64	Age 65+
Projected Populations				
Pacific	237,359	296,578	977,513	1,511,214
Mountain	148,263	190,906	594,758	840,726
West North Central	113,518	147,140	514,242	771,717
West South Central	236,840	313,560	853,026	1,095,487
East North Central	191,896	292,587	1,025,119	1,544,282
East South Central	109,384	152,917	525,176	634,614
Middle Atlantic	134,452	176,282	691,621	1,267,121
South Atlantic	386,518	547,519	1,801,087	2,298,400
New England	51,308	74,032	300,832	531,284
National	1,609,538	2,191,522	7,283,374	10,494,845

SOURCE: RAND analysis of VA, DoD, and Census data.

Table A-9. Age by Census Division, 2024

Division	Age 17-34	Age 35-44	Age 45-64	Age 65+
Projected Populations				
Pacific	143,061	233,260	686,937	1,360,474
Mountain	95,288	190,341	475,298	827,687
West North Central	84,965	128,026	343,202	539,914
West South Central	188,528	287,286	719,945	1,132,409
East North Central	135,095	177,667	571,508	985,304
East South Central	86,280	129,061	441,327	610,699
Middle Atlantic	102,763	134,692	406,439	780,649
South Atlantic	273,948	547,098	1,626,073	2,400,863
New England	36,323	61,103	183,118	367,522
National	1,146,251	1,888,534	5,453,847	9,005,521

SOURCE: RAND analysis of VA, DoD, and Census data.

Younger Veterans are slightly less visible in the Pacific region over time. Older Veterans (45+) increase representation in the South Atlantic and West South Central regions, and decrease in the East North Central region.

Table A-10. Veteran Population by Region and Service Era, 2014

Division	Pre-1950	Korean Conflict	Pre-Vietnam Peace	Vietnam Era	Post-Vietnam Peace	Gulf War Era	Post 9/11 Era
Veteran Populations							
Pacific	237,994	288,125	282,978	978,656	448,312	418,357	368,241
Mountain	111,358	147,670	162,582	576,263	256,420	281,299	239,063
West North Central	124,535	166,723	160,403	485,852	222,501	213,994	172,608
West South Central	145,768	189,533	206,470	774,216	368,648	444,496	369,782
East North Central	267,087	315,125	338,911	966,829	483,594	408,375	273,963
East South Central	83,315	111,873	127,778	444,545	227,404	245,606	181,570
Middle Atlantic	249,624	263,947	283,845	694,561	335,307	242,456	199,737
South Atlantic	321,136	407,702	445,405	1,509,535	777,054	883,420	689,284
New England	96,428	109,704	111,387	305,282	148,266	105,352	81,038
National	1,637,245	2,000,402	2,119,759	6,735,739	3,267,506	3,243,355	2,575,286

SOURCE: RAND analysis of VA, DoD, and Census data

Table A-11. Veteran Population by Region and Service Era, 2024

Division	Pre-1950	Korean Conflict	Pre-Vietnam Peace	Vietnam Era	Post-Vietnam Peace	Gulf War Era	Post 9/11 Era
Veteran Populations							
Pacific	63,111	120,164	156,151	781,661	414,727	362,065	525,852
Mountain	29,881	44,809	93,440	491,604	250,756	289,636	388,487
West North Central	31,898	55,375	70,366	291,892	171,083	192,528	282,967
West South Central	39,614	63,668	95,313	708,082	389,039	397,675	634,776
East North Central	67,875	85,954	145,300	499,117	350,815	304,070	416,443
East South Central	21,945	30,958	55,939	365,751	234,455	238,821	319,499
Middle Atlantic	62,030	68,430	149,546	356,930	269,366	195,004	323,238
South Atlantic	81,330	135,021	321,510	1,382,221	754,834	948,648	1,224,419
New England	24,894	35,250	53,301	194,089	115,156	89,760	135,616
National	422,578	639,629	1,140,866	5,071,347	2,950,231	3,018,207	4,251,297

SOURCE: RAND analysis of VA, DoD, and Census data.

Gulf War and later eras increase from 27 percent to 42 percent of the Veteran population by 2024. There is no substantial geographic redistribution of cohorts.

Figure A-4. Total Population by Sex, 2014–2024
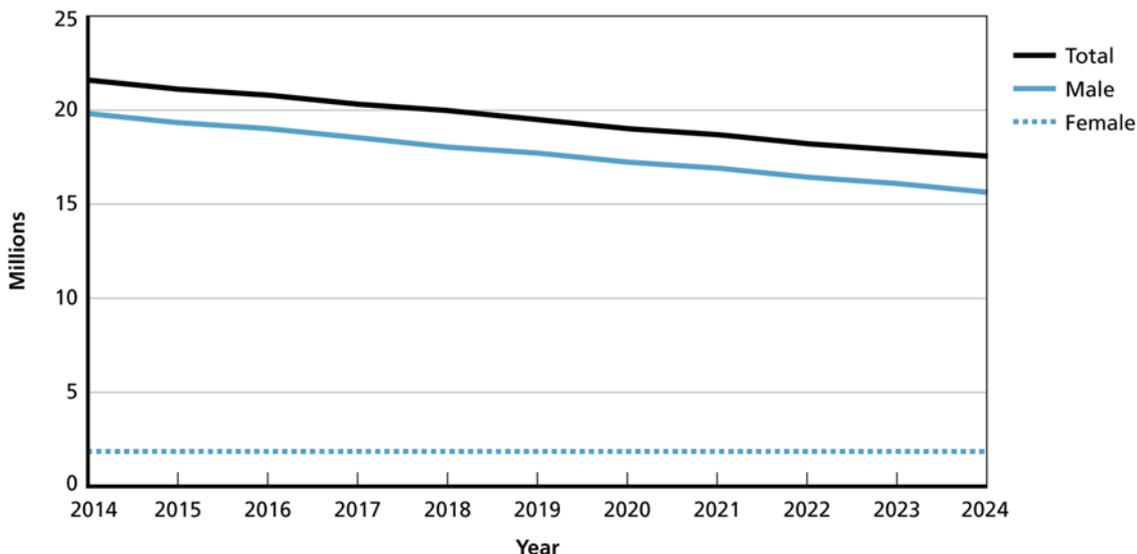
SOURCE: RAND analysis of VA, DoD, and Census data.

While the number of male Veterans is projected to decline steadily, the number of female Veterans is projected to increase very slightly at the same time (Figure A-4). The relative share of female Veterans will increase by 25 percent, from 8 percent to 10 percent of the Veteran population by 2024.

Figure A-5. Average Age by Sex, 2014–2024
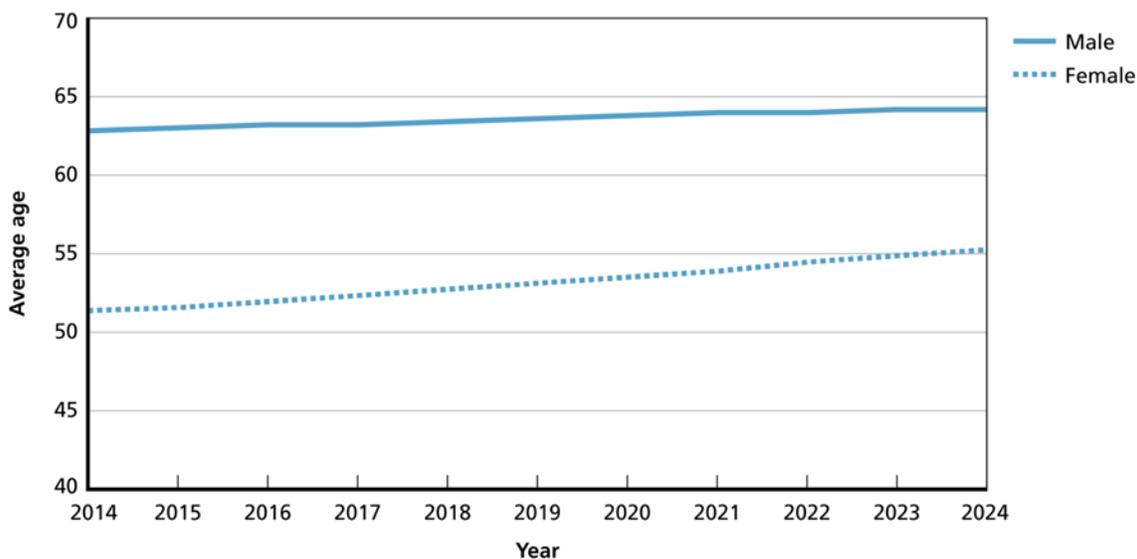
SOURCE: RAND analysis of VA, DoD, and Census data.

Veterans' mean age will increase slowly throughout the period (Figure A-5). Male Veterans' mean age will rise much more slowly than female Veterans' mean age, although female Veterans are substantially younger overall.

Figure A-6. Total Veteran Population Counts: 2014 and 2024
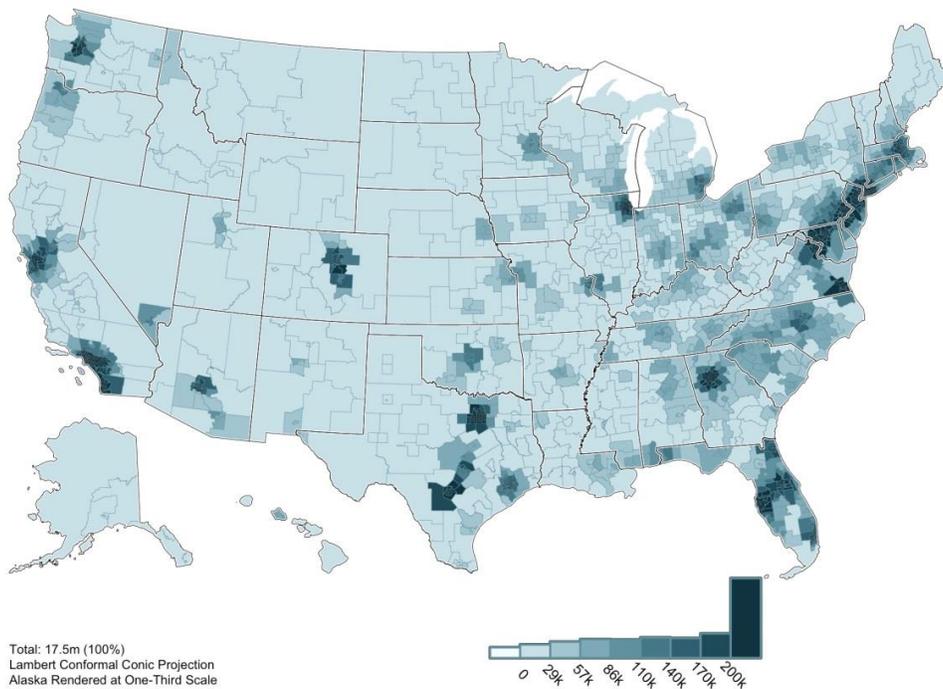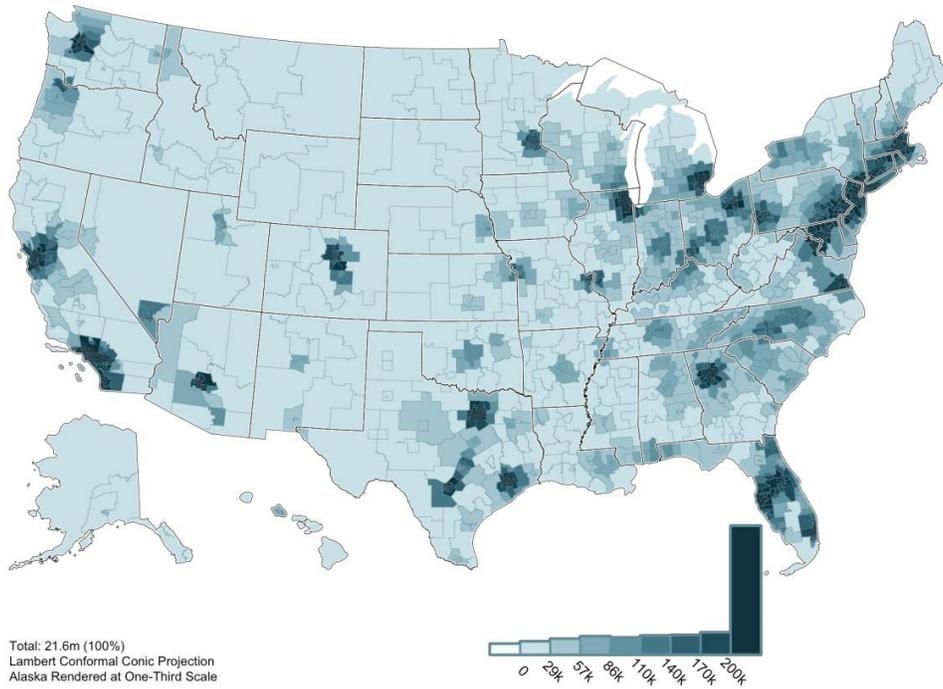
Total: 21.6m (100%)
Lambert Conformal Conic Projection
Alaska Rendered at One-Third Scale

0 29k 57k 86k 110k 140k 170k 200k

Total: 17.5m (100%)
Lambert Conformal Conic Projection
Alaska Rendered at One-Third Scale

0 29k 57k 86k 110k 140k 170k 200k

SOURCE: RAND analysis of VA, DoD, and Census data.

Figure A-7. Geographic Density of Veterans in 2014, Change by 2024
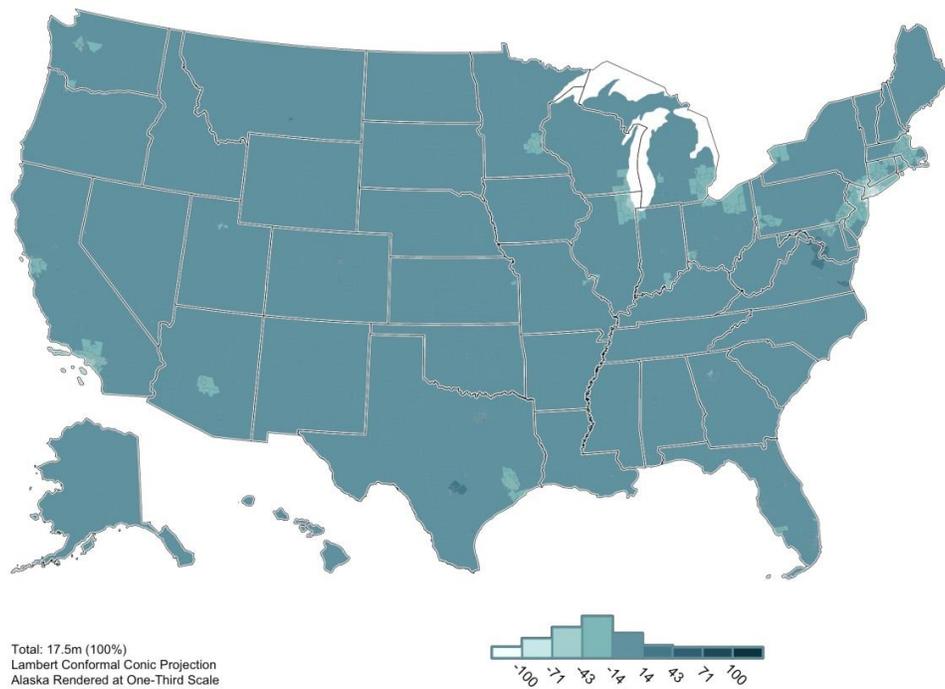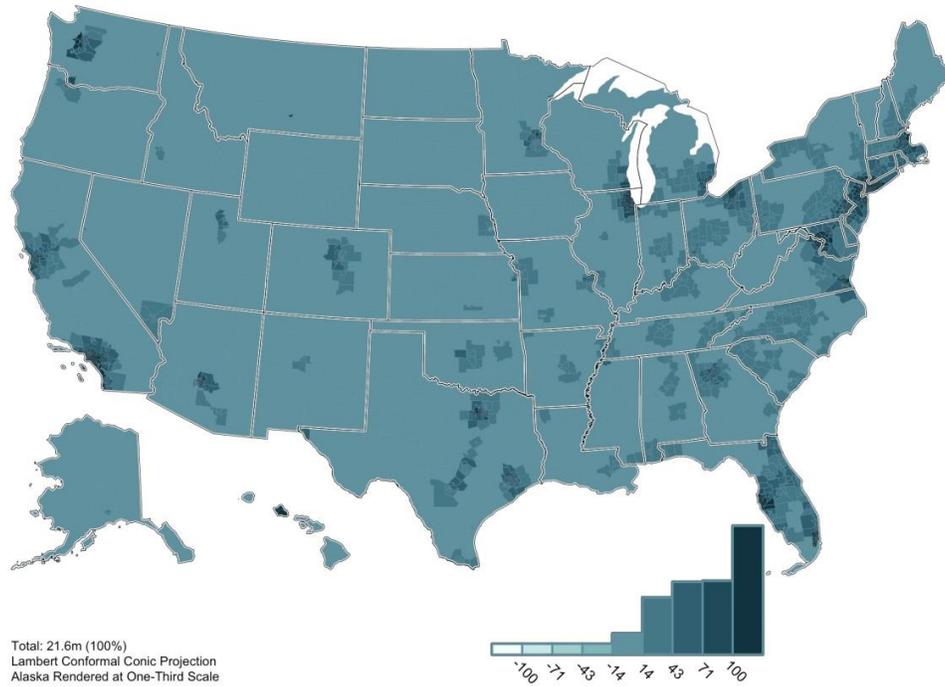
SOURCE: RAND analysis of VA, DoD, and Census data.

Figure A-8. Percentage of Veterans Non-Hispanic White: 2014 and 2024
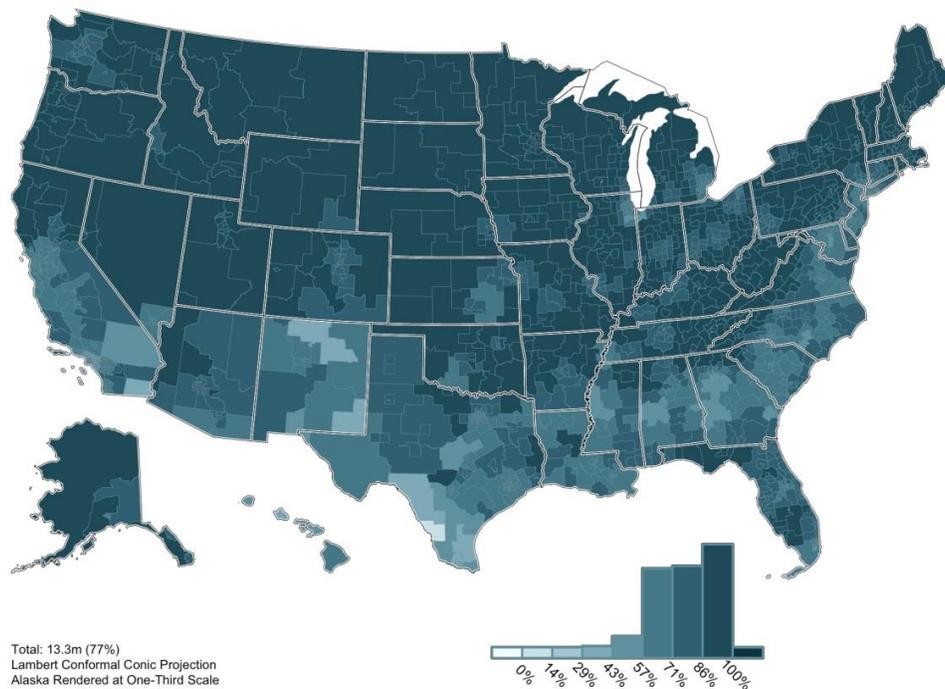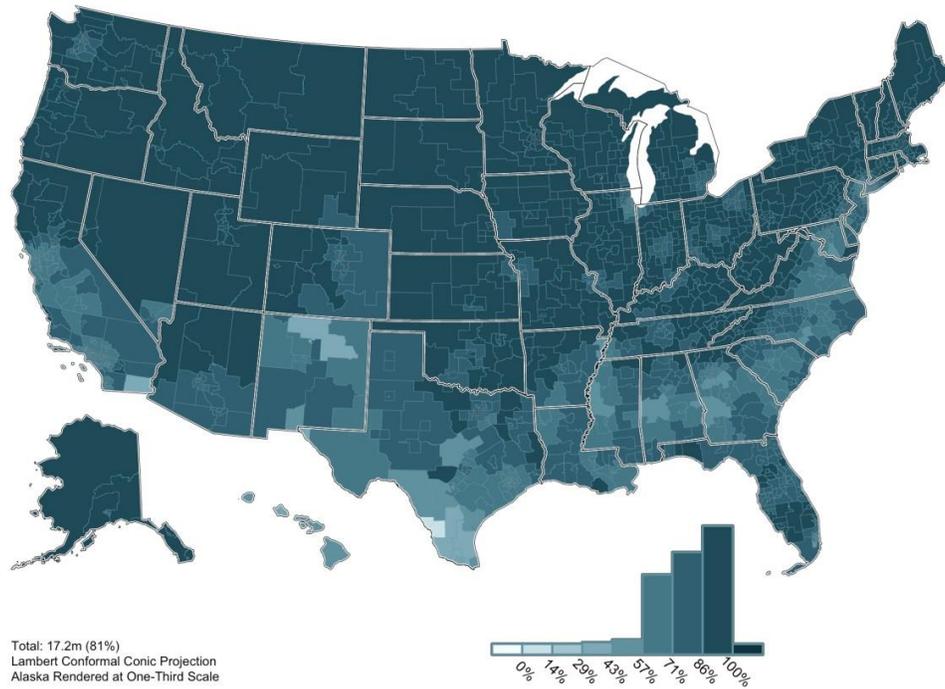
Total: 17.2m (81%)
Lambert Conformal Conic Projection
Alaska Rendered at One-Third Scale

0% 14% 29% 43% 57% 71% 86% 100%

Total: 13.3m (77%)
Lambert Conformal Conic Projection
Alaska Rendered at One-Third Scale

0% 14% 29% 43% 57% 71% 86% 100%

SOURCE: RAND analysis of VA, DoD, and Census data.

The views, opinions, and/or findings contained in this report are those of RAND Corporation and should not be
construed as an official government position, policy, or decision.

Figure A-9. Percentage of Veterans Black: 2014 and 2024
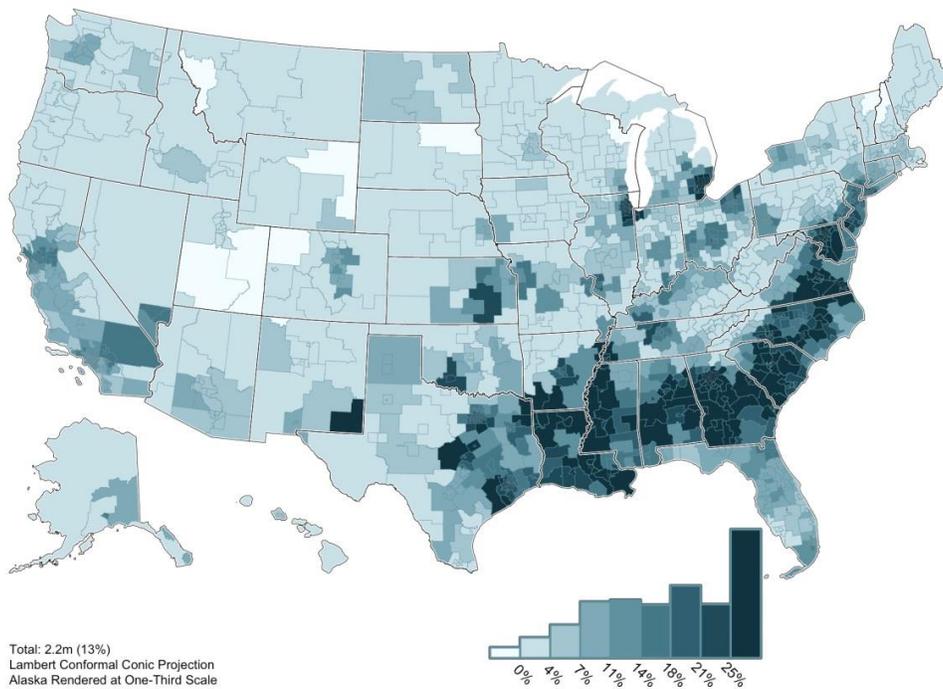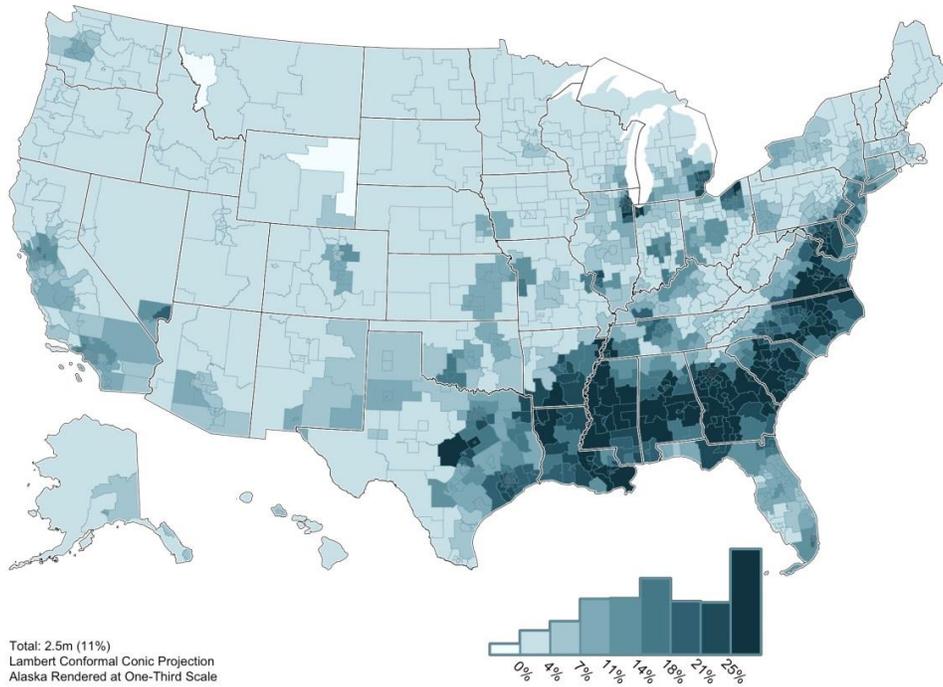
Total: 2.5m (11%)
Lambert Conformal Conic Projection
Alaska Rendered at One-Third Scale

Total: 2.2m (13%)
Lambert Conformal Conic Projection
Alaska Rendered at One-Third Scale

SOURCE: RAND analysis of VA, DoD, and Census data.

Figure A-10. Percentage of Veterans Black: 2014 and 2024
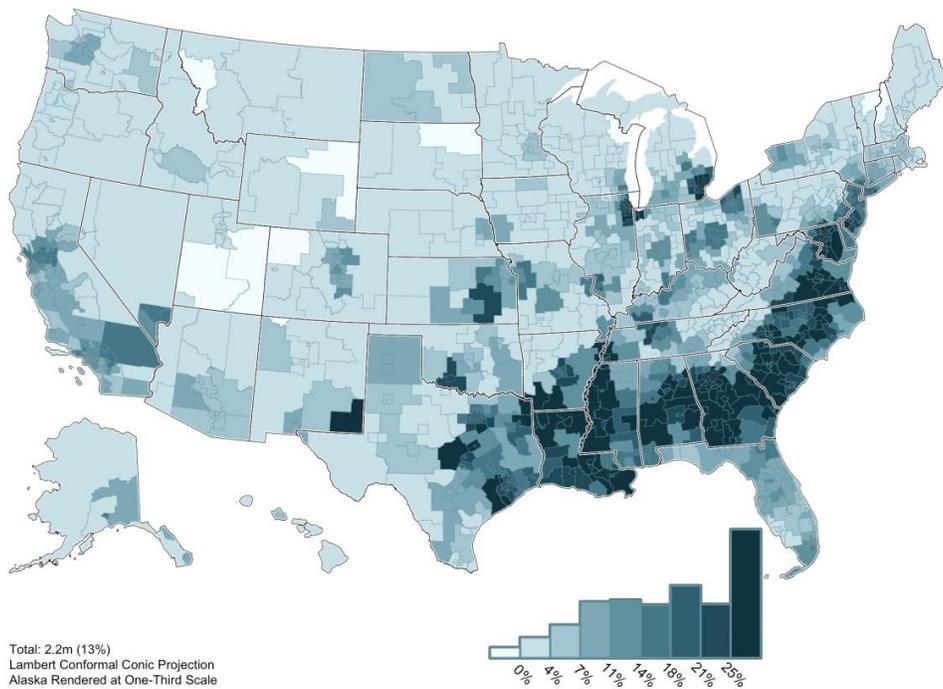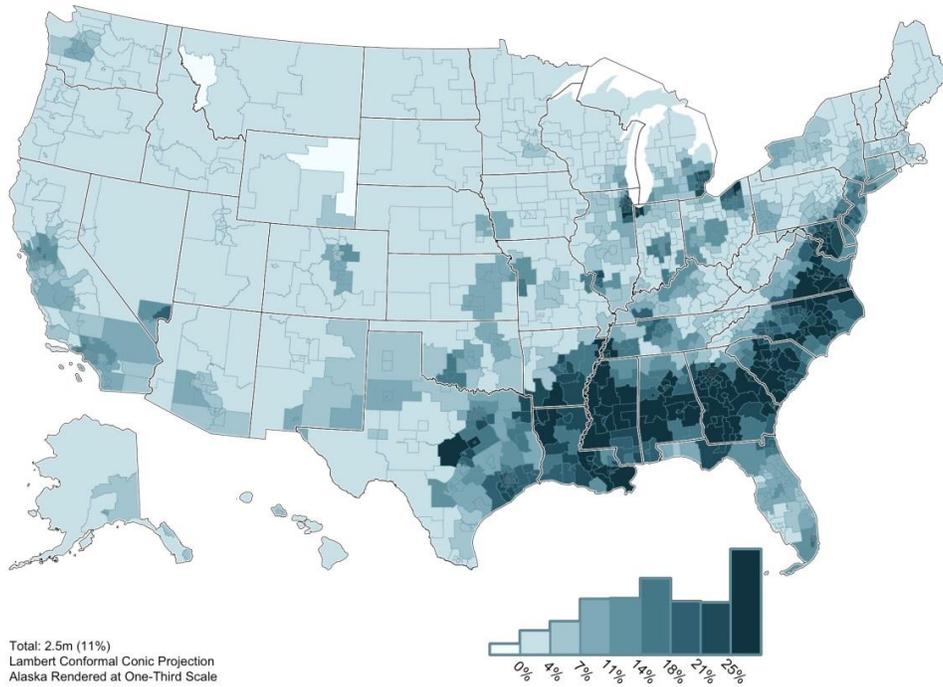
Total: 2.5m (11%)
Lambert Conformal Conic Projection
Alaska Rendered at One-Third Scale

Total: 2.2m (13%)
Lambert Conformal Conic Projection
Alaska Rendered at One-Third Scale

SOURCE: RAND analysis of VA, DoD, and Census data.

Figure A-11. Percentage of Veterans Under Age 35: 2014 and 2024
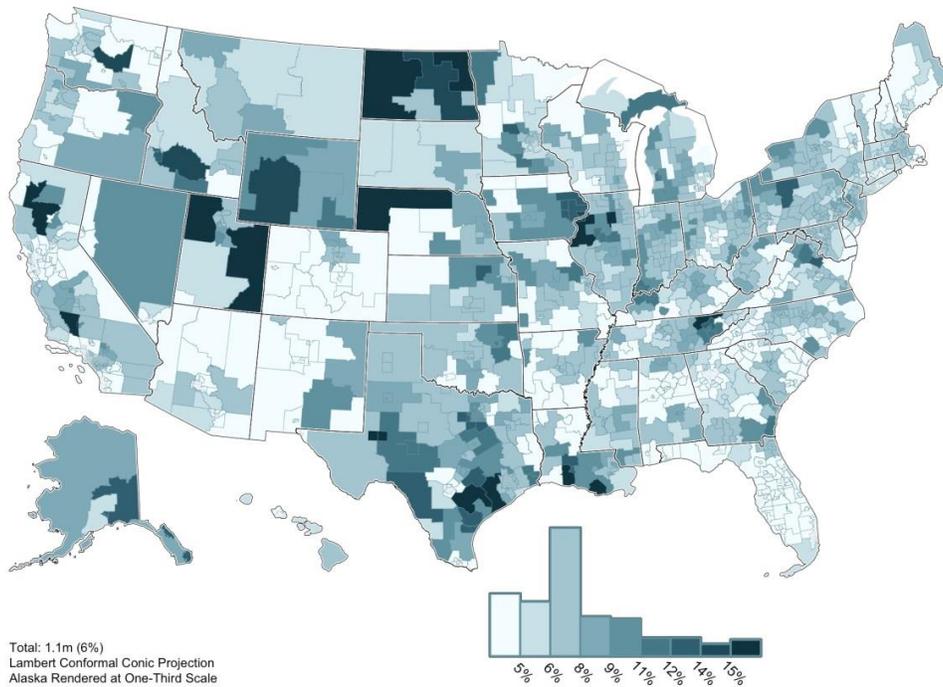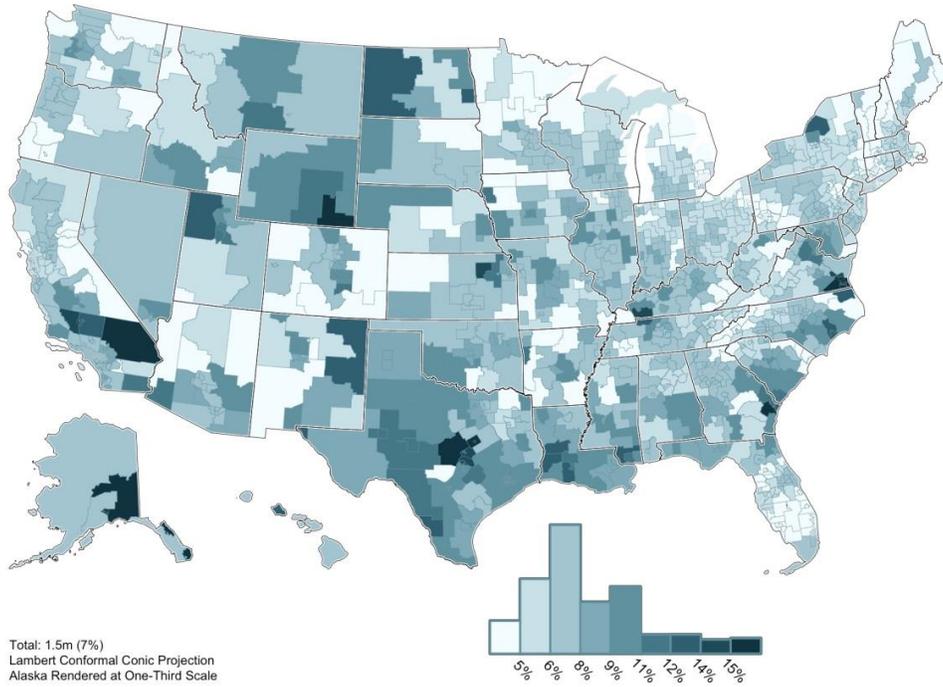
Total: 1.5m (7%)
Lambert Conformal Conic Projection
Alaska Rendered at One-Third Scale

Total: 1.1m (6%)
Lambert Conformal Conic Projection
Alaska Rendered at One-Third Scale

SOURCE: RAND analysis of VA, DoD, and Census data.

Figure A-12. Percentage of Veterans Under Age 35 in 2014, Change by 2024
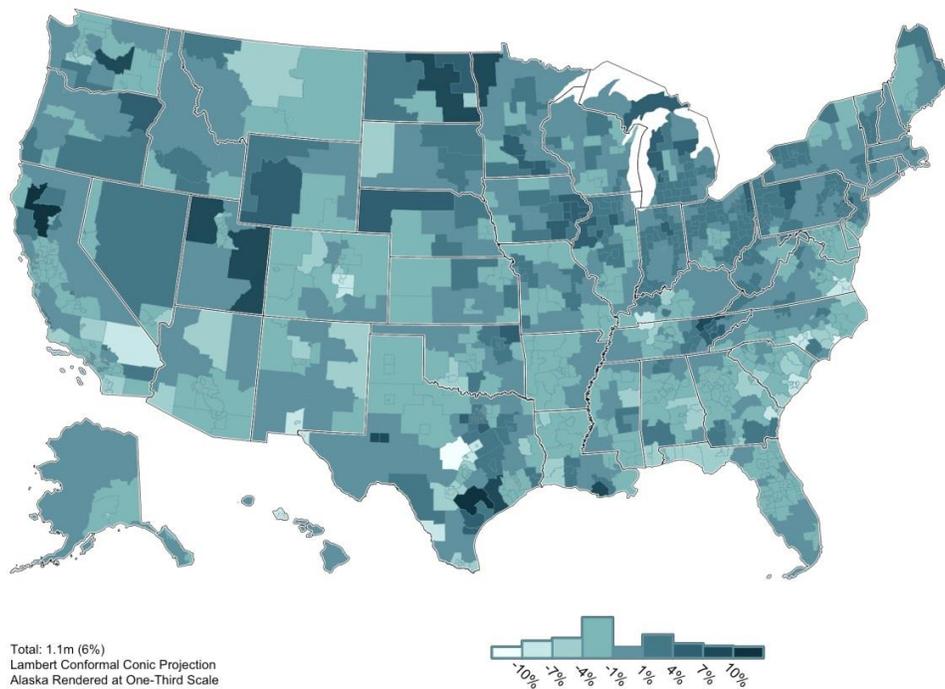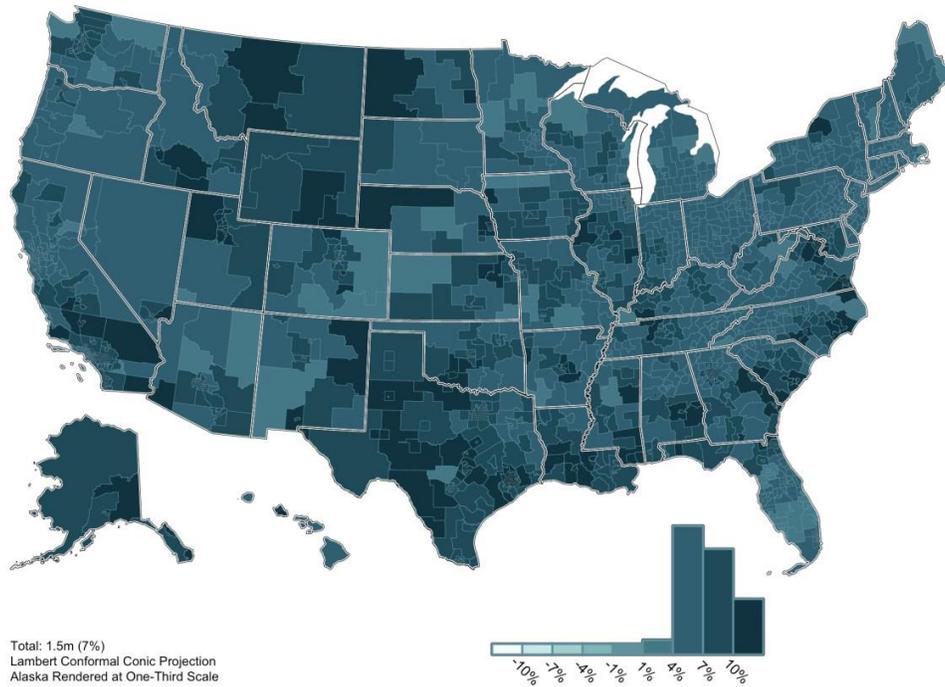
SOURCE: RAND analysis of VA, DoD, and Census data.

Figure A-13. Percentage of Veterans Over Age 65: 2014 and 2024
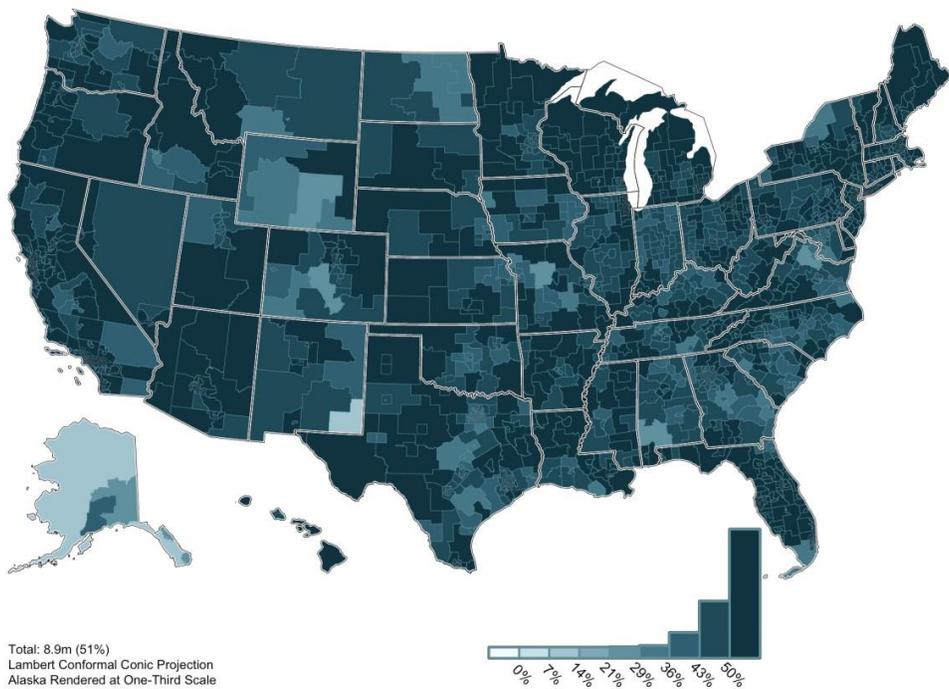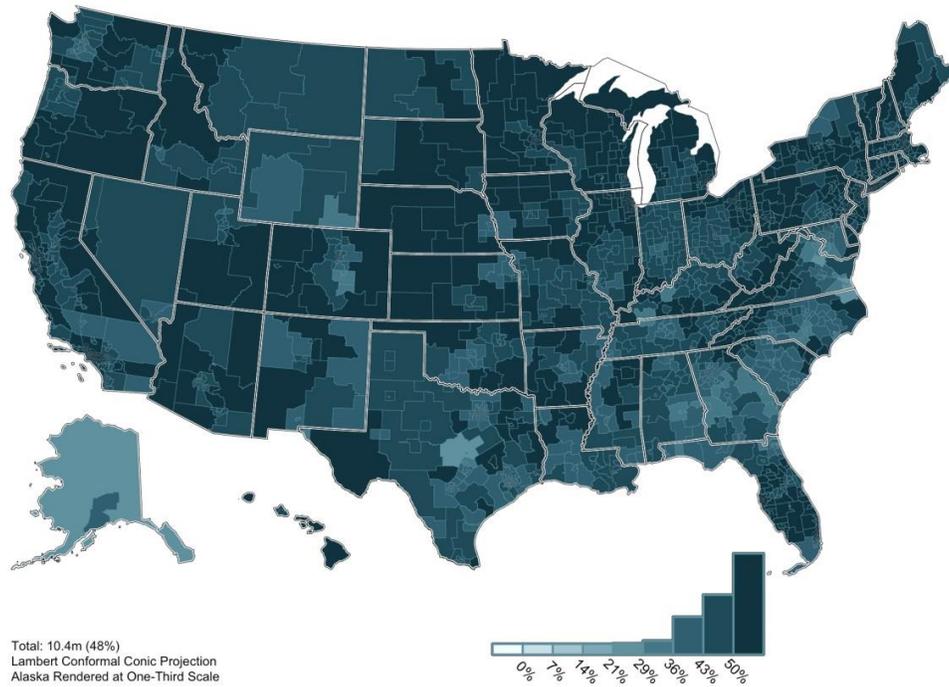
Total: 10.4m (48%)
Lambert Conformal Conic Projection
Alaska Rendered at One-Third Scale

0% 7% 14% 21% 29% 36% 43% 50%

Total: 8.9m (51%)
Lambert Conformal Conic Projection
Alaska Rendered at One-Third Scale

0% 7% 14% 21% 29% 36% 43% 50%

SOURCE: RAND analysis of VA, DoD, and Census data.

Figure A-14. Percentage of Veterans Over Age 65 in 2014, Change by 2024
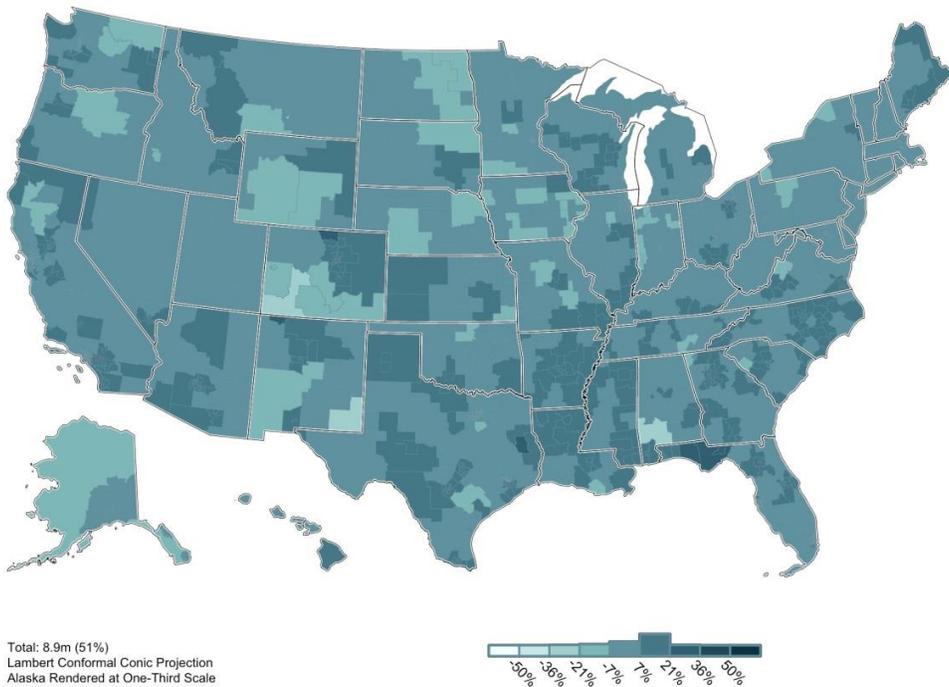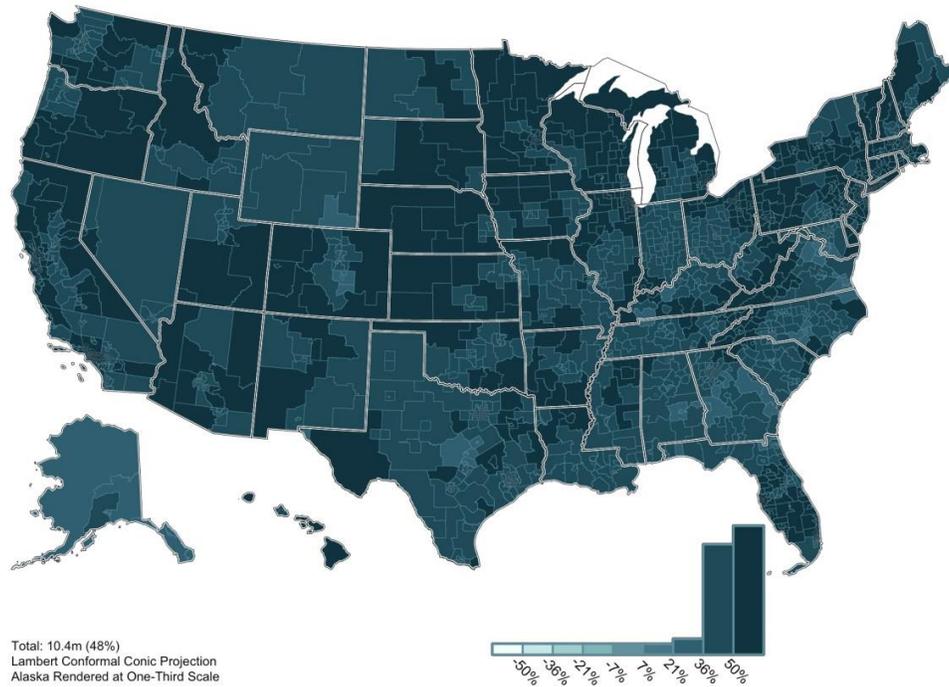
Total: 10.4m (48%)
Lambert Conformal Conic Projection
Alaska Rendered at One-Third Scale

-50% -36% -21% -7% 7% 21% 36% 50%

Total: 8.9m (51%)
Lambert Conformal Conic Projection
Alaska Rendered at One-Third Scale

-50% -36% -21% -7% 7% 21% 36% 50%

SOURCE: RAND analysis of VA, DoD, and Census data.

Figure A-15. Number of Net Migrants: 2014 and 2024

Shading Indicates Total Number in each PUMA
Total number: -420 (0%)
Lambert Conformal Conic Projection
Alaska Rendered at One-Third Scale

Shading Indicates Total Number in each PUMA
Total number: -9.2k (0%)
Lambert Conformal Conic Projection
Alaska Rendered at One-Third Scale
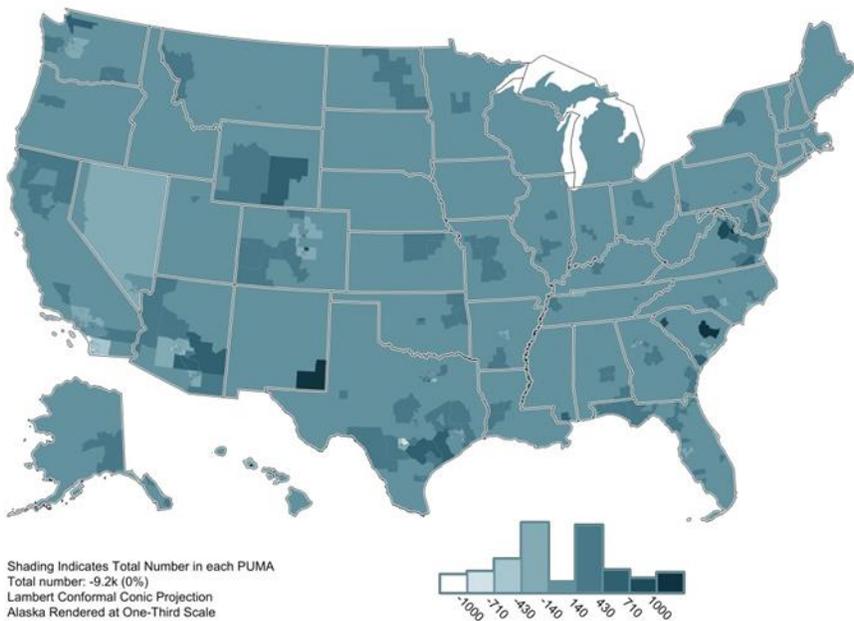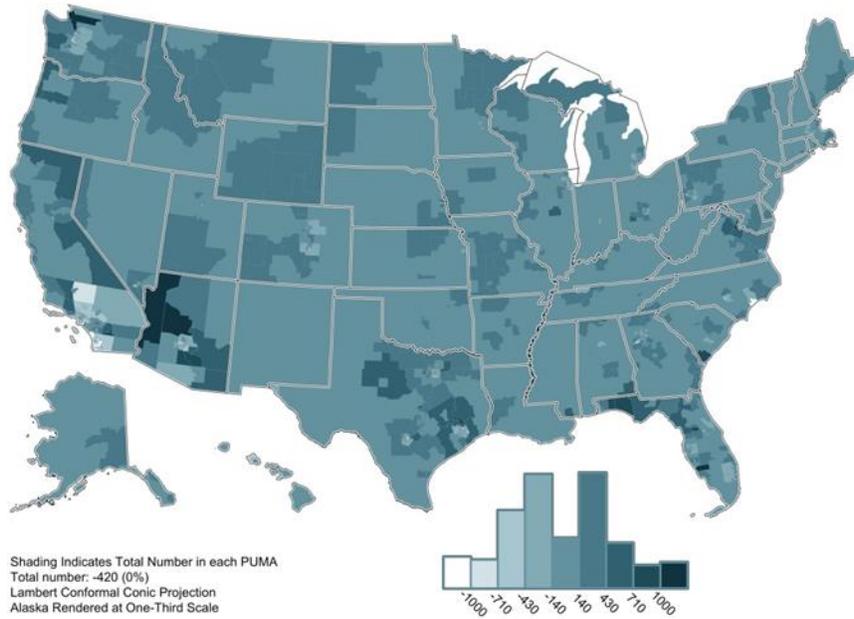
SOURCE: RAND analysis of VA, DoD, and Census data.

Figure A-16. Change in Net Migration Rates: 2014 to 2024

Veterans in PUMA Within 40mi of Center, Percent
Total number: -9.2k (0%)
Lambert Conformal Conic Projection
Alaska Rendered at One-Third Scale
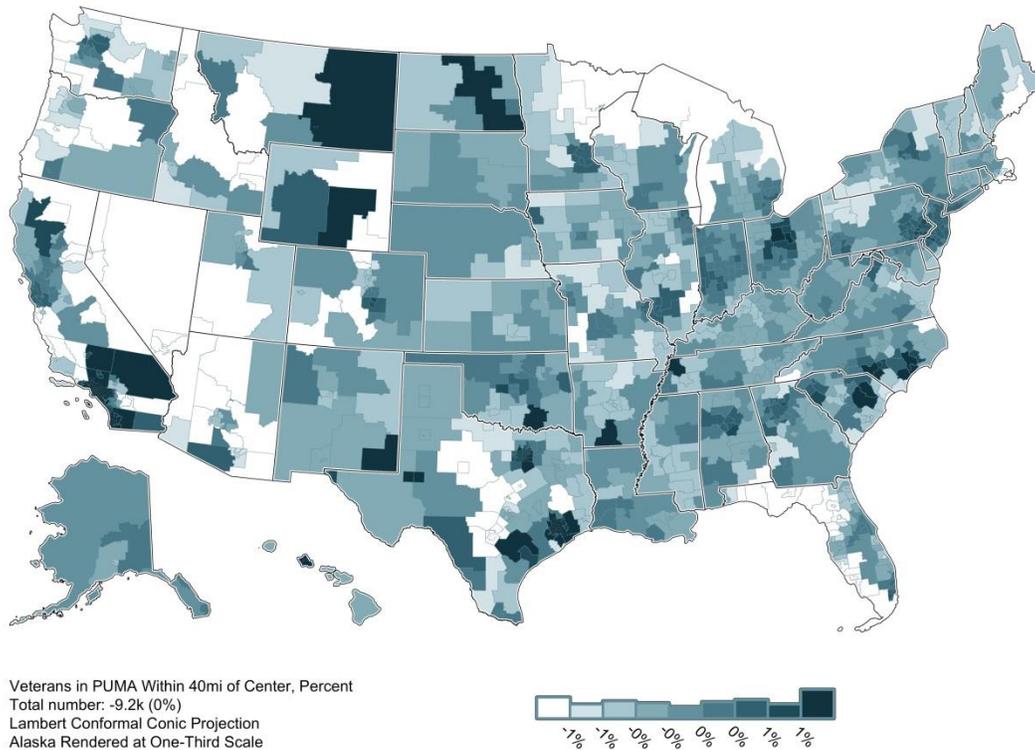
SOURCE: RAND analysis of VA, DoD, and Census data.

A.3   Population Projection Sensitivity Analysis

A.3.1   Alternative Models

In this section we examine how the population projections vary when using different mortality rates. Recall that the rates used in the RAND Veteran projection are based on a combination of the VetPop2014 mortality rates and national-level race/ethnic-specific mortality rates from the CDC.

Here we apply mortality rates from (1) the VetPop2014 model (no race/ethnic differences in rates), (2) the observed national-level mortality rates from the CDC, and (3) a significantly elevated risk of mortality linked to poverty-area residence identified in other literature.

Also recall that our population projections begin from 2000 and continue through 2024. Figure A-17 presents the 2014–2024 period under the four mortality schedules. The RAND projection and VetPop2014 model are virtually equivalent, which is to be expected given that the overall mortality rate was simply distributed across race/ethnic groups. As discussed in A.1.7, although

total Veteran population estimates across the RAND and VetPop2014 projections are similar, there are differences in the race/ethnic composition of the two populations: white and Asian Veterans are slightly more prominent in the RAND projection due to their slightly lower mortality rates than other groups.

Contrasting the RAND projection with the national mortality rates obtained from the CDC indicates that the mortality rates for Veterans are slightly lower than for the nation as a whole. By 2024 the RAND estimate projects 17.5 million Veterans, while using CDC mortality rates on the same population leads to a 2024 population of 17.0 million Veterans. While Veterans may have more health care needs than other civilians (see Section 4), they may also have access to VA care; whereas many civilians may lack health care. Further, Veterans have higher median incomes and are less likely to live below the poverty line than other civilians (National Center for Veterans Analysis and Statistics, 2014b).

Finally, to examine how highly elevated mortality risk impacts our population projections, we apply the same elevated risk of all-cause mortality associated with poverty-area residence (rate ratio 1.78) that was identified in a longitudinal study of over 10,000 individuals ages 25-74, from 1971 to 1987 (Waitzman & Smith, 1998). There are many studies linking poverty to mortality; this specific one was chosen based on the large sample size and long follow-up period. As it is for illustrative purposes only, it is sufficient for the present needs. Applying nearly doubled mortality rates to the population projection does have a substantial impact, as anticipated: by 2024 the projection estimates a Veteran population of 13.7 million (22 percent lower than the RAND estimate). Again, this estimate assumes all Veterans live in federally designated poverty areas, and is for illustrative purpose only.

Overall, the comparison suggests that the projection is relatively robust to different mortality schedules, assuming the mortality schedules are not extreme.

Figure A-17. Model Comparison
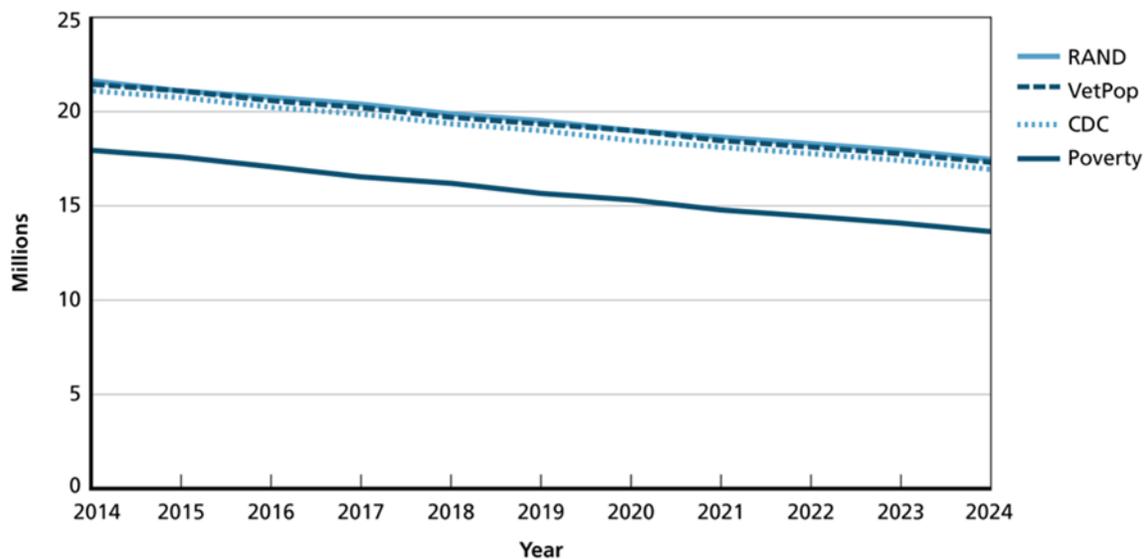
A.3.1.1 Comparison of Observed Versus Gravity Model Net Migration in 2014–2024

Net migration estimated with observed in-migration and out-migration rates from 2009–2013 ACS is compared to net migration estimated with predicted in-migration and out-migration rates from gravity models using the same survey. In 2014, there are less PUMAs with stronger negative or positive observed net migration, compared to predicted net migration. In other words, predicted net migration is more evenly distributed across the different categories of migration level than observed net migration. This result might be an indication that gravity models estimate rates that smooth the rates across the country, even though these rates did generate some areas with highly positive net migration in northwest Arizona. By 2024, net migration estimated with predicted rates from gravity models are even more equally distributed across the categories of migration level, compared to observed net migration. As a result, there are fewer areas with strong positive net migration originated with predicted rates than observed rates. Besides these differences, the same general patterns are observed across the country: (1) positive net migration to southeastern New Mexico, northwestern Florida, Colorado, southern Wyoming, western South Carolina, and northern Virginia; and (2) negative net migration from Nevada, Los Angeles, Phoenix, and San Antonio.

Figure A-18. Observed and Predicted Net Migration, 2014 and 2024
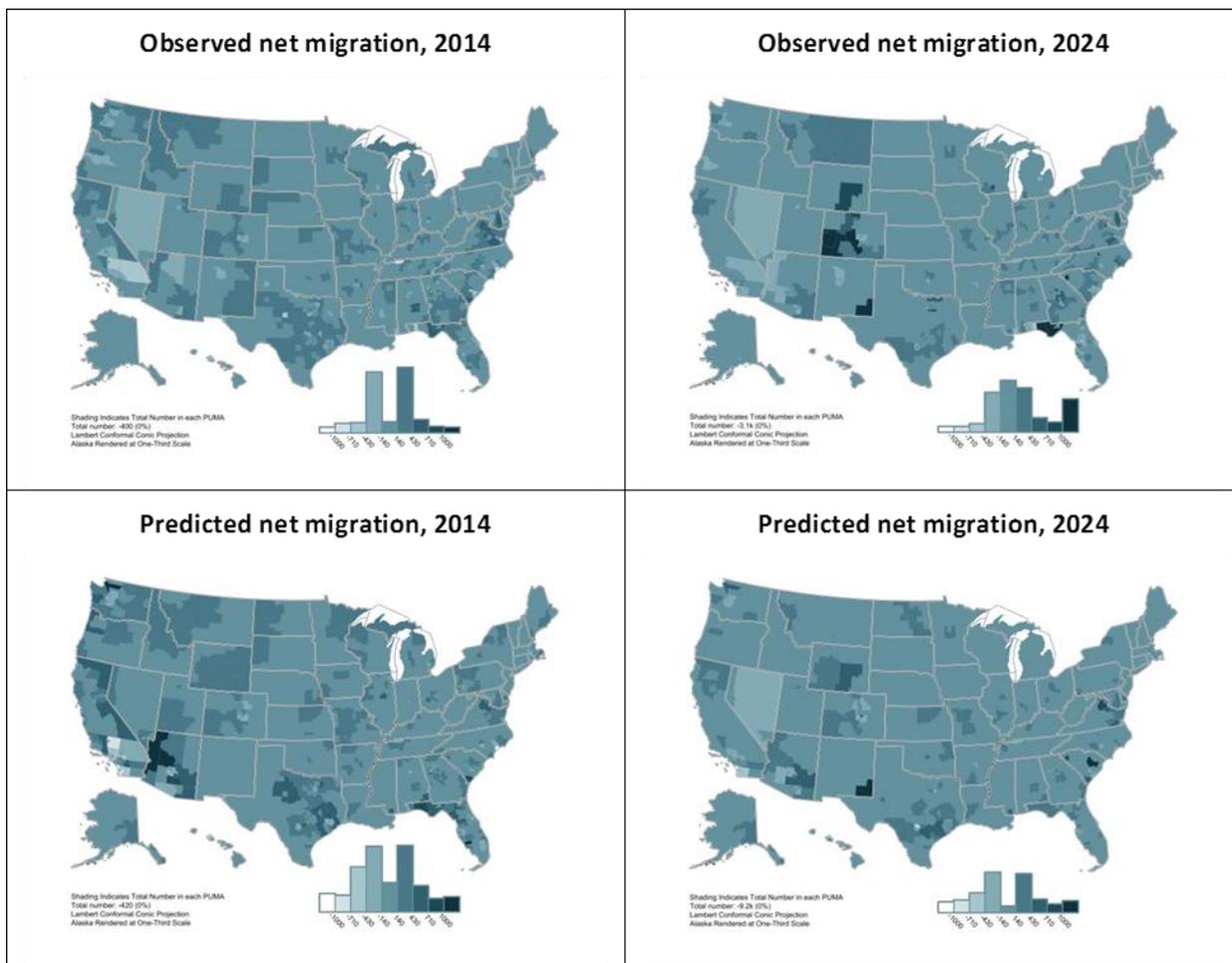
Even with some differences between net migration estimated with observed and predicted rates, the overall distribution of Veterans by PUMAs is similar throughout these two approaches. This similarity is probably due to the fact the overall in-migration and out-migration rates are small among the Veteran population. Observed rates varied from 3.03 percent in 2014 to 1.71 percent in 2024, while predicted rates varied from 2.97 percent in 2014 to 1.61 percent in 2024. The team utilizes predicted results originated from gravity models to both net migration and population of Veterans, because they smooth the trends across the small geographical areas of PUMAs and the final results are consistent with observed trends.

Figure A-19. Observed and Predicted Veteran Population, 2014 and 2024
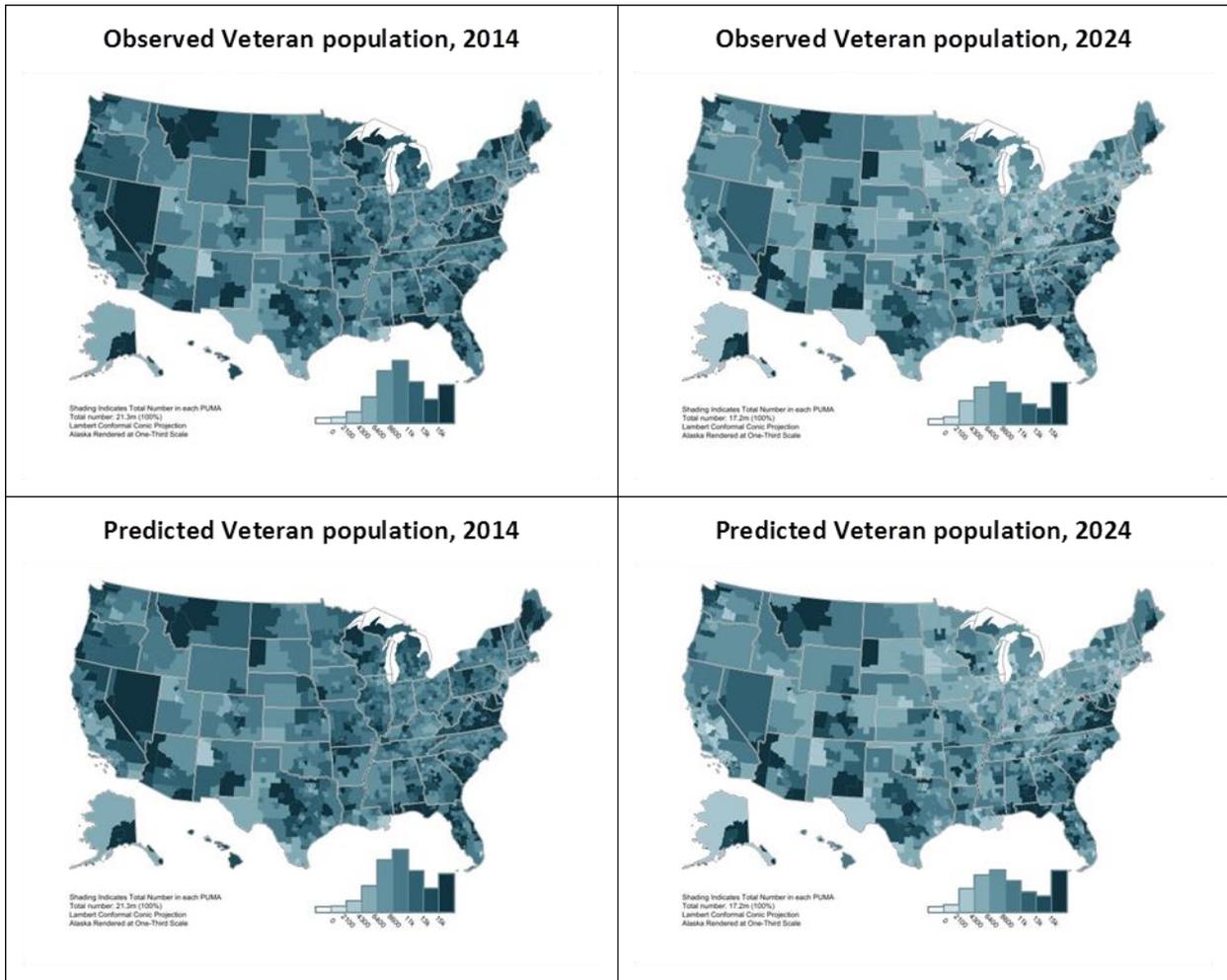
Appendix B   Enrollment in and Reliance on the VA Health Care System

B.1   Statistical model for the number of new enrollees

We used VA administrative data, the Veteran population projections from Section 3, and DoD data to estimate the probability that a yet-to-enroll Veteran enrolls in the VA health care system. Estimates are based on a generalized linear model indexed by age (a), sex (g), CTS deployment status (d), and includes a linear effect of time to capture secular trends in enrollment by year (t):

(1) $NE_{agdt} \sim Binomial(U_{agdt}, p_{agdt})$, with $p_{agdt} = expit(\delta_{a,g} + \theta_d + \eta C_{a,g} + \beta t)$

where NE_{agdt} is the number of new enrollees, U_{agdt} is the number of yet-to-enroll Veterans, p_{agdt} is the probability that a yet-to-enroll Veteran enrolls, $\delta_{a,g}$ is an age-and-sex specific effect, θ_d is the effect of Iraq-Afghanistan deployment on the probability of enrollment, and $C_{a,g}$ is the percentage of Veterans in age group a and sex g who served in Vietnam. The percent of Vietnam Veterans, $C_{a,g}$, is included in the model to disentangle the effect of age and the Vietnam service era on enrollment. This is important because, for example, a 2001 change in VA policy related to presumptive conditions associated with Agent Orange exposure led to an increase in the enrollment rates for Vietnam Veterans when they were in their 50s. Explicitly modeling this effect ensures that we do not predict a sharp increase in enrollment for all service era cohorts as they enter their 50s. We will explore including similar terms for other service cohorts.

Due to data limitations, this model does not distinguish between enrollment rates for Veterans deployed in Iraq and Afghanistan who are within the five-year window of enhanced eligibility and those who are outside of this window. The VA administrative data that we received do not contain information on separation date; therefore, we were unable to distinguish new enrollees who had deployed as part of the conflicts in Iraq and Afghanistan and separated within the past five years from those who had separated more than five years ago. With proper approvals, DoD data on separations and deployment could be merged with VA enrollment data. However, we did not have such approvals.

B.2   Algorithm for projecting VA enrollment

The following algorithm was used to project VA enrollment:

1. Start with the current number of enrollees in an age group a, sex g, and Iraq-Afghanistan deployment status d in year t, E_a^t, suppressing the notation indicating sex and Iraq-Afghanistan deployment status for ease of notation. We observe E_a^{2014}, but this number is projected in all subsequent years.

2. Estimate the number of currently enrolled Veterans who are alive and enrolled in the next year by applying age-specific mortality rates to the current enrollees and increasing their age by one year: $\tilde{E}_{a+1}^{t+1}$

3. Obtain Vet_{a+1}^{t+1} as described in Section 3.

4. Estimate the number of yet-to-enroll Veterans by subtracting the projected number of enrolled Veterans from the total number of Veterans in that year[61]:

$$U_{a+1}^{t+1} = Vet_{a+1}^{t+1} - \tilde{E}_{a+1}^{t+1}$$

5. Estimate the number of new enrollees by applying estimated enrollment rates for year *t+1*, based on equation(1), to the number of yet-to-enroll Veterans:

$$NE_{a+1}^{t+1} = U_{a+1}^{t+1}\widehat{Pr}(Enrollment)$$

(Recall that the probability of enrollment depends on Iraq-Afghanistan Global War on Terror deployment status.)

6. Add the number of new enrollees to the existing population of enrollees:

$$E_{a+1}^{t+1} = \tilde{E}_{a+1}^{t+1} + NE_{a+1}^{t+1}$$

7. Repeat to predict through 2024.

Our algorithm assumes that enrollment rates for Iraq or Afghanistan-deployed Veterans, based on equation (1), differ systematically from other Veterans, but otherwise depends only on age, sex and a linear time-trend. The effect of Iraq-Afghanistan deployment on enrollment (θ_d) is constant over time, so therefore this model does not capture expected decreases in enrollment rates among Veterans who were deployed (see Section 4 for discussion).

We projected the number of enrollees based on three different sets of assumptions on the future probability of new enrollment. First, we assumed that the probability of enrollment will continue to follow the recent pattern of enrollment by directly using equation (1). Second, we assumed that the probability of enrollment among Veterans who were deployed will follow the recent pattern of enrollment among Veterans who never deployed by dropping the θ_d term in equation (1). Third, we assumed that the probability of enrollment among Veterans who deployed will decrease over time by allowing the effect of deployment on future enrollment, θ_d, to decrease by 5 percent each year.

B.3   Projecting the number of VA patients

We projected the number of VA patients from 2014–2024 by multiplying the number of enrollees by the probability of use among enrollees. We estimated the probability that, in a given year *(t)*, a VA enrollee is a VA patient using a generalized linear model applied to individual-level data from the Survey of Enrollees:

(2) $logit(Pr[VA_i = 1]) = \alpha + \gamma_1 age_i + \gamma_2 gender_i + \gamma_3 cohort_i + \gamma_5 GWOT_i + \beta t$

in equation (2) VA_i is equal to 1 if *i*th enrollee is a VA patient, age_i is a vector of five-year age categories, $gender_i$ is indicator for male, $cohort_i$ is a vector of indicators for seven service

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[61] Note that mortality rates were used in Section 3 to estimate Vet_{a+1}^{t+1}. The number of yet-to-enroll Veterans U_{a+1}^{t+1} incorporates mortality rates indirectly because it is a function of Vet_{a+1}^{t+1} and $\tilde{E}_{a+1}^{t+1}$, both of which incorporate mortality rates.

eras, and $GWOT_i$ is an indicator that the enrollee was deployed as part of Iraq and Afghanistan, and t is a linear effect of calendar year.

B.4 Probability of VA Use by VA Enrollee Characteristics

Table B-1. The Probability That a VA Enrollee Uses VA Health Care: Baseline Model

Demographic Group	Estimates for VA patient population projections	
	Probability of using VA	**Standard errors**
Age		
<25	0.741	(0.014)
25–29	0.694	(0.010)
30–34	0.670	(0.010)
35–39	0.663	(0.010)
40–44	0.655	(0.009)
45–49	0.632	(0.009)
50–54	0.657	(0.008)
55–60	0.681	(0.006)
60–64	0.700	(0.005)
65–69	0.686	(0.005)
70–74	0.633	(0.007)
75–79	0.584	(0.007)
80–84	0.573	(0.009)
85+	0.558	(0.012)
Sex		
Female	0.686	(0.007)
Male	0.651	(0.002)
Service Era		
Post 9/11	0.506	(0.009)
Gulf War	0.516	(0.007)
Post-Vietnam Peace	0.668	(0.009)
Vietnam	0.676	(0.004)
Pre-Vietnam Peace	0.719	(0.007)

Demographic Group	Estimates for VA patient population projections	
	Probability of using VA	**Standard errors**
Korean Conflict	0.762	(0.006)
Pre-1950s	0.764	(0.009)
Deployed to Iraq or Afghanistan		
No	0.651	(0.002)
Yes	0.676	(0.008)

SOURCE: SoE (2010–2014).
NOTES: Sample size = 209,979. The adjusted probabilities of using VA health care services conditional on enrollment are shown in the first column. The standard errors are in column (2). These estimates show the differences in the probability of VA health service use within each demographic dimension (e.g., age), while controlling for other demographic differences. For example, any differences in the adjusted probabilities of use by age are devoid of the impact of Afghanistan and Iraq deployment on the probability that younger Veterans use VA health services.

Table B-2. The Probability That a VA Enrollee Uses VA Health Care by Demographic Characteristics

	Model 1		Model 2	
	Probability of using VA	**Standard errors**	**Probability of using VA**	**Standard errors**
Age				
<25	0.490	(0.056)	0.571	(0.061)
25–29	0.525	(0.026)	0.584	(0.025)
30–34	0.583	(0.022)	0.635	(0.021)
35–39	0.608	(0.024)	0.631	(0.022)
40–44	0.614	(0.020)	0.623	(0.020)
45–49	0.613	(0.018)	0.613	(0.018)
50–54	0.601	(0.016)	0.597	(0.016)
55–60	0.654	(0.013)	0.640	(0.013)
60–64	0.649	(0.010)	0.640	(0.010)
65–69	0.686	(0.010)	0.680	(0.010)
70–74	0.641	(0.013)	0.632	(0.013)

	Model 1		Model 2	
	Probability of using VA	Standard errors	Probability of using VA	Standard errors
75–79	0.617	(0.016)	0.600	(0.015)
80–84	0.604	(0.020)	0.585	(0.019)
85+	0.604	(0.030)	0.593	(0.029)
Sex				
Female	0.677	(0.009)	0.661	(0.009)
Male	0.622	(0.004)	0.623	(0.004)
Service Era				
Post 9/11	0.625	(0.016)	0.518	(0.017)
Gulf War	0.585	(0.012)	0.548	(0.012)
Post-Vietnam Peace	0.628	(0.016)	0.635	(0.015)
Vietnam	0.619	(0.009)	0.642	(0.008)
Pre-Vietnam Peace	0.657	(0.016)	0.726	(0.014)
Korean Conflict	0.676	(0.018)	0.746	(0.015)
Pre-1950s	0.652	(0.030)	0.724	(0.026)
Deployed to Iraq or Afghanistan				
No	0.625	(0.005)	0.619	(0.005)
Yes	0.631	(0.016)	0.665	(0.017)
Employment status				
Employed	0.561	(0.007)	0.590	(0.006)
Not Employed	0.632	(0.017)	0.634	(0.016)
Not in the Labor Force	0.672	(0.005)	0.652	(0.005)
Income ($)				
Less than 11,000	0.645	(0.010)	0.654	(0.010)
11,000–15,999	0.737	(0.014)	0.753	(0.013)
16,000–20,999	0.691	(0.014)	0.698	(0.013)
21,000–25,999	0.703	(0.013)	0.712	(0.012)
26,000–30,999	0.657	(0.012)	0.666	(0.012)
31,000–35,999	0.666	(0.014)	0.664	(0.014)

	Model 1		Model 2	
	Probability of using VA	**Standard errors**	**Probability of using VA**	**Standard errors**
36,000–40,999	0.648	(0.013)	0.638	(0.013)
41,000–45,999	0.615	(0.017)	0.608	(0.017)
46,000–50,999	0.627	(0.014)	0.614	(0.014)
51,000–55,999	0.606	(0.022)	0.597	(0.021)
56,000+	0.534	(0.007)	0.518	(0.007)
Health status is excellent or very good				
No	0.658	(0.004)	0.643	(0.004)
Yes	0.574	(0.006)	0.600	(0.006)
Non-VA health insurance coverage				
No	0.619	(0.015)	0.631	(0.014)
Yes	0.628	(0.004)	0.625	(0.004)
Non-VA prescription insurance coverage				
No	0.780	(0.008)	0.769	(0.008)
Yes	0.556	(0.006)	0.561	(0.006)
Priority group				
1			0.832	(0.007)
2			0.702	(0.008)
3			0.634	(0.008)
4			0.740	(0.016)
5			0.557	(0.010)
6			0.530	(0.012)
7			0.672	(0.018)
8			0.508	(0.007)
Enhanced eligibility for Iraq or Afghanistan				
No			0.626	(0.004)
Yes			0.628	(0.020)

	Model 1		Model 2	
	Probability of using VA	**Standard errors**	**Probability of using VA**	**Standard errors**

SOURCE: SoE (2014).

NOTES: Sample size = 32,285. The adjusted probabilities of using VA health care services conditional on enrollment are shown in columns (1) and (3). The associated standard errors are in columns (2) and (4). These estimates show the differences in the probability of VA health service use within each demographic dimension (e.g., age), while controlling for other demographic differences. For example, any differences in the adjusted probabilities of use by age are devoid of the impact of Afghanistan and Iraq deployment on the probability that younger Veterans use VA health services.

Table B-3. The Characteristics of Non-Veterans, Veterans and VA Patients in MEPS

Demographic Group	Distribution by Demographic Characteristics (Std. Errors)			
	non-Veterans	**Veterans**	**Veterans, VA Patients**	**Veterans, non-VA Patients**
Age				
20–34	0.300 (0.003)	0.062 (0.004)	0.038 (0.004)	0.076 (0.005)
35–44	0.192 (0.002)	0.104 (0.004)	0.063 (0.005)	0.129 (0.006)
45–54	0.202 (0.002)	0.144 (0.005)	0.120 (0.007)	0.158 (0.006)
55–64	0.154 (0.002)	0.252 (0.007)	0.257 (0.010)	0.249 (0.008)
65–74	0.084 (0.002)	0.218 (0.006)	0.240 (0.010)	0.204 (0.007)
75–84	0.049 (0.001)	0.162 (0.006)	0.201 (0.009)	0.138 (0.006)
85+	0.019 (0.001)	0.059 (0.004)	0.081 (0.007)	0.045 (0.004)
Sex				
Male	0.438 (0.002)	0.932 (0.004)	0.937 (0.005)	0.929 (0.005)
Female	0.562 (0.002)	0.068 (0.004)	0.063 (0.005)	0.071 (0.005)
Race/Ethnicity				

Demographic Group	Distribution by Demographic Characteristics (Std. Errors)			
	non-Veterans	Veterans	Veterans, VA Patients	Veterans, non-VA Patients
White (non-Hispanic)	0.662 (0.008)	0.823 (0.007)	0.824 (0.009)	0.822 (0.009)
Hispanic	0.150 (0.007)	0.043 (0.003)	0.040 (0.004)	0.045 (0.004)
Black (non-Hispanic)	0.116 (0.005)	0.100 (0.005)	0.106 (0.006)	0.096 (0.006)
Asian	0.051 (0.003)	0.012 (0.003)	0.007 (0.002)	0.016 (0.003)
Other and multiple	0.021 (0.002)	0.022 (0.002)	0.024 (0.003)	0.021 (0.003)
Lives in an MSA				
No	0.154 (0.010)	0.187 (0.013)	0.213 (0.018)	0.170 (0.012)
Yes	0.846 (0.010)	0.813 (0.013)	0.787 (0.018)	0.830 (0.012)
Married				
No	0.477 (0.004)	0.341 (0.009)	0.374 (0.011)	0.320 (0.010)
Yes	0.523 (0.004)	0.659 (0.009)	0.626 (0.011)	0.680 (0.010)
Student or Currently in School				
No	0.906 (0.001)	0.992 (0.001)	0.992 (0.001)	0.992 (0.001)
Yes	0.094 (0.001)	0.008 (0.001)	0.008 (0.001)	0.008 (0.001)
Educational Attainment				
< High School	0.176 (0.003)	0.071 (0.004)	0.091 (0.006)	0.058 (0.004)
High School Diploma or GED	0.308 (0.004)	0.340 (0.009)	0.350 (0.011)	0.333 (0.010)
Some College	0.180 (0.002)	0.210 (0.006)	0.203 (0.009)	0.214 (0.007)
College	0.336 (0.005)	0.380 (0.008)	0.356 (0.010)	0.396 (0.010)

Demographic Group	Distribution by Demographic Characteristics (Std. Errors)			
	non-Veterans	Veterans	Veterans, VA Patients	Veterans, non-VA Patients
Currently Employed (Not on Active Duty)				
No	0.293 (0.003)	0.454 (0.009)	0.587 (0.012)	0.372 (0.010)
Yes	0.707 (0.003)	0.546 (0.009)	0.413 (0.012)	0.628 (0.010)
Income Categories				
Poor	0.124 (0.003)	0.063 (0.003)	0.081 (0.004)	0.052 (0.003)
Near Poor	0.044 (0.001)	0.035 (0.002)	0.048 (0.004)	0.026 (0.002)
Low Income	0.135 (0.002)	0.114 (0.004)	0.139 (0.007)	0.099 (0.004)
Middle Income	0.304 (0.003)	0.307 (0.005)	0.326 (0.008)	0.294 (0.006)
High Income	0.393 (0.005)	0.481 (0.007)	0.406 (0.011)	0.528 (0.008)
Income				
Total Household Income	33,546.49 (304.781)	41,708.24 (541.289)	35,980.76 (753.759)	45,278.40 (646.528)

SOURCE: MEPS, 2006–2012.
NOTES: Columns (3) (Veterans, VA patients) and (4) (Veterans, non-VA patients) are two mutually exclusive categories of column (2) (Veterans). Sample size, Veterans = 12,313; sample size, non-Veterans = 150,225; Sample size, VA patients = 4,871; sample size, non-VA patients = 7,442. MSA denotes residential location in a metropolitan statistical area (MSA).

B.4.1 Projections of VA Enrollees and Patients

Table B-4. Projected VA Enrollment Counts (in millions), 2015–2024

Year	Number of Veterans	"Status quo" assumption		"Never deployed" assumption		"Decreasing enrollment" assumption	
		Number of VA enrollees	Percent of Veterans	Number of VA enrollees	Percent of Veterans	Number of VA enrollees	Percent of Veterans
2015	21.18	9.27	44%	9.16	43%	9.27	44%
2016	20.76	9.43	45%	9.23	44%	9.42	45%
2017	20.35	9.57	47%	9.29	46%	9.55	47%
2018	19.93	9.69	49%	9.32	47%	9.65	48%
2019	19.51	9.80	50%	9.36	48%	9.73	50%
2020	19.10	9.85	52%	9.35	49%	9.76	51%
2021	18.69	9.90	53%	9.35	50%	9.78	52%
2022	18.29	9.95	54%	9.35	51%	9.80	54%
2023	17.89	9.98	56%	9.35	52%	9.80	55%
2024	17.49	10.0	57%	9.33	53%	9.80	56%

SOURCE: RAND analysis of VA, DoD, and Census data.

Table B-5. Projected VA Patient Counts (in millions), 2015–2024

Year	Number of Veterans	"Status quo" assumption		"Never deployed" assumption		"Decreasing enrollment" assumption	
		Number of VA patients	Percent of Veterans	Number of VA patients	Percent of Veterans	Number of VA patients	Percent of Veterans
2015	21.18	5.99	28%	5.93	28%	5.99	28%
2016	20.76	6.06	29%	5.95	29%	6.06	29%
2017	20.35	6.12	30%	5.96	29%	6.11	30%
2018	19.93	6.16	31%	5.96	30%	6.14	31%
2019	19.51	6.20	32%	5.95	30%	6.16	32%
2020	19.10	6.20	32%	5.92	31%	6.15	32%
2021	18.69	6.21	33%	5.89	32%	6.14	33%

		"Status quo" assumption		"Never deployed" assumption		"Decreasing enrollment" assumption	
2022	18.29	6.20	34%	5.87	32%	6.12	33%
2023	17.89	6.19	35%	5.84	33%	6.09	34%
2024	17.49	6.18	35%	5.81	33%	6.07	35%

SOURCE: RAND analysis of VA, DoD, and Census data.

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Appendix C   Health Care Needs of the Veteran Population

C.1   Data and Analytic Approach

C.1.1   Definitions

C.1.1.1   Veterans

The two main populations of interest are (1) Veterans meeting Department of Veterans Affairs (VA) eligibility requirements (**Veterans**) and (2) Veterans using VA services (**VA patients**). There is also an intermediate population of Veterans enrolled in VA, of which VA patients are a subset, but we did not consider this group in our analyses. The criteria used to identify these two subgroups varied according to the information available in each data source.

Veterans: When using nationally representative surveys, we defined Veterans based on self-reported Veteran status. We used honorable discharge as a proxy of VA eligibility and limited the sample to this population when possible. We also considered separated military personnel in Defense administrative records Veterans.

VA patients: When using nationally representative surveys, we classified Veterans as VA patients if they met any of the following criteria: They reported using VA services, they reported using non-VA services that were paid for by VA, or if there was some indication that VA paid for at least some of the health care services received by the respondent when possible. If the survey did not identify source of payment, we defined VA patients based on self-reported health insurance coverage. In this case, the respondent would likely be misclassified if he or she was enrolled in VA but did not use services. VA patients were identified in VA administrative data as those Veterans who were enrolled in VA and received some health service from VA in the previous year.

C.1.1.2   Definition of Demographic and Geographic Characteristics

Demographic and geographic groups were used throughout the analyses in this section and will be referred to simply as demographics. Standardizing the definition of these groups was imperative for many reasons; most importantly, the population projections of Section 3 were combined with the analyses of this section to produce projections of the health care needs of Veterans and VA patients. By using a standardized definition of demographic characteristics, we ensured seamless integration of the results.

Our analyses attempt to generate results for demographic groups defined by age, sex, race, ethnicity, and geographic area. Where appropriate, additional demographic groups included service cohort (e.g., Vietnam, Afghanistan, Iraq), Veteran versus non-Veteran, and VA patient versus non-VA patient. Table C-1 summarizes the main demographic and geographic characteristics used throughout this section.

Table C-1. Demographic and Geographic Characteristics

Characteristic	Group Description
Age	
	15–24
	25–34
	35–44
	45–54
	55–64
	65–74
	75–84
	85+
Sex	
	Male
	Female
Race/Ethnicity	
	White (non-Hispanic)
	Hispanic
	Black (non-Hispanic)
	Asian
	Other and multiple
Service Cohort	
	Pre-1950
	Korean War
	Feb. 1955-July 1964
	Vietnam
	May 1975-July 1990
	Aug. 1990-Aug. 2001
	Post 9/11
Geography	
	Public Use Microdata Area (PUMA)

Demographic characteristics were not available in all data sources and in some cases were not available at the same resolution. For example, geographic location was not always available at

the PUMA level, and when this occurred we used available geographic information, such as state or Census region (Northeast, Midwest, South, and West).

C.1.1.3   Health Conditions and Health Behaviors

We considered a common set of key conditions when carrying out analysis of patient-level data (derived from survey, claims, or encounter data) to inform this subtask. We used several sources to identify important conditions. We began with 39 diagnostic groups identified by the VA Healthcare Analysis and Information Group (HAIG); these were chosen on the basis of prevalence, cost, and morbidity. To avoid missing conditions useful for this analysis but of less relevance to the HAIG, we added several conditions based on four different sources. First, we used the Centers for Disease Control and Prevention (CDC) Morbidity and Mortality Weekly Report (MMWR), including indicators of chronic disease (Holt et al., 2015), leading causes of morbidity and mortality (Johnson et al., 2014), 10 conditions associated with the greatest total expenditures (Soni, 2011), common causes of disability among adults (Centers for Disease Control and Prevention, 2009), and from the National Vital Statistics Report "Deaths: Final Data for 2011" (Hoyert & Xu, 2012). Second, we used the Healthcare Cost and Utilization Project's HCUPnet (Agency for Healthcare Research and Quality, undated) and the National Ambulatory Medical Care Survey/National Hospital Ambulatory Medical Care Survey (Centers for Disease Control and Prevention, undated) to identify additional conditions associated with large numbers of discharges in U.S. community hospitals or large numbers of outpatient visits. Third, we used conditions identified in Assessment B as critical for understanding the workforce and infrastructure needs of VA. Fourth, we identified conditions that disproportionately affect Veterans relative to non-Veterans using a review of research studies identified in Task A.1 (Research Question 3) and used the analysis of national survey data described in the Analytic Approach (under Research Question 1). After combining and de-duplicating these lists, we identified codes to be used with administrative data (including ICD-9 or ICD-9 code groupings produced by AHRQ's Clinical Classifications Software [CCS]). (See Appendix C.1.2 below.)

For the final report, we selected health conditions that were either associated with high prevalence rates among Veterans or those that disproportionately affected Veterans in comparison to non-Veterans. Analyses of individual-level survey data used additional self-reported health conditions when available, as well as self-reported difficulty with ADLs and health behaviors, including alcohol use, tobacco use, and exercise.

C.1.2   Identification of Clinical Conditions in Survey and Encounter Data

As discussed below in greater detail, the primary data sources for identifying health conditions among Veterans and non-Veterans were MEPS and encounter data from VA and MHS (the military insurance system for active military service members and dependents). All three data sources included person-level information on conditions based on ICD-9 codes. In the public use files of MEPS, the ICD-9 codes were truncated at the three-digit level or were converted into corresponding CCS codes, which are published by AHRQ (see Healthcare Cost and Utilization Project, 2015). VA and MHS encounter data included full five-digit ICD-9 codes. We used 29 coding algorithms (i.e., combinations of ICD-9 and/or CCS codes) to identify relevant clinical populations within these data sources (see Table C-2).

We identified the algorithms themselves by first searching in PubMed for studies that validated the use of particular ICD-9 codes for specified conditions with good sensitivity and positive predictive value (PPV). We searched PubMed using the following terms: (ICD-9[TIAB] OR international classification of diseases[TIAB] OR international classification of diseases[MH]) AND (validation OR sensitivity OR positive predictive value OR specificity OR accuracy OR ((claims OR administrative) AND data)). If no studies for particular conditions could be identified, we instead used relevant AHRQ CCS categories, which were designed to group conditions into categories suitable for use by health service researchers. If we were unable to identify a relevant CCS category, we identified ICD-9 codes whose descriptions were relevant for that condition.

We used these coding algorithms to directly identify conditions in VA and MHS encounter data. We attempted to identify conditions with greater accuracy by requiring that one inpatient encounter be labeled with the associated ICD-9 codes or that two outpatient encounters are labeled with the associated ICD-9 codes; this is a common approach for identifying conditions within VA encounter data (Bedimo et al., 2009; Justice et al., 2006; Park et al., 2014). We make exceptions for TBI, acute coronary syndrome, and AMI. We identify TBI cases even if there is only a single outpatient or inpatient diagnosis flagged because acute causes of TBI (concussion, skull fracture, etc.) may only be described at the initial visit, per guidance from the Department of Defense (U.S. Department of Defense, 2010). In contrast, we identify acute coronary syndrome and AMI if one or more inpatient stays had a principal diagnosis code associated with those conditions (Petersen et al., 1999). In MEPS data (which lack five-digit ICD-9 codes), we used three-digit ICD-9 codes, CCS codes, or combinations of the two to identify conditions. For example, PTSD has a single ICD-9 code (309.81); this code cannot be uniquely identified using three-digit ICD-9 codes or CCS codes alone, but the combination of the ICD-9 code 309 and the CCS code 651 uniquely identifies PTSD.

Table C-2. Identification of Health Conditions

Condition	ICD-9	Comment
Acute coronary syndrome	410.00; 410.01; 410.10; 410.11; 410.20; 410.21; 410.30; 410.31; 410.40; 410.41; 410.50; 410.51; 410.60; 410.61; 410.70; 410.71; 410.80; 410.81; 410.90; 410.91; 411.1	Per Varas-Lorenzo et al. (2008) (Varas-Lorenzo et al., 2008): "PPVs of the codes 410 and 411 for acute coronary syndrome were 0.96 (95%CI: 0. 92-0.98) and 0.86 (95%CI: 0.83-0.88), respectively." We did not estimate the incidence of acute coronary syndrome using MEPS data because it is unlikely that survey respondents distinguished between recent and remote episodes of acute coronary syndrome.
AMI	410.xx	Per Petersen et al. (1999), PPV of principal diagnosis of 410.xx for AMI is 97%. We did not estimate the incidence of AMI using MEPS data because it is unlikely that survey respondents distinguished between recent and remote episodes of AMI.
All cerebrovascular diseases	430.xx; 431.xx; 432.xx; 433.xx; 434.xx; 435.xx; 436.xx; 437.xx; 438.xx	CCS category
All malignant cancer	140.xx - 209.xx	ICD-9 codes selected had 79% sensitivity, 80 % PPV using hospital discharge records (Brackley, Penning, & Lesperance, 2006).
All mental health conditions	290.xx; 291.xx; 292.xx; 293.xx; 294.xx; 295.xx; 296.xx; 297.xx; 298.xx; 299.xx; 300.xx; 301.xx; 302.xx; 303.xx; 304.xx; 305.xx; 306.xx; 307.xx; 308.xx; 309.xx; 311.xx; V11.xx	No validation study was identified, but a similar range of ICD-9 codes has been used to identify mental health conditions in administrative data (Garvey Wilson, Messer, & Hoge, 2009). Of note, this list excludes disorders of development and childhood.

Condition	ICD-9	Comment
Amputation	V49.74; V49.75; V49.76; V49.77; 897.0; 897.1; 897.2; 897.3; 897.4; 897.5; 897.6; 897.7; V49.70; V49.71; V49.72; V49.73; V49.60; V49.61; V49.62; V49.63; 997.60; 997.61; 997.62; 997.69; 885.0; 885.1; 886.0; 886.1; 895.0; 895.1; 896.0; 896.1; 896.2; 896.3; 905.9; 353.6; V49.66; V49.67; V49.64; V49.65; 887.0; 887.1; 887.2; 887.3; 887.4; 887.5; 887.6; 887.7	We were unable to identify a validation study for ICD-9 codes identifying patients with a history of amputation. ICD-9 codes were identified by searching a database of ICD-9 code descriptions for descriptions related to amputations, or history thereof.
Arthritis	274.xx; 712.xx; 713.xx; 715.xx; 716.xx; 717.xx; 718.xx; 719.xx	We aimed to types of arthritis that are more likely to be due to injury (and possibly related to military service). There was no predefined, validated set of diagnoses for doing this, so we chose broad groups of ICD-9 codes related to non-immunologically mediated arthritis; we excluded diagnoses such as rheumatoid arthritis.
Asthma	493.00; 493.01; 493.02; 493.10; 493.11; 493.12; 493.20; 493.21; 493.22; 493.81; 493.82; 493.90; 493.91; 493.92	ICD-9 codes derived from accepted quality measures related to COPD and asthma (Centers for Medicare & Medicaid Services, 2015b)
Burns	906.5; 906.6; 906.7; 906.8; 906.9; 940.xx; 941.xx; 942.xx; 943.xx; 944.xx; 945.xx; 946.xx; 947.xx; 948.xx; 949.xx	CCS category
Chronic renal failure	403.xx; 404.xx; 581.xx; 582.xx; 583.xx; 585.xx; 586.xx; 587.xx; V56.xx	ICD-9 coding algorithms had poor sensitivity for identifying chronic renal failure in Medicare claims (3-26%), but 90% PPV (Winkelmayer et al., 2005). This version was adapted from Winkelmayer et al. (2005) for use with MEPS.
Colon cancer	153.0; 153.1; 153.2; 153.3; 153.4; 153.5; 153.6; 153.7; 153.8; 153.9; 154.0; 154.1; 154.8; 230.3; V10.05; V10.06	With exception of carcinoid tumors (209.xx), colon cancer otherwise defined as in CCS category (Setoguchi et al., 2007). Use of two ICD-9 codes was 80.4% sensitive, 99.5% specific for colorectal

Condition	ICD-9	Comment
		cancer, and codes had a 69.4% PPV.
COPD	491.0; 491.1; 491.20; 491.21; 491.8; 491.9; 492.0; 492.8; 494.xx; 494.0; 494.1; 496.xx	ICD-9 codes derived from accepted quality measures related to COPD and asthma (Centers for Medicare & Medicaid Services, undated).
Diabetes	250.00; 250.01; 250.02; 250.10; 250.12; 250.20; 250.22; 250.30; 250.32; 250.40; 250.42; 250.50; 250.52; 250.60; 250.62; 250.70; 250.72; 250.80; 250.82; 250.90; 250.92; 250.93; 271.4; 357.2; 648.00; 648.01; 648.02; 648.03; 648.04; 962.3	ICD-9 codes derived from accepted quality measures related to diabetes Types I and II, and are similar to those of CCS category (Centers for Medicare & Medicaid Services, 2015b; Chao et al., 2013; Hirsch & Scheck McAlearney, 2013). Most studies incorporated prescription medication fills, so ICD-9 alone may overstate prevalence; however requiring medication fills would exclude diet-treated diabetes.
GERD	530.11; 530.81	We were unable to identify a validation study for ICD-9 codes identifying patients with a history of GERD. ICD-9 codes were identified by searching a database of ICD-9 code descriptions for descriptions related to reflux, or history thereof.
Hearing loss	389.xx	No validation study identified, but 389.xx encompasses hearing loss ICD-9 codes
Heart failure	398.91; 428.0; 428.1; 428.20; 428.21; 428.22; 428.23; 428.30; 428.31; 428.32; 428.33; 428.40; 428.41; 428.42; 428.43; 428.9; 425.0; 425.1; 425.11; 425.18; 425.2; 425.3; 425.4; 425.7; 425.8; 425.9	ICD-9 codes derived from accepted quality measures related to heart failure (Centers for Medicare & Medicaid Services, 2015b)
Hypertension	401.xx; 402.xx; 403.xx; 404.xx; 405.xx	Per Quan et al. (2009): "The administrative data hypertension definition of '2 claims within 2 years or 1 hospitalization' had the highest validity relative to the other definitions evaluated (sensitivity 75%, specificity 94%, PPV 81%, negative predictive value 92%, and κ 0.71)." Study used ICD-9 401.xx, 402.xx,

Condition	ICD-9	Comment
		403.xx, 404.xx, 405.xx.
IHD	410.xx; 411.0; 411.1; 411.8; 411.81; 411.89; 412.xx; 413.0; 413.1; 413.9; 414.0; 414.00; 414.01; 414.06; 414.2; 414.3; 414.4; 414.8; 414.9; V45.81; V458.2	CCS category
Lipid disorders	272.0; 272.1; 272.2; 272.3; 272.4	CCS category
Major depression	296.2x; 296.3x	Derived from Fiest et al. (2014) but definition not useful in MEPS public-use data, and Fiest et al. (2014) found that depression coding was not reliable in VA (~30% sensitivity).
Musculoskeletal conditions associated with chronic pain	715.95; 715.96; 717.6; 717.7; 717.9; 718.46; 719.40; 719.45; 719.46; 720.07201; 720.2; 721.3; 721.42; 721.7; 721.90; 721.91; 722.10; 722.52; 722.6; 722.70; 722.73; 722.80; 722.82; 722.83; 724.00; 724.02; 724.2; 724.3; 724.5; 724.6; 724.79; 724.8; 724.9; 726.5; 726.64; 729.1; 729.90; 733.92; 733.98; 736.6; 738.4; 756.11; 756.12; 805.4; 836.0; 836.1; 843.9; 844.; 844.0; 844.1; 844.2; 846.0; 846.1; 846.8; 846.9; 847.2; 847.3; 847.4; 847.9; 905.1; 907.2; 907.3; 953.2; 953.3; 953.4	We did not identify a study that validated an algorithm for case identification of musculoskeletal conditions against a gold standard. Instead, we derived this algorithm from Beehler et al. (2013), which aimed to identify patients with chronic pain due to musculoskeletal conditions within the VA ambulatory population. Of note, the definition from Beehler et al. excludes many acute musculoskeletal conditions, such as fractures, in order to identify musculoskeletal conditions more similar to other categories used in the assessment, which primarily concern chronic conditions. This definition also excludes non-musculoskeletal conditions associated with chronic pain.
PTSD	309.81	McCarron et al. (2014) noted that ICD-9 code 309.81 has PPV >89% in VA data; Holowka et al. (2014) noted accuracy for one-year prevalence of PTSD is about 70% (sensitivity 91.4%, specificity 80.9) with ICD-9 code 309.81.

Condition	ICD-9	Comment
Prostate cancer	185.xx; 233.4; V10.46	ICD-9 codes selected had 73% sensitivity, 79% PPV (Brackley et al., 2006).
Schizophrenia	295.xx	Algorithm not validated but used in Hsu et al. (2008) study of VA mental health. We excluded ICD-9 codes for non-specific psychosis to avoid using episodes of psychosis not associated with schizophrenia, such as 289.9 (psychosis not otherwise specified).
Spinal cord injury	344.9; 344.8; 907.5; 907.9; 344.2; 344.3; 344.30; 344.31; 344.32; 344.4; 344.40; 344.41; 344.42; 344.5; 344.60; 344.61; 344.81; 344.89; 907.1; 907.3; 907.4; 952.00; 952.01; 952.02; 952.03; 952.04; 952.05; 952.06; 952.07; 952.08; 952.09; 952.10; 952.11; 952.12; 952.13; 952.14; 952.15; 952.16; 952.17; 952.18; 952.19; 952.2; 952.3; 952.4; 952.8; 952.9; 806.38; 806.39; 806.4; 806.5; 806.60; 806.61; 806.62; 806.69; 806.70; 806.71; 806.72; 806.79; 806.8; 806.9; 907.2; 806.00; 806.01; 806.02; 806.03; 806.04; 806.05; 806.06; 806.07; 806.08; 806.09; 806.10; 806.11; 806.12; 806.13; 806.14; 806.15; 806.16; 806.17; 806.18; 806.19; 806.20; 806.21; 806.22; 806.23; 806.24; 806.25; 806.26; 806.27; 806.28; 806.29; 806.30; 806.31; 806.32; 806.33; 806.34; 806.35; 806.36; 806.37; 344.0; 344.00; 344.01; 344.02; 344.03; 344.04; 344.09; 344.1	CCS category combined with non-validated ICD-9 algorithm used in Netherlands study (Hagen et al., 2009; van Asbeck, Post, & Pangalila, 2000); Hagen et al. (2009) used combinations of 344.x, 907.2, 806.x, 952.x; study showed the codes had good specificity (>90%) but poor sensitivity, but this combination of all codes was not tested.

Condition	ICD-9	Comment
Substance abuse	303.90; 305.00; 305.90; 303.93; 305.20; 305.03; 304.00; 303.91; 304.20; 304.30; 305.60; 304.80; 304.90; 305.01; 304.23; 291.81; 292.84; 305.02; 304.01; 305.63; 304.31; 305.50; 304.21; 303.00; 305.23; 304.03; 304.40; 304.33; 303.92; 292.0; 305.22; 305.21; 305.70; 291.89; 304.10; 304.83; 303.01; 305.62; 305.93; 304.43; 304.22; 305.40; 305.53; 304.70; 305.61; 291.0; 304.32; 304.60; 292.89; 305.73; 305.51; 304.41; 304.73; 305.91; 304.71; 292.81; 304.11; 304.81; 304.02; 291.9; 303.02; 292.12; 304.93; 304.91; 305.52; 303.03; 305.71; 304.63; 305.72; 304.13; 305.43; 305.92; 304.92; 292.11; 304.42; 291.1; 291.3; 305.41; 305.30; 304.61; 304.82; 305.42; 304.72; 305.33; 292.2; 304.12; 304.50; 304.62; 304.53; 292.82; 291.5; 304.51; 305.31; 305.80; 305.32; 291.4; 304.52; 292.83; 305.81; 305.83; 305.82	Definitions drawn from Watkins et al. (2011) and derived using expert assessment, although it was not validated.
TBI	800.xx; 801.xx; 803.xx; 804.xx; 850.xx; 851.xx; 852.xx; 853.xx; 854.xx; 310.2; 950.1; 950.2; 950.3; V15.52; 959.01; 905.0; 907.0	Used VA list of ICD-9 codes corresponding to TBI (Taylor, 2012). Carlson et al. (2013) found 70% sensitivity, 85% PPV in population that screened positive for potential TBI, but validation study for entire VA population not found.
Viral Hepatitis and Hepatitis C	070.4; 070.5; 070.6; 070.7	CCS category; in MEPS this includes all viral hepatitis because it is not possible to separate hepatitis C and hepatitis at 3 digit level OR via CCS. Kramer et al. (2008) showed 93% PPV, 92% NPV for hepatitis C in VA patients with HIV. Niu, Forde, & Goldberg (2015) showed that 1 inpatient or 2 outpatient ICD-9 codes for Hepatitis C had 88% PPV.

Condition	ICD-9	Comment
Vision loss	367.0; 367.1; 367.20; 367.21; 367.22; 367.31; 367.32; 367.4; 367.51; 367.52; 367.53; 367.81; 367.89; 367.9; 368.00; 368.01; 368.02; 368.03; 368.10; 368.11; 368.12; 368.13; 368.14; 368.15; 368.16; 368.2; 368.30; 368.31; 368.32; 368.33; 368.34; 368.40; 368.41; 368.42; 368.43; 368.44; 368.45; 368.46; 368.47; 368.51; 368.52; 368.53; 368.54; 368.55; 368.59; 368.60; 368.61; 368.62; 368.63; 368.69; 368.8; 368.9; 369.00; 369.01; 369.02; 369.03; 369.04; 369.05; 369.06; 369.07; 369.08; 369.10; 369.11; 369.12; 369.13; 369.14; 369.15; 369.16; 369.17; 369.18; 369.20; 369.21; 369.22; 369.23; 369.24; 369.25; 369.3; 369.4; 369.60; 369.61; 369.62; 369.63; 369.64; 369.65; 369.66; 369.67; 369.68; 369.69; 369.70; 369.71; 369.72; 369.73; 369.74; 369.75; 369.76; 369.8; 369.9; V41.0	CCS category, which includes mild vision loss
Women's health	V10.41; V10.44; V10.40; V10.43; V10.42; 179.xx; 180.xx; 181.xx; 182.xx; 183.xx; 184.xx; 218.xx; 614.1; 614.1; 614.2; 614.6; 616.2; 616.3; 617.0; 617.1; 617.2; 617.3; 617.4; 617.9; 618.0; 618.00; 618.01; 618.02; 618.03; 618.04; 618.05; 618.09; 618.1; 618.2; 618.3; 618.4; 618.5; 618.6; 618.7; 618.8; 618.81; 618.82; 618.83; 618.84; 618.89; 618.9; 619.0; 619.1; 619.2; 619.8; 619.9; 620.0; 620.1; 620.2; 620.4; 620.5; 621.0; 621.1; 621.2; 621.3; 621.30; 621.31; 621.32; 621.33; 621.34; 621.35; 621.4; 621.5;	Represents conditions for which surgery is indicated, and uses ICD-9 codes provided by consultation from subject matter experts at VA.

Condition	ICD-9	Comment
	621.8; 621.9; 622.0; 622.1; 622.10; 622.12; 622.4; 622.5; 622.7; 623.0; 623.7; 623.8; 623.9; 624.02; 624.6; 624.8; 624.9; 625.5; 625.6; 628.0; 628.1; 628.2; 628.3; 628.4; 628.8; 628.9; 629.0; 629.1; 629.3; 629.31; 629.32; 629.8; 629.81; 629.89; 629.9; 633.xx; 634.xx; 752.42	

C.1.3   Data Sources

The analysis relied on several data sources, including Veteran survey data and nationally representative survey data (that include some measure of Veteran status) and administrative data provided by VA. The passages following Table C-3 briefly discuss the main advantages and limitations of each available data source.

Table C-3. Summary of Data Sources

Data File	Population	Health	Geographic Location	Veteran Status	VA Enrolled	VA Patient
Nationally Representative Surveys						
MEPS[a]	Civilians, Veterans, VA patients	Yes	Census region	Yes	Yes	Yes
NHIS[b]	Civilians, Veterans, VA enrollees	Yes	Census region	Yes	Yes	Yes
BRFSS[c]	National Veterans, civilians	Yes	State	Yes	Yes	Yes
U.S. Census	Civilians, Veterans	No	Yes	No	No	No
ACS[d]	Civilians, Veterans, eligible Veterans, enrollees	Limited	Yes	Yes	Yes	No
Veteran/VA Surveys						
NSV	Veterans	Limited	No	Yes	Yes	Yes
SoE	VA enrollees	Limited	Yes	Yes	Yes	Yes
Administrative Data						
VA Encounter	VA patients	Yes	Yes	Yes	Yes	Yes
VA Enrollment	VA patients, VA enrollees	No	Yes	Yes	Yes	Yes
MHS	Active duty military	Yes	Yes	N/A	N/A	N/A
Active Duty Master and Loss	Active duty military	No	No	N/A	N/A	N/A
Work Experience	Service members	No	No	N/A	N/A	N/A
Contingency Tracking System	Service members	No	Yes	N/A	N/A	N/A

Note: For the survey data sources, details vary regarding how Veteran status, enrollee states, and patient status is assessed. Table 2-4, below, reports details on Veteran status is determined. Enrollee status is typically based on a self-report of enrollment or use of VA insurance. Patient status may be inferred in some cases based on utilization of VA services, or payment for services by the VA.
[a] See Medical Expenditure Panel Survey, undated.
[b] See Centers for Disease Control and Prevention, 2012.
[c] See Centers for Disease Control and Prevention, 2014a.
[d] See U.S. Census Bureau, 2015.

MEPS is a recurring, nationally representative longitudinal survey of the U.S. civilian noninstitutionalized population drawn from the NHIS sampling frame. The individual-level data contain information on Veteran status (but does not include information on service era), age, sex, race/ethnicity, marital status, education, and income. Health information is obtained using

open-ended questions about medical conditions present during the past year. These open-ended responses are then collapsed into ICD-9 codes.

MEPS is the only publicly available data source from which we can estimate diagnosed prevalence rates for all Veterans (who are defined based on self-report of being honorably discharged by the military).[62] We infer whether an individual in the MEPS is a VA patient based on the respondents' source of payment for health care. Specifically, we defined active VA patients as those respondents who had any payment by VA for services used. Unfortunately, the MEPS data do not enable us to identify all Veterans who are eligible for VA services; we can identify only those eligible Veterans who use VA services. There are also some specific conditions for which MEPS is incapable of providing reliable estimates due to sample size limitations; these primarily consist of relatively rare conditions, such as polytrauma, TBI, and medically unexplained illness. The analyses use data from 2006 to 2012.

The **National Health Interview Survey (NHIS)**, sponsored by the CDC, is an individual-level annual survey that includes information on demographics, Census region, general health, cancer screening, and self-reported medical conditions (including asthma, arthritis, cancer, diabetes), health behaviors (including alcohol use, smoking, exercise), physical or functional limitations, and mental health (adult mental health, stress). We defined eligible Veterans to be those who self-reported having served in active military duty. It is not possible to identify VA patients in this data. We analyzed data from 2011 to 2013, which cover the period when military service information is available. We used NHIS to estimate the prevalence of the selected health conditions among Veterans and non-Veterans. Where possible, we compared these estimates from those derived using MEPS which were based on ICD-9-based health conditions.

The **Behavioral Risk Factor Surveillance System (BRFSS)**, sponsored by the CDC, is a nationally representative survey fielded monthly by state health departments that collects individual-level information on health behaviors and risk factors associated with the leading causes of premature mortality and morbidity among adults in the United States. We used data covering 2013. The survey allows for periodic experimental modules and for states to ask additional questions beyond the core instrument. The survey asks whether respondents have ever served in active military duty in the core instruments, and we used this response to identify Veterans. There are also several experimental modules (for certain states) that have asked more detailed questions about deployment, service, and a few specific Veterans' health issues (e.g., PTSD, traumatic brain injury), but we did not use this information because the sample sizes were small and the populations were not nationally representative. We used BRFSS to estimate the prevalence of the self-reported health conditions among Veterans and non-Veterans. BRFSS was also used to examine differences in health behaviors (e.g., smoking) and other health indicators (e.g., obesity) between Veterans and non-Veterans.

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[62] Prior to 2006, the survey instrument asked whether anyone in the household had *ever served on active duty in the Armed Forces of the United States* [emphasis added].

The **VA Survey of Veteran Enrollees Health and Reliance Upon VA (SoE)** is a recurring nationwide survey of more than 40,000 Veterans enrolled in the VA system. The survey includes each enrollee's demographic and socioeconomic characteristics, general health status, period of military service, and priority group (from administrative record). It also includes information relevant to enrollees' relationships with the VA system, including when and why individuals enrolled in VA, health insurance coverage, long-term care insurance, use of VA and non-VA services, and payer information. We used this survey to determine the characteristics of Veteran VA enrollees predicting use (or non-use) of VA services and, in combination with demographic projections, future rates of VA use.

VA encounter data include individual-level information on diagnoses, demographic characteristics and geographic location (state). VA encounter data was used to estimate current and prior condition prevalence patterns among active VA patients. This data set has larger sample sizes which allow us to estimate the prevalence of service-connected health conditions that exhibit very low prevalence in the national population. A limitation of these data is that it does not capture Veterans not enrolled in VA. Moreover, the database includes only health conditions of VA patients that were treated at VA. This may represent only a subset of total health conditions if VA patients also seek care from non-VA providers. Most Veterans with service-connected disabilities use VA (RAND analysis of FY14 VHA Support Service Center Current Enrollment Cube Data), so the prevalence estimates for these conditions are expected to be more representative of the overall prevalence in the Veteran population.

The **VA Enrollment** are derived from the Health Eligibility Center enrollment files via the ADUSH enrollment file. The data include the counts of VA patients and VA enrollees by state of residence, sex, age group, and Iraq-Afghanistan deployment status. We used data covering the period 2005–2014.

MHS encounter data include information on diagnoses and demographic characteristics of active military personnel. We used MHS encounter data to estimate the prevalence of health conditions among separating personnel, which may be useful in predicting health conditions among future VA service users and in determining variation in demand for VA services by health condition.

The **DMDC Loss Files** are administrative data used to identify recently separated military personnel. The DMDC Loss files were linked to the MHS encounter data using a scrambled identifier.

The **Work Experience (WEX) file** contains a longitudinal record for each individual who has served in the active or reserve forces since September 1990. The file contains information on service/component/reserve category, pay grade, occupation (primary, secondary, or duty), and unit identification code. The WEX is built from information in DMDC's Active Duty Master Personnel Edit file, equivalent reserve files, and the underlying service files.

The **Contingency Tracking System (CTS)** data are administrative data that indicate whether active military personnel were ever deployed. These data were linked to the DMDC Loss Files to track the fraction of separating soldiers that were every deployed over time.

C.1.4　Prevalence Estimated from Surveys Versus Administrative Health Records

Our findings are based on data from both the MEPS survey and VA administrative health records, which can lead to differences in estimated prevalence of disease. We reviewed the literature to assess the sensitivity and robustness of our estimates.

We identified four studies of North American populations that compared self-reported health conditions to findings from administrative health records that in these studies are considered the reference standard or "gold" standard (Martin, Leff, Calonge, Garrett, & Nelson, 2000; Muggah, Graves, Bennett, & Manuel, 2013; Okura, Urban, Mahoney, Jacobsen, & Rodeheffer, 2004; Singh, 2009). Table C-4 below summarizes these four studies, describing the survey or administrative data used as well as the population covered and the reference standard data used.

Table C-4. Summary of Published Studies Comparing Self-Reported versus Administrative Health Data

Description	Muggah et al., 2013	Singh, 2009	Okura et al., 2004	Martin et al., 2000
Survey Instrument	Canadian Community Health Survey	Veteran's Quality of Life Study	"Has a medical provider ever told you that you had any of following conditions?"	Behavioral Risk Factor Survey
Reference Standard	Diagnostic codes in Annual Health Review (AHR)	VA medical records: ICD-9 codes and pharmacy records	Medical Record Review	Diagnostic codes in AHR
Population	Ontario	Veterans who received care at VA Veterans Integrated Service Network-13 facilities	Minnesota	Colorado HMO
N	85,459	40,508	2,037	599

These four studies reported the sensitivity and specificity across conditions (see Table C-5). The high specificity across conditions reflects the low chance that respondents report a condition that is not found in the medical record. Sensitivity varied across conditions and tended to be highest for diabetes and hypertension. Sensitivity may be higher for chronic conditions that

require ongoing care than episodic or acute conditions. Differences in sensitivity and specificity across studies could arise because of differences in populations studied, differences in the reference standard, and differences in how completely administrative health records captured health care.

Table C-5. Summary of Published Comparisons of Health Conditions based on Self-Report versus Administrative Health Data

Health Condition	Sensitivity	Specificity	Sensitivity*	Specificity*	Sensitivity	Specificity	Sensitivity	Specificity
Diabetes	0.73	0.99	0.91	0.95	0.66	0.99	0.73	0.99
Hypertension	0.65	0.96			0.82	0.92	0.83	0.83
CHF	0.26	0.99						
Stroke	0.49	0.99			0.78	0.99		
Asthma	0.55	0.96						
COPD	0.26	0.97						
Depression			0.72	0.82				
AMI					0.89	0.98		
Hypercholesterolemia							0.59	0.94

NOTES: * Singh (2009) treated self-report as the reference standard, implicitly assuming that VA health records do not completely capture medical care received by Veterans. The sensitivity and specificity reported correspond to the positive and negative predictive values reported by Singh (2009) (i.e., sensitivity and specificity using the medical record as the reference standard).

Direction of Bias in Self-report data: A review by Bhandari and Wagner (2006) concluded that respondents tend to under-report health care utilization, especially for recall periods longer than six months (they reported on recall of up to 12 months). This is consistent with findings by Muggah et al. (2013), who found that estimated prevalence of health care conditions based on self-report tended to be lower than estimates based on administrative health records. In contrast, a study by Zuvekas and Olin (2009) found close agreement between survey-reported utilization from MEPS and Medicare claims data among Medicare-enrolled respondents. Inconsistencies between self-report and medical records were more likely for men and patients with less education (Okura et al., 2004; Singh, 2009).

Consistency Across Surveys: Li et al. (2012) estimated prevalence of a range of health conditions using NHIS, BRFSS, and NHANES surveys, and found that these surveys produced similar estimated prevalence of diabetes, hypertension, and stroke. An earlier comparison by Fahimi, Link, Mokdad, Schwartz, and Levy (2008) produced similarly reassuring findings. Many of the issues related to BRFSS are attributable to the use of landline phones; it is not clear whether inclusion of cell phones in the sampling frame (since 2011) has ameliorated bias problems. Earlier studies have found that compared to BRFSS responders, non-responders tend

to be younger, non-White, less educated, non-English speakers, and unmarried (Voigt, Koepsell, & Daling, 2003).

C.1.5   Analytic Approach

All analyses of survey data were weighted using survey sampling weights to ensure the representativeness of the results. Weights were distributed with each survey dataset and typically accounted for the sampling design and nonresponse. We adjusted standard errors for clustering at the person-level in estimations where panel data were treated as repeated cross-sections (e.g., MEPS data, which generally includes two years of data for each survey respondent).

C.1.5.1   Current Differences in the Prevalence of Health Conditions between Veterans and Non-Veterans

Differences in the prevalence of health conditions between Veterans and non-Veterans can be summarized by comparing observed prevalence rates between the two groups. Any observed differences in prevalence provide insight that the two populations are different. However, this approach alone cannot separate prevalence differences due to the varying demographic composition of Veterans and non-Veterans from prevalence differences due to other factors. In order to identify the "unique" health care needs of Veterans, it is important that estimated differences between Veterans and non-Veterans do not capture differences in the demographic characteristics between the two groups. For example, we expect Veterans to have a higher prevalence of hypertension than non-Veterans because Veterans are known to be older when compared with non-Veterans, and the prevalence of hypertension increases with age. For a complete summary of the demographic differences between Veterans and non-Veterans, see Table C-18.

To account for any demographic differences between Veterans and non-Veterans, we calculated adjusted prevalence rates. An adjusted prevalence uses a model to predict the prevalence of a health condition for a reference population. This is achieved by predicting the prevalence of a health condition for a set of observations that has the same demographic composition as the population of interest. In our case, the population of interest is the Veteran population. Thus, the non-Veteran adjusted prevalence estimates the prevalence among non-Veterans if their demographic composition matched the demographic composition of Veterans, and the adjusted Veteran prevalence estimates the prevalence among Veterans using the demographic composition of Veterans.

All comparisons made between Veterans and non-Veterans using adjusted prevalence rates account for the different demographic composition of the two populations. Therefore, any remaining differences after adjustment can be attributed to factors other than demographics (e.g., military service or deployment). This provides insight into health conditions that are unique to Veterans—those that are attributable to factors other than the demographic composition of the Veteran population.

As discussed above, calculating adjusted prevalence rates for Veterans and non-Veterans requires a model that predicts the prevalence of health conditions by Veteran status and other

demographics. Below, we discuss the logistic regression model we used and the associated notation:

1. i represents an individual captured in the survey or administrative data of interest.

2. For each individual, $H_i = 1$ denotes the presence of a health condition or behavior of interest as identified by relevant ICD-9 or by self-reported measures, or $H_i = 0$ if the condition is absent.

3. Vet_i indicates whether the individual is a Veteran ($Vet_i = 1$ for Veterans and $Vet_i = 0$ for non-Veterans).

4. Z_i is a vector of mutually exclusive demographic and geographic indicator variables defined by individual i's geographic location (either Census Region [Northeast, Midwest, South and Midwest] or state), age category (5- or 10-year intervals), sex, and race/ethnicity. Service cohort is not available in MEPS, which is the principal data source for this analysis; the effect of particular service cohorts can only be indirectly approximated by determining how differences between Veterans and non-Veterans vary with age.

5. X_i is a vector of individual characteristics that are associated with a given health condition, and that may be associated with differences in disease prevalence, including whether the individual lives in an urban location, marital status, education, employment/student status, smoking, and health insurance coverage.

We chose to use logistic regression models at the individual level of the form:

$$(1) \ logit(Pr[H_i = 1]) = \alpha + \gamma_1 Vet_i + \gamma_2 Z_i + \gamma_3 Vet_i * Z_i + X_i\beta + f(\tau_i)$$

where τ_i is the calendar year of observation i, and $f(\tau_i)$ is some function of time (e.g., a spline function or a set of year indicators). The function $f(\tau_i)$ accounts for time trends in the prevalence of health conditions. The interaction term ($\gamma_3 Vet_i * Z_i$) allows differences in prevalence between Veterans and non-Veterans to vary by demographic characteristics.

Let $\hat{h}_1(Vet_i, Z_i, X_i, \tau_i) = expit(\hat{\alpha} + \hat{\gamma}_1 Vet_i + \hat{\gamma}_2 Z_i + \hat{\gamma}_3 Vet_i * Z_i + X_i\hat{\beta} + \hat{f}(\tau_i))$ be the estimated prevalence for an observation in year τ_i with demographics Z_i, Veteran status Vet_i, and covariates X_i. The non-Veteran adjusted prevalence for year τ in demographic group Z is given by:

$$(2) \ \hat{p}^{adj}_{non-Vet} = \frac{1}{N_{vet}}\sum_{i: Vet_i=1 \ \& \ Z_i=Z} w_i \ \hat{h}_1(0, Z, X_i, \tau)$$

where w_i is the survey weight and $N_{vet} = \sum_{i: Vet_i=1 \ \& \ Z_i=Z} w_i$. This amounts to a weighted average of estimated prevalences among Veterans with demographics Z, where the estimated prevalence is evaluated for $Vet = 0$ in year τ. In other words, this estimates the prevalence of a health condition among Veterans with specific demographics as if (contrary to fact) they had been non-Veterans. The adjusted prevalence for Veterans in year τ and demographic group Z is given by:

$$(3) \ \hat{p}^{adj}_{Vet} = \frac{1}{N_{vet}}\sum_{i: Vet_i=1 \ \& \ Z_i=Z} w_i \ \hat{h}_1(1, Z, X_i, \tau)$$

where everything is as before. Note that the only difference between the Veteran and non-Veteran adjusted prevalence is that the Veteran adjusted prevalence sets the Veteran status to 1 for all observations, and the non-Veteran adjusted prevalence sets the Veteran status to 0 for all observations.

We considered 14 age groups, four census regions, two sexes, and five races/ethnicities. All of the possible combinations among these characteristics represent 560 different demographic subgroups. If estimates for the prevalence of a health condition in any one subgroup were calculated using only data from that subgroup (a stratified estimation approach), each subgroup would need a sufficient sample size to provide a stable prevalence estimate. However, MEPS has only about 4,000 total VA patients, so many of the 560 possible subgroups do not have a sufficient sample size to obtain precise estimates of prevalence using this stratified approach. For this reason, we instead used a regression approach that uses *all available data* to estimate the prevalence. This is achieved by breaking the prevalence down into five factors: (1) a baseline prevalence, (2) the association with age, (3) the association with Census region, (4) the association with sex, and (5) the association with race. Each of the factors is estimated using data pooled across all other demographic characteristics. For example, the association of being an older patient with disease prevalence is estimated using the *entire population*, and this association is applied to all of the subgroups that include older patients. Put another way, the regression approach implies that the association of age with a heath condition is the same across all other demographic characteristics—that is, the effect of age is similar for males and females, blacks and whites, and so on.

Specifying a model with an extremely rich set of covariates X_i increases the risk of including factors endogenous to the Veteran experience; in other words, experience in the military may lead to differences in education, marital status, and other characteristics. Including these variables in the analyses might minimize differences between Veterans and non-Veterans. The baseline analysis did not include all possible elements of X_i, due to their potential endogeneity with Veteran status (the baseline analysis included an indicator of urban residential location [residence in a metropolitan statistical area]), but we considered an extended model that included these additional characteristics as sensitivity analyses in Appendix C.3.1.

This general approach was applied to MEPS, NHIS, and BRFSS to assess the robustness of the findings. NHIS and BRFSS have larger sample sizes but measure fewer health conditions than MEPS. BRFSS was also used to examine differences in health behaviors (e.g., smoking) and other health indicators (e.g., obesity) between Veterans and non-Veterans.

C.1.5.2 Current Differences in the Prevalence of Health Conditions between VA Patients and Non-VA Patients

The analyses comparing VA patients to non-VA patients followed the same structure as the analyses comparing Veterans to non-Veterans (C.1.5.1).

Differences in the prevalence of health conditions between VA patients and non-VA patients can be summarized by comparing observed prevalence rates between the two groups. Any observed differences in prevalence provide insight that the two populations are different. However, the demographic composition of VA patients differs from that of non-VA patients,

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and any observed differences in prevalence may be attributable to these demographic differences. For a complete summary of the demographic differences between VA patients and non-VA patients, see Table C-18.

In order to adjust for the different demographic compositions of VA patients and non-VA patients, we calculated adjusted prevalence rates. An adjusted prevalence uses a model to predict the prevalence of a health condition for a reference population. This is achieved by predicting the prevalence of a health condition for a set of observations that has the same demographic composition as the population of interest. For the analyses of this section, the population of interest is the Veteran population. Thus, the adjusted prevalence for VA patients estimates the prevalence among VA patients if their demographic composition matched the demographic composition of all Veterans, and the adjusted prevalence for non-VA patients estimates the prevalence among non-VA patients if their demographic composition matched the demographic composition of all Veterans.

All comparisons made between VA patients and non-VA patients using adjusted prevalence rates account for the different demographic composition of the two populations. Therefore, any remaining differences after adjustment can be attributed to factors other than demographics. If large differences remain, this suggests that the VA patient population differs from that of the general Veteran population.

Calculating adjusted prevalence rates for VA patients and non-VA patients requires a model that predicts the prevalence of health conditions by VA patient status and other demographics. We used the following notation:

1. *i* represents an individual captured in the survey or administrative data of interest.

2. H_i =1 denotes the presence of a health condition or behavior of interest as identified by relevant ICD-9 or by self-report, and H_i = 0 if the condition is absent.

3. VA_i indicates whether the individual is a VA patient (VA_i = 1 for VA patients and VA_i = 0 otherwise).

4. Z_i is a vector of mutually exclusive demographic and geographic indicator variables defined by individual geographic location (either Census Region [Northeast, Midwest, South and Midwest] or state), age category (5 or 10 year intervals), sex, and race/ethnicity. Service cohort is not available in MEPS, which is the principal data source for this analysis; the effect of particular service cohorts can only be indirectly approximated by determining how differences between Veterans and non-Veterans vary with age.

5. X_i is a vector of individual characteristics that are associated with health conditions that may be associated with differences in disease, including whether the individual lives in an urban location, marital status, education, employment/student status, smoking, and health insurance coverage.

We chose to use logistic regression models at the individual level of the form:

$$(4) \quad logit(Pr[H_i = 1]) = \alpha + \gamma_1 VA_i + \gamma_2 Z_i + \gamma_3 VA_i * Z_i + X_i \beta + f(\tau_i)$$

where τ_i is the calendar year of observation i, and $f(\tau_i)$ is some function of time (e.g., a spline function or a set of year indicators). The function $f(\tau_i)$ accounts for any time trends in the prevalence of health conditions across the entire Veteran population. The interaction term $(\gamma_3 VA_i * Z_i)$ allows differences in prevalence between VA patients and non-VA patients to vary by demographic characteristics.

Let $\hat{h}_2(VA_i, Z_i, X_i, \tau_i) = expit(\hat{\alpha} + \hat{\gamma}_1 VA_i + \hat{\gamma}_2 Z_i + \hat{\gamma}_3 VA_i * Z_i + X_i\hat{\beta} + \hat{f}(\tau_i))$ be the estimated prevalence for an observation in year τ_i with demographics Z_i, VA patient status VA_i, and covariates X_i. The VA patient adjusted prevalence for year τ in demographic group Z is given by:

$$p_{VA}^{adj} = \frac{1}{N_{vet}} \sum_{i:\, Z_i = Z} w_i \, \hat{h}_2(1, Z, X_i, \tau)$$

where w_i is the survey weight and $N_{vet} = \sum_{i:\, Z_i = Z} w_i$. This amounts to a weighted average of estimated prevalences among all Veterans with demographics Z, where the estimated prevalence is evaluated for $VA = 1$ in year τ. In other words, we estimate the prevalence of a health condition among all Veterans with specific demographics as if they all were VA patients. The adjusted prevalence for non-VA patients in year τ and demographic group Z is given by:

$$p_{non-VA}^{adj} = \frac{1}{N_{vet}} \sum_{i:\, Z_i = Z} w_i \, \hat{h}_2(0, Z, X_i, \tau)$$

where everything is as before. Note that the only difference between the VA patient and non-VA patient adjusted prevalence is that the VA patient adjusted prevalence sets the VA patient status to 1 for all observations, and the non-VA patient adjusted prevalence sets the VA patient status to 0 for all observations.

We used MEPS as the primary data source for this analysis because it identifies a broad set of diagnosed health conditions and the use of VA health care services, which is used to identify VA patients.

C.1.5.3 Projecting Future Prevalence among Veterans

Projections of the future prevalence (and counts) of key health conditions among Veterans were undertaken in three main steps. First, the Veteran population was projected forward by demographic groups in Section 3. Second, the prevalence of key health conditions were projected forward by demographic groups using the models of C.1.5.1 (details below). Finally, the number of Veterans in each demographic group was multiplied by the corresponding prevalence to get the projected number of Veterans with a particular health condition from 2015 to 2024.

C.1.5.1 focuses on the current prevalence of health conditions among Veterans. Assuming that the prevalence of key health conditions is static across the next decade within demographic groups (a strong assumption), the number of Veterans with specific health conditions can be estimated by multiplying these static prevalence rates by the population projections from Section 3 (all within demographic groups). Any changes in the overall prevalence of a health

condition using this approach can be attributed to the changing demographic composition of Veterans because the demographic-specific prevalence rates are assumed to remain constant.

Assuming constant demographic-specific prevalence rates is a strong assumption and not expected to hold. The model given by (1) accounts for any time trends in the prevalence of health conditions through the inclusion of $f(\tau_i)$. Therefore, these models can be used to project forward the demographic-specific prevalence rates while accounting for trends over time. Recall, τ_i is the calendar year of observation. By setting τ_i to a future year and estimating the adjusted prevalence given in equation (3), the projected demographic-specific prevalence is obtained. For example, suppose we want to estimate the prevalence in 2020. We simply set $\tau = 2020$ in equation (3):

$$p_{vet}^{adj}(Z, 2020) = \frac{1}{N_{vet}} \sum_{i: Vet_i=1 \ \& \ Z_i=Z} w_i \, \hat{h}_1(1, Z, X_i, 2020)$$

These demographic-specific prevalence projections are multiplied by the Veteran population projections of Section 3 to obtain the projected number of Veterans with specific health conditions.

These baseline results were adjusted for likely service-connected conditions. First, the estimated prevalence rates for 2014 were fixed for each birth-year based cohort and carried forward over the projection period (2015–2024). This assumes that the prevalence of PTSD is not related to age, but instead, related to birth cohort. This allows us to use age to indirectly control for service during times of war, such as Vietnam. Specifically, the cohort that was born in 1980 has the same prevalence of PTSD in 2014 at age 34 as they would in 2024 at age 44. Second, prevalence estimates of newly separated Veterans were estimated using MHS encounter data. Finally, we allow for recovery from these conditions. This approach captures the more relevant trends in service-connected health conditions. The details of this adjustment are in Appendix C.1.5.5.

C.1.5.4 Projecting Future Prevalence among VA Patients

Projections of the future prevalence (and counts) of key health conditions among VA patients were undertaken in four main steps. First, the Veteran population was projected forward by demographic groups in Section 3. Second, the number of VA patients were projected forward by demographic groups in Section 4. Third, the prevalence of key health conditions were projected forward by demographic groups using a modification of the models of C.1.5.2 (details below). Finally, the number of VA patients in each demographic group was multiplied by the corresponding prevalence to get the projected number of VA patients with a particular health condition from 2015 to 2024.

C.1.5.2 focuses on the current prevalence of health conditions among VA patients. Assuming that the prevalence of key health conditions is static across the next decade within demographic groups (a strong assumption), the number of VA patients with specific health conditions can be estimated by multiplying these static prevalence rates by the VA patient population projections from above (all within demographic groups). Any changes in the overall prevalence of a health condition using this approach can be attributed to the changing

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demographic composition of the VA patient population because the demographic-specific prevalence rates are assumed to remain constant.

Assuming constant demographic-specific prevalence rates is a strong assumption and not expected to hold. The model given by equation (4) accounts for any time trends in the prevalence of health conditions through the inclusion of $f(\tau_i)$. Therefore, these models can be used to project forward the demographic-specific prevalence rates of health conditions among VA patients while accounting for trends over time. However, in order to estimate a time trend that is consistent with our estimates for the Veteran population as a whole and to improve the precision of the trend estimate, we modified equation (4) to include an indicator for being a Veteran and to include non-Veterans in the prevalence estimation. Analogous to the Veteran case, we projected the demographic-specific prevalence among VA patients by the calendar year of observation, τ_i, to a future year and estimating the prevalence given by the modified equation (4). These demographic-specific prevalence projections were multiplied by the VA patient population projections to obtain the projected number of VA patients with specific health conditions. We generate projections using prevalence estimates from MEPS and from VA encounter data. In each case, the approach is the same.[63] However, the interpretation is different. The MEPS results predict the prevalence of health conditions among VA patients, regardless of whether treatment for the specific condition is received at VA, whereas the VA encounter analysis predicts the prevalence of health conditions treated by VA among VA patients.

We also adjust these baseline projections for service-connected conditions using the same approach described in Appendix C.1.5.5

C.1.5.5 Projecting Future Prevalence of Service-Connected Conditions

TBI, PTSD, and other mental health conditions are connected to deployment and combat exposure (Ramchand et al., 2015). Given that TBI and PTSD are caused by specific trauma and have relatively low prevalence rates in the non-Veteran population, it is likely that these conditions are predominantly determined by military experience, rather than age, among the Veteran population. The umbrella measure of "any mental health condition" includes PTSD and other conditions that may be linked to deployment to a combat zone, so we consider it to be linked to military service rather than age for the projections.

We account for this relationship by using a birthyear-based cohort approach to project the prevalence of prevalence of TBI, PTSD, and mental health conditions for Veterans and VA patients. The future prevalence of each condition is projected separately for Veterans who separated from service before 2015 ("Pre-2015 Veterans") and for future Veterans who will separate from service in 2015–2024 ("Post-2014 Veterans").

Pre-2015 Veterans (VA patients) – The estimated prevalence of each condition among Veterans in 2014 is held constant within cohorts, defined by birthyear, as the population ages. For

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[63] For the projections using VA encounter data, equation (4) was estimated without modification because this data only includes Veterans.

example, the prevalence of PTSD among Veterans who were born in 1994 was 11 percent when they turned 20 years old in 2014. We assumed that the prevalence of PTSD will remain constant in these Veterans as they age, so that when they turn 30 years old in 2024, the prevalence of PTSD is 11 percent. PTSD may improve with treatment, in which case this assumption of constant prevalence within cohort would cause us to overestimate the prevalence of PTSD among Veterans and VA patients. However, research findings suggest that the highest rate of remission is within the first year post-diagnosis[64] and Veterans who separated from service before 2015 are one or more years post-service in the projection years (2015–2024). Further, the overall profile of remission is not well-documented and our data do not include information about when Veterans experienced the traumatic events, so we do not adjust for remission among this group. The projected prevalence is demographic-specific, so the overall prevalence for a birthyear cohort will change over time if the demographic composition of the cohort changes through mortality or VA use along non-age dimensions (e.g. sex).

Post-2014 Veterans (VA patients) – The implicit assumption in the projections of non–service-connected chronic conditions, such as hypertension and diabetes, is that the prevalence rate among new Veterans is the same as the prevalence rate among existing Veterans with the same demographic characteristics (e.g., age and sex). We cannot make this assumption in the case of service-connected conditions; therefore, we must assume a future prevalence rate for each health condition among new Veterans. Our underlying assumption is that there will be no future conflicts during the ten-year projection period, so new Veterans will have less exposure to combat and thus lower prevalence of TBI, PTSD, and mental health conditions. The prevalence rates we assume for the projections are derived from our analysis of MHS encounter data and from the existing research on the relationship between these health conditions and deployment. We also allow for recovery or remission of the health conditions in the first year post-separation for Veterans and post-enrollment for VA patients. The assumed prevalence and remission rates are discussed in detail below.

Estimation – The projections of the prevalence of PTSD (and mental health conditions) among Veterans and VA patients are based on the 2014 demographic-specific prevalence estimates from MEPS. The projections of the prevalence of TBI among VA patients are based on the 2014 demographic-specific prevalence estimates from VA encounter data. VA encounter data reflect the health conditions of VA patients only, so we project the prevalence of this condition for VA

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[64] Based on a literature review, Tanielian and Jaycox (2008) suggest that the three-month remission rate of PTSD is 30–40 percent depending on type of treatment, but the probability of relapse is unknown. A review of longitudinal PTSD studies by Santiago et al. (2013) indicates that approximately 40 percent of PTSD cases remit after one year. A recent literature review and meta-analysis by Morina et al. (2014) found that 44 percent of PTSD cases were non-cases at follow-up (mean 40 months). A report by the Congressional Budget Office (2012) found that of VA patients initially diagnosed with PTSD, 75–80 percent of those who continue to use VA health services receive treatment for PTSD in the four years following diagnosis. This estimate conflates the PTSD remission rate and non-random exit from the VA health system, i.e., those who no longer need services for PTSD may drop out of the VA patient sample, but is likely a better representation of the prevalence among VA patients. Frieden and Collins (2013) find that approximately 77 percent of new TBI cases do not require treatment for more than one year post-injury.

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patients only. All projections are made using demographic-group level data, but we abstract from this in the following discussion for simplicity.

The projected prevalence of health condition *HC* among Veterans in year *t* is the weighted average of the prevalence among the Pre-2015 Veterans in each birthyear cohort and the prevalence among the Post-2014 Veterans in each birthyear cohort. This is given by

$$p_{c,t}^{HC} = \left(1 - f_{c,t}^{post\ sep}\right) \times p_{c,2014}^{HC} + f_{c,t}^{new\ sep} \times p_{assumed}^{HC\ initial}$$
$$+ f_{c,t}^{(post\ sep - new\ sep)} \times p_{assumed}^{HC\ chronic}$$

where $f_{c,t}^{post\ sep}$ is the fraction Veterans in year *t* who were born in year *c* and who separated from service after 2014, $p_{c,2014}^{HC}$ is the prevalence of the health condition *HC* among Veterans who separated before 2015, and $p_{assumed}^{HC}$ is the prevalence rate that is assumed for Veterans who separated after 2014.

The first term is the prevalence of *HC* among Veterans who separated from service before 2015, $p_{c,2014}^{HC}$, weighted by the fraction of Veterans separated before 2015, $(1 - f_{c,t}^{post\ sep})$. The second term is the initial prevalence of *HC* among those who separated after 2014, $p_{assumed}^{HC\ initial}$, weighted by the fraction of Veterans who separated in year *t*, $f_{c,t}^{new\ sep}$. The third term is the prevalence of *HC* requiring more than one year of treatment, $p_{assumed}^{HC\ chronic}$, weighted by the fraction of Veterans who separated from service after 2014 but before year *t*, $f_{c,t}^{(post\ sep - new\ sep)}$, where $p_{assumed}^{HC\ chronic}$ is equal to $p_{assumed}^{HC\ initial}$ times the fraction of *HC* cases who require ongoing treatment.

We follow the same approach for VA patients with one exception. The prevalence rate and remission probability of the health conditions for future VA patients is determined by the year in which the Veteran enrolled in VA rather than by year of separation from service. That is, we split future Veterans into two groups: Veterans who were VA patients in 2014 and those who were not (post-2014 VA patients). The group of post-2014 VA patients includes all Veterans who separated post-2015 and also includes new VA patients who separated before 2015. This date is more relevant than the separation date for VA patients under the assumption that new VA patients who did not immediately enroll in VA post-separation are less likely to have a service-connected *HC* than those who began using VA health care services right away. We make the following assumptions regarding prevalence and remission rates for the estimation.

- The prevalence of PTSD among new Veterans in 2015–2024 is 5.4 percent. This prevalence rate, estimated using MHS data, is the average of the annual prevalence rates of PTSD among service members separating 2009–2014. It is a little lower than the estimated prevalence of 7.9 percent among OEF/OIF-era Veterans who did not deploy and do not use VA in Dursa et al. (2014). The MHS estimate may overstate the prevalence of PTSD among new Veterans in 2015–2024, because only two-thirds as many of them will have deployed to Iraq or Afghanistan. However, the MHS estimate may be lower than the actual rate of PTSD if service members are reluctant to seek

diagnosis and treatment for PTSD before separation, but seek care after. In addition, as discussed above, due to data limitations and lack of consensus in the literature regarding the profile of remission and relapse of these conditions, we do not formally adjust the prevalence to account for this, which may lead to projections that are too high.

- The prevalence of PTSD among new VA patients in 2015–2024 is 17.3 percent. Veterans with service-connected conditions are more likely to use VA. We estimated the prevalence ratio of PTSD among VA patients relative to all Veterans as the ratio between the prevalence of PTSD among VA patients under age 35 in 2014 (VA encounter data) and the prevalence of PTSD among separating service members under age 35 in 2012–2013 (MHS encounter data). We then inflate the assumed prevalence of 5.4 percent for all Veterans by this ratio (3.2). This resulting PTSD prevalence estimate for new VA patients is very close to the 17.5 percent prevalence rate of PTSD among VA patients who served post-2001 and who did not deploy to Iraq and Afghanistan estimated by Dursa et al. (2014).

- The one-year remission rate of PTSD is 35 percent for all Veterans and 30 percent for VA patients. A review of the literature suggests that the rate of remission in one year is 30–45 percent (Tanielian and Jaycox, 2008; Santiago et al., 2013; Morina et al., 2014), so we choose a middle value for the projections with all Veterans. However, a report by the Congressional Budget Office (2012) found that, of VA patients initially diagnosed with PTSD, 75–80 percent of those that continue to use VA health services receive treatment for PTSD in the four years following diagnosis. This suggests that PTSD among VA patients may be more difficult to treat, motivating us to choose a lower rate of remission for this population.

- The prevalence of mental health conditions among new Veterans in 2015–2024 is 32.5 percent. This is estimated using MHS encounter data following the approach we use for PTSD.

- The prevalence of mental health conditions among new VA patients in 2015–2024 is 48.8 percent. This was estimated from MHS and VA encounter data following the approach for PTSD.

- The one-year remission rate for mental health conditions is 6.3 percent for all Veterans and 10 percent for VA patients. The umbrella of mental health conditions includes a host of conditions, making it difficult to choose an appropriate overall remission rate for the condition, as it depends on how well each condition responds to treatment and the fraction of Veterans with each condition. However, mental health conditions include PTSD, so to be consistent with the remission rate assumed for PTSD, we apply the same rate to mental health, scaled by the fraction of Veterans with mental health conditions that have PTSD. Using 2014 MHS data, we find that 18 percent of newly separated Veterans with mental health conditions have PTSD. Therefore, we assume a 6.3 percent (=0.18*0.35) one-year remission rate for mental health conditions among all Veterans. Similarly, we assume a scaled PTSD remission rate for mental health conditions among VA patients. Using VA encounter data, we find that about one-third of VA patients with any mental health condition have PTSD, so we assume a 10 percent rate (=1/3 *30%) for

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mental health conditions among VA patients. As Veterans can also recover from other mental health conditions, this is likely an underestimate of the recovery rate.

- The prevalence of TBI among new VA patients in each year 2015–2024 is 0.5 percent. This assumed prevalence of TBI among new VA patients reflects our assumption of no future conflict during the next decade and is derived from a CDC report of the number of TBI-related emergency department visits among adults in the United States (Centers for Disease Control and Prevention, 2014c).[65] The prevalence of TBI among separating service members under the age of 35 in MHS encounters and the prevalence among VA patients under the age of 35 in VA encounter data are very similar, so no adjustments were made to the CDC rate to account for selective use of VA health care services.

- We assume that twenty percent of TBI cases among VA patients who are predicted to enroll in each year 2015–2024 require ongoing treatment. This is based on estimates from Frieden and Collins (2013).

- For all conditions—TBI, PTSD, and other mental health conditions—the probability of remission is assumed to be zero one or more years post-separation(enrollment). This assumption implies that the prevalence of health conditions among Veterans who separated before 2015 (and VA patients who enrolled in VA before 2015) is fixed for each birthyear cohort because these populations are already one year post-separation(enrollment) in the first projection year.

Limitations – The data we are using for the baseline estimates of prevalence (MEPS, VA encounter, and MHS) only captures conditions that are treated in each year. If Veterans do not require doctor visits each year treat an ongoing condition, we will underestimate the fraction of Veterans who require treatment for each condition.

The research on the prevalence of PTSD among Veterans who have not deployed is thin, making it challenging to estimate prevalence rates under the assumption of no future conflicts over the projection period. Dursa et al. (2014) and Hoge et al. (2004) are exceptions in a literature that focuses on service-connected conditions among Veterans who deployed. These two studies find an unexpectedly high rate of PTSD among OEF/OIF era Veterans who did not deploy and who are pre-deployment respectively. If these prevalence rates are too large, then our projections overstate the prevalence of PTSD among future Veterans.

The research on the course of remission for those with PTSD is also sparse. We aggregated the results of several literature review for our assumptions, but did not find a strong source documenting PTSD over the life course to use for this analysis. We are not able to sign the direction of the bias from our estimation assumptions because some Veterans will take longer than one year to remit (biasing our estimates upward) and some Veterans will relapse (biasing our estimates downward.

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[65] This report indicates that there were 470 TBI-related emergency department visits per 100,000 adults age 25–44 years old in 2009–2010.

C.1.5.6   Upper and Lower Bounds for Projections

Computational limitations prevented us from calculating 95-percent prediction intervals for our projections. However, crude upper and lower bounds were estimated by calculating the 95-percent confidence intervals for the demographic-specific prevalence rates, and by performing the projections with the demographic-specific prevalence rates set to both the upper and lower bounds. Specifically, we multiplied the demographic-specific prevalence upper bounds (from the 95-percent confidence intervals) by the population projections, and used the resulting projections as an upper bound. Similarly, we multiplied the demographic-specific prevalence lower bounds (from the 95-percent confidence intervals) by the population projections, and used the resulting projections as a lower bound. These bounds are expected to be more conservative (wider) than actual 95-percent prediction intervals under this modeling framework because they ignore the correlation between the predicted prevalence rates across demographic groups. Other modeling strategies would have yielded different projections and different uncertainties associated with the projections. An alternative approach would have been to model the prevalence rates within demographic groups as a time series, which accounts for the correlation between prevalence within demographic groups across time.

C.2   Current Health Care Needs Prevalence Results

C.2.1   Prevalence for Veterans and Non-Veterans

Table C-6. Prevalence of Diagnosed Health Conditions for Veterans and non-Veterans

Health Conditions	Unadjusted Means (Std. Dev.)		Adjusted Means (Std. Errors)		Difference in Adjusted Means (Veteran – non-Veteran)
	Veteran	non-Veterans	Veteran	non-Veterans	* p-value < 0.05
Asthma	0.05 (0.003)	0.057 (0.001)	0.058 (0.004)	0.056 (0.003)	0.002
Cancer	0.141 (0.005)	0.047 (0.001)	0.155 (0.009)	0.112 (0.007)	**0.043***
CHF	0.016 (0.002)	0.007 0.000	0.01 (0.002)	0.011 (0.002)	-0.001
COPD	0.058 (0.003)	0.028 (0.001)	0.063 (0.006)	0.046 (0.004)	**0.017***
Diabetes	0.218 (0.006)	0.107 (0.001)	0.228 (0.008)	0.202 (0.008)	0.026
GERD	0.116 (0.004)	0.066 (0.001)	0.122 (0.008)	0.100 (0.006)	**0.022***
Hearing loss	0.037	0.01	0.043	0.031	**0.012***

	(0.002)	0.000	(0.005)	(0.005)	
Hypertension	0.451	0.244	0.475	0.466	0.009
	(0.007)	(0.002)	(0.010)	(0.008)	
IHD	0.138	0.043	0.142	0.138	0.004
	(0.005)	(0.001)	(0.008)	(0.007)	
Lipid disorder	0.393	0.193	0.409	0.392	**0.017***
	(0.007)	(0.002)	(0.010)	(0.008)	
Low back pain	0.133	0.113	0.138	0.133	0.005
	(0.004)	(0.001)	(0.007)	(0.006)	
Mental health condition	0.175	0.180	0.200	0.174	**0.026***
	(0.005)	(0.002)	(0.009)	(0.006)	
PTSD	0.014	0.002	0.027	0.002	**0.025***
	(0.002)	0.000	(0.006)	0.000	

SOURCE: RAND analysis of MEPS, 2006–2012.

NOTES: *The difference in adjusted means is statistically different from zero at the 5 percent level (p-value<0.05). Sample size, non-Veterans = 150,225 and sample size, Veterans = 12,313. Sample sizes may be smaller for some conditions due to missing values. The unadjusted prevalence in results columns (1) and (2) are equivalent to the fraction of Veterans and non-Veterans who have been diagnosed with each condition. The adjusted prevalence in results columns (3) and (4) are the predicted prevalence from a logit estimation that included indicators for sex, five race/ethnicity categories, 14 age categories, four census regions, residential location in an MSA, and a nonlinear time trend. These estimates show the differences in prevalence of health conditions for Veterans and for non-Veterans with the same demographic profile as Veterans. Cancer includes any malignancy and mental health condition includes any mental health condition.

Table C-7. Predicted Means of Disease Burden Measures, by Veteran Status

	Adjusted Means (Std. Errors)		p-value for Difference in Adjusted Means
	Veteran	Non-Veteran	
Has 1+ IADLs	0.072	0.086	< 0.000
	(0.005)	(0.004)	
Has 1+ ADLs	0.044	0.054	0.004
	(0.004)	(0.004)	
Charlson Comorbidity Index > 1	0.098	0.094	0.415
	(0.005)	(0.005)	
Charlson Comorbidity Index	0.119	0.119	0.959
	(0.008)	(0.007)	

SOURCE: RAND analysis of MEPS, 2006–2012.

NOTES: Sample size, non-Veterans = 150,225 and sample size, Veterans = 12,313. Sample sizes may be smaller for some conditions due to missing values. Predicted or adjusted means were obtained from estimating logistic regressions with the following additional covariates included: sex (male is the omitted category), five race/ethnicity categories, 14 age categories, four Census regions, an MSA indicator, and year fixed effects using the margins command in Stata treating Veterans as though

they had similar observable characteristics as civilians. The Charlson Comorbidity Index model was estimated using a Poisson regression.

Table C-8. Adjusted Means of Comorbid Mental Health Condition (Mental Health Condition + Another Condition/Limitation) for Veterans and Non-Veterans

	Adjusted Means (Std. Errors)		p-value for Difference in Adjusted Means
	Veteran	non-Veteran	
Has any IADL + any Mental Condition	0.027 (0.004)	0.025 (0.003)	0.420
Has any ADL + any Mental Condition	0.015 (0.003)	0.014 0.014	0.519
Has Any Condition + any Mental Condition	0.184 (0.010)	0.156 (0.007)	< 0.000
Has Any Charlson condition + any Mental Condition	0.016 (0.003)	0.015 (0.002)	0.383

SOURCE: RAND analysis of MEPS, 2006–2012.

NOTES: Sample size, non-Veterans = 150,225 and sample size, Veterans = 12,313. Sample sizes may be smaller for some conditions due to missing values. Predicted or adjusted means were obtained from estimating logistic regressions with the following additional covariates included: sex (male is the omitted category), five race/ethnicity categories, 14 age categories, four Census regions, an MSA indicator, and year fixed effects using the margins command in Stata treating Veterans as though they had similar observable characteristics as civilians. The Charlson Comorbidity Index model was estimated using a Poisson regression.

Table C-9. The Prevalence of Diagnosed Health Conditions for Veterans by Demographic Characteristics

Demographic Group	Adjusted Prevalence (Std. Errors)						
	Cancer	COPD	Diabetes	HBP	Hearing Loss	IHD	PTSD
Age							
20–34	0.005 (0.003)	0.005 (0.004)	0.023 (0.007)	0.075 (0.016)	IS	0.006 (0.004)	0.095 (0.037)
35–44	0.016 (0.006)	0.017 (0.007)	0.065 (0.012)	0.191 (0.023)	0.010 (0.006)	0.016 (0.006)	0.044 (0.015)
45–54	0.041 (0.010)	0.035 (0.010)	0.137 (0.018)	0.337 (0.027)	0.018 (0.007)	0.063 (0.012)	0.016 (0.006)
55–64	0.097 (0.014)	0.083 (0.015)	0.223 (0.022)	0.542 (0.028)	0.027 (0.008)	0.127 (0.018)	0.053 (0.016)
65–74	0.210	0.091	0.317	0.644	0.045	0.193	0.013

Demographic Group	Adjusted Prevalence (Std. Errors)						
	Cancer	COPD	Diabetes	HBP	Hearing Loss	IHD	PTSD
	(0.024)	(0.017)	(0.027)	(0.025)	(0.011)	(0.023)	(0.006)
75–84	0.298	0.099	0.398	0.693	0.074	0.317	0.011
	(0.030)	(0.018)	(0.030)	(0.025)	(0.017)	(0.031)	(0.006)
85+	0.317	0.113	0.342	0.702	0.141	0.333	0.006
	(0.034)	(0.025)	(0.034)	(0.030)	(0.033)	(0.036)	(0.006)
Sex							
Male	0.149	0.070	0.238	0.508	0.045	0.164	0.032
	(0.015)	(0.012)	(0.019)	(0.021)	(0.010)	(0.017)	(0.009)
Female	0.133	0.096	0.225	0.442	0.016	0.072	0.022
	(0.025)	(0.025)	(0.030)	(0.032)	(0.009)	(0.023)	(0.010)
Race/Ethnicity							
White (non-Hispanic)	0.158	0.074	0.230	0.494	0.046	0.167	0.027
	(0.016)	(0.012)	(0.019)	(0.022)	(0.011)	(0.017)	(0.009)
Hispanic	0.057	0.034	0.302	0.500	0.031	0.110	0.043
	(0.017)	(0.014)	(0.034)	(0.033)	(0.015)	(0.022)	(0.018)
Black (non-Hispanic)	0.100	0.051	0.265	0.603	0.024	0.122	0.048
	(0.015)	(0.013)	(0.025)	(0.023)	(0.008)	(0.017)	(0.015)
Asian	0.088	0.036	0.217	0.443	0.034	0.022	0.008
	(0.036)	(0.017)	(0.047)	(0.049)	(0.015)	(0.011)	(0.007)
Other and multiple	0.074	0.089	0.319	0.491	0.055	0.179	0.077
	(0.024)	(0.029)	(0.048)	(0.046)	(0.027)	(0.040)	(0.034)
Residence in an MSA							
No	0.132	0.083	0.248	0.506	0.043	0.165	0.052
	(0.017)	(0.016)	(0.024)	(0.025)	(0.012)	(0.020)	(0.017)
Yes	0.153	0.068	0.234	0.504	0.044	0.160	0.027
	(0.016)	(0.012)	(0.019)	(0.021)	(0.010)	(0.016)	(0.008)

SOURCE: RAND analysis of MEPS, 2006–2012.

NOTES: Sample size, Veterans = 12,313. Cells labeled IS indicate that the prevalence model for the specific health condition could not be estimated due to insufficient sample size. The adjusted prevalence estimates are the predicted prevalence from a logit estimation that included an indicators for sex, five race/ethnicity categories, 14 age categories, four census regions, residential location in an MSA, and a nonlinear time trend. These estimated differences control for the demographic differences within demographic group. HBP is hypertension.

Table C-10. The Difference in the Prevalence of Diagnosed Health Conditions for Veterans and Non-Veterans by Demographic Characteristics

Demographic Group	Difference in Adjusted Prevalence (Std. Errors)							
	Asthma	Cancer	COPD	Diabetes	GERD	Hearing Loss	Mental Health Condition	PTSD
Age								
20–34	-0.023	-0.003	-0.003	0.004	0.018	IS	0.107	0.069
	(0.011)	(0.002)	(0.004)	(0.007)	(0.012)		(0.027)	(0.022)
35–44	-0.018	-0.005	0.002	0.010	0.022	0.003	0.016	0.027
	(0.015)	(0.005)	(0.006)	(0.011)	(0.012)	(0.004)	(0.019)	(0.010)
45–54	0.024	-0.001	0.006	0.034	0.026	0.006	0.058	0.007
	(0.014)	(0.008)	(0.008)	(0.015)	(0.013)	(0.004)	(0.022)	(0.004)
55–64	0.031	0.005	0.035	0.024	0.003	0.004	0.050	0.037
	(0.014)	(0.011)	(0.013)	(0.017)	(0.015)	(0.004)	(0.020)	(0.011)
65–74	0.033	0.046	0.018	0.003	0.001	0.003	0.003	0.009
	(0.020)	(0.019)	(0.014)	(0.022)	(0.017)	(0.006)	(0.017)	(0.005)
75–84	0.028	0.095	0.014	0.024	0.032	-0.005	0.022	0.008
	(0.018)	(0.026)	(0.016)	(0.025)	(0.020)	(0.011)	(0.021)	(0.004)
85+	0.038	0.127	0.040	0.024	0.073	0.014	0.017	0.004
	(0.024)	(0.033)	(0.023)	(0.035)	(0.024)	(0.022)	(0.028)	(0.004)
Sex								
Male	-0.006	0.019	0.009	0.023	0.023	IS	0.052	0.043
	(0.004)	(0.004)	(0.003)	(0.005)	(0.005)		(0.009)	(0.010)
Female	0.030	0.007	0.012	0.010	0.013	IS	0.055	0.025
	(0.016)	(0.011)	(0.011)	(0.016)	(0.015)		(0.025)	(0.011)
Race/Ethnicity								
White (non-Hispanic)	0.012	0.013	0.012	0.020	0.018	IS	0.028	0.028
	(0.009)	(0.007)	(0.007)	(0.009)	(0.010)		(0.015)	(0.008)
Hispanic	0.021	-0.001	0.001	0.019	0.031	IS	0.134	0.048
	(0.017)	(0.008)	(0.008)	(0.019)	(0.015)		(0.028)	(0.018)
Black (non-Hispanic)	0.005	0.016	0.006	-0.011	0.006	IS	0.063	0.052
	(0.012)	(0.008)	(0.008)	(0.015)	(0.010)		(0.016)	(0.015)

Demographic Group	Difference in Adjusted Prevalence (Std. Errors)							
	Asthma	Cancer	COPD	Diabetes	GERD	Hearing Loss	Mental Health Condition	PTSD
Asian	0.027 (0.022)	0.019 (0.017)	0.014 (0.010)	0.002 (0.024)	0.018 (0.019)	IS	0.159 (0.063)	0.009 (0.007)
Other and multiple	0.011 (0.029)	-0.006 (0.015)	0.007 (0.019)	0.008 (0.033)	0.033 (0.027)	IS	0.091 (0.047)	0.075 (0.038)
Residence in an MSA								
No	-0.003 (0.011)	0.010 (0.008)	0.009 (0.009)	0.011 (0.014)	0.028 (0.014)	IS	0.065 (0.022)	0.059 (0.020)
Yes	0.016 (0.009)	0.013 (0.006)	0.011 (0.006)	0.017 (0.009)	0.016 (0.008)	IS	0.051 (0.014)	0.030 (0.008)

SOURCE: RAND analysis of MEPS, 2006–2012.

NOTES: Sample size, non-Veterans = 150,225 and sample size, Veterans = 12,313. Sample sizes may be smaller for some conditions due to missing values. Cells labeled IS indicate that the prevalence model for the specific health condition could not be estimated due to insufficient sample size. The adjusted prevalence estimates are the predicted prevalence from a logit estimation that included an indicators for sex, five race/ethnicity categories, 14 age categories, four census regions, residential location in an MSA, and a nonlinear time trend. These estimated differences control for the demographic differences between Veterans and non-Veterans and within demographic subgroups. Cancer includes any malignancy, and Mental Health includes any mental health condition.

Table C-11. The Difference in the Prevalence of Diagnosed Health Conditions for Veterans and Non-Veterans: By Poverty/Income and Employment Status

	Adjusted Means (Std. Errors)							
	Asthma	Cancer	COPD	Diabetes	GERD	Hearing Loss	Mental Health Condition	PTSD
Poverty/Income Category								
Poor/Neg Income non-Veterans	0.079 (0.002)	0.043 (0.002)	0.053 (0.002)	0.152 (0.003)	0.076 (0.002)	0.010 (0.001)	0.235 (0.003)	0.005 (0.001)
Poor/Neg Income Veterans	0.064 (0.009)	0.055 (0.005)	0.063 (0.007)	0.144 (0.009)	0.075 (0.008)	0.011 (0.002)	0.282 (0.015)	0.043 (0.009)
Near Poor non-Veterans	0.068 (0.003)	0.045 (0.002)	0.044 (0.002)	0.146 (0.004)	0.067 (0.003)	0.010 (0.001)	0.193 (0.005)	0.003 (0.001)
Near Poor Veterans	0.058	0.072	0.041	0.141	0.087	0.013	0.245	0.052

	Adjusted Means (Std. Errors)							
	Asthma	**Cancer**	**COPD**	**Diabetes**	**GERD**	**Hearing Loss**	**Mental Health Condition**	**PTSD**
	(0.011)	(0.008)	(0.007)	(0.012)	(0.010)	(0.003)	(0.020)	(0.014)
Low Income non-Veterans	0.057	0.038	0.034	0.133	0.060	0.008	0.171	0.002
	(0.002)	(0.001)	(0.001)	(0.002)	(0.002)	(0.001)	(0.003)	(0.000)
Low Income Veterans	0.064	0.069	0.043	0.143	0.083	0.011	0.198	0.031
	(0.007)	(0.005)	(0.005)	(0.008)	(0.007)	(0.002)	(0.011)	(0.006)
Middle Income non-Veterans	0.050	0.040	0.025	0.120	0.054	0.008	0.150	0.001
	(0.001)	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)	(0.002)	(0.000)
Middle Income Veterans	0.052	0.056	0.039	0.143	0.070	0.013	0.195	0.027
	(0.004)	(0.003)	(0.003)	(0.005)	(0.004)	(0.001)	(0.008)	(0.004)
High Income non-Veterans	0.044	0.045	0.015	0.098	0.058	0.009	0.125	0.001
	(0.001)	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)	(0.002)	(0.000)
High Income Veterans	0.047	0.063	0.021	0.125	0.073	0.014	0.148	0.014
	(0.004)	(0.003)	(0.002)	(0.005)	(0.004)	(0.001)	(0.006)	(0.003)
Employment Status								
Unemployed non-Veterans	0.080	0.048	0.048	0.159	0.081	0.010	0.236	0.004
	(0.002)	(0.001)	(0.001)	(0.002)	(0.002)	(0.001)	(0.003)	(0.000)
Unemployed Veterans	0.073	0.076	0.056	0.170	0.096	0.014	0.277	0.080
	(0.005)	(0.003)	(0.004)	(0.005)	(0.005)	(0.001)	(0.009)	(0.010)
Employed non-Veterans	0.042	0.036	0.014	0.093	0.047	0.007	0.126	0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.000)
Employed Veterans	0.045	0.042	0.019	0.111	0.059	0.013	0.145	0.011
	(0.004)	(0.003)	(0.002)	(0.005)	(0.003)	(0.002)	(0.006)	(0.002)

SOURCE: RAND analysis of MEPS, 2006–2012.

NOTES: Sample size, non-Veterans = 150,225 and sample size, Veterans = 12,313. Sample sizes may be smaller for some conditions due to missing values. Model controls for age, sex, race/ethnicity, Census region, and MSA.

Table C-12. Financial Insecurities, Predicted Means for Veterans and Non-Veterans

Outcome	Veterans	non-Veterans	P-value of difference in means (* p-value < 0.05)
Panel A. All NHIS Respondents (N=34,540)	N=3,309	N=31,231	
Moderately to Severely Worried About Paying Bills	0.270 (0.012)	0.326 (0.004)	**0.000***
Moderately to Severely Worried About Health Care Costs	0.257 (0.013)	0.340 (0.004)	**0.000***
Moderately to Severely Worried about Housing Costs	0.204 (0.011)	0.260 (0.003)	**0.000***
Participate in TANF	0.011 (0.003)	0.011 (0.001)	0.893
Panel B. NHIS Respondents Reporting Any Chronic Condition^ (N=18,645)	N=2,398	N=16,247	
Moderately to Severely Worried About Paying Bills	0.317 (0.016)	0.368 (0.006)	**0.024***
Moderately to Severely Worried About Health Care Costs	0.290 (0.017)	0.369 (0.006)	**0.014***
Moderately to Severely Worried about Housing Costs	0.241 (0.015)	0.290 (0.006)	**0.025***
Participate in TANF	0.012 (0.004)	0.014 (0.001)	**0.003***
Panel C. NHIS Respondents Reporting a Health Problem Requiring Special Equipment (N=2,982)	N=396	N=2,486	
Moderately to Severely Worried About Paying Bills	0.379 (0.039)	0.467 (0.022)	**0.024***
Moderately to Severely Worried About Health Care Costs	0.348 (0.038)	0.444 (0.021)	**0.014***
Moderately to Severely Worried about Housing Costs	0.295	0.376	**0.025***

Outcome	Veterans	non-Veterans	P-value of difference in means (* p-value < 0.05)
	(0.036)	(0.021)	
Participate in TANF	0.004	0.026	**0.003***
	(0.004)	(0.006)	

SOURCE: RAND analysis of National Health Interview Survey (NHIS) (2013).

NOTES: Standard errors in parentheses. *The difference in adjusted means is statistically different from zero at the 5 percent level (p-value<0.05). ^ Chronic Conditions: Hypertension, CHD, Angina, heart condition/disease, emphysema, asthma, cancer, weak/failing kidneys, liver disease, arthritis, hepatitis. Models control for age, sex, race/ethnicity, and Census regions. TANF = Temporary Assistance for Needy Families.

C.2.2 Prevalence for Veterans by VA Patient Status

Table C-13. The Prevalence of Diagnosed Health Conditions by VA Patient Status

Health Conditions	Unadjusted Means (Std. Dev.)		Adjusted Means (Std. Errors)		Difference in Adjusted Means (VA – non-VA)
	VA Patients	Veterans not using VA	VA Patients	Veterans not using VA	(* p-value < 0.05)
Asthma	0.067	0.039	0.094	0.053	0.041*
	(0.005)	(0.003)	(0.016)	(0.010)	
Cancer	0.031	0.116	0.188	0.138	0.050*
	(0.004)	(0.002)	(0.019)	(0.015)	
Cerebrovascular disease	0.055	0.025	0.039	0.022	0.017*
	(0.005)	(0.002)	(0.009)	(0.005)	
CHF	0.03	0.009	0.011	0.005	0.006*
	(0.003)	(0.001)	(0.004)	(0.002)	
COPD	0.090	0.041	0.112	0.057	0.055*
	(0.006)	(0.003)	(0.019)	(0.010)	
Diabetes	0.296	0.169	0.304	0.207	0.097*
	(0.009)	(0.006)	(0.023)	(0.018)	
GERD	0.165	0.085	0.164	0.093	0.071*
	(0.008)	(0.005)	(0.021)	(0.013)	
Hearing loss	0.062	0.024	0.071	0.033	0.038*
	(0.005)	(0.003)	(0.017)	(0.008)	
Hypertension	0.573	0.378	0.600	0.466	0.134*
	(0.008)	(0.005)	(0.022)	(0.022)	
IHD	0.187	0.108	0.204	0.142	0.062*

Health Conditions	Unadjusted Means (Std. Dev.)		Adjusted Means (Std. Errors)		Difference in Adjusted Means (VA – non-VA)
	VA Patients	Veterans not using VA	VA Patients	Veterans not using VA	(* p-value < 0.05)
	(0.008)	(0.005)	(0.020)	(0.015)	
Lipid disorder	0.498	0.33	0.513	0.385	0.128*
	(0.010)	(0.008)	(0.023)	(0.021)	
Low back pain	0.178	0.105	0.170	0.098	0.072*
	(0.007)	(0.005)	(0.020)	(0.013)	
Mental health condition	0.251	0.128	0.337	0.171	0.166*
	(0.009)	(0.005)	(0.027)	(0.017)	
PTSD	0.033	0.002	0.087	0.005	0.082*
	(0.004)	(0.001)	(0.023)	(0.002)	

SOURCE: RAND analysis of MEPS, 2006–2012.

NOTES: Sample size, non-Veterans = 150,225 and sample size, Veterans = 12,313. Sample sizes may be smaller for some conditions due to missing values. *The difference in adjusted means is statistically different from zero at the 5 percent level (p-value<0.05). The unadjusted prevalence in results columns (1) and (2) are equivalent to the fraction of VA patients and Veterans not using VA health services that have been diagnosed with each condition. The adjusted prevalence in results columns (3) and (4) are the predicted prevalence rates from a logit estimation that included indicators for sex, five race/ethnicity categories, 14 age categories, four census regions, residential location in an MSA, and a nonlinear time trend. These estimates show the differences in the prevalence of health conditions for VA patients and Veterans not using VA health services, both with the same demographic profile of the overall Veteran population.

Table C-14. Predicted Means of Disease Burden Measures Among, by VA Patient Status

	Adjusted Means (Std. Errors)		p-value for Difference in Adjusted Means
	VA Patients	Non-VA Patients	
Has 1+ IADLs	0.152	0.086	< 0.000
	(0.022)	(0.012)	
Charlson Comorbidity Index > 1	0.128	0.110	0.049
	(0.017)	(0.014)	
Charlson Comorbidity Index	0.153	0.135	0.132
	(0.022)	(0.019)	

SOURCE: RAND analysis of MEPS, 2006–2012.

NOTES: N =11,251 for the total Veteran sample. Predicted or adjusted means were obtained from estimating logistic regressions with the following additional covariates included: sex (male is the omitted category), five race/ethnicity categories, 14 age categories, four Census regions, an MSA indicator, and year fixed effects using the margins command in Stata treating Veterans as though they had similar observable characteristics as civilians. The Charlson Comorbidity Index model was estimated using a Poisson regression.

Table C-15. Adjusted Means of Comorbid Mental Health Condition (Mental Health Condition + Another Condition/Limitation) for Veterans, by VA Patient Status

	Adjusted Means (Std. Errors)		p-value for Difference in Adjusted Means
	VA Patient	non-VA Patient	
Has any IADL + any Mental Health Condition	0.052 (0.004)	0.026 (0.003)	< 0.000
Has Any Condition + any Mental Health Condition	0.244 (0.009)	0.130 (0.006)	< 0.000
Has Any Charlson condition + any Mental Health Condition	0.022 (0.003)	0.015 (0.002)	0.048

SOURCE: RAND analysis of MEPS, 2006–2012.

NOTES: N =12,313 for the total Veteran sample. Predicted or adjusted means were obtained from estimating logistic regressions with the following additional covariates included: sex (male is the omitted category), five race/ethnicity categories, 14 age categories, four Census regions, an MSA indicator, and year fixed effects using the margins command in Stata treating Veterans as though they had similar observable characteristics as civilians. The Charlson Comorbidity Index model was estimated using a Poisson regression.

Table C-16. The Prevalence of Diagnosed Health Conditions for VA Patients by Demographic Characteristics

Demographic Group	Adjusted Prevalence (Std. Errors)						
	Cancer	COPD	Diabetes	HBP	Hearing Loss	IHD	PTSD
Age							
20–34	0.013 (0.009)	IS	0.041* (0.019)	0.103** (0.035)	IS	0.004 (0.005)	0.346** (0.105)
35–44	0.018 (0.009)	0.032 (0.022)	0.114** (0.029)	0.243** (0.044)	0.050 (0.035)	0.028* (0.013)	0.178** (0.055)
45–54	0.057** (0.016)	0.073** (0.024)	0.223** (0.037)	0.417** (0.046)	0.042* (0.020)	0.108** (0.027)	0.041* (0.017)
55–64	0.117** (0.024)	0.150** (0.033)	0.305** (0.040)	0.606** (0.041)	0.072** (0.023)	0.169** (0.030)	0.147** (0.043)
65–74	0.254** (0.039)	0.115** (0.028)	0.400** (0.044)	0.661** (0.039)	0.093** (0.027)	0.208** (0.033)	0.032* (0.016)
75–84	0.313** (0.044)	0.091** (0.024)	0.459** (0.045)	0.712** (0.037)	0.114** (0.030)	0.356** (0.045)	0.027 (0.016)
85+	0.312** (0.047)	0.108** (0.033)	0.396** (0.051)	0.692** (0.046)	0.223** (0.059)	0.380** (0.053)	0.013 (0.013)

Demographic Group	Adjusted Prevalence (Std. Errors)						
	Cancer	COPD	Diabetes	HBP	Hearing Loss	IHD	PTSD
Sex							
Male	0.189** (0.027)	0.108** (0.024)	0.338** (0.035)	0.589** (0.035)	0.097** (0.026)	0.218** (0.029)	0.084** (0.023)
Female	0.224** (0.050)	0.113** (0.039)	0.263** (0.052)	0.492** (0.053)	0.048 (0.029)	0.137** (0.049)	0.052* (0.023)
Race/Ethnicity							
White (non-Hispanic)	0.203** (0.029)	0.116** (0.026)	0.327** (0.035)	0.570** (0.035)	0.100** (0.027)	0.224** (0.030)	0.074** (0.022)
Hispanic	0.069** (0.025)	0.035* (0.015)	0.419** (0.058)	0.547** (0.054)	0.084* (0.042)	0.130** (0.036)	0.088* (0.036)
Black (non-Hispanic)	0.119** (0.024)	0.067** (0.022)	0.339** (0.040)	0.691** (0.033)	0.051** (0.018)	0.160** (0.030)	0.100** (0.031)
Asian	0.193 (0.122)	0.053 (0.040)	0.354** (0.109)	0.491** (0.085)	0.028 (0.024)	0.009 (0.009)	0.046 (0.043)
Other and multiple	0.126** (0.046)	0.123* (0.054)	0.459** (0.078)	0.649** (0.056)	0.116* (0.053)	0.236** (0.063)	0.165* (0.064)
Residence in an MSA							
No	0.162** (0.027)	0.125** (0.030)	0.342** (0.041)	0.615** (0.038)	0.086** (0.028)	0.219** (0.033)	0.113** (0.035)
Yes	0.198** (0.028)	0.104** (0.024)	0.333** (0.035)	0.575** (0.035)	0.097** (0.025)	0.213** (0.029)	0.072** (0.021)

SOURCE: RAND analysis of MEPS, 2006–2012.

NOTES: Sample size, VA patients = 4,871. Cells labeled IS indicate that the prevalence model for the specific health condition could not be estimated due to insufficient sample size. The adjusted prevalence estimates are the predicted prevalence from a logit estimation that included an indicators for sex, five race/ethnicity categories, 14 age categories, four census regions, residential location in an MSA, and a nonlinear time trend. These estimated differences control for the demographic differences within demographic group. HBP is hypertension. * $p < 0.05$; ** $p < 0.01$.

Table C-17. The Prevalence of Diagnosed Health Conditions for non-VA Patient Veterans by Demographic Characteristics

Demographic Group	Adjusted Prevalence (Std. Errors)						
	Cancer	COPD	Diabetes	HBP	Hearing Loss	IHD	PTSD
Age							
20–34	0.002	0.008	0.019*	0.074**	IS	0.007	0.016

Demographic Group	Adjusted Prevalence (Std. Errors)						
	Cancer	COPD	Diabetes	HBP	Hearing Loss	IHD	PTSD
	(0.002)	(0.006)	(0.008)	(0.019)		(0.006)	(0.013)
35–44	0.017*	0.014*	0.055**	0.191**	0.002	0.014*	0.004
	(0.008)	(0.006)	(0.014)	(0.027)	(0.001)	(0.005)	(0.005)
45–54	0.037**	0.020*	0.108**	0.316**	0.009	0.047**	0.005
	(0.014)	(0.009)	(0.020)	(0.033)	(0.005)	(0.013)	(0.004)
55–64	0.091**	0.043**	0.190**	0.521**	0.008	0.109**	0.003
	(0.018)	(0.014)	(0.025)	(0.034)	(0.004)	(0.021)	(0.003)
65–74	0.191**	0.080**	0.279**	0.644**	0.022*	0.198**	0.002
	(0.031)	(0.021)	(0.032)	(0.031)	(0.009)	(0.030)	(0.003)
75–84	0.300**	0.119**	0.371**	0.685**	0.051*	0.303**	IS
	(0.040)	(0.028)	(0.038)	(0.032)	(0.021)	(0.040)	
85+	0.336**	0.125**	0.307**	0.704**	0.086**	0.296**	IS
	(0.048)	(0.037)	(0.044)	(0.039)	(0.032)	(0.046)	
Sex							
Male	0.133**	0.052**	0.193**	0.472**	0.023**	0.142**	0.005
	(0.019)	(0.013)	(0.021)	(0.026)	(0.008)	(0.019)	(0.004)
Female	0.082**	0.095**	0.213**	0.415**	0.002	0.035*	0.002
	(0.025)	(0.034)	(0.036)	(0.038)	(0.002)	(0.017)	(0.002)
Race/Ethnicity							
White (non-Hispanic)	0.140**	0.055**	0.188**	0.461**	0.023**	0.143**	0.003
	(0.020)	(0.013)	(0.020)	(0.026)	(0.008)	(0.019)	(0.003)
Hispanic	0.051**	0.036	0.239**	0.479**	0.006	0.103**	0.009
	(0.019)	(0.023)	(0.038)	(0.039)	(0.004)	(0.027)	(0.010)
Black (non-Hispanic)	0.091**	0.045*	0.231**	0.553**	0.01	0.102**	0.012
	(0.019)	(0.018)	(0.030)	(0.030)	(0.007)	(0.020)	(0.012)
Asian	0.053*	0.033	0.177**	0.439**	0.028	0.029	IS
	(0.022)	(0.019)	(0.043)	(0.053)	(0.015)	(0.015)	
Other and multiple	0.038	0.072*	0.241**	0.370**	0.023	0.152**	0.015
	(0.021)	(0.034)	(0.055)	(0.058)	(0.018)	(0.047)	(0.016)
Residence in an MSA							
No	0.120**	0.054**	0.236**	0.485**	0.030*	0.154**	0.004
	(0.022)	(0.016)	(0.028)	(0.032)	(0.012)	(0.025)	(0.003)
Yes	0.134**	0.061**	0.195**	0.459**	0.022*	0.141**	0.005
	(0.019)	(0.016)	(0.023)	(0.028)	(0.010)	(0.022)	(0.004)

SOURCE: RAND analysis of MEPS, 2006–2012.

Demographic Group	Adjusted Prevalence (Std. Errors)						
	Cancer	COPD	Diabetes	HBP	Hearing Loss	IHD	PTSD

NOTES: Sample size, non-VA patient Veterans = 7,442. Cells labeled IS indicate that the prevalence model for the specific health condition could not be estimated due to insufficient sample size. The adjusted prevalence estimates are the predicted prevalence from a logit estimation that included an indicators for sex, five race/ethnicity categories, 14 age categories, four census regions, residential location in an MSA, and a nonlinear time trend. These estimated differences control for the demographic differences within demographic group. HBP is hypertension. * $p < 0.05$; ** $p < 0.01$.

C.2.4 Differences in Characteristics by Veteran and VA Patient Status

Table C-18. The Characteristics of Non-Veterans, Veterans and VA Patients in MEPS

Demographic Group	Distribution by Demographic Characteristics (Std. Errors)			
	non-Veterans	Veterans	Veterans, VA Patients	Veterans, non-VA Patients
Age				
20–34	0.300 (0.003)	0.062 (0.004)	0.038 (0.004)	0.076 (0.005)
35–44	0.192 (0.002)	0.104 (0.004)	0.063 (0.005)	0.129 (0.006)
45–54	0.202 (0.002)	0.144 (0.005)	0.120 (0.007)	0.158 (0.006)
55–64	0.154 (0.002)	0.252 (0.007)	0.257 (0.010)	0.249 (0.008)
65–74	0.084 (0.002)	0.218 (0.006)	0.240 (0.010)	0.204 (0.007)
75–84	0.049 (0.001)	0.162 (0.006)	0.201 (0.009)	0.138 (0.006)
85+	0.019 (0.001)	0.059 (0.004)	0.081 (0.007)	0.045 (0.004)
Sex				
Male	0.438 (0.002)	0.932 (0.004)	0.937 (0.005)	0.929 (0.005)
Female	0.562 (0.002)	0.068 (0.004)	0.063 (0.005)	0.071 (0.005)
Race/Ethnicity				
White (non-Hispanic)	0.662 (0.008)	0.823 (0.007)	0.824 (0.009)	0.822 (0.009)
Hispanic	0.150 (0.007)	0.043 (0.003)	0.040 (0.004)	0.045 (0.004)
Black (non-Hispanic)	0.116 (0.005)	0.100 (0.005)	0.106 (0.006)	0.096 (0.006)
Asian	0.051 (0.003)	0.012 (0.003)	0.007 (0.002)	0.016 (0.003)
Other and multiple	0.021 (0.002)	0.022 (0.002)	0.024 (0.003)	0.021 (0.003)

	Distribution by Demographic Characteristics (Std. Errors)			
Lives in an MSA				
No	0.154 (0.010)	0.187 (0.013)	0.213 (0.018)	0.170 (0.012)
Yes	0.846 (0.010)	0.813 (0.013)	0.787 (0.018)	0.830 (0.012)
Married				
No	0.477 (0.004)	0.341 (0.009)	0.374 (0.011)	0.320 (0.010)
Yes	0.523 (0.004)	0.659 (0.009)	0.626 (0.011)	0.680 (0.010)
Student or Currently in School				
No	0.906 (0.001)	0.992 (0.001)	0.992 (0.001)	0.992 (0.001)
Yes	0.094 (0.001)	0.008 (0.001)	0.008 (0.001)	0.008 (0.001)
Educational Attainment				
< High School	0.176 (0.003)	0.071 (0.004)	0.091 (0.006)	0.058 (0.004)
High School Diploma or GED	0.308 (0.004)	0.340 (0.009)	0.350 (0.011)	0.333 (0.010)
Some College	0.180 (0.002)	0.210 (0.006)	0.203 (0.009)	0.214 (0.007)
College	0.336 (0.005)	0.380 (0.008)	0.356 (0.010)	0.396 (0.010)
Currently Employed (Not on Active Duty)				
No	0.293 (0.003)	0.454 (0.009)	0.587 (0.012)	0.372 (0.010)
Yes	0.707 (0.003)	0.546 (0.009)	0.413 (0.012)	0.628 (0.010)
Income Categories				
Poor	0.124 (0.003)	0.063 (0.003)	0.081 (0.004)	0.052 (0.003)
Near Poor	0.044 (0.001)	0.035 (0.002)	0.048 (0.004)	0.026 (0.002)
Low Income	0.135 (0.002)	0.114 (0.004)	0.139 (0.007)	0.099 (0.004)
Middle Income	0.304	0.307	0.326	0.294

	Distribution by Demographic Characteristics (Std. Errors)			
	(0.003)	(0.005)	(0.008)	(0.006)
High Income	0.393	0.481	0.406	0.528
	(0.005)	(0.007)	(0.011)	(0.008)
Income				
Total Household Income	33,546.49	41,708.24	35,980.76	45,278.40
	(304.781)	(541.289)	(753.759)	(646.528)

SOURCE: RAND analysis of MEPS, 2006–2012.

NOTES: Columns (3) (Veterans, VA patients) and (4) (Veterans, non-VA patients) are two mutually exclusive categories of column (2) (Veterans). Sample size, Veterans = 12,313; sample size, non-Veterans = 150,225; sample size, VA patients = 4,871; sample size, non-VA patients = 7,442. MSA denotes residential location in a metropolitan statistical area (MSA).

C.2.5 Prevalence Estimates with MHS and VA Encounter Data and Reliance

Table C-19. The Prevalence of Health Conditions in VA Encounter Data

Health Condition	Prevalence
Mental health condition	32.1%
Hypertension	29.2%
Lipid disorders	22.2%
Diabetes	18.8%
Arthritis	18.2%
Musculoskeletal conditions	18.0%
Mood disorder	14.3%
IHD	12.3%
Benign prostate hypertrophy	11.0%
Dermatologic conditions	10.6%
PTSD	9.8%
Hearing loss	8.3%
Dental conditions	8.0%
GERD	6.6%
Obesity	6.3%
Anxiety disorders	6.3%
Substance use disorder	6.3%
Malignant cancer	6.2%
COPD	5.9%
Cardiac dysrhythmias	5.7%
Major depression	4.7%
Chronic renal failure	4.4%

Health Condition	Prevalence
Anemia	4.2%
Thyroid disorders	3.8%
Heart failure	3.1%
Cerebrovascular disease	2.9%
Peripheral vascular disease	2.9%
Benign cancers	2.7%
Prostate cancer	2.6%
Conduction disorders	2.3%
Bipolar disorder	1.9%
TBI	1.8%
Viral hepatitis	1.7%
Alular disorders	1.7%
Dementia	1.6%
Asthma	1.6%
Schizophrenia	1.4%
Movement disorders	1.3%
Headache	1.2%
Chronic liver disease	1.1%
Skin cancer	0.9%
Kidney stones	0.9%
Rheumatologic disease	0.7%
Personality disorders	0.7%
Lung cancer	0.6%
Epilepsy	0.5%
Osteoporosis	0.5%
Amputation	0.5%
Colon cancer	0.5%
Spinal cord injury	0.5%
Acute coronary syndrome	0.5%
HIV	0.4%
Women's health	0.4%
AMI	0.3%
Multiple sclerosis	0.2%
Breast cancer	0.1%
Burns	0.1%

SOURCE: RAND analysis of VA encounter data (2014).

NOTES: Sample size, Veterans in VA encounter data = 5,871,766.

Table C-20. The Prevalence of Health Conditions among VA Patients by Priority Group

	Priority Group

Health Condition	Priority Group							
	1	2	3	4	5	6	7	8*
Acute coronary syndrome	0.61%	0.31%	0.30%	0.94%	0.63%	0.13%	0.27%	0.22%
AMI	0.46%	0.23%	0.23%	0.75%	0.48%	0.10%	0.21%	0.17%
Amputation	0.87%	0.27%	0.28%	6.42%	0.08%	0.02%	0.31%	0.03%
Anemia	4.93%	3.04%	3.06%	11.38%	5.21%	1.43%	3.18%	2.77%
Anxiety disorders	9.61%	6.68%	5.09%	8.55%	6.48%	4.25%	3.34%	2.54%
Arthritis	24.84%	20.72%	17.99%	20.88%	17.59%	11.63%	11.81%	10.60%
Asthma	2.36%	1.87%	1.26%	1.68%	1.45%	0.80%	1.01%	0.86%
Benign cancers	3.14%	2.41%	2.47%	2.82%	3.13%	2.04%	2.31%	1.84%
Bipolar disorder	3.09%	1.52%	1.32%	5.13%	2.02%	0.45%	0.87%	0.60%
BPH	9.83%	8.26%	9.82%	15.67%	11.26%	8.83%	12.48%	14.14%
Breast cancer	0.12%	0.08%	0.06%	0.12%	0.12%	0.02%	0.07%	0.06%
Burns	0.11%	0.06%	0.06%	0.23%	0.10%	0.03%	0.05%	0.03%
Cardiac dysrhythmias	6.11%	4.03%	4.38%	11.79%	6.96%	2.62%	5.45%	4.89%
Cerebrovascular diseases	3.27%	1.90%	1.99%	10.02%	3.62%	1.03%	2.33%	1.87%
Chronic liver disease	1.37%	0.87%	0.87%	2.20%	1.54%	0.52%	0.81%	0.61%
Chronic renal failure	4.9%	2.7%	3.0%	11.3%	5.1%	1.3%	4.0%	4.1%
Colon cancer	0.46%	0.37%	0.41%	1.00%	0.78%	0.30%	0.50%	0.40%
Conduction disorders	2.49%	1.41%	1.66%	5.00%	2.77%	0.79%	2.32%	2.34%
COPD	6.68%	3.86%	4.14%	13.26%	8.39%	2.38%	4.27%	3.67%
Dementia	1.71%	0.95%	1.09%	10.18%	1.51%	0.33%	2.00%	1.18%
Dental conditions	22.67%	3.06%	2.48%	5.65%	3.48%	2.43%	1.30%	0.83%
Diabetes	24.02%	17.14%	16.37%	27.58%	19.10%	7.08%	15.14%	15.68%
Epilepsy	0.85%	0.41%	0.39%	1.78%	0.58%	0.14%	0.25%	0.19%
GERD	8.87%	5.77%	5.42%	10.81%	6.84%	3.51%	4.23%	4.40%
Headache	2.76%	1.51%	0.81%	0.60%	0.65%	0.56%	0.35%	0.29%
Hearing loss	8.33%	9.30%	11.55%	8.61%	6.25%	6.60%	9.99%	8.15%
Heart failure	3.84%	1.78%	2.00%	8.97%	4.26%	0.76%	2.47%	1.88%
HIV	0.35%	0.34%	0.32%	0.89%	0.72%	0.13%	0.45%	0.27%
Hypertension	32.81%	24.91%	25.23%	43.40%	33.39%	18.07%	25.84%	24.90%
IHD	12.96%	8.89%	9.22%	19.18%	13.01%	5.69%	13.28%	15.02%

	Priority Group							
Kidney stones	1.07%	0.85%	0.79%	1.08%	0.95%	0.62%	0.72%	0.57%
Lipid disorders	25.78%	20.10%	20.15%	27.71%	22.79%	15.63%	19.38%	20.09%
Lung cancer	0.68%	0.31%	0.36%	1.08%	0.86%	0.18%	0.45%	0.31%
Major depression	8.90%	4.27%	3.06%	7.01%	4.03%	1.85%	1.92%	1.32%
Malignant cancer	7.18%	4.26%	4.71%	9.62%	7.80%	3.00%	5.98%	4.92%
Mental health conditions	50.15%	29.97%	23.45%	47.82%	33.22%	20.18%	18.11%	13.90%
Mood disorder	24.17%	13.42%	10.30%	22.90%	13.76%	6.76%	6.63%	4.97%
Movement disorders	1.90%	0.94%	0.91%	3.56%	1.14%	0.52%	1.20%	0.98%
Multiple sclerosis	0.49%	0.19%	0.12%	0.71%	0.12%	0.08%	0.11%	0.09%
Musculoskeletal conditions	26.99%	21.15%	16.96%	18.72%	16.95%	10.62%	9.79%	8.45%
Obesity	8.76%	6.28%	5.75%	6.41%	6.47%	4.01%	4.92%	3.96%
Osteoporosis	0.62%	0.37%	0.38%	1.60%	0.64%	0.16%	0.51%	0.39%
Peripheral vascular disease	3.27%	1.92%	2.05%	8.64%	3.63%	1.18%	2.34%	1.89%
Personality disorders	1.16%	0.56%	0.52%	2.36%	0.77%	0.14%	0.18%	0.12%
Prostate cancer	3.29%	1.73%	1.88%	3.86%	2.87%	1.00%	2.54%	2.29%
PTSD	26.46%	9.45%	3.89%	4.86%	3.30%	4.52%	1.22%	0.96%
Rheumatologic disease	0.95%	0.60%	0.61%	0.96%	0.79%	0.49%	0.65%	0.59%
Schizophrenia	2.75%	0.55%	0.60%	6.20%	1.13%	0.07%	0.29%	0.15%
Skin cancer	0.90%	0.72%	0.84%	1.38%	1.15%	0.66%	0.99%	0.83%
Sleep disorders	5.37%	3.16%	2.70%	3.28%	2.52%	1.77%	1.86%	1.58%
Spinal cord injury	0.85%	0.24%	0.25%	4.49%	0.15%	0.05%	0.13%	0.06%
Substance abuse	7.89%	5.16%	4.82%	14.20%	9.04%	3.16%	3.03%	2.07%
TBI	3.59%	1.49%	1.07%	2.40%	1.24%	1.48%	0.57%	0.40%
Thyroid disorders	4.48%	3.23%	3.27%	6.40%	3.99%	2.20%	3.13%	3.13%
Alular disorders	1.75%	1.23%	1.29%	3.19%	2.07%	0.80%	1.64%	1.45%
Viral hepatitis	1.72%	1.10%	1.25%	4.96%	2.91%	0.44%	1.00%	0.71%
Vision loss	13.37%	10.16%	10.11%	21.14%	11.13%	5.80%	8.31%	6.65%
Women's health	0.61%	0.57%	0.38%	0.22%	0.38%	0.20%	0.24%	0.17%

SOURCE: RAND analysis of VA encounter data (2014).

NOTES: Sample size, Veterans in VA encounter data = 5,871,766. *Priority group 8 includes 8A-8D.

Table C-21. Prevalence of Diagnosed Health Conditions among VA Patients, by VA Reliance

Panel A. Demographic characteristics				
	All Ages		**Age < 65 only**	
	VA Reliant	**VA non-reliant**	**VA Reliant**	**VA non-reliant**
Age				
% Age 17-29	0.063	0.014	0.089	0.030
	(0.014)	(0.003)	(0.019)	(0.006)
% Age 30-39	0.072	0.042	0.102	0.094
	(0.014)	(0.004)	(0.019)	(0.010)
% Age 40-49	0.082	0.087	0.116	0.196
	(0.013)	(0.007)	(0.018)	(0.014)
% Age 50-64	0.490	0.301	0.694	0.679
	(0.024)	(0.011)	(0.028)	(0.015)
% 65+	0.293	0.556		
	(0.023)	(0.015)		
Race/ethnicity				
% Hispanic	0.062	0.037	0.071	0.051
	(0.012)	(0.004)	(0.015)	(0.007)
% White, Non-Hispanic	0.729	0.839	0.723	0.766
	(0.023)	(0.009)	(0.025)	(0.013)
% Black, Non-Hispanic	0.179	0.094	0.179	0.138
	(0.018)	(0.006)	(0.020)	(0.010)
% Asian, Non-Hispanic	0.005	0.007	0.002	0.008
	(0.003)	(0.003)	(0.002)	(0.003)
% Other, Non-Hispanic, Multiple	0.025	0.023	0.024	0.037
	(0.008)	(0.003)	(0.009)	(0.007)
Sex and marital status				
% Male	0.117	0.087	0.083	0.042
	(0.016)	(0.006)	(0.017)	(0.006)
% Married	0.395	0.344	0.385	0.343
	(0.029)	(0.012)	(0.032)	(0.017)
Education and employment				
% Less than High School	0.117	0.087	0.083	0.042
	(0.016)	(0.006)	(0.017)	(0.006)
% HS Graduate or GED	0.395	0.344	0.385	0.343
	(0.029)	(0.012)	(0.032)	(0.017)
% Some College	0.282	0.193	0.303	0.219
	(0.030)	(0.009)	(0.035)	(0.012)
% College+	0.206	0.376	0.229	0.396
	(0.022)	(0.011)	(0.029)	(0.015)
% Not Employed	0.527	0.596	0.419	0.313

Panel A. Demographic characteristics				
	All Ages		**Age < 65 only**	
	VA Reliant	**VA non-reliant**	**VA Reliant**	**VA non-reliant**
	(0.028)	(0.013)	(0.031)	(0.015)
% Current student	0.021	0.006	0.030	0.013
	(0.006)	(0.001)	(0.009)	(0.003)
Residential location				
Lives in MSA	0.758	0.792	0.769	0.803
	(0.030)	(0.018)	(0.029)	(0.017)
Northwest	0.111	0.166	0.099	0.148
	(0.015)	(0.011)	(0.016)	(0.015)
Midwest	0.233	0.226	0.231	0.229
	(0.026)	(0.011)	(0.028)	(0.015)
South	0.461	0.416	0.473	0.438
	(0.029)	(0.015)	(0.032)	(0.019)
West	0.195	0.192	0.196	0.185
	(0.024)	(0.013)	(0.025)	(0.016)

Panel B. Prevalence of selected health conditions						
	All Ages		**p-value**	**Age < 65**		**p-value**
Health condition	**VA reliant**	**non-VA reliant**	**of difference**	**VA reliant**	**non-VA reliant**	**of difference**
Asthma	0.076	0.08	0.810	0.064	0.076	0.476
	(0.022)	(0.019)		(0.023)	(0.026)	
Acute coronary syndrome	0.094	0.119	0.267	0.073	0.095	0.434
	(0.026)	(0.024)		(0.030)	(0.035)	
Cerebrovascular disease	0.025	0.032	0.384	0.01	0.013	0.474
	(0.009)	(0.010)		(0.006)	(0.008)	
CHF	0.008	0.01	0.555	0.009	0.008	0.792
	(0.005)	(0.006)		(0.008)	(0.008)	
COPD	0.12	0.105	0.423	0.098	0.075	0.239
	(0.029)	(0.024)		(0.037)	(0.030)	
Diabetes	0.267	0.35	**0.001**	0.223	0.288	**0.035**
	(0.037)	(0.036)		(0.047)	(0.051)	
GERD	0.116	0.18	**0.003**	0.11	0.158	0.072
	(0.025)	(0.032)		(0.033)	(0.044)	
Hearing loss	0.093	0.092	0.971	0.071	0.085	0.566
	(0.031)	(0.024)		(0.045)	(0.037)	
Hypertension	0.578	0.582	0.888	0.503	0.51	0.813
	(0.039)	(0.035)		(0.051)	(0.049)	
IHD	0.186	0.224	0.123	0.104	0.14	0.143

Panel B. Prevalence of selected health conditions						
	All Ages		**p-value**	**Age < 65**		**p-value**
Health condition	**VA reliant**	**non-VA reliant**	**of difference**	**VA reliant**	**non-VA reliant**	**of difference**
	(0.032)	(0.030)		(0.031)	(0.037)	
Lipid disorder	0.033	0.029	0.683	0.42	0.442	0.475
	(0.015)	(0.013)		(0.054)	(0.052)	
Low back pain	0.11	0.16	**0.003**	0.159	0.21	**0.043**
	(0.022)	(0.026)		(0.036)	(0.044)	
Malignant cancer	0.115	0.21	**0.000**	0.062	0.113	0.064
	(0.026)	(0.030)		(0.022)	(0.039)	
Mental health conditions	0.273	0.321	**0.050**	0.358	0.411	0.107
	(0.037)	(0.036)		(0.055)	(0.055)	
PTSD	0.081	0.078	0.821	0.119	0.118	0.973
	(0.025)	(0.022)		(0.039)	(0.038)	

SOURCE: RAND analysis of MEPS, 2006–2012.

NOTES: **Bold** indicates p-value < 0.05 for the difference between VA reliant VA patients and VA patients who are not reliant on VA. Sample size, VA patients = 4,871. A VA patient is considered reliant if all medical expenses in the year were VA and family/self-paid. A VA patient is considered non-reliant if he or she has some medical expenses paid by a non-VA health insurance source. The adjusted prevalence rates are the predicted prevalence rates from a logit estimation that included indicators for sex, five race/ethnicity categories, 14 age categories, four Census regions, residential location in an MSA, and a nonlinear time trend. VA patient status is defined as having any expenditures paid by VA at the person, not condition, level.

Table C-22. The Prevalence of Health Conditions in MHS and VA Encounter Data for Veterans Younger than 35 Years Old

Health Condition	MHS encounter	VA encounter
Mental health conditions	37.67%	42.84%
Musculoskeletal conditions	31.59%	21.55%
PTSD	5.95%	19.65%
Mood disorder	11.96%	19.02%
Arthritis	26.83%	14.85%
Anxiety disorders	10.19%	11.67%
Substance use disorder	9.22%	9.49%
TBI	6.64%	6.63%
Dental conditions	0.83%	6.42%
Major depression	4.79%	6.41%
Headache	5.26%	3.36%
Lipid disorders	1.66%	3.30%
Obesity	3.73%	3.25%
Hypertension	2.97%	3.17%
GERD	2.38%	2.68%

Health Condition	MHS encounter	VA encounter
Bipolar disorder	0.99%	2.61%
Asthma	2.10%	1.44%
Personality disorders	1.83%	1.19%
Hearing loss	1.79%	1.19%
Thyroid disorders	0.96%	1.12%
Women's health	1.66%	1.09%
Cardiac dysrhythmias	1.81%	0.99%
Schizophrenia	0.23%	0.94%
Diabetes	0.29%	0.92%
Anemia	1.65%	0.81%
Benign cancers	1.50%	0.79%
Kidney stones	0.73%	0.52%
Epilepsy	0.43%	0.48%
Cancer	0.26%	0.32%
HIV	0.09%	0.26%
Viral hepatitis	0.07%	0.26%
Chronic liver disease	0.24%	0.25%
Amputation	0.19%	0.22%
Movement disorders	0.42%	0.22%
Spinal cord injury	0.17%	0.22%
Valvular disorders	0.40%	0.17%
Chronic renal failure	0.12%	0.17%
Rheumatologic disease	0.16%	0.17%
IHD	0.05%	0.15%
Cerebrovascular diseases	0.17%	0.14%
Multiple sclerosis	0.06%	0.13%
Conduction disorders	0.17%	0.13%
COPD	0.10%	0.12%
Heart failure	0.06%	0.09%
Burns	0.33%	0.08%
Peripheral vascular disease	0.14%	0.08%
Benign prostate hypertrophy	0.02%	0.07%

SOURCE: RAND analysis of MHS encounter data (2012–2013) and VA encounter data (2014).

NOTES: Sample size, the number of separating military personnel aged less than 35 in MHS encounter data is 325,849, and the number of Veterans in VA encounter data aged less than 35 is 503,205.

C.3 Current Health Care Needs Sensitivity Analysis

C.3.1 Alternative Prevalence Models for Veterans and Non-Veterans

In this appendix, we describe our baseline specification (Model 1) and differences between the baseline specification and two alternative specifications (Models 2 and 3) that were used to assess the sensitivity of our findings to these baseline specifications.

- *Model 1* adjusts for a respondent's sex, age (14 age categories: 20-24, 25-30,…, 80-85, and 85+), race/ethnicity (five racial/ethnic categories: Hispanic, non-Hispanic White, non-Hispanic Black, non-Hispanic Asian, or Other/Multiple), four Census regions of residence (Northeast, Midwest, South, and West), an indicator for residence in an MSA, and a nonlinear time trend that adjusts for the year surveyed. The nonlinear time trend includes the following measures: (1) an indicator if the survey year was 2006, 2007, or after 2007; (2) a linear time trend for years after 2008 (e.g., equals 0 for 2006–2008, 1 for 2009, 2 for 2010, etc.).

- *Model 2* adds the following covariates to Model 1: education (four categories), interactions between sex and race/ethnicity, and indicators of health insurance coverage, marital status, student status, and employment status.

- *Model 3* replaces the nonlinear time trend in Model 1 with indicators for each calendar year.

In Table C-23, we present estimated prevalence of health conditions for Veterans and non-Veterans using these three model specifications. The results are quantitatively similar across all three models.

Table C-23. The Prevalence of Diagnosed Health Conditions for Veterans and Non-Veterans: Alternative Specifications

Health Conditions	Adjusted Means (Std. Errors)		Adjusted Means (Std. Errors)		Adjusted Means (Std. Errors)	
	Model 1		Model 2		Model 3	
	Veteran	non-Veterans	Veteran	non-Veterans	Veteran	non-Veterans
Asthma	0.058	0.056	0.054	0.055	0.054	0.053
	(0.004)	(0.003)	(0.006)	(0.004)	(0.004)	(0.002)
Cancer	0.155	0.112	0.141	0.105	0.154	0.111
	(0.009)	(0.007)	(0.010)	(0.008)	(0.007)	(0.005)
CHF	0.01	0.011	0.009	0.010	0.012	0.014
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
COPD	0.063	0.046	0.055	0.036	0.064	0.046
	(0.006)	(0.004)	(0.006)	(0.004)	(0.004)	(0.003)
Diabetes	0.228	0.202	0.214	0.187	0.223	0.197
	(0.008)	(0.008)	(0.009)	(0.008)	(0.007)	(0.006)
GERD	0.122	0.100	0.105	0.085	0.118	0.097
	(0.008)	(0.006)	(0.008)	(0.006)	(0.006)	(0.004)

Health Conditions	Adjusted Means (Std. Errors)		Adjusted Means (Std. Errors)		Adjusted Means (Std. Errors)	
	Model 1		Model 2		Model 3	
	Veteran	non-Veterans	Veteran	non-Veterans	Veteran	non-Veterans
Hearing Loss	0.043	0.031	0.040	0.029	0.041	0.030
	(0.005)	(0.005)	(0.006)	(0.005)	(0.004)	(0.003)
Hypertension	0.475	0.466	0.463	0.456	0.466	0.458
	(0.010)	(0.008)	(0.012)	(0.011)	(0.008)	(0.006)
IHD	0.142	0.138	0.128	0.123	0.152	0.148
	(0.008)	(0.007)	(0.009)	(0.008)	(0.006)	(0.006)
Lipid disorder	0.409	0.392	0.399	0.380	0.412	0.395
	(0.010)	(0.008)	(0.011)	(0.010)	(0.008)	(0.006)
Low back pain	0.138	0.133	0.136	0.124	0.130	0.126
	(0.007)	(0.006)	(0.008)	(0.007)	(0.005)	(0.004)
Mental health condition	0.200	0.174	0.185	0.158	0.190	0.165
	(0.009)	(0.006)	(0.010)	(0.007)	(0.007)	(0.004)
PTSD	0.027	0.002	0.016	0.001	0.020	0.002
	(0.006)	0.000	(0.005)	(0.000)	(0.003)	(0.000)

SOURCE: RAND analysis of MEPS, 2006–2012.

NOTES: Sample size, non-Veterans = 150,225 and sample size, Veterans = 12,313. Sample sizes may be smaller for some conditions due to missing values. The predicted prevalence rates are from a logit estimation that included indicators for sex, five race/ethnicity categories, 14 age categories, four census regions, and residential location in an MSA. Models 1 and 2 include a nonlinear time trend, while Model 3 includes indicators for each calendar year. Model 3 also includes indicators for 4 education categories, health insurance coverage, being married, being a student or in school, being employed, and interactions of sex and race/ethnicity. These estimates show the differences in prevalence of health conditions for Veterans and for non-Veterans with the same demographic profile as Veterans. Cancer includes any malignancy and mental health condition includes any mental health condition.

In Tables C-24, C-25, and C-26, we report the estimated odds ratios for the Model 2 control variables. These tables describe the association between each control variable and disease prevalence, while adjusting for the remaining Model 2 control variables. In general, these additional controls explain some of the variation in prevalence rates, but as shown in Table C-21, overall predicted prevalence rates based on Model 2 are similar to baseline estimates from Model 1.

Table C-24. Odds Ratios of Each Disease Condition for Control Variables Included in Model 2: Sample: Veterans and Non-Veterans

	Model 2: Estimated Odds Ratio for each Disease Condition (Std. Error)			
Demographic Characteristics	Asthma	Cancer	COPD	CHF
Married	0.740***	1.122**	0.642***	0.610***

Demographic Characteristics	Model 2: Estimated Odds Ratio for each Disease Condition (Std. Error)			
	Asthma	**Cancer**	**COPD**	**CHF**
	(0.0328)	(0.0511)	(0.0340)	(0.065)
Student status	0.900	0.830	0.294***	0.107***
	(0.0930)	(0.217)	(0.0801)	(0.091)
Have public or private Health insurance	1.710***	2.055***	1.447***	1.085
	(0.118)	(0.212)	(0.133)	(0.199)
High School Diploma or GED	0.834***	1.059	0.596***	0.952
	(0.0480)	(0.0750)	(0.0457)	(0.129)
Some college or associate degree	0.926	1.099	0.536***	0.786
	(0.0594)	(0.0829)	(0.0479)	(0.128)
College degree or higher	0.869**	1.390***	0.348***	0.745*
	(0.0535)	(0.0956)	(0.0338)	(0.116)
Employed	0.522***	0.621***	0.312***	0.272***
	(0.0242)	(0.0347)	(0.0238)	(0.039)
White (non-Hispanic),	1.438***	2.465***	3.045***	0.816
	(0.157)	(0.287)	(0.504)	(0.331)
Black (non-Hispanic), male	1.402**	1.406***	1.500**	0.936
	(0.184)	(0.183)	(0.264)	(0.396)
Asian, male	1.014	1.024	1.024	1.885
	(0.177)	(0.211)	(0.306)	(1.305)
Other and multiple, male	1.847***	1.248	3.381***	0.486
	(0.398)	(0.384)	(0.919)	(0.328)

SOURCE: RAND analysis of MEPS, 2006–2012.

NOTES: Model 2 included indicators for sex, five race/ethnicity categories, 14 age categories, four census regions, residential location in an MSA, a nonlinear time trend, four education categories, health insurance coverage, being married, being a student or in school, being employed, and interactions of sex and race/ethnicity. These estimates show the relative change in odds of having been diagnosed or treated for the given condition under a given demographic characteristic. An odds ratio greater than (less than) 1 means that the probability increases (decreases). *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table C-25. Odds Ratios of Each Disease Condition for Control Variables Included in Model 2: Sample: Veterans and Non-Veterans (cont.)

Demographic Characteristics	Model 2: Estimated Odds Ratio for each Disease Condition (Std. Error)

Assessment A (Demographics)

	Diabetes	GERD	Hearing Loss	Hyper-tension	IHD
Married	0.978	0.931*	1.130	0.887***	0.887***
	(0.0297)	(0.0367)	(0.0996)	(0.0260)	(0.0260)
Student status	0.781	1.089	2.001	0.778**	0.778**
	(0.147)	(0.216)	(1.129)	(0.0926)	(0.0926)
Have public or private Health insurance	1.683***	2.517***	1.469**	1.786***	1.786***
	(0.0847)	(0.181)	(0.275)	(0.0670)	(0.0670)
High school diploma or GED	0.861***	0.943	1.062	0.922**	0.922**
	(0.0351)	(0.0559)	(0.135)	(0.0320)	(0.0320)
Some college or associate degree	0.816***	0.984	1.215	0.877***	0.877***
	(0.0380)	(0.0600)	(0.172)	(0.0367)	(0.0367)
College degree or higher	0.667***	0.853**	1.368**	0.710***	0.710***
	(0.0330)	(0.0530)	(0.181)	(0.0265)	(0.0265)
Employed	0.542***	0.596***	0.831	0.658***	0.658***
	(0.0201)	(0.0243)	(0.0971)	(0.0185)	(0.0185)
White (non-Hispanic), male	0.718***	2.118***	1.574**	1.121**	1.121**
	(0.0440)	(0.246)	(0.301)	(0.0564)	(0.0564)
Black (non-Hispanic), male	0.939	1.265*	0.776	1.645***	1.645***
	(0.0719)	(0.169)	(0.180)	(0.0955)	(0.0955)
Asian, Male	0.915	0.861	0.899	0.997	0.997
	(0.0993)	(0.176)	(0.322)	(0.0855)	(0.0855)
Other and multiple, male	1.218	1.793**	1.299	1.467**	1.467**
	(0.201)	(0.442)	(0.546)	(0.238)	(0.238)

SOURCE: RAND analysis of MEPS, 2006–2012.

NOTES: Model 2 included indicators for sex, five race/ethnicity categories, 14 age categories, four census regions, residential location in an MSA, a nonlinear time trend, four education categories, health insurance coverage, being married, being a student or in school, being employed, and interactions of sex and race/ethnicity. These estimates show the relative change in odds of having been diagnosed or treated for the given condition under a given demographic characteristic. An odds ratio greater than (less than) 1 means that the probability increases (decreases). *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table C-26. Odds Ratios of Each Disease Condition for Control Variables Included in Model 2: Sample: Veterans and Non-Veterans (cont.)

Demographic Characteristics	Model 2: Estimated Odds Ratio for each Disease Condition (Std. Error)			
	Lipid Disorder	Low Back Pain	Mental Health Condition	PTSD
Married	1.047*	0.853***	0.563***	0.383***
	(0.0273)	(0.0271)	(0.0145)	(0.0717)
Student status	0.898	0.746***	0.841**	0.954
	(0.131)	(0.0746)	(0.0624)	(0.356)
Have public or private Health insurance	2.472***	1.315***	1.551***	1.574*
	(0.110)	(0.0575)	(0.0648)	(0.371)
High school diploma or GED	0.984	1.001	0.963	1.105
	(0.0377)	(0.0411)	(0.0381)	(0.269)
Some College or associate degree	0.950	0.994	0.949	1.300
	(0.0430)	(0.0551)	(0.0452)	(0.362)
College degree or higher	0.852***	0.992	0.864***	0.902
	(0.0350)	(0.0462)	(0.0357)	(0.269)
Employed	0.640***	0.690***	0.459***	0.161***
	(0.0199)	(0.0228)	(0.0136)	(0.0342)
White (non-Hispanic), male	1.214***	1.523***	1.707***	1.687
	(0.0731)	(0.102)	(0.0983)	(0.618)
Black (non-Hispanic), male	0.820***	0.918	0.798***	1.540
	(0.0624)	(0.0755)	(0.0651)	(0.628)
Asian, male	1.140	0.750**	0.677***	0.470
	(0.100)	(0.0898)	(0.0778)	(0.385)
Other and multiple, male	1.435***	1.188	1.588***	3.631**
	(0.193)	(0.155)	(0.195)	(2.048)

SOURCE: RAND analysis of MEPS, 2006–2012.

NOTES: Model 2 included indicators for sex, five race/ethnicity categories, 14 age categories, four census regions, residential location in an MSA, a nonlinear time trend, four education categories, health insurance coverage, being married, being a student or in school, being employed, and interactions of sex and race/ethnicity. These estimates show the relative change in odds of having been diagnosed or treated for the given condition under a given demographic characteristic. An odds ratio greater than (less than) 1 means that the probability increases (decreases). *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

C.3.2 Alternative Prevalence Models for Veterans by VA Patient Status

As reported in C-1, we conducted similar sensitivity tests for our analysis comparing Veterans by VA patient status. We again estimated Models 1-3 as described in C-1 for our analysis of Veterans only.

As shown in Table C-27, results are similar across the three models, though there is more variation in results across models in VA patient versus not-patient analyses than in the non-Veteran versus Veteran analysis. In Tables C-28, C-29, and C-30, we report the estimated odds ratios for the Model 2 control variables. These describe the association between each control variable and disease prevalence among Veterans, while adjusting for the remaining Model 2 control variables.

Table C-27. The Prevalence of Diagnosed Health Conditions by VA Patient Status: Alternative Specifications

Health Conditions	Adjusted Means (Std. Errors)		Adjusted Means (Std. Errors)		Adjusted Means (Std. Errors)	
	Model 1		Model 2		Model 3	
	VA Patients	Veterans not using VA	VA Patients	Veterans not using VA	VA Patients	Veterans not using VA
Asthma	0.094	0.053	0.063	0.033	0.074	0.042
	(0.016)	(0.010)	(0.015)	(0.009)	(0.009)	(0.006)
Cancer	0.188	0.138	0.172	0.120	0.190	0.139
	(0.019)	(0.015)	(0.023)	(0.018)	(0.013)	(0.010)
Cerebrovascular disease	0.039	0.022	0.047	0.025	0.048	0.027
	(0.009)	(0.005)	(0.015)	(0.009)	(0.008)	(0.005)
CHF	0.011	0.005	IS	IS	0.014	0.006
	(0.004)	(0.002)			(0.004)	(0.002)
COPD	0.112	0.057	0.084	0.047	0.106	0.053
	(0.019)	(0.010)	(0.019)	(0.011)	(0.012)	(0.006)
Diabetes	0.304	0.207	0.290	0.205	0.282	0.190
	(0.023)	(0.018)	(0.029)	(0.023)	(0.015)	(0.011)
GERD	0.164	0.093	0.159	0.092	0.156	0.088
	(0.021)	(0.013)	(0.026)	(0.016)	(0.014)	(0.008)
Hearing loss	0.071	0.033	0.066	0.031	0.071	0.032
	(0.017)	(0.008)	(0.021)	(0.010)	(0.011)	(0.005)
Hypertension	0.600	0.466	0.617	0.482	0.573	0.437
	(0.022)	(0.022)	(0.028)	(0.029)	(0.016)	(0.015)
IHD	0.204	0.142	0.199	0.139	0.204	0.143
	(0.020)	(0.015)	(0.025)	(0.019)	(0.014)	(0.011)

Assessment A (Demographics)

Health Conditions	Adjusted Means (Std. Errors) Model 1		Adjusted Means (Std. Errors) Model 2		Adjusted Means (Std. Errors) Model 3	
	VA Patients	Veterans not using VA	VA Patients	Veterans not using VA	VA Patients	Veterans not using VA
Lipid disorder	0.513	0.385	0.534	0.402	0.509	0.382
	(0.023)	(0.021)	(0.029)	(0.028)	(0.016)	(0.014)
Low back pain	0.170	0.098	0.199	0.139	0.204	0.143
	(0.020)	(0.013)	(0.025)	(0.019)	(0.014)	(0.011)
Mental health condition	0.337	0.171	0.311	0.173	0.304	0.150
	(0.027)	(0.017)	(0.034)	(0.023)	(0.017)	(0.010)
PTSD	0.087	0.005	0.06	0.005	0.056	0.003
	(0.023)	(0.002)	(0.024)	(0.002)	(0.010)	(0.001)

SOURCE: RAND analysis of MEPS, 2006–2012.

NOTES: Sample size, Veterans = 12,313. Cells labeled IS indicate that the prevalence model for the specific health condition could not be estimated due to insufficient sample size. The predicted prevalence rates are from a logit estimation that included indicators for sex, five race/ethnicity categories, 14 age categories, four census regions, and residential location in an MSA. Models 1 and 2 include a nonlinear time trend, while Model 3 includes indicators for each calendar year. Model 3 also includes indicators for four education categories, health insurance coverage, being married, being a student or in school, being employed, and interactions of sex and race/ethnicity. These estimates show the differences in prevalence of health conditions for VA patients and Veterans not using VA health services, both with the same demographic profile of the overall Veteran population. Cancer includes any malignancy and mental health condition includes any mental health condition.

Table C-28. Odds Ratios of Each Disease Condition for Control Variables Included in Model 2: Sample: VA Patients and Non-VA Patients (Veterans Only)

Demographic Characteristics	Model 2: Estimated Odds Ratio for each Disease Condition (Std. Error)			
	Asthma	Cancer	COPD	CHF
Married	0.899	1.373***	0.826	IS
	(0.128)	(0.149)	(0.114)	
Student status	0.504	2.453*	0.443	IS
	(0.357)	(1.269)	(0.495)	
Have public or private Health insurance	1.506	2.045**	0.820	IS
	(0.406)	(0.610)	(0.208)	
High school diploma or GED	0.695	1.166	0.502***	IS
	(0.168)	(0.193)	(0.103)	
Some college or associate degree	0.868	1.147	0.584**	IS
	(0.218)	(0.207)	(0.131)	
College Degree Or Higher	0.710	1.598***	0.304***	IS
	(0.172)	(0.261)	(0.0697)	
Employed	0.620***	0.601***	0.352***	IS
	(0.109)	(0.0705)	(0.0656)	
White (non-Hispanic), male	1.640	2.386***	3.115***	IS
	(0.592)	(0.757)	(1.321)	
Black (non-Hispanic), male	1.413	1.512	1.394	IS
	(0.573)	(0.526)	(0.665)	
Asian, male	1.919	1.586	1.260	IS
	(1.070)	(0.985)	(0.898)	
Other and multiple, male	1.343	1.663	3.544**	IS
	(0.791)	(0.801)	(2.081)	

SOURCE: RAND analysis of MEPS, 2006–2012.

NOTES: Cells labeled IS indicate that the prevalence model for the specific health condition could not be estimated due to insufficient sample size. The extended logit estimation included indicators for sex, five race/ethnicity categories, 14 age categories, four census regions, residential location in an MSA, a nonlinear time trend, four education categories, health insurance coverage, being married, being a student or in school, being employed, and interactions of sex and race/ethnicity. These estimates show the relative change in odds of having been diagnosed or treated for the given condition under a given demographic characteristic. An odds ratio greater than (less than) 1 means that the probability increases (decreases). *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table C-29. Odds Ratios of Each Disease Condition for Control Variables Included in Model 2: Sample: VA Patients and Non-VA Patients (Veterans Only) (cont.)

Demographic Characteristics	Model 2: Estimated Odds Ratio for each Disease Condition (Std. Error)				
	Diabetes	GERD	Hearing Loss	Hyper-tension	IHD
Married	1.187**	1.146	1.487**	1.154**	1.358***
	(0.100)	(0.121)	(0.278)	(0.0827)	(0.143)
Student status	1.960	0.363	2.111	0.705	0.163*
	(1.381)	(0.236)	(2.384)	(0.292)	(0.175)
Have public or private Health insurance	1.269	1.557**	0.747	1.435***	1.864**
	(0.205)	(0.335)	(0.283)	(0.181)	(0.467)
High school diploma or GED	0.896	0.811	0.921	0.688***	0.799
	(0.117)	(0.139)	(0.220)	(0.0859)	(0.122)
Some college or associate degree	0.970	0.876	1.032	0.689***	0.819
	(0.137)	(0.165)	(0.284)	(0.0920)	(0.138)
College degree or higher	0.809	0.842	1.076	0.655***	0.694**
	(0.107)	(0.147)	(0.260)	(0.0826)	(0.110)
Employed	0.616***	0.637***	0.868	0.779***	0.552***
	(0.0587)	(0.0742)	(0.190)	(0.0613)	(0.0701)
White (non-Hispanic), male	0.674**	1.737**	1.163	0.974	1.793**
	(0.114)	(0.468)	(0.558)	(0.148)	(0.431)
Black (non-Hispanic), male	0.749	1.083	0.640	1.656***	1.132
	(0.144)	(0.321)	(0.356)	(0.280)	(0.307)
Asian, male	0.532*	0.932	1.205	0.801	0.177***
	(0.193)	(0.519)	(0.749)	(0.233)	(0.114)
Other and multiple, male	1.217	1.631	1.302	0.936	2.393**
	(0.372)	(0.716)	(0.846)	(0.255)	(0.944)

SOURCE: RAND analysis of MEPS, 2006–2012.

NOTES: Cells labeled IS indicate that the prevalence model for the specific health condition could not be estimated due to insufficient sample size. The extended logit estimation included indicators for sex, five race/ethnicity categories, 14 age categories, four census regions, residential location in an MSA, a nonlinear time trend, four education categories, health insurance coverage, being married, being a student or in school, being employed, and interactions of sex and race/ethnicity. These estimates show the relative change in odds of having been diagnosed or treated for the given condition under a given demographic characteristic. An odds ratio greater than (less than) 1 means that the probability increases (decreases). *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table C-30. Odds Ratios of Each Disease Condition for Control Variables Included in Model 2: Sample: VA Patients and Non-VA Patients (Veterans Only) (cont.)

Demographic Characteristics	Model 2: Estimated Odds Ratio for each Disease Condition (Std. Error)			
	Lipid Disorder	Low Back Pain	Mental Health Condition	PTSD
Married	1.340***	1.059	0.778***	0.932
	(0.0965)	(0.0958)	(0.0640)	(0.235)
Student status	0.827	0.666	1.117	1.183
	(0.597)	(0.301)	(0.408)	(0.650)
Have public or private Health insurance	1.775***	0.955	1.288*	0.975
	(0.235)	(0.151)	(0.177)	(0.361)
High school diploma or GED	1.034	0.843	1.015	1.116
	(0.125)	(0.128)	(0.141)	(0.550)
Some college or associate degree	1.103	0.874	0.868	0.938
	(0.145)	(0.145)	(0.131)	(0.510)
College degree or higher	1.126	0.951	0.998	1.185
	(0.138)	(0.146)	(0.142)	(0.601)
Employed	0.607***	0.714***	0.358***	0.150***
	(0.0483)	(0.0800)	(0.0375)	(0.0465)
White (non-Hispanic), male	1.330*	1.126	1.239	0.959
	(0.209)	(0.203)	(0.218)	(0.471)
Black (non-Hispanic), male	0.986	0.825	0.771	1.544
	(0.174)	(0.172)	(0.157)	(0.835)
Asian, male	1.197	0.717	1.643	0.106*
	(0.361)	(0.268)	(0.651)	(0.129)
Other and multiple, male	1.860**	0.659	1.337	1.977
	(0.540)	(0.230)	(0.377)	(1.374)

SOURCE: RAND analysis of MEPS, 2006–2012.

NOTES: Cells labeled IS indicate that the prevalence model for the specific health condition could not be estimated due to insufficient sample size. The extended logit estimation included indicators for sex, five race/ethnicity categories, 14 age categories, four census regions, residential location in an MSA, a nonlinear time trend, four education categories, health insurance coverage, being married, being a student or in school, being employed, and interactions of sex and race/ethnicity. These estimates show the relative change in odds of having been diagnosed or treated for the given condition under a given demographic characteristic. An odds ratio greater than (less than) 1 means that the probability increases (decreases). *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

C.3.3   Prevalence of Self-Reported Health Conditions

C.3.3.1   Veterans vs. Non-Veterans in NHIS

Table C-31 provides estimates of the prevalence of self-reported health conditions for Veterans and non-Veterans, some of which overlap with the ICD-9-based health condition measures, using NHIS (2006–2013).

Table C-31. The Prevalence of Self-reported Health Conditions for Veterans and Non-Veterans in NHIS

Health Conditions	Unadjusted Means (Std. Dev.)		Adjusted Means (Std. Errors)		p-value for Difference in Adjusted Means
	Veteran	non-Veterans	Veteran	non-Veterans	(* p-value < 0.05)
Angina	0.054	0.018	0.046	0.037	**0.000***
	(0.002)	(0.000)	(0.002)	(0.002)	
Arthritis	0.354	0.209	0.349	0.302	**0.000***
	(0.005)	(0.001)	(0.005)	(0.005)	
Asthma	0.095	0.125	0.095	0.103	**0.006***
	(0.003)	(0.001)	(0.003)	(0.002)	
Cancer	0.171	0.071	0.178	0.126	**0.000***
	(0.004)	(0.001)	(0.004)	(0.003)	
Chronic Bronchitis	0.043	0.040	0.039	0.033	**0.002***
	(0.002)	(0.001)	(0.002)	(0.001)	
Back Pain	0.312	0.277	0.325	0.300	**0.000***
	(0.004)	(0.002)	(0.005)	(0.004)	
Coronary Heart Disease	0.132	0.036	0.137	0.117	**0.000***
	(0.003)	(0.001)	(0.004)	(0.003)	
Emphysema	0.045	0.015	0.041	0.032	**0.000***
	(0.002)	(0.000)	(0.002)	(0.002)	
Myocardial Infarction	0.099	0.026	0.088	0.074	**0.000***
	(0.003)	(0.000)	(0.003)	(0.003)	
Hay Fever	0.079	0.077	0.078	0.072	**0.019***
	(0.002)	(0.001)	(0.003)	(0.002)	
Heart Condition	0.137	0.067	0.127	0.103	**0.000***
	(0.003)	(0.001)	(0.004)	(0.003)	
Hepatitis	0.046	0.028	0.041	0.032	**0.000***

Health Conditions	Unadjusted Means (Std. Dev.)		Adjusted Means (Std. Errors)		p-value for Difference in Adjusted Means
	Veteran	non-Veterans	Veteran	non-Veterans	(* p-value < 0.05)
	(0.002)	(0.000)	(0.002)	(0.002)	
Hypertension	0.472	0.271	0.472	0.452	**0.000***
	(0.005)	(0.002)	(0.005)	(0.005)	
Jaw or Front of Ear Pain	0.035	0.048	0.036	0.032	**0.022***
	(0.002)	(0.001)	(0.002)	(0.001)	
Liver condition	0.020	0.013	0.019	0.014	**0.000***
	(0.001)	(0.000)	(0.001)	(0.001)	
Migraine	0.092	0.155	0.099	0.085	**0.000***
	(0.003)	(0.001)	(0.003)	(0.002)	
Neck Pain	0.152	0.146	0.157	0.138	**0.000***
	(0.003)	(0.001)	(0.004)	(0.003)	
Sinusitis	0.119	0.129	0.111	0.104	**0.032***
	(0.003)	(0.001)	(0.003)	(0.002)	
Stroke	0.056	0.024	0.054	0.046	**0.001***
	(0.002)	(0.000)	(0.003)	(0.002)	
Ulcer	0.104	0.066	0.086	0.071	**0.000***
	(0.002)	(0.001)	(0.003)	(0.002)	

SOURCE: RAND analysis of National Health Interview Survey (NHIS) (2006-2013).

NOTES: The unadjusted prevalence in results columns (1) and (2) are equivalent to the fraction of Veterans and non-Veterans who self-reported each condition. The adjusted prevalence in results columns (3) and (4) are the predicted prevalence from a logit estimation that included indicators for sex, five race/ethnicity categories, five age categories, four census regions, and a nonlinear time trend. These estimates show the differences in prevalence of self-reported health conditions for Veterans and for non-Veterans with the same demographic profile as Veterans. *The difference in adjusted means is statistically different from zero at the 5% level (p-value<0.05).

C.3.3.2   Veterans vs. Non-Veterans in BRFSS

In Table C-30, we provide estimates of the prevalence of self-reported health conditions and health behaviors for Veterans and non-Veterans, some of which overlap with the ICD-9-based health condition measures, using BRFSS (2013).

Table C-32. The Prevalence of Self-reported Health Outcomes for Veterans and Non-Veterans in BRFSS

Health Conditions, Indicators, and Behaviors	Unadjusted Means (Std. Dev.)		Adjusted Means (Std. Errors)		Difference in Adjusted Means (V-C)
	non-Veterans	Veteran	non-Veterans	Veteran	
Asthma^	0.093	0.060	0.072	0.060	-0.011*
	(0.001)	(0.002)	(0.001)	(0.002)	
Cancer^	0.100	0.203	0.187	0.203	0.016*
	(0.001)	(0.003)	(0.002)	(0.003)	
COPD	0.061	0.095	0.077	0.095	0.019*
	(0.001)	(0.002)	(0.002)	(0.002)	
Diabetes	0.096	0.163	0.147	0.163	0.017*
	(0.001)	(0.003)	(0.002)	(0.003)	
High blood pressure	0.488	0.289	0.512	0.517	0.015*
	(0.007)	(0.002)	(0.010)	(0.009)	
Activity limitations	0.190	0.269	0.230	0.269	0.039*
	(0.001)	(0.003)	(0.002)	(0.003)	
Obese	0.282	0.293	0.289	0.293	0.004
	(0.001)	(0.004)	(0.002)	(0.004)	
Smoke now	0.181	0.188	0.164	0.188	0.024
	(0.001)	(0.003)	(0.002)	(0.003)	
Exercise in last 30 days	0.734	0.742	0.721	0.742	-0.021*
	(0.001)	(0.004)	(0.003)	(0.004)	
Insufficient sleep (< 7 hrs.)	0.354	0.372	0.310	0.372	0.063*
	(0.002)	(0.004)	(0.002)	(0.004)	

SOURCE: RAND analysis of Behavioral Risk Factor Surveillance Survey (BRFSS) (2013).

NOTES: ^ These conditions do not directly map to the ICD-9 based definitions in MEPS. The unadjusted prevalence in results columns (1) and (2) are equivalent to the fraction of Veterans and non-Veterans who self-reported each condition or behavior. The adjusted prevalence in results columns (3) and (4) are the predicted prevalence from a logit estimation that included indicators for sex, five race/ethnicity categories, five age categories, four census regions. These estimates show the differences in prevalence of self-reported health conditions for Veterans and for non-Veterans with the same demographic profile as Veterans. *The difference in adjusted means is statistically different from zero at the 5% level (p-value<0.05).

C.4 Projections of Future Health Care Needs

C.4.1 Projections for Veterans

C.4.1.1 Asthma

Table C-33. Projected Prevalence of Diagnosed Asthma Among Veterans by Sex, 2014–2024

	Male		Female		Total	
Year	Count	Prevalence	Count	Prevalence	Count	Prevalence
2014	1,108,000	5.6%	166,000	9.2%	1,274,000	5.9%
2015	1,110,000	5.7%	171,000	9.4%	1,281,000	6.0%
2016	1,109,000	5.9%	176,000	9.7%	1,285,000	6.2%
2017	1,105,000	6.0%	181,000	9.9%	1,286,000	6.3%
2018	1,100,000	6.1%	186,000	10.2%	1,286,000	6.5%
2019	1,094,000	6.2%	192,000	10.4%	1,286,000	6.6%
2020	1,089,000	6.3%	197,000	10.7%	1,286,000	6.7%
2021	1,084,000	6.4%	202,000	11.0%	1,286,000	6.9%
2022	1,078,000	6.6%	208,000	11.2%	1,286,000	7.0%
2023	1,072,000	6.7%	213,000	11.5%	1,285,000	7.2%
2024	1,065,000	6.8%	219,000	11.8%	1,284,000	7.3%

SOURCE: RAND analysis of DoD, Census, VA, and MEPS data.

Table C-34. Projected Prevalence of Diagnosed Asthma Among Veterans by Age, 2014–2024

	<35		35–64		65+	
Year	Count	Prevalence	Count	Prevalence	Count	Prevalence
2014	70,000	4.4%	557,000	5.9%	647,000	6.2%
2015	70,000	4.5%	548,000	6.0%	663,000	6.3%
2016	69,000	4.5%	544,000	6.2%	672,000	6.4%
2017	68,000	4.6%	543,000	6.3%	675,000	6.6%
2018	66,000	4.7%	543,000	6.5%	677,000	6.7%
2019	65,000	4.8%	544,000	6.6%	676,000	6.8%
2020	65,000	4.9%	545,000	6.8%	676,000	6.9%
2021	64,000	5.1%	545,000	6.9%	678,000	7.1%
2022	63,000	5.2%	544,000	7.1%	679,000	7.2%
2023	63,000	5.3%	542,000	7.2%	680,000	7.4%
2024	62,000	5.4%	542,000	7.4%	680,000	7.6%

SOURCE: RAND analysis of DoD, Census, VA, and MEPS data.

Table C-35. Projected Prevalence of Diagnosed Asthma Among Veterans by Race/Ethnicity, 2014–2024

Year	White, non-Hispanic		Black, non-Hispanic		Hispanic		Asian/Other	
	Count	Prevalence	Count	Prevalence	Count	Prevalence	Count	Prevalence
2014	1,033,000	6.0%	149,000	6.0%	55,000	4.4%	37,000	5.5%
2015	1,033,000	6.2%	152,000	6.2%	57,000	4.5%	39,000	5.7%
2016	1,031,000	6.3%	154,000	6.4%	58,000	4.6%	40,000	5.9%
2017	1,027,000	6.4%	157,000	6.5%	60,000	4.7%	42,000	6.0%
2018	1,022,000	6.6%	159,000	6.7%	62,000	4.8%	43,000	6.2%
2019	1,016,000	6.7%	162,000	6.9%	63,000	4.9%	45,000	6.3%
2020	1,010,000	6.8%	164,000	7.0%	65,000	5.1%	46,000	6.5%
2021	1,006,000	7.0%	167,000	7.2%	66,000	5.2%	48,000	6.7%
2022	1,000,000	7.1%	169,000	7.4%	68,000	5.3%	50,000	6.8%
2023	993,000	7.3%	171,000	7.6%	69,000	5.4%	51,000	7.0%
2024	987,000	7.4%	173,000	7.8%	71,000	5.5%	53,000	7.2%

SOURCE: RAND analysis of DoD, Census, VA, and MEPS data.

C.4.1.2   CHF Among Veterans

See also sensitivity analysis in Appendix C.4.5.

Table C-36. Projected Prevalence of Diagnosed CHF Among Veterans by Sex, 2014–2024

Year	Male		Female		Total	
	Count	Prevalence	Count	Prevalence	Count	Prevalence
2014	233,000	1.2%	9,000	0.5%	242,000	1.1%
2015	207,000	1.1%	8,000	0.5%	215,000	1.0%
2016	183,000	1.0%	8,000	0.4%	191,000	0.9%
2017	161,000	0.9%	7,000	0.4%	168,000	0.8%
2018	143,000	0.8%	6,000	0.3%	149,000	0.7%
2019	126,000	0.7%	6,000	0.3%	132,000	0.7%
2020	111,000	0.6%	5,000	0.3%	116,000	0.6%
2021	97,000	0.6%	5,000	0.3%	102,000	0.5%
2022	85,000	0.5%	4,000	0.2%	89,000	0.5%
2023	74,000	0.5%	4,000	0.2%	78,000	0.4%
2024	65,000	0.4%	4,000	0.2%	69,000	0.4%

SOURCE: RAND analysis of DoD, Census, VA, and MEPS data.

Table C-37. Projected Prevalence of Diagnosed CHF Among Veterans by Age, 2014–2024

Year	<35		35–64		65+	
	Count	Prevalence	Count	Prevalence	Count	Prevalence
2014	<1,000	<0.1%	39,000	0.4%	203,000	1.9%
2015	<1000	<0.1%	33,000	0.4%	182,000	1.7%
2016	<1000	<0.1%	28,000	0.3%	162,000	1.6%
2017	<1000	<0.1%	24,000	0.3%	144,000	1.4%
2018	<1000	<0.1%	21,000	0.3%	128,000	1.3%
2019	<1000	<0.1%	18,000	0.2%	113,000	1.1%
2020	<1000	<0.1%	16,000	0.2%	99,000	1.0%

	<35		35–64		65+	
Year	Count	Prevalence	Count	Prevalence	Count	Prevalence
2021	000	0.0%	14,000	0.2%	87,000	0.9%
2022	000	0.0%	12,000	0.2%	77,000	0.8%
2023	000	0.0%	11,000	0.1%	67,000	0.7%
2024	000	0.0%	9,000	0.1%	59,000	0.7%

SOURCE: RAND analysis of DoD, Census, VA, and MEPS data.

Table C-38. Projected Prevalence of Diagnosed CHF Among Veterans by Race/Ethnicity, 2014–2024

	White, non-Hispanic		Black, non-Hispanic		Hispanic		Asian/Other	
Year	Count	Prevalence	Count	Prevalence	Count	Prevalence	Count	Prevalence
2014	207,000	1.2%	26,000	1.0%	6,000	0.5%	3,000	0.5%
2015	183,000	1.1%	23,000	0.9%	5,000	0.4%	3,000	0.4%
2016	162,000	1.0%	21,000	0.9%	5,000	0.4%	3,000	0.4%
2017	143,000	0.9%	19,000	0.8%	4,000	0.3%	3,000	0.4%
2018	126,000	0.8%	17,000	0.7%	4,000	0.3%	2,000	0.3%
2019	110,000	0.7%	15,000	0.6%	4,000	0.3%	2,000	0.3%
2020	97,000	0.7%	14,000	0.6%	3,000	0.3%	2,000	0.3%
2021	84,000	0.6%	12,000	0.5%	3,000	0.2%	2,000	0.2%
2022	74,000	0.5%	11,000	0.5%	3,000	0.2%	2,000	0.2%
2023	64,000	0.5%	10,000	0.4%	2,000	0.2%	1,000	0.2%
2024	56,000	0.4%	9,000	0.4%	2,000	0.2%	1,000	0.2%

SOURCE: RAND analysis of DoD, Census, VA, and MEPS data.

C.4.1.3   COPD Among Veterans

Table C-39. Projected Prevalence of Diagnosed COPD Among Veterans by Sex, 2014–2024

	Male		Female		Total	
Year	Count	Prevalence	Count	Prevalence	Count	Prevalence
2014	1,391,000	7.0%	115,000	6.3%	1,506,000	7.0%
2015	1,345,000	6.9%	115,000	6.3%	1,460,000	6.9%
2016	1,297,000	6.8%	115,000	6.3%	1,412,000	6.8%
2017	1,249,000	6.7%	115,000	6.3%	1,364,000	6.7%
2018	1,203,000	6.6%	116,000	6.3%	1,319,000	6.6%
2019	1,156,000	6.5%	116,000	6.3%	1,272,000	6.5%
2020	1,111,000	6.4%	116,000	6.3%	1,227,000	6.4%
2021	1,068,000	6.3%	117,000	6.3%	1,185,000	6.3%
2022	1,027,000	6.2%	117,000	6.3%	1,144,000	6.3%
2023	988,000	6.2%	117,000	6.3%	1,105,000	6.2%
2024	949,000	6.1%	117,000	6.3%	1,066,000	6.1%

SOURCE: RAND analysis of DoD, Census, VA, and MEPS data.

Table C-40. Projected Prevalence of Diagnosed COPD Among Veterans by Age, 2014–2024

	<35		35–64		65+	
Year	Count	Prevalence	Count	Prevalence	Count	Prevalence
2014	18,000	1.1%	439,000	4.6%	1,049,000	10.0%
2015	17,000	1.1%	410,000	4.5%	1,033,000	9.8%
2016	16,000	1.1%	389,000	4.4%	1,006,000	9.6%
2017	16,000	1.1%	374,000	4.3%	976,000	9.5%
2018	15,000	1.1%	358,000	4.3%	946,000	9.3%
2019	14,000	1.0%	346,000	4.2%	912,000	9.2%
2020	13,000	1.0%	334,000	4.1%	880,000	9.0%
2021	13,000	1.0%	320,000	4.1%	851,000	8.9%
2022	12,000	1.0%	307,000	4.0%	825,000	8.8%
2023	11,000	1.0%	294,000	3.9%	799,000	8.7%
2024	11,000	0.9%	283,000	3.9%	772,000	8.6%

SOURCE: RAND analysis of DoD, Census, VA, and MEPS data.

Table C-41. Projected Prevalence of Diagnosed COPD Among Veterans by Race/Ethnicity, 2014–2024

	White, non-Hispanic		Black, non-Hispanic		Hispanic		Asian/Other	
Year	Count	Prevalence	Count	Prevalence	Count	Prevalence	Count	Prevalence
2014	1,323,000	7.7%	113,000	4.6%	43,000	3.4%	27,000	4.1%
2015	1,278,000	7.6%	112,000	4.6%	43,000	3.4%	27,000	4.0%
2016	1,231,000	7.5%	110,000	4.5%	43,000	3.4%	27,000	4.0%
2017	1,186,000	7.4%	109,000	4.5%	43,000	3.3%	27,000	3.9%
2018	1,141,000	7.3%	108,000	4.5%	42,000	3.3%	27,000	3.9%
2019	1,097,000	7.2%	106,000	4.5%	42,000	3.3%	27,000	3.9%
2020	1,054,000	7.1%	105,000	4.5%	42,000	3.3%	27,000	3.8%
2021	1,012,000	7.0%	103,000	4.5%	41,000	3.2%	27,000	3.8%
2022	974,000	7.0%	102,000	4.5%	41,000	3.2%	27,000	3.8%
2023	937,000	6.9%	100,000	4.5%	41,000	3.2%	27,000	3.7%
2024	900,000	6.8%	98,000	4.4%	40,000	3.2%	27,000	3.7%

SOURCE: RAND analysis of DoD, Census, VA, and MEPS data.

C.4.1.4 Diabetes Among Veterans

Table C-42. Projected Prevalence of Diagnosed Diabetes Among Veterans by Sex, 2014–2024

	Male		Female		Total	
Year	Count	Prevalence	Count	Prevalence	Count	Prevalence
2014	4,880,000	24.7%	299,000	16.6%	5,179,000	24.0%
2015	4,845,000	25.0%	309,000	17.0%	5,154,000	24.3%
2016	4,800,000	25.3%	320,000	17.5%	5,120,000	24.7%
2017	4,757,000	25.7%	330,000	18.1%	5,087,000	25.0%
2018	4,712,000	26.0%	342,000	18.6%	5,054,000	25.4%
2019	4,659,000	26.4%	353,000	19.2%	5,012,000	25.7%
2020	4,605,000	26.7%	365,000	19.8%	4,970,000	26.0%
2021	4,549,000	27.0%	377,000	20.4%	4,926,000	26.4%

Year	Male		Female		Total	
	Count	Prevalence	Count	Prevalence	Count	Prevalence
2022	4,498,000	27.4%	389,000	21.1%	4,887,000	26.7%
2023	4,445,000	27.7%	402,000	21.7%	4,847,000	27.1%
2024	4,383,000	28.0%	414,000	22.3%	4,797,000	27.4%

SOURCE: RAND analysis of DoD, Census, VA, and MEPS data.

Table C-43. Projected Prevalence of Diagnosed Diabetes Among Veterans by Age, 2014–2024

Year	<35		35-64		65+	
	Count	Prevalence	Count	Prevalence	Count	Prevalence
2014	45,000	2.8%	1,458,000	15.4%	3,676,000	35.0%
2015	45,000	2.8%	1,400,000	15.4%	3,709,000	35.3%
2016	44,000	2.9%	1,368,000	15.5%	3,708,000	35.5%
2017	43,000	2.9%	1,349,000	15.7%	3,696,000	35.9%
2018	41,000	3.0%	1,331,000	15.8%	3,682,000	36.3%
2019	41,000	3.0%	1,323,000	16.1%	3,649,000	36.8%
2020	40,000	3.1%	1,313,000	16.3%	3,617,000	37.2%
2021	39,000	3.1%	1,297,000	16.5%	3,590,000	37.6%
2022	39,000	3.1%	1,280,000	16.6%	3,569,000	38.1%
2023	38,000	3.2%	1,262,000	16.8%	3,547,000	38.6%
2024	37,000	3.2%	1,246,000	17.0%	3,514,000	39.0%

SOURCE: RAND analysis of DoD, Census, VA, and MEPS data.

Table C-44. Projected Prevalence of Diagnosed Diabetes Among Veterans by Race/Ethnicity, 2014–2024

Year	White, non-Hispanic		Black, non-Hispanic		Hispanic		Asian/Other	
	Count	Prevalence	Count	Prevalence	Count	Prevalence	Count	Prevalence
2014	4,118,000	24.0%	619,000	25.0%	298,000	23.7%	143,000	21.3%
2015	4,074,000	24.3%	628,000	25.6%	305,000	24.1%	147,000	21.5%
2016	4,022,000	24.6%	636,000	26.2%	311,000	24.5%	150,000	21.7%
2017	3,973,000	24.9%	644,000	26.8%	318,000	24.9%	153,000	22.0%
2018	3,922,000	25.2%	651,000	27.3%	324,000	25.4%	156,000	22.2%
2019	3,865,000	25.5%	658,000	27.9%	330,000	25.8%	160,000	22.5%
2020	3,806,000	25.8%	665,000	28.5%	336,000	26.3%	163,000	22.7%
2021	3,747,000	26.0%	671,000	29.2%	342,000	26.7%	166,000	23.0%
2022	3,694,000	26.4%	677,000	29.8%	348,000	27.2%	169,000	23.3%
2023	3,638,000	26.7%	682,000	30.4%	354,000	27.7%	172,000	23.5%
2024	3,576,000	27.0%	686,000	31.0%	359,000	28.1%	175,000	23.8%

SOURCE: RAND analysis of DoD, Census, VA, and MEPS data.

C.4.1.6   Gastroesophageal Reflux Disease Among Veterans

Table C-45. Projected Prevalence of Diagnosed Gastroesophageal Reflux Disease Among Veterans by Sex, 2014–2024

	Male		Female		Total	
Year	Count	Prevalence	Count	Prevalence	Count	Prevalence
2014	2,495,000	12.6%	217,000	12.0%	2,712,000	12.6%
2015	2,465,000	12.7%	222,000	12.2%	2,687,000	12.7%
2016	2,435,000	12.9%	228,000	12.5%	2,663,000	12.8%
2017	2,406,000	13.0%	234,000	12.8%	2,640,000	13.0%
2018	2,376,000	13.1%	240,000	13.1%	2,616,000	13.1%
2019	2,342,000	13.3%	246,000	13.4%	2,588,000	13.3%
2020	2,309,000	13.4%	252,000	13.7%	2,561,000	13.4%
2021	2,275,000	13.5%	258,000	14.0%	2,533,000	13.6%
2022	2,241,000	13.6%	264,000	14.3%	2,505,000	13.7%
2023	2,204,000	13.7%	270,000	14.6%	2,474,000	13.8%
2024	2,165,000	13.8%	276,000	14.9%	2,441,000	14.0%

SOURCE: RAND analysis of DoD, Census, VA, and MEPS data.

Table C-46. Projected Prevalence of Diagnosed Gastroesophageal Reflux Disease Among Veterans by Age, 2014–2024

	<35		35–64		65+	
Year	Count	Prevalence	Count	Prevalence	Count	Prevalence
2014	43,000	2.6%	979,000	10.3%	1,689,000	16.1%
2015	42,000	2.7%	941,000	10.4%	1,705,000	16.2%
2016	41,000	2.7%	918,000	10.4%	1,705,000	16.3%
2017	40,000	2.7%	903,000	10.5%	1,697,000	16.5%
2018	39,000	2.8%	888,000	10.6%	1,689,000	16.7%
2019	38,000	2.8%	880,000	10.7%	1,670,000	16.8%
2020	37,000	2.9%	872,000	10.8%	1,652,000	17.0%
2021	37,000	2.9%	860,000	10.9%	1,637,000	17.1%
2022	36,000	2.9%	847,000	11.0%	1,622,000	17.3%
2023	35,000	2.9%	834,000	11.1%	1,606,000	17.5%
2024	34,000	3.0%	822,000	11.2%	1,585,000	17.6%

SOURCE: RAND analysis of DoD, Census, VA, and MEPS data.

Table C-47. Projected Prevalence of Diagnosed Gastroesophageal Reflux Disease Among Veterans by Race/Ethnicity, 2014–2024

	White, non-Hispanic		Black, non-Hispanic		Hispanic		Asian/Other	
Year	Count	Prevalence	Count	Prevalence	Count	Prevalence	Count	Prevalence
2014	2,364,000	13.8%	236,000	9.6%	69,000	5.5%	42,000	6.2%
2015	2,335,000	13.9%	239,000	9.8%	70,000	5.6%	43,000	6.3%
2016	2,305,000	14.1%	242,000	10.0%	72,000	5.7%	44,000	6.4%
2017	2,276,000	14.3%	245,000	10.2%	74,000	5.8%	45,000	6.5%
2018	2,246,000	14.4%	248,000	10.4%	75,000	5.9%	47,000	6.6%
2019	2,214,000	14.6%	250,000	10.6%	77,000	6.0%	48,000	6.7%
2020	2,181,000	14.8%	252,000	10.8%	78,000	6.1%	49,000	6.8%

Year	White, non-Hispanic		Black, non-Hispanic		Hispanic		Asian/Other	
	Count	Prevalence	Count	Prevalence	Count	Prevalence	Count	Prevalence
2021	2,149,000	14.9%	254,000	11.1%	80,000	6.2%	50,000	6.9%
2022	2,116,000	15.1%	256,000	11.3%	81,000	6.4%	51,000	7.1%
2023	2,081,000	15.3%	258,000	11.5%	83,000	6.5%	52,000	7.2%
2024	2,044,000	15.4%	259,000	11.7%	84,000	6.6%	54,000	7.3%

SOURCE: RAND analysis of DoD, Census, VA, and MEPS data.

C.4.1.7   Hearing Loss Among Veterans

Table C-48. Projected Prevalence of Diagnosed Hearing Loss Among Veterans by Sex, 2014–2024

Year	Male		Female		Total	
	Count	Prevalence	Count	Prevalence	Count	Prevalence
2014	910,000	4.6%	32,000	1.8%	942,000	4.4%
2015	936,000	4.8%	33,000	1.8%	969,000	4.6%
2016	958,000	5.1%	35,000	1.9%	993,000	4.8%
2017	982,000	5.3%	36,000	2.0%	1,018,000	5.0%
2018	1,008,000	5.6%	38,000	2.1%	1,046,000	5.2%
2019	1,030,000	5.8%	41,000	2.2%	1,071,000	5.5%
2020	1,052,000	6.1%	43,000	2.3%	1,095,000	5.7%
2021	1,069,000	6.3%	45,000	2.5%	1,114,000	6.0%
2022	1,090,000	6.6%	48,000	2.6%	1,138,000	6.2%
2023	1,112,000	6.9%	51,000	2.8%	1,163,000	6.5%
2024	1,131,000	7.2%	55,000	3.0%	1,186,000	6.8%

SOURCE: RAND analysis of DoD, Census, VA, and MEPS data.

Table C-49. Projected Prevalence of Diagnosed Hearing Loss Among Veterans by Age, 2014–2024

Year	<35		35–64		65+	
	Count	Prevalence	Count	Prevalence	Count	Prevalence
2014	5,000	0.3%	138,000	1.5%	799,000	7.6%
2015	5,000	0.3%	134,000	1.5%	830,000	7.9%
2016	5,000	0.3%	133,000	1.5%	854,000	8.2%
2017	5,000	0.3%	134,000	1.6%	879,000	8.6%
2018	5,000	0.4%	136,000	1.6%	905,000	8.9%
2019	5,000	0.4%	139,000	1.7%	927,000	9.3%
2020	5,000	0.4%	142,000	1.8%	948,000	9.7%
2021	5,000	0.4%	144,000	1.8%	965,000	10.1%
2022	5,000	0.4%	147,000	1.9%	986,000	10.5%
2023	5,000	0.4%	149,000	2.0%	1,009,000	11.0%
2024	5,000	0.5%	152,000	2.1%	1,029,000	11.4%

SOURCE: RAND analysis of DoD, Census, VA, and MEPS data.

Table C-50. Projected Prevalence of Diagnosed Hearing Loss Among Veterans by Race/Ethnicity, 2014–2024

White, non-Hispanic	Black, non-Hispanic	Hispanic	Asian/Other

Year	Count	Prevalence	Count	Prevalence	Count	Prevalence	Count	Prevalence
2014	873,000	5.1%	35,000	1.4%	19,000	1.5%	14,000	2.1%
2015	896,000	5.3%	37,000	1.5%	20,000	1.6%	15,000	2.2%
2016	916,000	5.6%	39,000	1.6%	22,000	1.7%	16,000	2.3%
2017	938,000	5.9%	41,000	1.7%	23,000	1.8%	17,000	2.4%
2018	961,000	6.2%	43,000	1.8%	24,000	1.9%	18,000	2.6%
2019	981,000	6.5%	45,000	1.9%	26,000	2.0%	19,000	2.7%
2020	1,000,000	6.8%	47,000	2.0%	27,000	2.1%	20,000	2.8%
2021	1,016,000	7.1%	49,000	2.1%	29,000	2.2%	21,000	2.9%
2022	1,034,000	7.4%	52,000	2.3%	30,000	2.4%	22,000	3.1%
2023	1,054,000	7.7%	54,000	2.4%	32,000	2.5%	24,000	3.2%
2024	1,071,000	8.1%	57,000	2.5%	34,000	2.6%	25,000	3.4%

SOURCE: RAND analysis of DoD, Census, VA, and MEPS data.

C.4.1.8 Hypertension Among Veterans

Table C-51. Projected Prevalence of Diagnosed Hypertension Among Veterans by Sex, 2014–2024

	Male		Female		Total	
Year	Count	Prevalence	Count	Prevalence	Count	Prevalence
2014	9,897,000	50.1%	620,000	34.3%	10,517,000	48.7%
2015	9,792,000	50.6%	637,000	35.0%	10,429,000	49.2%
2016	9,669,000	51.0%	654,000	35.9%	10,323,000	49.7%
2017	9,548,000	51.6%	672,000	36.8%	10,220,000	50.2%
2018	9,420,000	52.1%	691,000	37.7%	10,111,000	50.7%
2019	9,279,000	52.5%	709,000	38.6%	9,988,000	51.2%
2020	9,134,000	52.9%	728,000	39.5%	9,862,000	51.6%
2021	8,980,000	53.3%	747,000	40.5%	9,727,000	52.0%
2022	8,828,000	53.7%	765,000	41.4%	9,593,000	52.5%
2023	8,672,000	54.1%	784,000	42.3%	9,456,000	52.9%
2024	8,508,000	54.4%	801,000	43.2%	9,309,000	53.2%

SOURCE: RAND analysis of DoD, Census, VA, and MEPS data.

Table C-52. Projected Prevalence of Diagnosed Hypertension Among Veterans by Age, 2014–2024

	<35		35–64		65+	
Year	Count	Prevalence	Count	Prevalence	Count	Prevalence
2014	93,000	5.8%	3,356,000	35.4%	7,068,000	67.3%
2015	92,000	5.8%	3,222,000	35.4%	7,115,000	67.6%
2016	89,000	5.9%	3,140,000	35.6%	7,093,000	68.0%
2017	87,000	6.0%	3,089,000	35.9%	7,044,000	68.5%
2018	85,000	6.1%	3,036,000	36.2%	6,990,000	69.0%
2019	84,000	6.2%	3,007,000	36.5%	6,897,000	69.5%
2020	82,000	6.3%	2,973,000	36.9%	6,806,000	70.0%
2021	81,000	6.4%	2,928,000	37.2%	6,718,000	70.4%
2022	80,000	6.5%	2,881,000	37.5%	6,633,000	70.8%
2023	78,000	6.6%	2,830,000	37.7%	6,547,000	71.2%

	<35		35–64		65+	
Year	Count	Prevalence	Count	Prevalence	Count	Prevalence
2024	76,000	6.6%	2,785,000	37.9%	6,447,000	71.6%

SOURCE: RAND analysis of DoD, Census, VA, and MEPS data.

Table C-53. Projected Prevalence of Diagnosed Hypertension Among Veterans by Race/Ethnicity, 2014–2024

	White, non-Hispanic		Black, non-Hispanic		Hispanic		Asian/Other	
Year	Count	Prevalence	Count	Prevalence	Count	Prevalence	Count	Prevalence
2014	8,483,000	49.4%	1,310,000	53.0%	469,000	37.2%	255,000	38.0%
2015	8,369,000	49.9%	1,320,000	53.8%	479,000	37.8%	260,000	38.2%
2016	8,241,000	50.3%	1,328,000	54.6%	488,000	38.4%	266,000	38.5%
2017	8,117,000	50.8%	1,334,000	55.5%	498,000	39.0%	271,000	38.8%
2018	7,988,000	51.3%	1,340,000	56.3%	507,000	39.7%	276,000	39.2%
2019	7,848,000	51.7%	1,344,000	57.0%	515,000	40.3%	281,000	39.5%
2020	7,704,000	52.1%	1,347,000	57.8%	524,000	41.0%	286,000	39.9%
2021	7,555,000	52.5%	1,349,000	58.6%	532,000	41.6%	291,000	40.3%
2022	7,408,000	52.9%	1,350,000	59.3%	540,000	42.2%	296,000	40.7%
2023	7,258,000	53.2%	1,349,000	60.1%	547,000	42.8%	301,000	41.1%
2024	7,103,000	53.5%	1,346,000	60.7%	554,000	43.4%	306,000	41.5%

SOURCE: RAND analysis of DoD, Census, VA, and MEPS data.

C.4.1.9   Ischemic Heart Disease Among Veterans

See also sensitivity analysis in Appendix C.4.5.

Table C-54. Projected Prevalence of Diagnosed Ischemic Heart Disease Among Veterans by Sex, 2014–2024

	Male		Female		Total	
Year	Count	Prevalence	Count	Prevalence	Count	Prevalence
2014	3,154,000	16.0%	87,000	4.8%	3,241,000	15.0%
2015	3,016,000	15.6%	85,000	4.7%	3,101,000	14.6%
2016	2,875,000	15.2%	84,000	4.6%	2,959,000	14.3%
2017	2,749,000	14.8%	82,000	4.5%	2,831,000	13.9%
2018	2,627,000	14.5%	81,000	4.4%	2,708,000	13.6%
2019	2,502,000	14.2%	80,000	4.3%	2,582,000	13.2%
2020	2,379,000	13.8%	79,000	4.3%	2,458,000	12.9%
2021	2,256,000	13.4%	78,000	4.2%	2,334,000	12.5%
2022	2,143,000	13.0%	77,000	4.2%	2,220,000	12.1%
2023	2,036,000	12.7%	77,000	4.1%	2,113,000	11.8%
2024	1,929,000	12.3%	76,000	4.1%	2,005,000	11.5%

SOURCE: RAND analysis of DoD, Census, VA, and MEPS data.

Table C-55. Projected Prevalence of Diagnosed Ischemic Heart Disease Among Veterans by Age, 2014–2024

	<35		35–64		65+	
Year	Count	Prevalence	Count	Prevalence	Count	Prevalence

Year	<35 Count	<35 Prevalence	35–64 Count	35–64 Prevalence	65+ Count	65+ Prevalence
2014	5,000	0.3%	555,000	5.9%	2,681,000	25.5%
2015	5,000	0.3%	500,000	5.5%	2,597,000	24.7%
2016	5,000	0.3%	460,000	5.2%	2,494,000	23.9%
2017	4,000	0.3%	429,000	5.0%	2,397,000	23.3%
2018	4,000	0.3%	401,000	4.8%	2,303,000	22.7%
2019	4,000	0.3%	378,000	4.6%	2,200,000	22.2%
2020	3,000	0.3%	356,000	4.4%	2,098,000	21.6%
2021	3,000	0.3%	334,000	4.2%	1,996,000	20.9%
2022	3,000	0.2%	314,000	4.1%	1,904,000	20.3%
2023	3,000	0.2%	293,000	3.9%	1,817,000	19.8%
2024	3,000	0.2%	275,000	3.8%	1,727,000	19.2%

SOURCE: RAND analysis of DoD, Census, VA, and MEPS data.

Table C-56. Projected Prevalence of Diagnosed Ischemic Heart Disease Among Veterans by Race/Ethnicity, 2014–2024

Year	White, non-Hispanic Count	White, non-Hispanic Prevalence	Black, non-Hispanic Count	Black, non-Hispanic Prevalence	Hispanic Count	Hispanic Prevalence	Asian/Other Count	Asian/Other Prevalence
2014	2,826,000	16.5%	248,000	10.0%	108,000	8.6%	59,000	8.8%
2015	2,695,000	16.1%	241,000	9.8%	107,000	8.4%	58,000	8.5%
2016	2,562,000	15.6%	235,000	9.7%	105,000	8.3%	57,000	8.3%
2017	2,443,000	15.3%	229,000	9.5%	103,000	8.1%	56,000	8.1%
2018	2,328,000	15.0%	223,000	9.3%	102,000	8.0%	55,000	7.9%
2019	2,212,000	14.6%	216,000	9.2%	100,000	7.8%	54,000	7.7%
2020	2,096,000	14.2%	210,000	9.0%	98,000	7.7%	53,000	7.4%
2021	1,982,000	13.8%	204,000	8.9%	96,000	7.5%	52,000	7.2%
2022	1,878,000	13.4%	198,000	8.7%	94,000	7.3%	51,000	7.0%
2023	1,779,000	13.0%	192,000	8.5%	92,000	7.2%	50,000	6.8%
2024	1,680,000	12.7%	186,000	8.4%	90,000	7.0%	49,000	6.7%

SOURCE: RAND analysis of DoD, Census, VA, and MEPS data.

C.4.1.10 Lipid Disorder Among Veterans

Table C-57. Projected Prevalence of Diagnosed Lipid Disorder Among Veterans by Sex, 2014–2024

Year	Male Count	Male Prevalence	Female Count	Female Prevalence	Total Count	Total Prevalence
2014	8,182,000	41.4%	434,000	24.0%	8,616,000	39.9%
2015	8,002,000	41.3%	441,000	24.2%	8,443,000	39.9%
2016	7,813,000	41.2%	448,000	24.6%	8,261,000	39.8%
2017	7,629,000	41.2%	456,000	24.9%	8,085,000	39.7%
2018	7,443,000	41.1%	464,000	25.3%	7,907,000	39.7%
2019	7,249,000	41.0%	471,000	25.6%	7,720,000	39.6%
2020	7,056,000	40.9%	480,000	26.0%	7,536,000	39.5%
2021	6,864,000	40.8%	488,000	26.4%	7,352,000	39.3%
2022	6,673,000	40.6%	496,000	26.8%	7,169,000	39.2%

	Male		Female		Total	
Year	Count	Prevalence	Count	Prevalence	Count	Prevalence
2023	6,481,000	40.4%	504,000	27.2%	6,985,000	39.0%
2024	6,286,000	40.2%	511,000	27.6%	6,797,000	38.9%

SOURCE: RAND analysis of DoD, Census, VA, and MEPS data.

Table C-58. Projected Prevalence of Diagnosed Lipid Disorder Among Veterans by Age, 2014–2024

	<35		35–64		65+	
Year	Count	Prevalence	Count	Prevalence	Count	Prevalence
2014	53,000	3.3%	2,654,000	28.0%	5,909,000	56.3%
2015	51,000	3.3%	2,500,000	27.5%	5,891,000	56.0%
2016	49,000	3.3%	2,394,000	27.2%	5,817,000	55.8%
2017	47,000	3.2%	2,318,000	26.9%	5,720,000	55.6%
2018	45,000	3.2%	2,242,000	26.7%	5,619,000	55.5%
2019	44,000	3.2%	2,189,000	26.6%	5,488,000	55.3%
2020	42,000	3.2%	2,135,000	26.5%	5,359,000	55.1%
2021	41,000	3.2%	2,074,000	26.3%	5,237,000	54.9%
2022	39,000	3.2%	2,013,000	26.2%	5,118,000	54.6%
2023	37,000	3.1%	1,950,000	26.0%	4,998,000	54.4%
2024	36,000	3.1%	1,893,000	25.8%	4,868,000	54.1%

SOURCE: RAND analysis of DoD, Census, VA, and MEPS data.

Table C-59. Projected Prevalence of Diagnosed Lipid Disorder Among Veterans by Race/Ethnicity, 2014–2024

	White, non-Hispanic		Black, non-Hispanic		Hispanic		Asian/Other	
Year	Count	Prevalence	Count	Prevalence	Count	Prevalence	Count	Prevalence
2014	7,312,000	42.6%	735,000	29.7%	359,000	28.5%	209,000	31.1%
2015	7,134,000	42.5%	735,000	30.0%	363,000	28.6%	211,000	30.9%
2016	6,948,000	42.4%	735,000	30.2%	365,000	28.8%	212,000	30.8%
2017	6,770,000	42.4%	733,000	30.5%	368,000	28.9%	214,000	30.6%
2018	6,589,000	42.3%	731,000	30.7%	371,000	29.0%	215,000	30.5%
2019	6,403,000	42.2%	729,000	30.9%	373,000	29.2%	216,000	30.5%
2020	6,218,000	42.1%	726,000	31.2%	375,000	29.3%	218,000	30.4%
2021	6,034,000	41.9%	723,000	31.4%	376,000	29.4%	219,000	30.3%
2022	5,853,000	41.8%	719,000	31.6%	377,000	29.5%	220,000	30.2%
2023	5,672,000	41.6%	714,000	31.8%	378,000	29.6%	221,000	30.1%
2024	5,488,000	41.4%	708,000	32.0%	379,000	29.7%	221,000	30.1%

SOURCE: RAND analysis of DoD, Census, VA, and MEPS data.

C.4.1.11 Lower Back Pain Among Veterans

Table C-60. Projected Prevalence of Diagnosed Lower Back Pain Among Veterans by Sex, 2014–2024

	Male		Female		Total	
Year	Count	Prevalence	Count	Prevalence	Count	Prevalence
2014	2,674,000	13.5%	252,000	14.0%	2,926,000	13.6%

	Male		Female		Total	
Year	Count	Prevalence	Count	Prevalence	Count	Prevalence
2015	2,664,000	13.8%	259,000	14.3%	2,923,000	13.8%
2016	2,653,000	14.0%	266,000	14.6%	2,919,000	14.1%
2017	2,639,000	14.2%	273,000	14.9%	2,912,000	14.3%
2018	2,623,000	14.5%	280,000	15.3%	2,903,000	14.6%
2019	2,606,000	14.7%	287,000	15.6%	2,893,000	14.8%
2020	2,589,000	15.0%	294,000	16.0%	2,883,000	15.1%
2021	2,572,000	15.3%	301,000	16.3%	2,873,000	15.4%
2022	2,556,000	15.6%	308,000	16.7%	2,864,000	15.7%
2023	2,537,000	15.8%	315,000	17.0%	2,852,000	15.9%
2024	2,516,000	16.1%	322,000	17.4%	2,838,000	16.2%

SOURCE: RAND analysis of DoD, Census, VA, and MEPS data.

Table C-61. Projected Prevalence of Diagnosed Lower Back Pain Among Veterans by Age, 2014–2024

	<35		35–64		65+	
Year	Count	Prevalence	Count	Prevalence	Count	Prevalence
2014	143,000	8.9%	1,270,000	13.4%	1,513,000	14.4%
2015	143,000	9.1%	1,239,000	13.6%	1,542,000	14.7%
2016	141,000	9.3%	1,222,000	13.9%	1,556,000	14.9%
2017	139,000	9.5%	1,214,000	14.1%	1,559,000	15.2%
2018	136,000	9.7%	1,205,000	14.3%	1,562,000	15.4%
2019	135,000	10.0%	1,203,000	14.6%	1,555,000	15.7%
2020	133,000	10.2%	1,200,000	14.9%	1,550,000	15.9%
2021	132,000	10.4%	1,194,000	15.2%	1,548,000	16.2%
2022	130,000	10.6%	1,186,000	15.4%	1,548,000	16.5%
2023	128,000	10.8%	1,178,000	15.7%	1,546,000	16.8%
2024	125,000	10.9%	1,173,000	16.0%	1,540,000	17.1%

SOURCE: RAND analysis of DoD, Census, VA, and MEPS data.

Table C-62. Projected Prevalence of Diagnosed Lower Back Pain Among Veterans by Race/Ethnicity, 2014–2024

	White, non-Hispanic		Black, non-Hispanic		Hispanic		Asian/Other	
Year	Count	Prevalence	Count	Prevalence	Count	Prevalence	Count	Prevalence
2014	2,502,000	14.6%	237,000	9.6%	118,000	9.4%	69,000	10.2%
2015	2,490,000	14.8%	241,000	9.8%	121,000	9.6%	71,000	10.4%
2016	2,477,000	15.1%	244,000	10.0%	124,000	9.8%	74,000	10.7%
2017	2,461,000	15.4%	247,000	10.3%	128,000	10.0%	76,000	10.9%
2018	2,444,000	15.7%	250,000	10.5%	131,000	10.2%	79,000	11.2%
2019	2,425,000	16.0%	253,000	10.7%	133,000	10.4%	81,000	11.4%
2020	2,407,000	16.3%	256,000	11.0%	136,000	10.7%	84,000	11.7%
2021	2,389,000	16.6%	258,000	11.2%	139,000	10.9%	86,000	11.9%
2022	2,372,000	16.9%	261,000	11.5%	142,000	11.1%	89,000	12.2%
2023	2,352,000	17.3%	264,000	11.7%	145,000	11.4%	91,000	12.5%
2024	2,330,000	17.6%	266,000	12.0%	148,000	11.6%	94,000	12.8%

SOURCE: RAND analysis of DoD, Census, VA, and MEPS data.

C.4.1.12   Malignant Cancers Among Veterans

Table C-63. Projected Prevalence of Diagnosed Malignant Cancers Among Veterans by Sex, 2014–2024

	Male		Female		Total	
Year	Count	Prevalence	Count	Prevalence	Count	Prevalence
2014	3,091,000	15.6%	159,000	8.8%	3,250,000	15.1%
2015	3,067,000	15.8%	163,000	9.0%	3,230,000	15.2%
2016	3,035,000	16.0%	167,000	9.2%	3,202,000	15.4%
2017	3,010,000	16.3%	172,000	9.4%	3,182,000	15.6%
2018	2,983,000	16.5%	178,000	9.7%	3,161,000	15.9%
2019	2,947,000	16.7%	183,000	10.0%	3,130,000	16.0%
2020	2,909,000	16.9%	189,000	10.3%	3,098,000	16.2%
2021	2,866,000	17.0%	195,000	10.6%	3,061,000	16.4%
2022	2,826,000	17.2%	202,000	10.9%	3,028,000	16.6%
2023	2,783,000	17.4%	208,000	11.3%	2,991,000	16.7%
2024	2,735,000	17.5%	215,000	11.6%	2,950,000	16.9%

SOURCE: RAND analysis of DoD, Census, VA, and MEPS data.

Table C-64. Projected Prevalence of Diagnosed Malignant Cancers Among Veterans by Age, 2014–2024

	<35		35–64		65+	
Year	Count	Prevalence	Count	Prevalence	Count	Prevalence
2014	19,000	1.2%	697,000	7.4%	2,534,000	24.1%
2015	19,000	1.2%	661,000	7.3%	2,550,000	24.2%
2016	18,000	1.2%	640,000	7.3%	2,544,000	24.4%
2017	18,000	1.2%	628,000	7.3%	2,536,000	24.7%
2018	17,000	1.2%	617,000	7.3%	2,526,000	24.9%
2019	17,000	1.2%	612,000	7.4%	2,502,000	25.2%
2020	16,000	1.3%	606,000	7.5%	2,476,000	25.5%
2021	16,000	1.3%	598,000	7.6%	2,448,000	25.6%
2022	16,000	1.3%	588,000	7.7%	2,423,000	25.9%
2023	15,000	1.3%	578,000	7.7%	2,398,000	26.1%
2024	15,000	1.3%	570,000	7.8%	2,365,000	26.3%

SOURCE: RAND analysis of DoD, Census, VA, and MEPS data.

Table C-65. Projected Prevalence of Diagnosed Malignant Cancers Among Veterans by Race/Ethnicity, 2014–2024

	White, non-Hispanic		Black, non-Hispanic		Hispanic		Asian/Other	
Year	Count	Prevalence	Count	Prevalence	Count	Prevalence	Count	Prevalence
2014	2,977,000	17.3%	167,000	6.8%	67,000	5.3%	39,000	5.7%
2015	2,951,000	17.6%	170,000	6.9%	69,000	5.5%	40,000	5.8%
2016	2,918,000	17.8%	173,000	7.1%	71,000	5.6%	41,000	5.9%
2017	2,891,000	18.1%	176,000	7.3%	73,000	5.7%	42,000	6.0%
2018	2,864,000	18.4%	179,000	7.5%	75,000	5.9%	43,000	6.1%
2019	2,828,000	18.6%	182,000	7.7%	77,000	6.0%	44,000	6.1%
2020	2,790,000	18.9%	185,000	7.9%	78,000	6.1%	45,000	6.2%
2021	2,747,000	19.1%	188,000	8.2%	80,000	6.3%	46,000	6.3%
2022	2,708,000	19.3%	191,000	8.4%	82,000	6.4%	47,000	6.4%
2023	2,667,000	19.6%	193,000	8.6%	84,000	6.5%	48,000	6.5%
2024	2,621,000	19.8%	195,000	8.8%	85,000	6.7%	49,000	6.6%

SOURCE: RAND analysis of DoD, Census, VA, and MEPS data.

C.4.2   Projections for VA Patients

C.4.2.1   Asthma Among VA Patients

Table C-66. Projected Prevalence of Diagnosed Asthma Among VA Patients by Sex, 2014–2024

	Male		Female		Total	
Year	Count	Prevalence	Count	Prevalence	Count	Prevalence
2014	423,000	7.7%	52,000	12.2%	475,000	8.0%
2015	437,000	7.9%	56,000	12.5%	493,000	8.2%
2016	450,000	8.0%	60,000	12.9%	510,000	8.4%
2017	461,000	8.2%	64,000	13.2%	525,000	8.6%
2018	472,000	8.4%	68,000	13.6%	540,000	8.8%
2019	482,000	8.6%	73,000	14.0%	555,000	9.0%
2020	490,000	8.7%	77,000	14.4%	567,000	9.2%
2021	498,000	8.9%	82,000	14.8%	580,000	9.4%
2022	505,000	9.1%	86,000	15.2%	591,000	9.7%
2023	513,000	9.3%	91,000	15.6%	604,000	9.9%
2024	520,000	9.5%	95,000	16.0%	615,000	10.1%

SOURCE: RAND analysis of DoD, Census, VA, and MEPS data.

Table C-67. Projected Prevalence of Diagnosed Asthma Among VA Patients by Age, 2014–2024

	<35		35–64		65+	
Year	Count	Prevalence	Count	Prevalence	Count	Prevalence
2014	32,000	6.0%	186,000	8.1%	257,000	8.3%
2015	33,000	6.2%	193,000	8.3%	266,000	8.5%
2016	33,000	6.3%	200,000	8.5%	276,000	8.7%
2017	33,000	6.5%	208,000	8.7%	285,000	8.9%
2018	32,000	6.6%	215,000	8.9%	294,000	9.1%
2019	31,000	6.8%	222,000	9.1%	302,000	9.3%
2020	31,000	7.0%	229,000	9.3%	308,000	9.5%
2021	29,000	7.1%	236,000	9.5%	314,000	9.7%
2022	28,000	7.3%	243,000	9.8%	321,000	9.9%
2023	26,000	7.5%	250,000	10.0%	327,000	10.1%
2024	25,000	7.7%	256,000	10.2%	334,000	10.3%

SOURCE: RAND analysis of DoD, Census, VA, and MEPS data.

Table C-68. Projected Prevalence of Diagnosed Asthma Among VA Patients by Race/Ethnicity, 2014–2024

	White, non-Hispanic		Black, non-Hispanic		Hispanic		Asian/Other	
Year	Count	Prevalence	Count	Prevalence	Count	Prevalence	Count	Prevalence
2014	387,000	8.2%	53,000	8.2%	20,000	6.0%	15,000	7.6%
2015	399,000	8.4%	56,000	8.4%	22,000	6.1%	16,000	7.8%
2016	410,000	8.6%	60,000	8.6%	23,000	6.3%	17,000	8.0%
2017	420,000	8.8%	63,000	8.8%	24,000	6.5%	18,000	8.3%
2018	430,000	9.0%	66,000	9.1%	26,000	6.6%	19,000	8.5%
2019	438,000	9.2%	69,000	9.4%	27,000	6.8%	21,000	8.8%
2020	445,000	9.4%	72,000	9.6%	29,000	7.0%	22,000	9.0%
2021	452,000	9.6%	75,000	9.9%	30,000	7.2%	23,000	9.2%
2022	458,000	9.8%	78,000	10.2%	31,000	7.4%	24,000	9.5%
2023	465,000	10.0%	80,000	10.4%	33,000	7.6%	25,000	9.8%
2024	471,000	10.3%	83,000	10.7%	34,000	7.8%	27,000	10.0%

SOURCE: RAND analysis of DoD, Census, VA, and MEPS data.

C.4.2.2 CHF Among VA Patients

See also related sensitivity analysis in Appendix C.4.5.

Table C-69. Projected Prevalence of Diagnosed CHF Among VA Patients by Sex, 2014–2024

	Male		Female		Total	
Year	Count	Prevalence	Count	Prevalence	Count	Prevalence
2014	102,000	1.9%	3,000	0.7%	105,000	1.8%
2015	93,000	1.7%	3,000	0.6%	96,000	1.6%
2016	86,000	1.5%	3,000	0.6%	89,000	1.5%
2017	78,000	1.4%	3,000	0.5%	81,000	1.3%
2018	71,000	1.3%	2,000	0.5%	73,000	1.2%
2019	64,000	1.1%	2,000	0.4%	66,000	1.1%

	Male		Female		Total	
Year	Count	Prevalence	Count	Prevalence	Count	Prevalence
2020	58,000	1.0%	2,000	0.4%	60,000	1.0%
2021	52,000	0.9%	2,000	0.4%	54,000	0.9%
2022	47,000	0.8%	2,000	0.3%	49,000	0.8%
2023	42,000	0.8%	2,000	0.3%	44,000	0.7%
2024	38,000	0.7%	2,000	0.3%	40,000	0.6%

SOURCE: RAND analysis of DoD, Census, VA, and MEPS data.

Table C-70. Projected Prevalence of Diagnosed CHF Among VA Patients by Age, 2014–2024

	<35		35–64		65+	
Year	Count	Prevalence	Count	Prevalence	Count	Prevalence
2014	<1000	<0.1%	16,000	0.7%	88,000	2.9%
2015	<1000	<0.1%	14,000	0.6%	82,000	2.6%
2016	<1000	<0.1%	13,000	0.5%	75,000	2.4%
2017	<1000	<0.1%	12,000	0.5%	69,000	2.1%
2018	<1000	<0.1%	10,000	0.4%	63,000	1.9%
2019	<1000	<0.1%	9,000	0.4%	57,000	1.8%
2020	<1000	<0.1%	8,000	0.3%	52,000	1.6%
2021	<1000	<0.1%	7,000	0.3%	46,000	1.4%
2022	<1000	<0.1%	7,000	0.3%	42,000	1.3%
2023	<1000	<0.1%	6,000	0.2%	38,000	1.2%
2024	<1000	<0.1%	5,000	0.2%	34,000	1.0%

SOURCE: RAND analysis of DoD, Census, VA, and MEPS data.

Table C-71. Projected Prevalence of Diagnosed CHF Among VA Patients by Race/Ethnicity, 2014–2024

	White, non-Hispanic		Black, non-Hispanic		Hispanic		Asian/Other	
Year	Count	Prevalence	Count	Prevalence	Count	Prevalence	Count	Prevalence
2014	90,000	1.9%	11,000	1.7%	2,000	0.7%	1,000	0.8%
2015	82,000	1.7%	10,000	1.5%	2,000	0.7%	1,000	0.7%
2016	75,000	1.6%	10,000	1.4%	2,000	0.6%	1,000	0.6%
2017	68,000	1.4%	9,000	1.2%	2,000	0.6%	1,000	0.6%
2018	62,000	1.3%	8,000	1.1%	2,000	0.5%	1,000	0.5%
2019	56,000	1.2%	8,000	1.0%	2,000	0.5%	1,000	0.5%
2020	50,000	1.1%	7,000	0.9%	2,000	0.4%	1,000	0.4%
2021	45,000	1.0%	6,000	0.9%	2,000	0.4%	1,000	0.4%
2022	40,000	0.9%	6,000	0.8%	1,000	0.3%	1,000	0.4%
2023	36,000	0.8%	5,000	0.7%	1,000	0.3%	1,000	0.3%
2024	32,000	0.7%	5,000	0.6%	1,000	0.3%	1,000	0.3%

SOURCE: RAND analysis of DoD, Census, VA, and MEPS data.

C.4.2.4 COPD Among VA Patients

Table C-72. Projected Prevalence of Diagnosed COPD Among VA Patients by Sex, 2014–2024

	Male		Female		Total	
Year	Count	Prevalence	Count	Prevalence	Count	Prevalence
2014	563,000	10.3%	35,000	8.4%	598,000	10.1%
2015	560,000	10.1%	37,000	8.4%	597,000	10.0%
2016	556,000	9.9%	39,000	8.4%	595,000	9.8%
2017	551,000	9.8%	41,000	8.4%	592,000	9.7%
2018	545,000	9.7%	43,000	8.5%	588,000	9.6%
2019	538,000	9.5%	45,000	8.5%	583,000	9.5%
2020	529,000	9.4%	46,000	8.6%	575,000	9.4%
2021	520,000	9.3%	48,000	8.7%	568,000	9.3%
2022	512,000	9.2%	50,000	8.7%	562,000	9.2%
2023	503,000	9.1%	51,000	8.8%	554,000	9.1%
2024	495,000	9.0%	53,000	8.9%	548,000	9.0%

SOURCE: RAND analysis of DoD, Census, VA, and MEPS data.

Table C-73. Projected Prevalence of Diagnosed COPD Among VA Patients by Age, 2014–2024

	<35		35–64		65+	
Year	Count	Prevalence	Count	Prevalence	Count	Prevalence
2014	9,000	1.6%	164,000	7.1%	426,000	13.8%
2015	9,000	1.6%	162,000	7.0%	426,000	13.6%
2016	9,000	1.6%	160,000	6.8%	426,000	13.5%
2017	8,000	1.6%	158,000	6.6%	426,000	13.3%
2018	8,000	1.6%	156,000	6.5%	424,000	13.1%
2019	7,000	1.6%	154,000	6.3%	422,000	12.9%
2020	7,000	1.6%	152,000	6.2%	417,000	12.8%
2021	6,000	1.6%	150,000	6.1%	412,000	12.7%
2022	6,000	1.5%	148,000	5.9%	407,000	12.5%
2023	5,000	1.5%	146,000	5.8%	403,000	12.4%
2024	5,000	1.5%	144,000	5.8%	399,000	12.3%

SOURCE: RAND analysis of DoD, Census, VA, and MEPS data.

Table C-74. Projected Prevalence of Diagnosed COPD Among VA Patients by Race/Ethnicity, 2014–2024

	White, non-Hispanic		Black, non-Hispanic		Hispanic		Asian/Other	
Year	Count	Prevalence	Count	Prevalence	Count	Prevalence	Count	Prevalence
2014	526,000	11.1%	44,000	6.7%	17,000	5.1%	11,000	5.9%
2015	523,000	11.0%	45,000	6.7%	18,000	5.0%	12,000	5.8%
2016	519,000	10.8%	46,000	6.7%	18,000	5.0%	12,000	5.7%
2017	514,000	10.7%	47,000	6.6%	19,000	4.9%	13,000	5.7%
2018	508,000	10.6%	48,000	6.6%	19,000	4.9%	13,000	5.7%
2019	501,000	10.5%	49,000	6.6%	19,000	4.9%	13,000	5.7%
2020	492,000	10.4%	50,000	6.6%	20,000	4.9%	14,000	5.7%
2021	484,000	10.3%	50,000	6.6%	20,000	4.8%	14,000	5.6%

Year	White, non-Hispanic		Black, non-Hispanic		Hispanic		Asian/Other	
	Count	Prevalence	Count	Prevalence	Count	Prevalence	Count	Prevalence
2022	476,000	10.2%	51,000	6.6%	21,000	4.8%	14,000	5.7%
2023	468,000	10.1%	51,000	6.6%	21,000	4.8%	15,000	5.7%
2024	460,000	10.0%	51,000	6.6%	21,000	4.8%	15,000	5.7%

SOURCE: RAND analysis of DoD, Census, VA, and MEPS data.

C.4.2.5 Diabetes Among VA Patients

Table C-75. Projected Prevalence of Diagnosed Diabetes Among VA Patients by Sex, 2014–2024

Year	Male		Female		Total	
	Count	Prevalence	Count	Prevalence	Count	Prevalence
2014	1,707,000	31.2%	81,000	19.3%	1,788,000	30.3%
2015	1,741,000	31.4%	88,000	19.8%	1,829,000	30.5%
2016	1,776,000	31.7%	95,000	20.4%	1,871,000	30.9%
2017	1,807,000	32.1%	102,000	21.1%	1,909,000	31.3%
2018	1,834,000	32.5%	110,000	21.9%	1,944,000	31.7%
2019	1,857,000	32.9%	118,000	22.6%	1,975,000	32.1%
2020	1,872,000	33.4%	126,000	23.4%	1,998,000	32.5%
2021	1,887,000	33.8%	134,000	24.2%	2,021,000	32.9%
2022	1,902,000	34.3%	142,000	25.1%	2,044,000	33.4%
2023	1,916,000	34.8%	151,000	26.0%	2,067,000	33.9%
2024	1,930,000	35.3%	160,000	26.9%	2,090,000	34.4%

SOURCE: RAND analysis of DoD, Census, VA, and MEPS data.

Table C-76. Projected Prevalence of Diagnosed Diabetes Among VA Patients by Age, 2014–2024

Year	<35		35–64		65+	
	Count	Prevalence	Count	Prevalence	Count	Prevalence
2014	19,000	3.7%	487,000	21.2%	1,281,000	41.6%
2015	20,000	3.8%	496,000	21.3%	1,313,000	42.1%
2016	20,000	3.9%	503,000	21.3%	1,347,000	42.5%
2017	20,000	4.0%	510,000	21.4%	1,378,000	43.0%
2018	20,000	4.1%	517,000	21.4%	1,407,000	43.5%
2019	20,000	4.2%	522,000	21.4%	1,433,000	44.0%
2020	19,000	4.3%	528,000	21.5%	1,451,000	44.5%
2021	18,000	4.4%	534,000	21.6%	1,468,000	45.1%
2022	17,000	4.5%	542,000	21.8%	1,485,000	45.7%
2023	16,000	4.5%	549,000	22.0%	1,503,000	46.3%
2024	15,000	4.5%	555,000	22.2%	1,520,000	46.9%

SOURCE: RAND analysis of DoD, Census, VA, and MEPS data.

Table C-77. Projected Prevalence of Diagnosed Diabetes Among VA Patients by Race/Ethnicity, 2014–2024

Year	White, non-Hispanic		Black, non-Hispanic		Hispanic		Asian/Other	
	Count	Prevalence	Count	Prevalence	Count	Prevalence	Count	Prevalence

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Year	White, non-Hispanic		Black, non-Hispanic		Hispanic		Asian/Other	
	Count	Prevalence	Count	Prevalence	Count	Prevalence	Count	Prevalence
2014	1,433,000	30.3%	205,000	31.6%	100,000	29.8%	50,000	26.2%
2015	1,455,000	30.6%	215,000	32.0%	106,000	30.0%	53,000	26.2%
2016	1,478,000	30.9%	226,000	32.6%	111,000	30.5%	56,000	26.5%
2017	1,497,000	31.2%	236,000	33.2%	117,000	31.0%	59,000	26.8%
2018	1,513,000	31.6%	246,000	33.9%	123,000	31.5%	62,000	27.2%
2019	1,527,000	31.9%	255,000	34.6%	128,000	32.1%	65,000	27.6%
2020	1,532,000	32.3%	264,000	35.3%	133,000	32.6%	68,000	28.0%
2021	1,538,000	32.6%	272,000	36.0%	139,000	33.2%	71,000	28.5%
2022	1,546,000	33.1%	280,000	36.7%	144,000	33.9%	74,000	29.1%
2023	1,552,000	33.5%	289,000	37.5%	149,000	34.6%	77,000	29.6%
2024	1,559,000	33.9%	296,000	38.3%	155,000	35.3%	80,000	30.2%

SOURCE: RAND analysis of DoD, Census, VA, and MEPS data.

C.4.2.6 Gastroesophageal Reflux Disease Among VA Patients

Table C-78. Projected Prevalence of Diagnosed Gastroesophageal Reflux Disease Among VA Patients by Sex, 2014–2024

Year	Male		Female		Total	
	Count	Prevalence	Count	Prevalence	Count	Prevalence
2014	947,000	17.3%	64,000	15.3%	1,011,000	17.1%
2015	965,000	17.4%	69,000	15.6%	1,034,000	17.3%
2016	982,000	17.6%	74,000	16.0%	1,056,000	17.4%
2017	998,000	17.8%	80,000	16.4%	1,078,000	17.6%
2018	1,012,000	18.0%	85,000	16.9%	1,097,000	17.9%
2019	1,023,000	18.2%	90,000	17.3%	1,113,000	18.1%
2020	1,029,000	18.3%	96,000	17.8%	1,125,000	18.3%
2021	1,035,000	18.5%	101,000	18.3%	1,136,000	18.5%
2022	1,041,000	18.8%	107,000	18.8%	1,148,000	18.8%
2023	1,046,000	19.0%	112,000	19.3%	1,158,000	19.0%
2024	1,051,000	19.2%	118,000	19.8%	1,169,000	19.3%

SOURCE: RAND analysis of DoD, Census, VA, and MEPS data.

Table C-79. Projected Prevalence of Diagnosed Gastroesophageal Reflux Disease Among VA Patients by Age, 2014–2024

Year	<35		35–64		65+	
	Count	Prevalence	Count	Prevalence	Count	Prevalence
2014	19,000	3.7%	341,000	14.8%	651,000	21.2%
2015	20,000	3.8%	346,000	14.8%	668,000	21.4%
2016	20,000	3.9%	351,000	14.9%	685,000	21.6%
2017	20,000	4.0%	356,000	14.9%	701,000	21.9%
2018	20,000	4.0%	361,000	14.9%	716,000	22.1%
2019	19,000	4.1%	365,000	15.0%	729,000	22.4%
2020	18,000	4.2%	370,000	15.1%	736,000	22.6%
2021	18,000	4.3%	376,000	15.2%	743,000	22.8%
2022	17,000	4.3%	381,000	15.3%	750,000	23.1%

	<35		35–64		65+	
Year	Count	Prevalence	Count	Prevalence	Count	Prevalence
2023	15,000	4.4%	386,000	15.5%	757,000	23.3%
2024	14,000	4.4%	391,000	15.6%	764,000	23.6%

SOURCE: RAND analysis of DoD, Census, VA, and MEPS data.

Table C-80. Projected Prevalence of Diagnosed Gastroesophageal Reflux Disease Among VA Patients by Race/Ethnicity, 2014–2024

	White, non-Hispanic		Black, non-Hispanic		Hispanic		Asian/Other	
Year	Count	Prevalence	Count	Prevalence	Count	Prevalence	Count	Prevalence
2014	883,000	18.7%	86,000	13.2%	26,000	7.7%	16,000	8.6%
2015	898,000	18.9%	91,000	13.5%	27,000	7.8%	18,000	8.7%
2016	914,000	19.1%	95,000	13.7%	29,000	7.9%	19,000	8.8%
2017	928,000	19.3%	100,000	14.0%	31,000	8.1%	20,000	9.0%
2018	939,000	19.6%	104,000	14.3%	32,000	8.3%	21,000	9.2%
2019	949,000	19.8%	108,000	14.7%	34,000	8.5%	22,000	9.4%
2020	953,000	20.1%	112,000	15.0%	36,000	8.7%	23,000	9.6%
2021	958,000	20.3%	116,000	15.3%	37,000	8.9%	25,000	9.9%
2022	963,000	20.6%	119,000	15.7%	39,000	9.1%	26,000	10.1%
2023	968,000	20.9%	123,000	16.0%	40,000	9.3%	27,000	10.3%
2024	972,000	21.2%	127,000	16.3%	42,000	9.6%	28,000	10.6%

SOURCE: RAND analysis of DoD, Census, VA, and MEPS data.

C.4.2.7 Hearing Loss Among VA Patients

Table C-81. Projected Prevalence of Diagnosed Hearing Loss Among VA Patients by Sex, 2014–2024

	Male		Female		Total	
Year	Count	Prevalence	Count	Prevalence	Count	Prevalence
2014	379,000	6.9%	10,000	2.3%	389,000	6.6%
2015	402,000	7.2%	11,000	2.4%	413,000	6.9%
2016	425,000	7.6%	12,000	2.5%	437,000	7.2%
2017	449,000	8.0%	13,000	2.7%	462,000	7.6%
2018	472,000	8.4%	14,000	2.8%	486,000	7.9%
2019	494,000	8.8%	16,000	3.0%	510,000	8.3%
2020	516,000	9.2%	17,000	3.2%	533,000	8.7%
2021	539,000	9.6%	19,000	3.4%	558,000	9.1%
2022	562,000	10.1%	21,000	3.7%	583,000	9.5%
2023	585,000	10.6%	23,000	4.0%	608,000	10.0%
2024	610,000	11.1%	25,000	4.2%	635,000	10.5%

SOURCE: RAND analysis of DoD, Census, VA, and MEPS data.

Table C-82. Projected Prevalence of Diagnosed Hearing Loss Among VA Patients by Age, 2014–2024

	<35		35–64		65+	
Year	Count	Prevalence	Count	Prevalence	Count	Prevalence
2014	2,000	0.4%	57,000	2.5%	329,000	10.7%

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Year	<35 Count	<35 Prevalence	35–64 Count	35–64 Prevalence	65+ Count	65+ Prevalence
2015	3,000	0.5%	59,000	2.5%	351,000	11.2%
2016	3,000	0.5%	61,000	2.6%	373,000	11.8%
2017	3,000	0.5%	64,000	2.7%	395,000	12.3%
2018	3,000	0.6%	66,000	2.7%	417,000	12.9%
2019	3,000	0.6%	69,000	2.8%	439,000	13.5%
2020	3,000	0.7%	71,000	2.9%	459,000	14.1%
2021	3,000	0.7%	75,000	3.0%	480,000	14.8%
2022	3,000	0.7%	78,000	3.1%	502,000	15.4%
2023	3,000	0.8%	82,000	3.3%	524,000	16.2%
2024	3,000	0.8%	85,000	3.4%	547,000	16.9%

SOURCE: RAND analysis of DoD, Census, VA, and MEPS data.

Table C-83. Projected Prevalence of Diagnosed Hearing Loss Among VA Patients by Race/Ethnicity, 2014–2024

Year	White, non-Hispanic Count	White, non-Hispanic Prevalence	Black, non-Hispanic Count	Black, non-Hispanic Prevalence	Hispanic Count	Hispanic Prevalence	Asian/Other Count	Asian/Other Prevalence
2014	360,000	7.6%	14,000	2.2%	8,000	2.4%	6,000	3.1%
2015	381,000	8.0%	16,000	2.4%	9,000	2.5%	7,000	3.3%
2016	403,000	8.4%	17,000	2.5%	10,000	2.7%	7,000	3.4%
2017	424,000	8.8%	19,000	2.6%	11,000	2.8%	8,000	3.6%
2018	445,000	9.3%	20,000	2.8%	12,000	3.0%	9,000	3.8%
2019	466,000	9.7%	22,000	3.0%	13,000	3.2%	9,000	4.0%
2020	486,000	10.2%	24,000	3.2%	14,000	3.4%	10,000	4.2%
2021	506,000	10.7%	25,000	3.4%	15,000	3.6%	11,000	4.4%
2022	527,000	11.3%	27,000	3.6%	16,000	3.8%	12,000	4.7%
2023	548,000	11.8%	29,000	3.8%	17,000	4.0%	13,000	5.0%
2024	570,000	12.4%	31,000	4.1%	19,000	4.3%	14,000	5.3%

SOURCE: RAND analysis of DoD, Census, VA, and MEPS data.

C.4.2.8   Hypertension among VA Patients

Table C-84. Projected Prevalence of Diagnosed Hypertension Among VA Patients by Sex, 2014–2024

Year	Male Count	Male Prevalence	Female Count	Female Prevalence	Total Count	Total Prevalence
2014	3,227,000	58.9%	162,000	38.4%	3,389,000	57.4%
2015	3,276,000	59.1%	174,000	39.1%	3,450,000	57.6%
2016	3,324,000	59.4%	186,000	40.1%	3,510,000	58.0%
2017	3,365,000	59.9%	199,000	41.1%	3,564,000	58.4%
2018	3,397,000	60.3%	213,000	42.2%	3,610,000	58.8%
2019	3,422,000	60.7%	226,000	43.3%	3,648,000	59.2%
2020	3,428,000	61.1%	239,000	44.4%	3,667,000	59.6%
2021	3,434,000	61.5%	252,000	45.6%	3,686,000	60.1%
2022	3,439,000	62.0%	266,000	46.8%	3,705,000	60.6%
2023	3,443,000	62.5%	280,000	48.1%	3,723,000	61.1%

Year	Male		Female		Total	
	Count	Prevalence	Count	Prevalence	Count	Prevalence
2024	3,445,000	62.9%	293,000	49.3%	3,738,000	61.6%

SOURCE: RAND analysis of DoD, Census, VA, and MEPS data.

Table C-85. Projected Prevalence of Diagnosed Hypertension Among VA Patients by Age, 2014–2024

	<35		35-64		65+	
Year	Count	Prevalence	Count	Prevalence	Count	Prevalence
2014	41,000	7.9%	1,058,000	46.0%	2,289,000	74.4%
2015	43,000	8.0%	1,072,000	45.9%	2,336,000	74.8%
2016	44,000	8.3%	1,083,000	45.8%	2,384,000	75.2%
2017	43,000	8.5%	1,094,000	45.8%	2,427,000	75.7%
2018	43,000	8.8%	1,103,000	45.7%	2,464,000	76.1%
2019	42,000	9.0%	1,110,000	45.6%	2,496,000	76.5%
2020	40,000	9.2%	1,120,000	45.6%	2,507,000	77.0%
2021	38,000	9.4%	1,130,000	45.7%	2,517,000	77.4%
2022	36,000	9.5%	1,141,000	45.9%	2,527,000	77.8%
2023	34,000	9.6%	1,152,000	46.1%	2,536,000	78.2%
2024	31,000	9.6%	1,161,000	46.4%	2,546,000	78.6%

SOURCE: RAND analysis of DoD, Census, VA, and MEPS data.

Table C-86. Projected Prevalence of Diagnosed Hypertension Among VA Patients by Race/Ethnicity, 2014–2024

Year	White, non-Hispanic		Black, non-Hispanic		Hispanic		Asian/Other	
	Count	Prevalence	Count	Prevalence	Count	Prevalence	Count	Prevalence
2014	2,753,000	58.3%	398,000	61.2%	152,000	45.2%	86,000	44.7%
2015	2,785,000	58.5%	415,000	61.7%	160,000	45.5%	90,000	44.6%
2016	2,816,000	58.8%	432,000	62.4%	168,000	46.0%	95,000	44.9%
2017	2,841,000	59.2%	448,000	63.1%	176,000	46.6%	100,000	45.4%
2018	2,858,000	59.6%	463,000	63.9%	184,000	47.4%	105,000	45.9%
2019	2,870,000	60.0%	477,000	64.6%	192,000	48.0%	110,000	46.4%
2020	2,864,000	60.3%	489,000	65.4%	199,000	48.7%	114,000	47.0%
2021	2,860,000	60.7%	501,000	66.2%	206,000	49.5%	119,000	47.7%
2022	2,856,000	61.1%	512,000	67.0%	214,000	50.3%	124,000	48.4%
2023	2,851,000	61.5%	522,000	67.9%	221,000	51.2%	128,000	49.2%
2024	2,846,000	62.0%	531,000	68.6%	228,000	52.0%	133,000	50.0%

SOURCE: RAND analysis of DoD, Census, VA, and MEPS data.

C.4.2.9   Ischemic Heart Disease Among VA Patients

See also related sensitivity analysis in Appendix C.4.5.

Table C-87. Projected Prevalence of Diagnosed Ischemic Heart Disease Among VA Patients by Sex, 2014–2024

Year	Male		Female		Total	
	Count	Prevalence	Count	Prevalence	Count	Prevalence

Year	Male Count	Male Prevalence	Female Count	Female Prevalence	Total Count	Total Prevalence
2014	1,092,000	19.9%	23,000	5.3%	1,115,000	18.9%
2015	1,077,000	19.4%	23,000	5.2%	1,100,000	18.4%
2016	1,061,000	19.0%	24,000	5.1%	1,085,000	17.9%
2017	1,043,000	18.5%	24,000	5.0%	1,067,000	17.5%
2018	1,022,000	18.1%	25,000	5.0%	1,047,000	17.1%
2019	999,000	17.7%	26,000	4.9%	1,025,000	16.6%
2020	972,000	17.3%	26,000	4.9%	998,000	16.2%
2021	945,000	16.9%	27,000	4.9%	972,000	15.8%
2022	919,000	16.6%	28,000	4.9%	947,000	15.5%
2023	893,000	16.2%	28,000	4.9%	921,000	15.1%
2024	868,000	15.9%	29,000	4.9%	897,000	14.8%

SOURCE: RAND analysis of DoD, Census, VA, and MEPS data.

Table C-88. Projected Prevalence of Diagnosed Ischemic Heart Disease Among VA Patients by Age, 2014–2024

Year	<35 Count	<35 Prevalence	35–64 Count	35–64 Prevalence	65+ Count	65+ Prevalence
2014	2,000	0.4%	191,000	8.3%	921,000	29.9%
2015	2,000	0.4%	184,000	7.9%	914,000	29.3%
2016	2,000	0.4%	176,000	7.4%	907,000	28.6%
2017	2,000	0.4%	168,000	7.0%	897,000	28.0%
2018	2,000	0.4%	161,000	6.7%	884,000	27.3%
2019	2,000	0.4%	154,000	6.3%	870,000	26.7%
2020	2,000	0.4%	147,000	6.0%	849,000	26.1%
2021	1,000	0.4%	141,000	5.7%	829,000	25.5%
2022	1,000	0.3%	136,000	5.5%	809,000	24.9%
2023	1,000	0.3%	131,000	5.2%	790,000	24.3%
2024	1,000	0.3%	126,000	5.0%	770,000	23.8%

SOURCE: RAND analysis of DoD, Census, VA, and MEPS data.

Table C-89. Projected Prevalence of Diagnosed Ischemic Heart Disease Among VA Patients by Race/Ethnicity, 2014–2024

Year	White, non-Hispanic Count	White, non-Hispanic Prevalence	Black, non-Hispanic Count	Black, non-Hispanic Prevalence	Hispanic Count	Hispanic Prevalence	Asian/Other Count	Asian/Other Prevalence
2014	972,000	20.6%	84,000	13.0%	38,000	11.2%	21,000	10.9%
2015	955,000	20.1%	85,000	12.7%	38,000	10.9%	21,000	10.5%
2016	938,000	19.6%	86,000	12.4%	39,000	10.7%	22,000	10.2%
2017	919,000	19.2%	86,000	12.2%	40,000	10.5%	22,000	10.0%
2018	898,000	18.7%	87,000	12.0%	40,000	10.3%	22,000	9.7%
2019	875,000	18.3%	87,000	11.8%	40,000	10.1%	23,000	9.5%
2020	848,000	17.9%	87,000	11.6%	41,000	9.9%	23,000	9.3%
2021	822,000	17.4%	86,000	11.4%	41,000	9.8%	23,000	9.2%
2022	797,000	17.0%	86,000	11.2%	41,000	9.6%	23,000	9.0%
2023	772,000	16.7%	85,000	11.1%	41,000	9.5%	23,000	8.9%
2024	748,000	16.3%	85,000	10.9%	41,000	9.4%	23,000	8.7%

	White, non-Hispanic		Black, non-Hispanic		Hispanic		Asian/Other	
Year	Count	Prevalence	Count	Prevalence	Count	Prevalence	Count	Prevalence

SOURCE: RAND analysis of DoD, Census, VA, and MEPS data.

C.4.2.10 Lipid Disorder Among VA Patients

Table C-90. Projected Prevalence of Diagnosed Lipid Disorder Among VA Patients by Sex, 2014–2024

	Male		Female		Total	
Year	Count	Prevalence	Count	Prevalence	Count	Prevalence
2014	2,730,000	49.8%	116,000	27.4%	2,846,000	48.2%
2015	2,744,000	49.5%	123,000	27.6%	2,867,000	47.9%
2016	2,758,000	49.3%	130,000	28.1%	2,888,000	47.7%
2017	2,766,000	49.2%	138,000	28.5%	2,904,000	47.6%
2018	2,767,000	49.1%	146,000	29.1%	2,913,000	47.5%
2019	2,763,000	49.0%	154,000	29.6%	2,917,000	47.4%
2020	2,742,000	48.9%	162,000	30.2%	2,904,000	47.2%
2021	2,721,000	48.7%	170,000	30.8%	2,891,000	47.1%
2022	2,701,000	48.7%	178,000	31.4%	2,879,000	47.1%
2023	2,680,000	48.6%	186,000	32.0%	2,866,000	47.0%
2024	2,659,000	48.6%	194,000	32.6%	2,853,000	47.0%

SOURCE: RAND analysis of DoD, Census, VA, and MEPS data.

Table C-91. Projected Prevalence of Diagnosed Lipid Disorder Among VA Patients by Age, 2014–2024

	<35		35-64		65+	
Year	Count	Prevalence	Count	Prevalence	Count	Prevalence
2014	23,000	4.4%	855,000	37.1%	1,968,000	63.9%
2015	23,000	4.4%	852,000	36.5%	1,991,000	63.8%
2016	23,000	4.4%	848,000	35.9%	2,017,000	63.7%
2017	23,000	4.5%	844,000	35.3%	2,037,000	63.5%
2018	22,000	4.6%	838,000	34.7%	2,053,000	63.4%
2019	22,000	4.6%	831,000	34.1%	2,064,000	63.3%
2020	20,000	4.7%	827,000	33.7%	2,056,000	63.1%
2021	19,000	4.7%	824,000	33.3%	2,049,000	63.0%
2022	18,000	4.6%	821,000	33.0%	2,040,000	62.8%
2023	16,000	4.5%	819,000	32.8%	2,032,000	62.6%
2024	15,000	4.5%	815,000	32.6%	2,024,000	62.5%

SOURCE: RAND analysis of DoD, Census, VA, and MEPS data.

Table C-92. Projected Prevalence of Diagnosed Lipid Disorder Among VA Patients by Race/Ethnicity, 2014–2024

	White, non-Hispanic		Black, non-Hispanic		Hispanic		Asian/Other	
Year	Count	Prevalence	Count	Prevalence	Count	Prevalence	Count	Prevalence
2014	2,412,000	51.1%	243,000	37.3%	120,000	35.6%	71,000	37.1%
2015	2,417,000	50.7%	251,000	37.3%	125,000	35.4%	74,000	36.6%
2016	2,422,000	50.6%	260,000	37.5%	130,000	35.5%	77,000	36.5%

	White, non-Hispanic		Black, non-Hispanic		Hispanic		Asian/Other	
Year	Count	Prevalence	Count	Prevalence	Count	Prevalence	Count	Prevalence
2017	2,421,000	50.5%	268,000	37.7%	135,000	35.6%	80,000	36.4%
2018	2,415,000	50.4%	276,000	38.0%	139,000	35.8%	83,000	36.5%
2019	2,405,000	50.2%	282,000	38.3%	144,000	36.0%	86,000	36.5%
2020	2,379,000	50.1%	288,000	38.5%	148,000	36.2%	89,000	36.6%
2021	2,354,000	50.0%	294,000	38.8%	152,000	36.4%	92,000	36.8%
2022	2,331,000	49.9%	299,000	39.1%	156,000	36.6%	94,000	37.0%
2023	2,307,000	49.8%	304,000	39.4%	160,000	37.0%	97,000	37.2%
2024	2,283,000	49.7%	307,000	39.7%	163,000	37.2%	100,000	37.5%

SOURCE: RAND analysis of DoD, Census, VA, and MEPS data.

C.4.2.11 Lower Back Pain Among VA Patients

Table C-93. Projected Prevalence of Diagnosed Lower Back Pain Among VA Patients by Sex, 2014–2024

	Male		Female		Total	
Year	Count	Prevalence	Count	Prevalence	Count	Prevalence
2014	986,000	18.0%	77,000	18.2%	1,063,000	18.0%
2015	1,013,000	18.3%	82,000	18.6%	1,095,000	18.3%
2016	1,040,000	18.6%	88,000	19.0%	1,128,000	18.6%
2017	1,065,000	18.9%	95,000	19.5%	1,160,000	19.0%
2018	1,087,000	19.3%	101,000	20.0%	1,188,000	19.3%
2019	1,107,000	19.6%	107,000	20.5%	1,214,000	19.7%
2020	1,122,000	20.0%	113,000	21.0%	1,235,000	20.1%
2021	1,137,000	20.4%	119,000	21.5%	1,256,000	20.5%
2022	1,152,000	20.8%	125,000	22.0%	1,277,000	20.9%
2023	1,165,000	21.1%	131,000	22.5%	1,296,000	21.3%
2024	1,179,000	21.5%	137,000	23.0%	1,316,000	21.7%

SOURCE: RAND analysis of DoD, Census, VA, and MEPS data.

Table C-94. Projected Prevalence of Diagnosed Lower Back Pain Among VA Patients by Age, 2014–2024

	<35		35–64		65+	
Year	Count	Prevalence	Count	Prevalence	Count	Prevalence
2014	63,000	12.0%	417,000	18.1%	583,000	18.9%
2015	66,000	12.3%	429,000	18.4%	602,000	19.3%
2016	67,000	12.6%	441,000	18.7%	621,000	19.6%
2017	66,000	13.0%	453,000	19.0%	640,000	20.0%
2018	65,000	13.4%	465,000	19.3%	657,000	20.3%
2019	64,000	13.8%	477,000	19.6%	673,000	20.6%
2020	62,000	14.1%	489,000	19.9%	684,000	21.0%
2021	59,000	14.4%	501,000	20.3%	695,000	21.4%
2022	56,000	14.7%	514,000	20.6%	707,000	21.8%
2023	53,000	14.9%	525,000	21.0%	719,000	22.2%
2024	49,000	15.1%	536,000	21.4%	731,000	22.6%

SOURCE: RAND analysis of DoD, Census, VA, and MEPS data.

Table C-95. Projected Prevalence of Diagnosed Lower Back Pain Among VA Patients by Race/Ethnicity, 2014–2024

	White, non-Hispanic		Black, non-Hispanic		Hispanic		Asian/Other	
Year	Count	Prevalence	Count	Prevalence	Count	Prevalence	Count	Prevalence
2014	910,000	19.3%	84,000	12.9%	42,000	12.6%	26,000	13.8%
2015	933,000	19.6%	89,000	13.2%	45,000	12.9%	28,000	14.0%
2016	957,000	20.0%	94,000	13.5%	48,000	13.2%	30,000	14.4%
2017	978,000	20.4%	98,000	13.8%	51,000	13.5%	33,000	14.8%
2018	996,000	20.8%	103,000	14.2%	54,000	13.8%	35,000	15.1%
2019	1,013,000	21.2%	107,000	14.5%	57,000	14.2%	37,000	15.5%
2020	1,026,000	21.6%	111,000	14.9%	59,000	14.5%	39,000	15.9%
2021	1,038,000	22.0%	115,000	15.2%	62,000	14.8%	41,000	16.3%
2022	1,051,000	22.5%	119,000	15.6%	65,000	15.2%	43,000	16.7%
2023	1,062,000	22.9%	123,000	16.0%	67,000	15.6%	45,000	17.1%
2024	1,073,000	23.4%	127,000	16.4%	70,000	15.9%	47,000	17.5%

SOURCE: RAND analysis of DoD, Census, VA, and MEPS data.

C.4.2.12 Malignant Cancers Among VA Patients

Table C-96. Projected Prevalence of Diagnosed Malignant Cancers Among VA Patients by Sex, 2014–2024

	Male		Female		Total	
Year	Count	Prevalence	Count	Prevalence	Count	Prevalence
2014	1,080,000	19.7%	42,000	9.9%	1,122,000	19.0%
2015	1,101,000	19.9%	45,000	10.1%	1,146,000	19.1%
2016	1,122,000	20.1%	48,000	10.4%	1,170,000	19.3%
2017	1,141,000	20.3%	52,000	10.7%	1,193,000	19.5%
2018	1,158,000	20.6%	56,000	11.0%	1,214,000	19.8%
2019	1,172,000	20.8%	59,000	11.4%	1,231,000	20.0%
2020	1,179,000	21.0%	63,000	11.8%	1,242,000	20.2%
2021	1,186,000	21.2%	68,000	12.2%	1,254,000	20.4%
2022	1,193,000	21.5%	72,000	12.7%	1,265,000	20.7%
2023	1,200,000	21.8%	77,000	13.2%	1,277,000	20.9%
2024	1,206,000	22.0%	81,000	13.7%	1,287,000	21.2%

SOURCE: RAND analysis of DoD, Census, VA, and MEPS data.

Table C-97. Projected Prevalence of Diagnosed Malignant Cancers Among VA Patients by Age, 2014–2024

	<35		35-64		65+	
Year	Count	Prevalence	Count	Prevalence	Count	Prevalence
2014	8,000	1.5%	234,000	10.2%	879,000	28.6%
2015	8,000	1.6%	235,000	10.1%	902,000	28.9%
2016	8,000	1.6%	237,000	10.0%	926,000	29.2%
2017	8,000	1.6%	238,000	10.0%	947,000	29.5%
2018	8,000	1.6%	239,000	9.9%	966,000	29.8%
2019	8,000	1.7%	241,000	9.9%	984,000	30.2%
2020	7,000	1.7%	242,000	9.9%	993,000	30.5%

	<35		35-64		65+	
Year	Count	Prevalence	Count	Prevalence	Count	Prevalence
2021	7,000	1.7%	245,000	9.9%	1,002,000	30.8%
2022	7,000	1.7%	248,000	10.0%	1,011,000	31.1%
2023	6,000	1.7%	250,000	10.0%	1,020,000	31.4%
2024	6,000	1.7%	253,000	10.1%	1,029,000	31.8%

SOURCE: RAND analysis of DoD, Census, VA, and MEPS data.

Table C-98. Projected Prevalence of Diagnosed Malignant Cancers Among VA Patients by Race/Ethnicity, 2014–2024

	White, non-Hispanic		Black, non-Hispanic		Hispanic		Asian/Other	
Year	Count	Prevalence	Count	Prevalence	Count	Prevalence	Count	Prevalence
2014	1,026,000	21.7%	58,000	8.9%	24,000	7.1%	14,000	7.3%
2015	1,045,000	21.9%	61,000	9.1%	25,000	7.2%	15,000	7.3%
2016	1,064,000	22.2%	64,000	9.3%	27,000	7.3%	16,000	7.4%
2017	1,081,000	22.5%	67,000	9.5%	28,000	7.5%	17,000	7.5%
2018	1,096,000	22.8%	71,000	9.7%	30,000	7.7%	17,000	7.6%
2019	1,108,000	23.2%	74,000	10.0%	31,000	7.9%	18,000	7.8%
2020	1,114,000	23.4%	77,000	10.3%	33,000	8.0%	19,000	7.9%
2021	1,119,000	23.8%	80,000	10.6%	34,000	8.2%	20,000	8.1%
2022	1,125,000	24.1%	83,000	10.9%	36,000	8.4%	21,000	8.3%
2023	1,131,000	24.4%	86,000	11.2%	37,000	8.7%	22,000	8.5%
2024	1,136,000	24.7%	89,000	11.5%	39,000	8.9%	23,000	8.7%

SOURCE: RAND analysis of DoD, Census, VA, and MEPS data.

C.4.4 Projections of Service-connected Conditions for Veterans and VA Patients

C.4.4.1 Mental Health Conditions Among Veterans

Table C-99. Projected Prevalence of Diagnosed Mental Health Conditions Among Veterans, 2015–2024

Year	Service-connected with Remission		Service-connected without Remission		Age-based	
	Count	Prevalence	Count	Prevalence	Count	Prevalence
2015	4,105,000	19.4%	4,126,000	19.5%	4,248,000	22.8%
2016	4,053,000	19.5%	4,077,000	19.6%	4,296,000	23.7%
2017	4,001,000	19.7%	4,028,000	19.8%	4,339,000	24.6%
2018	3,947,000	19.8%	3,978,000	20.0%	4,380,000	25.6%
2019	3,896,000	20.0%	3,930,000	20.1%	4,418,000	26.6%
2020	3,839,000	20.1%	3,876,000	20.3%	4,455,000	27.6%
2021	3,784,000	20.2%	3,824,000	20.5%	4,489,000	28.7%
2022	3,729,000	20.4%	3,771,000	20.6%	4,520,000	29.8%
2023	3,674,000	20.5%	3,719,000	20.8%	4,547,000	30.9%
2024	3,622,000	20.7%	3,670,000	21.0%	4,573,000	32.0%

SOURCE: RAND analysis of DoD, Census, VA, and MEPS data. Service-connected with remission is the baseline analysis presented in the report. Service-connected without remission uses the same projection method, but sets the first year remission rate to zero. The age-based projections use the same projection method as was used for the other conditions (e.g. diabetes, hypertension).

C.4.4.3 Posttraumatic Stress Disorder Among Veterans

Table C-100. Projected Prevalence of Diagnosed Posttraumatic Stress Disorder Among Veterans, 2015–2024

Year	Service-connected with Remission		Service-connected without Remission	
	Count	Prevalence	Count	Prevalence
2015	602,000	2.8%	619,000	2.9%
2016	604,000	2.9%	624,000	3.0%
2017	601,000	3.0 %	625,000	3.1%
2018	597,000	3.0%	624,000	3.1%
2019	592,000	3.0%	623,000	3.2%
2020	591,000	3.1%	624,000	3.3%
2021	591,000	3.2%	628,000	3.4%
2022	588,000	3.2%	628,000	3.4%
2023	584,000	3.3%	626,000	3.5%
2024	579,000	3.3%	624,000	3.6%

SOURCE: RAND analysis of DoD, Census, VA, and MEPS data. Service-connected with remission is the baseline analysis presented in the report. Service-connected without remission uses the same projection method, but sets the first year remission rate to zero.

C.4.4.4 Mental Health Conditions Among VA Patients

Table C-101. Projected Prevalence of Diagnosed Mental Health Conditions Among VA Patients, 2015–2024

Year	Service-connected with Remission		Service-connected without Remission		Age-based	
	Count	Prevalence	Count	Prevalence	Count	Prevalence
2015	1,707,000	28.5%	1,720,000	28.7%	1,712,000	28.6%
2016	1,775,000	29.3%	1,802,000	29.7%	1,782,000	29.4%
2017	1,835,000	30.0%	1,874,000	30.7%	1,849,000	30.3%
2018	1,886,000	30.7%	1,937,000	31.6%	1,912,000	31.2%
2019	1,931,000	31.4%	1,993,000	32.4%	1,973,000	32.0%
2020	1,961,000	31.9%	2,033,000	33.1%	2,025,000	32.9%
2021	1,987,000	32.4%	2,068,000	33.7%	2,076,000	33.8%
2022	2,011,000	32.9%	2,099,000	34.3%	2,126,000	34.8%
2023	2,031,000	33.3%	2,127,000	34.9%	2,174,000	35.7%
2024	2,049,000	33.8%	2,152,000	35.5%	2,223,000	36.6%

SOURCE: RAND analysis of DoD, Census, VA, and VA encounter data. Service-connected with remission is the baseline analysis presented in the report. Service-connected without remission uses the same projection method, but sets the first year remission rate to zero. The age-based projections use the same projection method as was used for the other conditions (e.g. diabetes, hypertension).

C.4.4.5   Posttraumatic Stress Disorder Among VA Patients

Table C-102. Projected Prevalence of Diagnosed Posttraumatic Stress Disorder Among VA Patients, 2015–2024

Year	Service-connected with Remission		Service-connected without Remission	
	Count	Prevalence	Count	Prevalence
2015	470,000	7.8%	480,000	8.0%
2016	496,000	8.2%	522,000	8.6%
2017	520,000	8.5%	560,000	9.2%
2018	541,000	8.8%	594,000	9.7%
2019	561,000	9.1%	625,000	10.1%
2020	575,000	9.4%	650,000	10.6%
2021	588,000	9.6%	673,000	11.0%
2022	600,000	9.8%	694,000	11.3%
2023	611,000	10.0%	712,000	11.7%
2024	621,000	10.2%	730,000	12.0%

SOURCE: RAND analysis of DoD, Census, VA, and VA encounter data. Service-connected with remission is the baseline analysis presented in the report. Service-connected without remission uses the same projection method, but sets the first year remission rate to zero.

C.4.4.7   Traumatic Brain Injury Among VA Patients

Table C-103. Projected Prevalence of Diagnosed Traumatic Brain Injury Among VA Patients, 2015–2024

Year	Service-connected with Remission		Service-connected without Remission	
	Count	Prevalence	Count	Prevalence
2015	110,000	1.8%	117,000	2.0%
2016	108,000	1.8%	117,000	1.9%
2017	107,000	1.7%	116,000	1.9%
2018	105,000	1.7%	115,000	1.9%
2019	104,000	1.7%	115,000	1.9%
2020	104,000	1.7%	116,000	1.9%
2021	103,000	1.7%	116,000	1.9%
2022	102,000	1.7%	115,000	1.9%
2023	101,000	1.7%	115,000	1.9%
2024	100,000	1.6%	114,000	1.9%

SOURCE: RAND analysis of DoD, Census, VA, and VA encounter data. Service-connected with remission is the baseline analysis presented in the report. Service-connected without remission uses the same projection method, but sets the first year remission rate to zero.

C.4.4.8   Musculoskeletal Conditions with Chronic Pain Among VA Patients

Table C-104. Projected Prevalence of Diagnosed Musculoskeletal Conditions Associated with Chronic Pain Among VA Patients, 2015–2024

Year	Total	
	Count	Prevalence
2015	1,106,000	18.5%
2016	1,167,000	19.3%
2017	1,230,000	20.1%
2018	1,294,000	21.1%
2019	1,361,000	22.1%
2020	1,427,000	23.2%
2021	1,493,000	24.3%
2022	1,558,000	25.5%
2023	1,621,000	26.6%
2024	1,681,000	27.7%

SOURCE: RAND analysis of DoD, Census, VA, and VA encounter data.

C.4.5 Predicted Prevalence using VA Encounter Data: Goodness of Fit

In this section, we provide additional detail about the models we use to predict the prevalence of TBI and musculoskeletal conditions. Predicted prevalence is based on projecting observed information forward, based on logistic regression models fit to VA encounter data. The model is the similar to that used to estimate prevalence with MEPS (model 4 in Appendix C.1.5.2). Our model describes prevalence as a function of Veteran age, sex, and state of residence, and also includes a continuous time effect that captures observed changes in prevalence that go beyond changes expected because of changes in population demographics. These secular changes capture cohort effects that are related to Veteran combat experience. Including these secular trends is important for accurate estimation of demographic effects that are used to project trends forward based on changing demographic characteristics in the projected VA patient population.

The accuracy of predictions, by their very nature, is unknown. However, we can examine how closely our model is able to capture observed trends. Close prediction of observed prevalence rates provides reassurance that our predictions are reasonable. As shown in Figure C-1, our models provided a good fit to the observed prevalence rates and trends. TBI is relatively rare, and at the scale shown, the curvature from the logistic regression fit is evident. However, this reflects very small differences between the observed and estimated prevalence. In 2014, we estimate 1.97 percent TBI prevalence and observe 1.75 percent prevalence, a 0.22 percentage point difference. Estimated prevalence was very close to observed values musculoskeletal conditions. In 2014, we estimate 18.01 percent prevalence of musculoskeletal conditions and observe 17.99 percent prevalence, a 0.02 percentage point difference.

Figure C-1. Predicted Prevalence Goodness of Fit
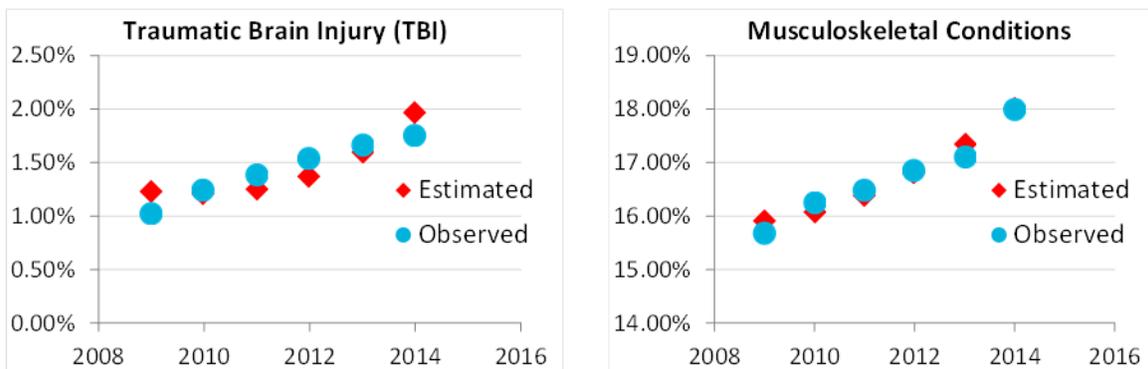
SOURCE: RAND analysis of VA encounter data (2009–2014).

C.4.6 Sensitivity Analyses for Prevalence Projections

Future prevalence often follows demographic trends because aging is a risk factor for many chronic conditions, including IHD. For example, several studies have projected increases in the prevalence of IHD in the overall U.S. population; this result follows from combining static estimates of IHD prevalence with future expected aging (Heidenreich et al., 2011). Similarly, we project that the aging trend for the VA patient population over this period (a one-year

projected increase in mean age—see Section 3) will tend to increase the prevalence of IHD and other chronic conditions. However, prevalence trends often also depend on trends in other risk factors; for example, factors known to affect IHD prevalence (in addition to aging) include smoking, obesity, and usage of preventive medications such as aspirin. Decreases in the incidence of AMI suggest that better treatment and improved risk factor control have reduced the incidence of acute IHD, and may also mitigate or outweigh future increases in chronic acute IHD due to aging. A projection model that solely relies on aging to project future changes would miss such trends.

To better model future prevalence, we developed models that incorporated a nonlinear trend to account for unobservable trends in risk factors. (Data limitations precluded the use of more complex modeling.) The disadvantage of this approach is that a strictly linear trend may not be appropriate, and may exaggerate true changes when extrapolated for longer periods. For example, in projecting the prevalence of CHF, the decreases in prevalence that were evident in MEPS in 2008–2012 translated into unrealistically sharp projected declines during 2015–2024.

To better demonstrate how our assumptions affect projections, we show projections that incorporate a linear trend in prevalence (solid blue lines) alongside "static" projections (dashed gray lines), in which future prevalence rates only reflect aging (Figure C-2). In most cases, the differences between the two projections were not large. However, the projected decline in the prevalence of IHD and CHF among Veterans are clearly attributable to the estimated time trend in the prevalence projections, rather than changes in the demographic composition of the population. As discussed above (Section 5), the trends do have relatively wide confidence intervals, which suggests that there is significant uncertainty regarding the magnitude of these declines.

Figure C-2. Veteran Prevalence Projections with and without Time Trends for Common Chronic Conditions
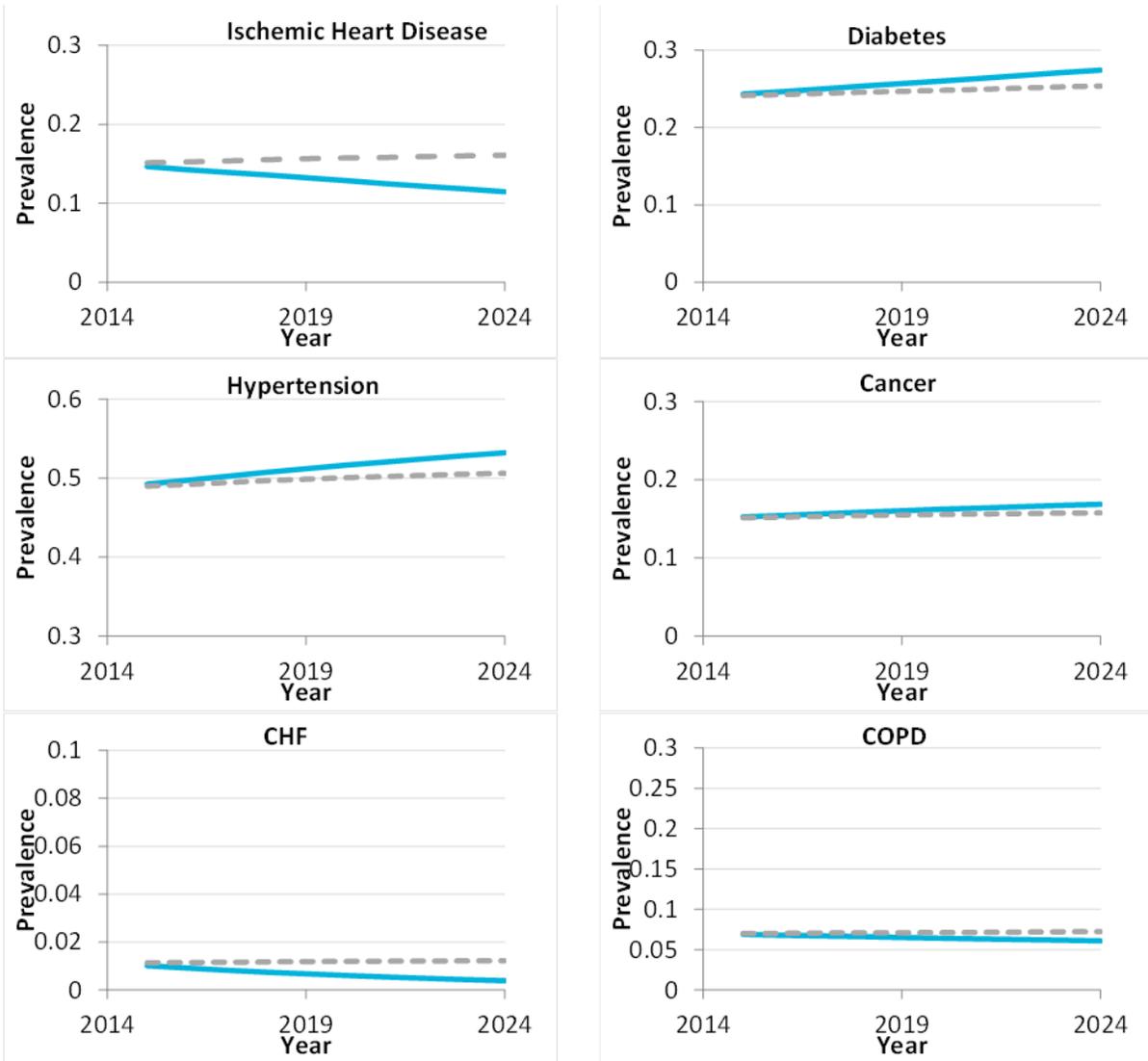
Appendix D   Scenario Development and Evaluation

D.1   Detailed Scenario Evaluation Methods

D.1.1   Changes to VHA Eligibility by Priority Group

D.1.1.1   Priority Group Sorting Algorithm

This section developed an algorithm to sort Veterans in the 2013 ACS Public-Use Microdata Sample (see Section 2.6 for a description of these data) into the VA priority groups. Priority groups determine whether a Veteran is eligible for health services and whether that Veteran will pay copays. All Veterans discharged as Honorable, General, or Uncharacterized and who satisfy the two-year length of service requirement (unless this requirement is waived) are eligible for assignment to one of these priority groups, but eligibility for health services is limited to Veterans in priority groups 1 through 8d. Currently, Veterans in priority groups 8e and 8g and not eligible to use VA services (although those in 8e are eligible for VA services related specifically to their service connected conditions).

Testing the scenarios described above requires not just measures of currently VA enrollees or VA users, but the entire population of Veterans and the corresponding priority group they would be assigned if they were enrolled. Therefore, we construct an algorithm to sort the entire Veteran population in the 2013 ACS PUMS into respective priority groups. We validate this sorting algorithm by comparing the subpopulation of Veterans reporting VA use with the corresponding subpopulation in VA administrative records, demonstrating a close fit. We then implement the scenarios described above, measuring the changes in priority group eligibility and estimating resulting VA users.

Before the algorithm begins, the ACS counts of Veterans are inflated to provide an overall count of the Veteran population in alignment with the RAND model described in the demography section (i.e., 21.9 million Veterans in 2013). The undercounting in the ACS arises from two sources: misreporting by respondents and limitation of the ACS in reaching individuals not living in housing units or group quarters. To address this undercounting, separate Veteran counts were calculated for cells defined by state, age band, sex, and race/ethnicity, then the frequency weights in the corresponding 2013 ACS PUMS cells were inflated to match these counts. Because the VA user counts in the ACS closely match administrative records, VA users were excluded from this process, so only non-patient Veteran cells had their weights inflated to match RAND model cells.

The sorting algorithm then proceeds in two broad steps:

1. Using the information available in the ACS on disability rating, household income, family size, and area of residence, it sequentially sorts Veterans into different priority groups, starting with the highest priority (priority group 1) and proceeding to priority group 5, sorting Veterans previously unassigned into higher groups into a given priority group based on qualifying factors. For example, an individual with service-connected disability rating of 100 percent (entitling this Veteran to priority group 1) and income below the National Means Test (entitling this Veteran to priority group 5) is first classified as priority group 1, and by the time the algorithm is assigning individuals priority group 5 status, he is already assigned to priority group 1, so he is not reassigned to priority group 5. At each stage, the pool of Veterans eligible to be assigned to priority group under consideration excludes any Veterans already assigned to a higher priority.

2. After this first-round set of assignments is carried out, the algorithm then reassigns the remaining Veterans who report use of VA to priority groups 1-5 in accordance with various

actuarial adjustments to reflect actual differences in VA patient counts. The algorithm then assigns priority groups 6-8 status to the remaining Veterans, using both self-reported data and actuarial adjustments. These actuarial adjustments are required for two reasons: item nonresponse or misresponse in fields vital to accurate priority group classification (e.g., service-connected disability ratings), and a lack of elicitations of criteria used by VA (e.g., date of initial enrollment, exact dates of service, possible exposure during service that qualifies Veterans for priority group 6 status). Finally, all Veterans unassigned at this stage who report being VA enrollees are assigned to priority group 8 status.

The ACS directly asks individuals their service-connected disability rating, allowing separate answers for 0 percent, 10–20 percent, 30–40 percent, 50–60 percent, and 70–100 percent. 50 percent or above entitles Veterans to priority group 1; 30–40 percent entitles Veterans to priority group 2; and 10–20 percent entitles Veterans to priority group 3. The algorithm therefore assigns these Veterans accordingly.

Priority group 4—the catastrophically disabled and/or housebound—are assigned based on the presence of ambulatory, independent living, or self-care difficulty, or report a disability or receipt of a disability benefit (Social Security Income or SSDI) *and* household income that falls below the VA housebound threshold.

Priority group 5 eligibility is assigned if any of three criteria are met: the Veteran reports Medicaid coverage; the Veteran reports Social Security Income receipt (which carries with it Medicaid eligibility); or the Veteran's household satisfies the National Income Test, given how many dependents the Veteran has.

However, the count of VA patients in priority group 5 is substantially lower than the actual priority group 5 patients in 2013 from VA administrative records. This deviation may arise from a number of sources, be they non-response or misreporting of household income (or differences in how this income would be deemed by VA); to correct for this deviation, unassigned Veterans who report being VA users are sorted in ascending order according to household income and are sequentially assigned priority group 5 status until the ratio of priority group 5 users to overall VA users agrees with 2013 VA administrative records.

Priority group 6 status is assigned among the remaining Veterans according to service era (inclusively between Vietnam Era to 8/2001) or report a 0 percent service-connected disability. The resulting priority group 6 size is substantially larger than in VA administrative records, since the true qualifying criteria for priority group 6 is a strict subset of these parameters (e.g., the 0 percent service-connected rating must be compensable). The number of priority group 6 VA users is correspondingly reduced (randomly) such that the ratio of priority group 6 users to priority group 5 users in the ACS mirrors that observed in VA administrative records.

However, there remain a substantial portion of potentially eligible VA non-users assigned priority group 6 status; this population is randomly reduced to agree with the ratio of projected eligible priority group 6 Veterans to potentially eligible priority group 5 VA users from the EHCPM model.

Priority group 7 status is assigned according to whether a currently unassigned Veteran satisfies the higher threshold of the National Income Test or the GMT for the number of dependents in that household and the area of residence. Although the ACS provides information on each

respondent's PUMA, the GMT is assessed at the county level. We reconcile these differences by assigning individuals in MSAs the corresponding GMT (for which there is no disconnect) and use the remaining state-level averages of non-MSA counties as the GMT for individuals residing in non-MSA PUMAs in that state.

The algorithm then revisits priority groups 1 through 3, which have previously been undercounted when comparing to VA administrative records. To rectify this issue, a logit model is fit to the likelihood of being previously assigned priority group 1 status (i.e., having reported a service-connected disability rating of at least 50 percent), where predictors include age, family size, race, ethnicity, family income, and era of service. Veterans who report being a VA user but who have not yet been assigned a priority group are then given a predicted probability of being priority group 1 using this logit model and their personal characteristics. They are then sequentially reassigned to priority group 1 by descending order of this probability (i.e., those most likely to be priority group 1 given their characteristics are the first to be assigned priority group 1) until the ratio of priority group 1 VA users to total VA users agrees with VA administrative records. This procedure is repeated sequentially for priority groups 2 and 3 on previously unassigned VA users.

Next, the count of VA patients in priority group 7 is substantially lower than the actual priority group 7 patients in 2013 from VA administrative records. This deviation may arise from a number of sources, be they nonresponse or misreporting of household income (or differences in how this income would be deemed by VA). To correct for this deviation, unassigned Veterans who report being VA users are sorted in ascending order according to household income and are sequentially assigned priority group 7 status until the ratio of priority group 7 users to overall VA users agrees with 2013 VA administrative records. A similar procedure is performed on VA non-users by ascending family income until the ratio of priority group 7 eligible Veterans to priority group 7 VA users matches Vet Pop Proxy predicted values.

Priority group 8b/8d is determined by assigning all remaining Veterans with household income under their GMT+10 percent (see priority group 7 calculation for a discussion of how GMT is determined) for their dependent class to this set of groups. Priority group 8a/8c is assigned to all Veterans reporting being VA users who are not otherwise assigned to a priority group and who do not report a 0 percent service-connected disability rating. Priority group 8e status is assigned to Veterans otherwise unassigned reporting being VA users and report a 0 percent service-connected disability rating.

Priority group 8g status is then assigned to all previously unassigned Veterans. However, this group is reduced by the exclusion of two classes of Veterans: Veterans who were discharged as "Other-than-honorable," "Bad conduct," or "Dishonorably." These discharge categories render the Veteran in question ineligible for VA health services. According to the Defense Department, 5.6 percent of discharges from 2000–2013 fell into this category, so this percent of the total number of Veterans in the ACS is subtracted from the priority group 8g group. The second class of Veterans is those who do not satisfy the required two-year length of service requirement. The size of this population was estimated using the corresponding question in the 2000 Decennial Census, which asks respondents whether they served less than two years. Because this population may contain individuals injured due to service and thus eligible for VA services

regardless of their less-than-two years of service, separate ratios were calculated for the disabled Veteran population and the non-disabled Veteran population, then these ratios were applied to the ACS Veteran population respectively, and the corresponding number of Veterans was subtracted from the priority group 8g pool. It should be noted that because these groups are treated independently, the resulting estimates of the size of these two ineligible groups is mechanically larger than the actual population, leading to the estimated 8g group being an underestimate or lower bound of this group of Veterans. This underestimate is even larger since the method accounting for those who do not satisfy their length-of-service requirement also includes some Veterans who will have received waivers for not satisfying this requirement and thus will be eligible for priority group assignment.

D.1.2   Changes in Presumptive Eligibility

D.1.2.1   Detailed Methodology for Estimating the Impact in Changes in Presumptive Eligibility

We estimated the maximum number of new VA patients that would utilize VA health care if VA decides that hypertension can be presumptively included as a service-connected condition for Veterans who served in the Vietnam Theater. Table D-1 presents our approach.

Table D-1. Estimate for New VA Patients If Hypertension Becomes A Presumptively Service-Connected Condition for Vietnam Veterans (thousands)

	Age of Veteran			Data Source
	58–64	**65–74**	**75–96**	
A. Vietnam Era (VNE) Veterans	1,475	5,015	661	NSV
1. Enrollees (1-6)	742	1,794	342	VA Business Intelligence Data
2. Enrollees (7-8)	195	558	286	VA Business Intelligence Data
3. Vietnam Era Veterans Not Enrolled	538	2,663	32	
4. Non-enrollees with "other than dishonorable" discharges	508	2,513	30	RAND Analysis of ACS Data
B. Vietnam Theater Veterans	319	2,441	322	NSV
C. Proportion of VNE Veterans in Theater (B/A)	0.22	0.49	0.49	
D. Hypertension prevalence (non-user Vietnam Era Veterans)	0.52	0.64	0.61	RAND Analysis of MEPS Data
E. Potential New Enrollees (A4*C*D)	57	779	9	
F. Hypertension Prevalence in current VHA users	0.67	0.71	0.71	RAND Analysis of MEPS Data
G. Estimated Number In Theater (A2*C)	42	272	140	
H. Potential Enrollees (7-8) moving up to a higher priority group (F*G)	28	192	98	

	Age of Veteran			Data Source
	58–64	**65–74**	**75–96**	
I. Estimated use	0.30	0.32	0.24	RAND Analysis of MEPS Data
J. Ceiling estimate for new *users* in priority groups 1-6 who served in theater and have hypertension ((E+H)*I)	25	312	26	
Total	363			

SOURCE: RAND analysis of NSV, MEPS, ACS, and VA Business Intelligence (Enrollment) data.

Since VA data systems do not track whether a Veteran served in the Vietnam Theater, we relied on estimates from NSV for the number of Veterans who served during the Vietnam Era as well as in the Vietnam Theater (rows A and B). We use VA Business Intelligence data on Veterans to estimate the number of VA enrollees by priority group (rows A1 and A2). Given data limitations, we make the simplifying assumption that enrolled Veterans between the ages of 58 and 96 (in 2014) primarily served during the Vietnam Era. Since it is likely that there are enrolled Veterans between those ages who did not serve during the Vietnam Era, this assumption will likely over estimate of the number of Vietnam Era Veterans who are already enrolled (and under estimate the number who are not enrolled in row A3). The error introduced by this assumption is offset by the fact that it is unlikely that all newly eligible Veterans will enroll and become patients, though we use ratios that assume that they will. In row A4, we adjust for the discharge status of Veterans. Based on our analysis of ACS data, we estimate that 94.4 percent of Veterans are discharged with "other than dishonorable" discharges. This is a population-wide estimate for all Veterans. Due to data limitations, we were not able to produce age-specific estimates.

To estimate the prevalence of hypertension, we use the Medical Expenditure Panel Survey (MEPS) Veteran patients and non-patients of VA and who, again by age, are were likely to have served in the Vietnam Era (rows D and F). We then apply the ratio hypertension prevalence and the proportion of Veterans who served in theater to the number of non-enrolled Veterans to produce a high-end estimate of potential new enrollees (row E).

When VA presumes that a health condition is service connected, a Veteran is typically eligible for a priority group of 6 or higher (up to 1). As such, presumptive eligibility determinations also have the effect of "promoting" enrolled Veterans in lower priority groups (7 and 8) to a higher priority group. To produce our estimate of the maximum number of priority group promotions (row H), we apply the hypertension prevalence and proportion of Veterans who served in theater to the number of Veterans enrolled in priority groups 7 and 8.

Up to this point, we have estimated the number of enrolled Veterans. To estimate the number who are likely to become new patients, we apply usage rates (by age) which we estimate using MEPS (row I).

Using the above procedure, we estimate that the maximum number of new VA patients in priority groups 1–6 for this presumptive eligibility scenario to be 363,000 new VA patients.

D.1.3   Potential Impact of Future Conflict on VA Use

D.1.3.1   Maximum and Minimum End-Strengths in the Post-911 Period

Figure D-1 reports the maximum and minimum number of non-civilian U.S. military personnel for each component of each service during the post-9/11 era. The top of each bar indicates the maximum, while the bottom of each bar denotes the minimum. The year to the right of each bar indicates the year in which that extreme occurred. Years before 2014 indicate that extreme value is derived from historical data, and years after 2014 derive from planning documents. For example, the Army reached its largest number (just under 500,000) of enlisted Reservists/National Guard in 2014. For example, the active component of the Army will reach its smallest size in 2019 (around 350,000). Year labels omitted for segments that have not varied by more than 10,000 over the entire post-9/11 period.

Figure D-1 reveals wide variation in end-strengths, both over time and by service. Comparing components, reserve and National Guard components have experienced (or are expected to experience) far more variation in end-strength, compared to active components. However, the air force is a notable exception. Comparing services, the Army has both the largest size and the most variation in size. In all cases, officers comprise a very small portion of total end-strength.

Figure D-1. Maximum and Minimum Non-Civilian U.S. Military Personnel
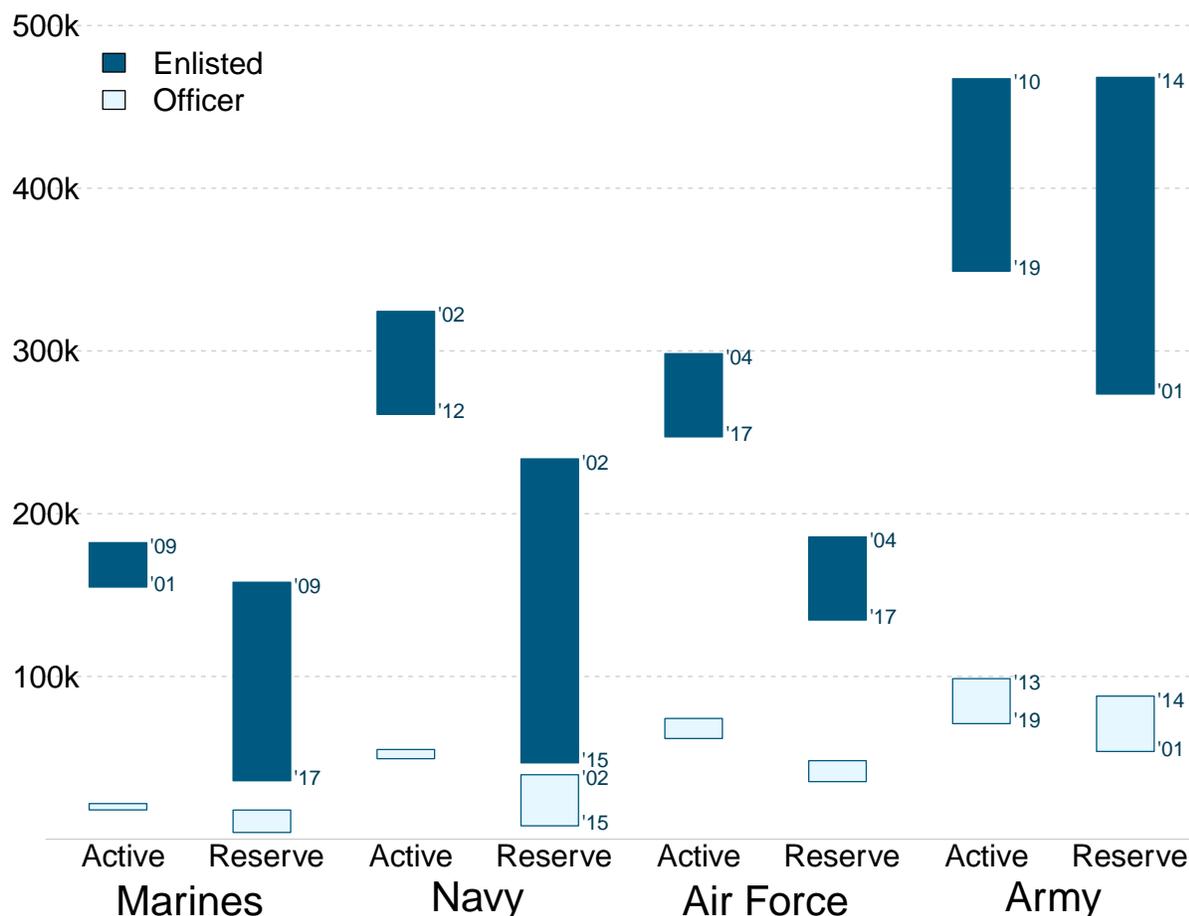
D.1.3.2   Possible Range of Conflict Exposure, By Segment of the Military Personnel

Figure D-2 reports the maximum and minimum percentage of separations in a given year that had been deployed into a combat environment. Following mostly peaceful late 1990s, less than 20 percent of separating service members had been deployed into a combat zone, as shown by the bottoms of the bars. During the latter years of the Afghanistan and Iraq missions, over 60 percent of active component separators had experienced at least one deployment. Several aspects of D-2 are notable. First, officers in the active components all tended to experience higher rates of conflict exposure than the enlisted members of their service. Second, Marines and soldiers experienced significantly higher maximum rates of conflict exposure than airmen and sailors. Third, even among those separating before the start of the Iraq and Afghanistan missions and after serving during the mostly peaceful late 1990s, conflict exposure rates for active component separating service members hovered around 10 percent, not 0 percent.

Figure D-2. Maximum and Minimum Rates of Hostile Deployment
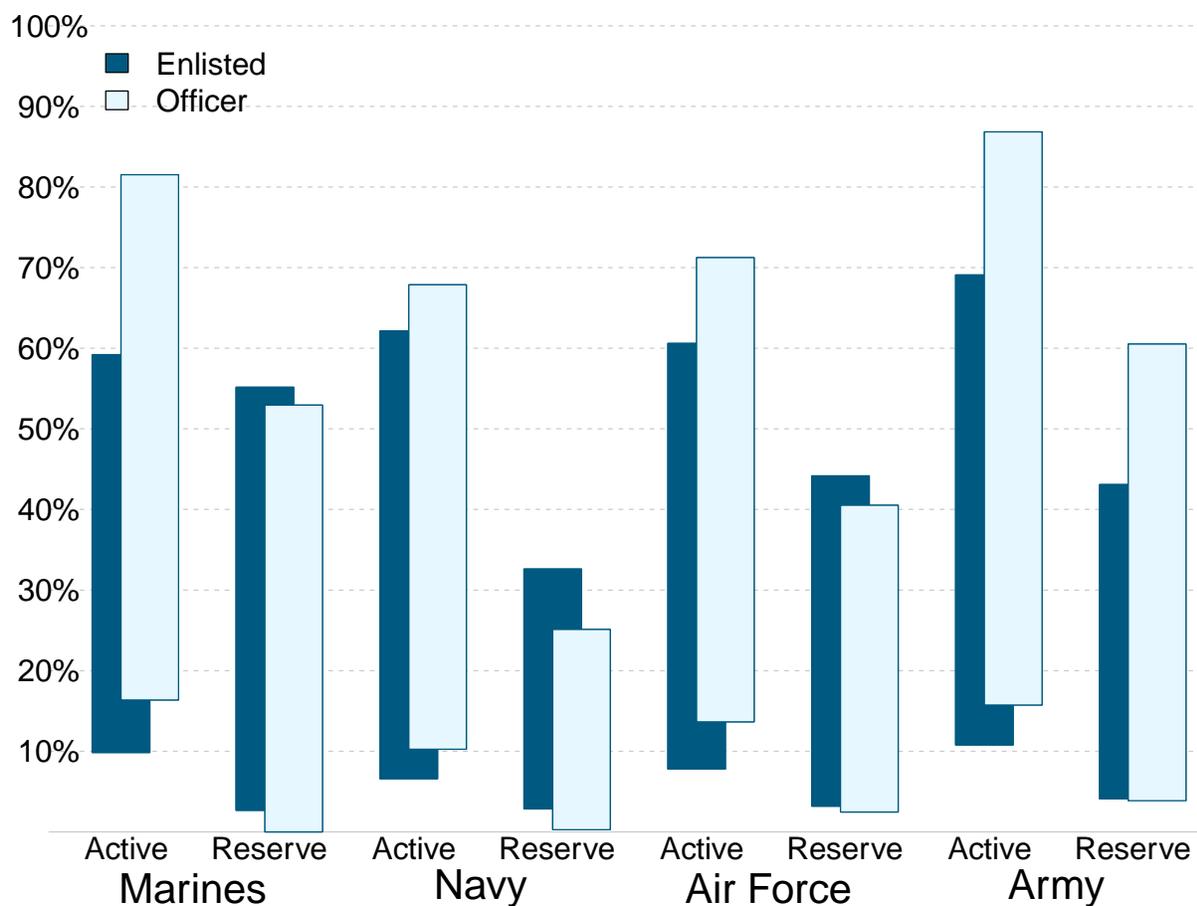
SOURCE: DoD Administrative data (2014)

D.1.3.3   Typical Length of Service

Figure D-3 reports the percentile distribution of active officers/enlisted separating with a given number of years of service for each year between 2000 and 2014. The top panel reports years of service for enlisted members of the active component military. The bottom panel reports years of service for officers. In each figure, the shading indicates the percentile distribution of years of service among separating service members in that year. For example, in 2005, the bottom 3 percent of officers separated with a year or less of active duty service. 25 percent of officers separated with six years or less, 50 percent with 14 years or less, and so forth. In contrast, 50 percent of separating officers in 2000 had served 11 years—notably less. In essence, the darkest shading (50th percentile) plots the average years of service of separating service members, the next darkest shade (25th-75th percentile) reports the typical variation of years, and the lightest shade (3rd-97th percentile) provides some sense of the wider range of service years.

The top panel reports those figures for enlisted separations. The typical enlisted service member separates with three to 11 years of active service, with five or six years being most common. In general, the distribution of years of service is very skewed, with very few service members separating two years sooner than the average length of service, but many more than two years longer than the average. Despite stop loss, the surge, and the wars, the average years of service remained mostly steady throughout the 2000–2014 period.

The bottom panel reports years of service for officers. The average officer serves two to three times as long as average enlisted service member, with over a quarter spending more than 20 years in service. Iraq and Afghanistan may have affected the years of service among officers far more than enlisted. With the exception of 2006–2007, officers separating after 2003 averaged at least three more years in service, compared to those separating between 2000 and 2002.

Figure D-3. Typical Years of Service for Active Component Service Members, Officers vs. Enlisted
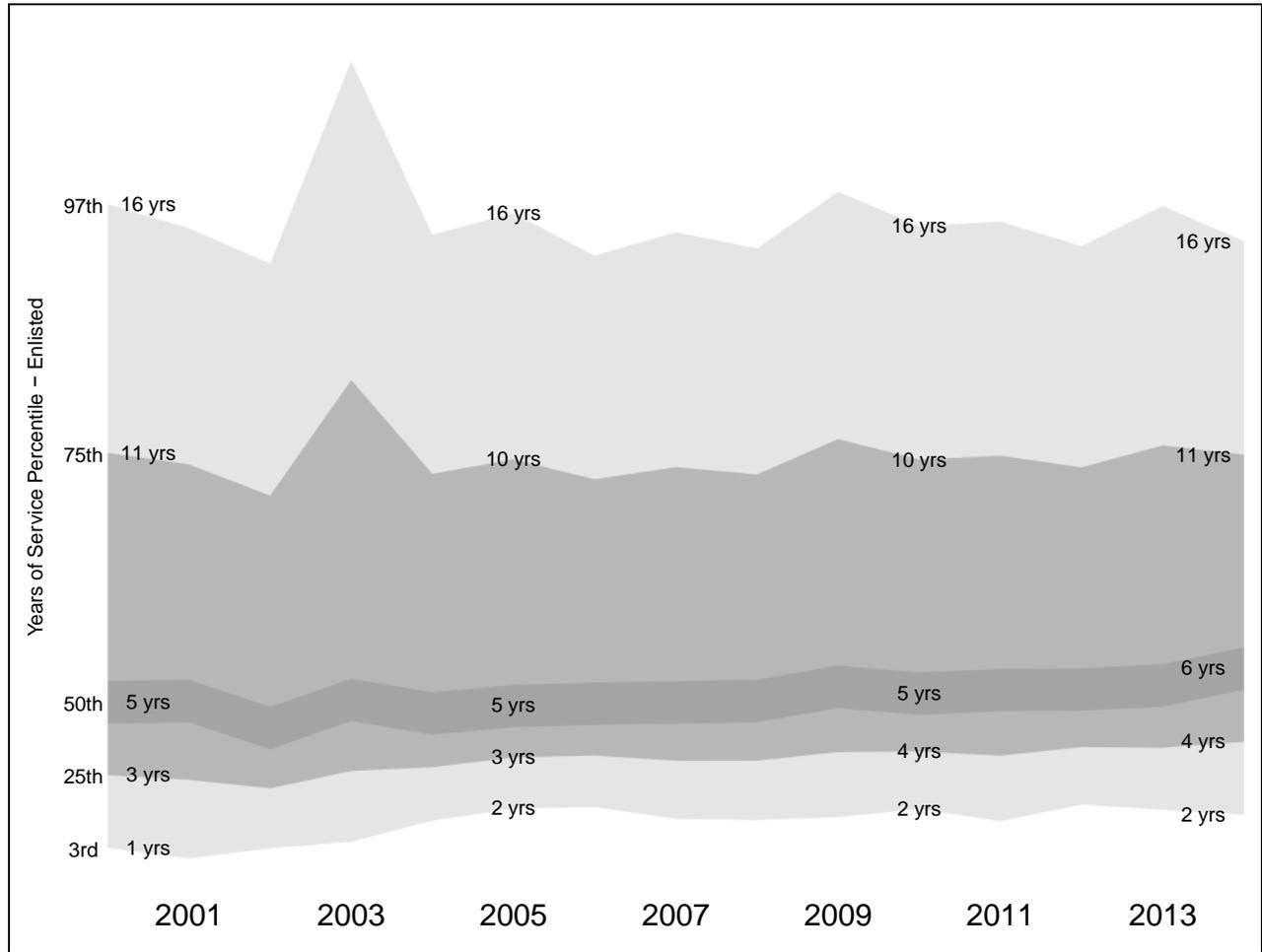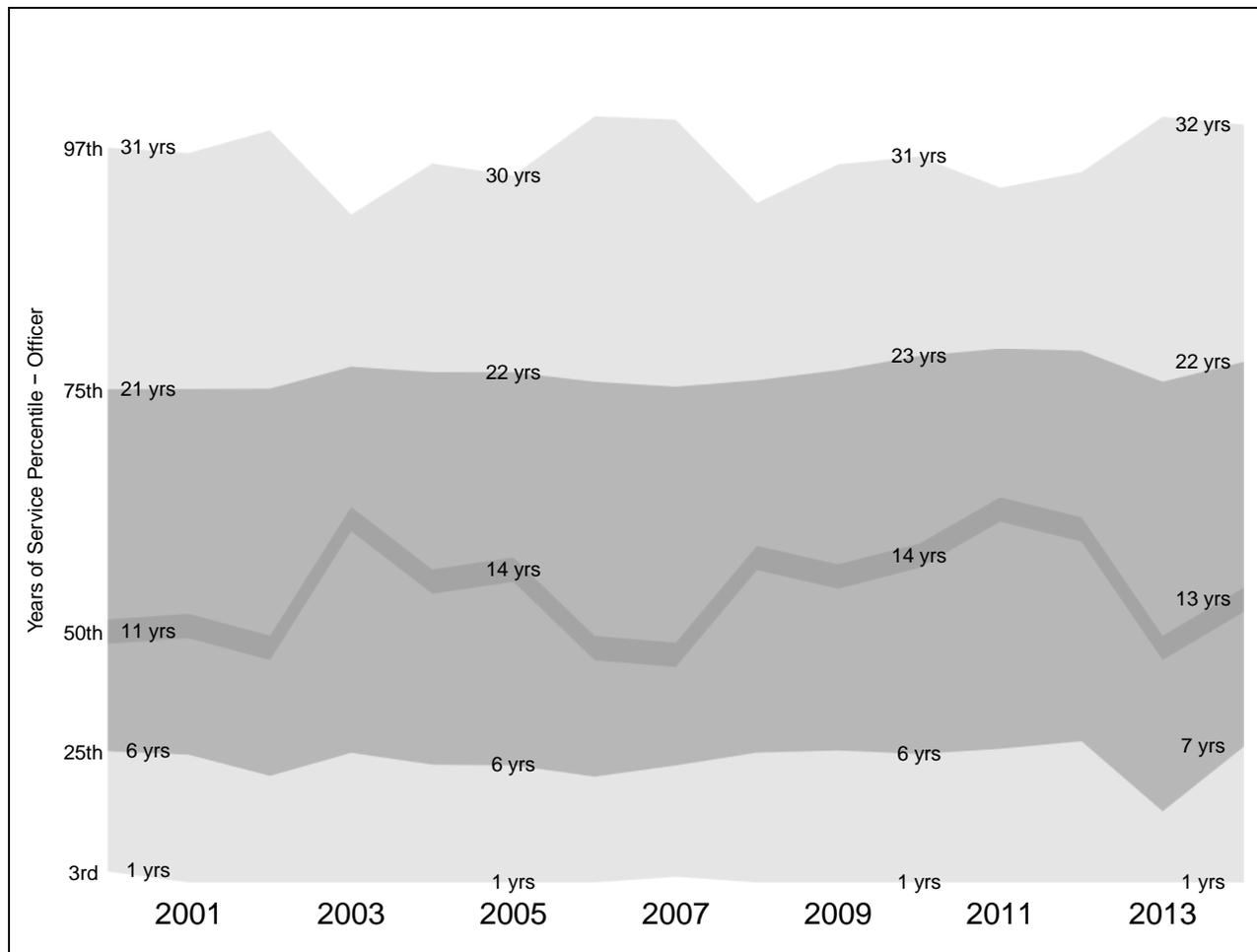
SOURCE: DoD Administrative data (2014)

D.1.4   The ACA's Coverage Expansion

Our approach to estimate the potential impact of the ACA coverage expansion combines two separate calculations: first, an estimate of the number of uninsured Veterans that could enroll in VA health care to obtain qualifying coverage under ACA and later use VA health care services; and second, an estimate of the number of current VA patients who will take advantage of new coverage opportunities and stop using VA services. Both calculations involve three related steps:

1. Estimate the starting population using the NSV

2. Apply an estimate of how health insurance coverage will change over time from the RAND COMPARE microsimulation model, a tool designed to help policymakers understand the coverage impacts of health reform

3. Apply enrollment and use rates to translate coverage changes into impacts measured in terms of the number of Veterans enrolled in VA health care and the number of VA patients.[66]

The fourth and final step is to sum the two separate impacts to arrive at an overall net impact.

This approach is intended to illustrate the potential impacts of the ACA coverage expansion. Evidence on the impacts of the ACA coverage expansion in general is developing but incomplete, and evidence on the impacts on Veterans specifically is sparse. In addition, key coverage expansion provisions may change in the future as a result of implementation decisions, such as states opting to expand their Medicaid programs. As a result of these uncertainties, in addition to reporting estimates from a set of base case assumptions we also discuss impacts under a wide range of other assumptions.

The following sections walk through our detailed methodology for each of the three steps, separately for the uninsured-to-enrollee and the patient-to-non-patient calculations.

D.1.4.1 Estimating the Uninsured to VA Enrollee Impact

As a first step, we used the NSV to calculate the number uninsured Veterans that were not VA patients. We used a "No" response to NSV item E2, "Have you ever used any VA health care benefits?" to identify Veterans that were not VA patients. We applied a hierarchical approach to categorize each respondent into a single coverage category. The hierarchical approach was necessary because Veterans often report multiple forms of coverage, for example, VA health care and Medicare. We used coverage information reported in NSV item E1. The specific criteria were as follows:

- Private coverage only: ("Insurance through a current or former employer or union (of yours or another family member)" OR "Insurance purchased directly from an insurance company (by you or another family member)") AND no other source of coverage reported.

- Medicare only: "Medicare, for people 65 and older, or people with certain disabilities" AND no other source of coverage reported.

- Medicaid only: "Medicaid, Medical Assistance, or any kind of government-assistance plan for those with low incomes or a disability" AND no other source of coverage reported.

- TRICARE only: "TRICARE or other military health care" AND no other source of coverage reported.

- Other only: ("Indian Health Service" OR "Any other type of health insurance or health coverage plan") AND no other source of coverage reported.

- Private and Medicare: ("Insurance through a current or former employer or union (of yours or another family member)" OR "Insurance purchased directly from an insurance

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[66] Our analysis takes into account both the geographic distribution of Veterans and states' decisions to expand Medicaid. Veterans who live in non-expansion states are therefore less likely to gain a new source of insurance under the ACA than Veterans who live in expansion states.

company (by you or another family member)") AND "Medicare, for people 65 and older, or people with certain disabilities" AND no other source of coverage reported.

- Medicare and TRICARE: "Medicare, for people 65 and older, or people with certain disabilities" AND "TRICARE or other military health care" AND no other source of coverage reported AND no other source of coverage reported.

- Any other combination: All other Veterans reporting health insurance coverage other than "CHAMPVA (Civilian Health and Medical Program of VA)"

- Uninsured or VA only: Veterans that did not satisfy any of the above criteria.

We also assigned each NSV respondent to a household income category using NSV item K2, "Which income range category represents your total combined income during the past 12 months?" For tractability and in order to ensure that we could link with other data we used the single adult FPL thresholds and did not adjust for family size. The estimated number of uninsured, non-VA patient Veterans were 698,000 under 133 percent FPL, 227,000 between 133 and 400 percent FPL, and 81,000 above 400 percent FPL.

The next step involved applying estimates on the proportion of uninsured individuals that would gain coverage through some other source—for example, Medicaid or the health insurance exchanges. We used the RAND COMPARE ratios for the proportion of the uninsured population that would gain coverage by 2016 for the three income bands: 34 percent for <133 percent FPL, 69 percent for 133 to 400 percent FPL, and 63 percent above 400 percent FPL. We multiplied the starting population by these factors to determine how many Veterans would gain coverage and how many would not gain other coverage, assuming that Veterans had and took advantage of opportunities for other coverage at the same rates as the U.S. population by income band as estimated by COMPARE (see Table D-2).

Table D-2. Estimated Number of Uninsured Veterans that Were Not VA Patients and Predicted to Gain or Not Gain Other Coverage by 2016

Poverty Level	Uninsured, Non-VA Patient Veterans	RAND COMPARE estimate, uninsured gaining coverage	Gaining other coverage	Not gaining other coverage
<133% FPL	698,000	34.4%	240,000	458,000
133-400% FPL	227,000	68.8%	156,000	71,000
>400% FPL	81,000	62.7%	51,000	30,000
Total	1,007,000		447,000	559,000

We used our analysis in the ACS data (described earlier in Section 6) to estimate the share of Veterans that were not VA patients in different coverage and income categories that would be eligible to receive VA health care services. Some Veterans are not eligible to receive care due to a dishonorable discharge or insufficient length of service. Other Veterans would fall in priority groups 8e or 8g which are not currently eligible to receive VA health care services. We estimated that virtually all Veterans under 133 percent FPL were potentially eligible. However only 58 and 13 percent of Veterans in the 133 to 400 percent FPL and 400 percent FPL categories, respectively, were predicted to be eligible to receive care. We deflated the counts

of Veterans in Table D-2 using these factors to estimate the number of uninsured Veterans that were not VA patients but that were predicted to be eligible to enroll to receive VA health care services (Table D-3).

Table D-3. Estimated Number of Uninsured Veterans that Were Not VA Patients, Predicted to be Eligible to Enroll in VA Health Care, and Predicted to Gain or Not Gain Other Coverage by 2016

Poverty Level	Gaining other coverage	Not gaining other coverage	Percent Likely Eligible To Receive Care	Gaining other coverage and Likely Eligible	Not gaining other coverage and Likely Eligible
<133% FPL	240,000	458,000	100%	240,000	458,000
133-400% FPL	156,000	71,000	57.6%	90,000	41,000
>400% FPL	51,000	30,000	13.1%	7,000	4,000
Total	447,000	559,000	89.9%	337,000	503,000

We made different enrollment rate assumptions for different groups of Veterans. We applied a single enrollment rate (X percent) to uninsured, likely eligible Veterans that we predict would not gain other coverage regardless of income level. We used a more nuanced approach for uninsured, likely eligible Veterans that we predict would gain other coverage to account for the impacts of choices and Marketplace subsidies especially at lower income levels. For these Veterans, we applied a base enrollment rate (Y percent) to the >400 percent FPL population. We applied half of this base enrollment rate to the 133–400 percent FPL population to account for the fact that Marketplace subsidies might make private coverage more appealing to Veterans. Finally, we applied a quarter of the base enrollment rate to the <133 percent FPL population because these Veterans can choose between Medicaid (in some states), Marketplace, and VA for low-cost coverage.

Table D-4 reports the number of enrollees at each 10-percent increment of the two key enrollment rates—X percent and Y percent. We propose X=50 percent and Y=50 percent as a base case. The estimated number of new enrollees ranges from 0 in the upper left corner of Table D-4 to 614,000 in the lower right corner of Table D-4. The base case estimate is 307,000.

Table D-4. Thousands of Estimated New VA Enrollees At Different Enrollment Rate Assumptions

Enrollment Rate, No Other Coverage (X%)	Base Enrollment Rate, Other Coverage Options (Y%, which varies by income*)										
	0%	10% 5% 2.5%	20% 10% 5%	30% 15% 7.5%	40% 20% 10%	50% 25% 12.5%	60% 30% 15%	70% 35% 17.5%	80% 40% 20%	90% 45% 22.5%	100% 50% 25%
0%	0	11	22	34	45	56	67	78	89	101	112
10%	50	61	73	84	95	106	117	129	140	151	162
20%	101	112	123	134	145	156	168	179	190	201	212
30%	151	162	173	184	195	207	218	229	240	251	263

Enrollment Rate, No Other Coverage (X%)	Base Enrollment Rate, Other Coverage Options (Y%, which varies by income*)										
	0%	10% 5% 2.5%	20% 10% 5%	30% 15% 7.5%	40% 20% 10%	50% 25% 12.5%	60% 30% 15%	70% 35% 17.5%	80% 40% 20%	90% 45% 22.5%	100% 50% 25%
40%	201	212	223	235	246	257	268	279	290	302	313
50%	251	262	274	285	296	307	318	330	341	352	363
60%	302	313	324	335	346	357	369	380	391	402	413
70%	352	363	374	385	397	408	419	430	441	452	464
80%	402	413	424	436	447	458	469	480	491	503	514
90%	452	463	475	486	497	508	519	531	542	553	564
100%	503	514	525	536	547	558	570	581	592	603	614

* For Veterans who gain other coverage options as a result of the ACA, we assume their enrollment rate varies depending on the degree of subsidy that they receive for these options. Veterans who gain access to unsubsidized employer coverage have a VA enrollment rate of Y%, Veterans who gain access to Marketplace subsidies have an enrollment rate of Y/2%, and Veterans who gain access to Medicaid coverage have an enrollment rate of Y/4%.

As a last step for this first of two calculations, we applied a use rate on top of the estimated number of newly enrolled Veterans to arrive at an estimate of new VA patients. The actual use rate for newly enrolled, previously uninsured Veterans is difficult to predict. Some newly insured Veterans might avail themselves of new coverage, although these Veterans had been eligible for coverage prior to ACA and opted not to enroll. Other Veterans might enroll to gain qualifying coverage but might not regularly interact with the VA health care system. Use rates for these Veterans may increase over time as they have more interaction and exposure to VA health care. In order to generate use rates for our analysis, we calculated the use rate across Veterans who have private coverage only using NSV data. The use rate was 14 percent for Veterans with incomes >400 percent FPL, 20 percent for Veterans with incomes between 134 and 400 percent FPL, and 25 percent for Veterans with incomes <134 percent FPL. Table D-5 reports estimates of new patients calculated by applying these use rates to the previous estimates of new enrollees. Under the base case assumptions, we estimate 74,000 new VA patients.

Table D-5. Thousands of Estimated New VA Patients At Different Enrollment Rate Assumptions

Enrollment Rate, No Other Coverage (X%)	Base Enrollment Rate, Other Coverage Options (Y%, which varies by income*)										
	0%	10% 5% 2.5%	20% 10% 5%	30% 15% 7.5%	40% 20% 10%	50% 25% 12.5%	60% 30% 15%	70% 35% 17.5%	80% 40% 20%	90% 45% 22.5%	100% 50% 25%
0%	0	2	5	7	10	12	15	17	20	22	25
10%	12	15	17	20	22	25	27	30	32	35	37

Enrollment Rate, No Other Coverage (X%)	Base Enrollment Rate, Other Coverage Options (Y%, which varies by income*)										
	0%	10% 5% 2.5%	20% 10% 5%	30% 15% 7.5%	40% 20% 10%	50% 25% 12.5%	60% 30% 15%	70% 35% 17.5%	80% 40% 20%	90% 45% 22.5%	100% 50% 25%
20%	24	27	29	32	34	37	39	42	44	47	49
30%	37	39	42	44	47	49	52	54	57	59	62
40%	49	51	54	56	59	61	64	66	69	71	74
50%	61	64	66	69	71	74	76	79	81	84	86
60%	73	76	78	81	83	86	88	91	93	96	98
70%	86	88	91	93	96	98	101	103	105	108	110
80%	98	100	103	105	108	110	113	115	118	120	123
90%	110	113	115	118	120	122	125	127	130	132	135
100%	122	125	127	130	132	135	137	140	142	145	147

*We hold the use rate constant across all scenarios but allow the enrollment rate to vary. For Veterans who gain other coverage options as a result of the ACA, we assume their enrollment rate varies depending on the degree of subsidy that they receive for these options. Veterans who gain access to unsubsidized employer coverage have a VA enrollment rate of Y%, Veterans who gain access to Marketplace subsidies have an enrollment rate of Y/2%, and Veterans who gain access to Medicaid coverage have an enrollment rate of Y/4%. The use rate is 14 percent for Veterans with incomes above 400 percent of FPL, 20 percent for Veterans with incomes between 134 and 400 percent of FPL, and 25 percent for Veterans with incomes below 134 percent of FPL.

D.1.4.2 Estimating the Impact of Veterans Gaining Other Coverage

For the second calculation, we started in the same way as the first calculation by estimating the size of the relevant population using NSV. We used the same approach to defining coverage to estimate the number of Veterans in each income group that was enrolled in VA health care and did not have any other source of health care coverage. We also applied the same factors from RAND COMPARE to estimate the proportion of Veterans in each category that could gain another form of coverage by 2016. Table D-6 reports the number of Veterans in each income category overall and by whether or not they could gain another form of coverage.

Table D-6. Estimated Number of Veterans with Only VA Coverage and Predicted to Gain or Not Gain Other Coverage by 2016

Poverty Level	Uninsured, Non-VA Patient Veterans	RAND COMPARE estimate, uninsured gaining coverage	Gaining other coverage	Not gaining other coverage
<133% FPL	761,000	34.4%	262,000	500,000
133-400% FPL	479,000	68.8%	329,000	149,000
>400% FPL	208,000	62.7%	130,000	77,000
Total	1,447,000		721,000	726,000

We calculated a reduction in the number of VA patients assuming that the 727,000 Veterans would shift to a lower use rate than their current rates. Use rates for Veterans with no other source of health coverage are very high—85 percent for Veterans over 400 percent FPL and approximately 97 percent for Veterans at lower incomes. Use rates calculated across all Veterans with Medicaid or Private insurance are significantly lower (between 14 and 25 percent). In addition, Veterans eligible for exchange subsidies may have to dis-enroll in VA health care to qualify for subsidies. We decreased use rates by 25 percent to reflect lower utilization of VA health care services by Veterans with multiple coverage options.

If all Veterans that we predict will gain coverage do so and shift to the lower use rate immediately, we would expect 172,000 fewer VA patients in the following year. Different combinations of these Veterans' current and potential future use rates result in estimates ranging from 0 fewer patients (assuming that these Veterans continue to use VA health care at the same rates that they do today despite gaining coverage) to 721,000 fewer patients if all Veterans predicted to gain other coverage immediately begin accessing care through their other coverage rather than VA.

D.1.4.3 Net Impact

Under the base case, the net impact is the sum of 74,000 new, previously uninsured VA patients and 172,000 fewer VA patients due to Veterans gaining other coverage, or a net decrease of about 98,000 VA patients. Different combinations of assumptions at different points in the analysis yield significantly different net impacts—and in some cases net increases in the number of VA patients, for example, if Veterans gaining new coverage continue to use VA health care services at high rates and significant shares of uninsured Veterans enroll to gain qualifying coverage and then use health care services.

Appendix E   References

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Appendix F   Acronyms

ACA	Patient Protection and Affordable Care Act
ACS	American Community Survey
ADL	activity of daily living
AHRQ	Agency for Healthcare Research and Quality
AIDS	acquired immune deficiency syndrome
AMI	acute myocardial infarction
BRFSS	Behavioral Risk Factor Surveillance System
CAMH	CMS Alliance to Modernize Healthcare
CBOC	community-based outpatient clinic
CCS	Clinical Classifications Software
CDC	Centers for Disease Control and Prevention
CHAMPVA	Civilian Health and Medical Program of the Department of Veterans Affairs
CHF	congestive heart failure
CMS	Centers for Medicare & Medicaid Services
COPD	chronic obstructive pulmonary disease
DMDC	Defense Manpower Data Center
DoD	U.S. Department of Defense
EHCPM	Enrollee Health Care Projection Model
FFRDC	federally funded research and development center
FPL	federal poverty level
FY	fiscal year
GERD	gastroesophageal reflux disease
GMT	geographic means test
HAIG	Healthcare Analysis and Information Group
HBP	hypertension (high blood pressure)
HIV	human immunodeficiency virus
IADL	instrumental activity of daily living
ICD	International Classification of Diseases
IHD	ischemic heart disease
IOM	Institute of Medicine of the National Academy of Sciences

IRS	Internal Revenue Service
IS	insufficient sample size
MEPS	Medical Expenditure Panel Survey
MEPS-HC	Medical Expenditure Panel Survey Household Component
MHS	Military Health System
MSA	metropolitan statistical area
NHIS	National Health Interview Survey
NSV	National Survey of Veterans
OACT	Office of the Actuary
PG	priority group
POW	prisoner of war
PPV	positive predictive value
PTSD	posttraumatic stress disorder
PUMA	Public Use Microdata Area
PUMS	Public Use Microdata Sample
SoE	Survey of Veteran Enrollees' Health and Reliance Upon VA
SSDI	Social Security Disability Insurance Trust Fund
TBI	traumatic brain injury
VA	U.S. Department of Veterans Affairs
VAMC	VA Medical Center
VCAA	Veterans Claims Assistance Act
VetPop 2014	Veteran Population Projection Model 2014
VHA	Veterans Health Administration
VHSM	Veteran Healthcare Scenario Model
WEX	Work Experience files

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Assessment B (Health Care Capabilities)

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Assessment B Author Credits

Peter Hussey
Jeanne Ringel
Assessment B Study Directors

Carrie Farmer
RAND Study Director

Susan Hosek
RAND Study Co-Director

Melissa Bauman
Kristin Leuschner
Mary Vaiana
Communications Analysts

Section One: Introduction
Peter Hussey
Sarah MacCarthy
Katherine Watkins

Section Two: Methods

Sangeeta Ahluwalia	Susan Lovejoy	Dana Schultz
James Broyles	Grant Martsolf	Elizabeth Sloss
Christine Buttorff	Rebecca Anhang Price	Katherine Watkins
Thomas Concannon	Robert Rudin	Daniel Waxman

Section Three: Assessment of VA Capabilities and Resources

Fiscal Resources
Christine Buttorff*
Paul Ginsburg

Workforce & Human Resources

Grant Martsolf*	Paul Ginsburg	Linnea Warren May
Christine Buttorff	Ryan Kandrack	Ashley Muchow

Physical Infrastructure

Thomas Concannon*	Sam Hirshman	Lisa Miyashiro
Liisa Ecola	Sean Mann	Joseph Vesely

Interorganizational Relations
Susan Lovejoy*
Francesca Pillemer

Information Technology Resources

Robert Rudin*	Carlos Gutierrez	Zachary Predmore
Shira Fischer	Lori Uscher-Pines	Daniel Waxman

Section Four: Assessment of Access to VA Care

Thomas Concannon*	Ryan Kandrack	Lisa Miyashiro
Rebecca Anhang Price*	Amii Kress	Jason Nelson
Elizabeth Sloss*	Sarah MacCarthy	Diana Naranjo
Brian Briscombe	Ervant Maksabedian	Francesca Pillemer
Christine Buttorff	Sean Mann	Rachel Ross
Amy DeSantis	Grant Martsolf	Teague Ruder
Shira Fischer	Nishtha Mishra	Joseph Vesely

Section Five: Assessment of Quality of VA Care

Rebecca Anhang Price*	Courtney Gidengil	Claire O'Hanlon
Elizabeth Sloss*	Christina Huang	

Section Six: Improving Access to VA Care

Sangeeta Ahluwalia*	Timothy Gulden	Luke Mathews
James Broyles*	Sam Hirshman	Katherine Watkins
Paul Ginsburg	Sarah MacCarthy	

Section Seven: Conclusions and Recommendations

Peter Hussey
Jeanne Ringel

Appendix B and I (Survey)

Amii Kress*	Rachel Burns	Mark Friedberg
Katherine Watkins*	Christine Buttorff	Luke Mathews
Daniel Waxman*	Shira Fischer	Carolyn Rutter

Appendix E (Summary of Qualitative Interview Results)

Dana Schultz*	Liisa Ecola	Rachel Ross
Sangeeta Ahluwalia	Sarah MacCarthy	Lori Uscher-Pines
Emily Chen	Linnea May	
Amy DeSantis	Francesca Pillemer	

*Denotes task leader

Preface

Congress enacted and President Obama signed into law the Veterans Access, Choice, and Accountability Act of 2014 (Public Law 113-146) ("Veterans Choice Act"), as amended by the Department of Veterans Affairs (VA) Expiring Authorities Act of 2014 (Public Law 113-175), to improve access to timely, high-quality health care for Veterans. Under "Title II – Health Care Administrative Matters," Section 201 calls for an Independent Assessment of 12 areas of VA's health care delivery systems and management processes.

VA engaged the Institute of Medicine of the National Academies to prepare an assessment of access standards and engaged the Centers for Medicare & Medicaid Services (CMS) Alliance to Modernize Healthcare (CAMH)[1] to serve as the program integrator and as primary developer of the remaining 11 Veterans Choice Act independent assessments. CAMH subcontracted with Grant Thornton, McKinsey & Company, and the RAND Corporation to conduct 10 independent assessments as specified in Section 201, with MITRE conducting the 11th assessment. Drawing on the results of the 12 assessments, CAMH also produced the Integrated Report in this volume, which contains key findings and recommendations. CAMH is furnishing the complete set of reports to the Secretary of Veterans Affairs, the Committee on Veterans' Affairs of the Senate, the Committee on Veterans' Affairs of the House of Representatives, and the Commission on Care.

The research addressed in this report was conducted by the RAND Corporation, under a subcontract with The MITRE Corporation.

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[1] The CMS Alliance to Modernize Healthcare (CAMH), sponsored by the Centers for Medicare & Medicaid Services (CMS), is a federally funded research and development center (FFRDC) operated by The MITRE Corporation, a not-for-profit company chartered to work in the public interest. For additional information, see the CMS Alliance to Modernize Healthcare (CAMH) website (http://www.mitre.org/centers/cms-alliances-to-modernize-healthcare/who-we-are/the-camh-difference).

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Executive Summary

Access to quality health care is a central part of our nation's commitment to Veterans. In February 2014, a recently retired Department of Veterans Affairs (VA) physician alleged that at least 40 Veterans died while waiting for care at the Phoenix VA Health Care System. While the allegations of deaths were not proven, this raised concerns about how effectively the commitment to Veterans was being fulfilled (VA, Office of Inspector General, 2014). Following the Phoenix allegations, the VA Office of Inspector General investigated the timeliness of VA health care, finding that some VA staff regularly entered false information regarding patients' preferred dates of care to minimize reported wait times between the preferred date and the actual date of appointments. The Inspector General also pointed to systemic issues within VA that may limit Veterans' access to care, including lack of available appointments within certain clinical specialties and problems with care transitions for patients discharged from mental health services.

The accessibility and timeliness of care are longstanding areas of concern within VA. VA has many ongoing programs and initiatives to increase access to care for Veterans, including, most recently, the Veterans Choice Act, passed in 2014. The Veterans Choice Program expanded VA authority to furnish care to Veterans through agreements with non-VA providers as well as provisions regarding improved access to telemedicine through mobile medical centers; 27 new major medical facility leases; increased transparency of performance data on VA providers, including wait times; new residency and other training and education programs; and recruitment and appointment of personnel in occupations identified by the VA Inspector General as having the greatest shortages. The law includes appropriations for VA to support these activities.

Section 201 of the Veterans Choice Act included a requirement for 12 independent assessments of VA health care. This report addresses Assessment B (identified under Title II – Health Care Administrative Matters, Section 201 of the Veterans Choice Act). The assessment responds to language in the Veterans Choice Act of 2014, Title II – Health Care Administrative Matters, Section 201.A.1.b, which mandates an independent assessment of "current and projected health care capabilities and resources of the Department [VA], including hospital care, medical services, and other health care furnished by non-Department facilities under contract with the Department, to provide timely and accessible care to veterans" (Veterans Choice Act, Section 201).

Study Purpose and Approach

Assessment B assesses VA's current and projected resources and capabilities, the level and nature of access to VA care, and barriers and facilitators to access. We explore how selected policies could affect Veterans' access to high-quality care. Specifically, we address the following research questions:

1. What are VA's current resources and capabilities in key domains?

2. What are current levels of access to VA care?

3. What is the quality of care in VA?

4. What are VA's projected resources and capabilities to provide timely and accessible care, and how might different policy options enhance VA's resources and capabilities for treating Veterans in the future?

We answered these questions broadly and also identified seven illustrative clinical populations to provide a more detailed understanding of VA capabilities, resources, and accessibility in selected subpopulations of Veterans.

The Assessment B team used a multipronged approach to address these research questions. We examined VA's resources and capabilities in five domains (fiscal, workforce and human resources, physical infrastructure, interorganizational relationships, and information technology [IT]). To understand access, we examined available data on five dimensions of access to VA health care: geographic, timely, financial, digital, and cultural. We assessed the quality of VA health care in comparison with non-VA care as measured in previous studies and by analyzing more recent VA performance data, using the six dimensions of health care quality identified by the Institute of Medicine: Care should be safe, timely, equitable, effective, efficient, and patient-centered (Institute of Medicine, 2001).

We also developed a method for projecting future resources, which we compared with forecasted changes in patient demand for VA health care in order to identify potential gaps. To support analyses of future options for VA to address identified gaps, we identified and analyzed a reasonable range of feasible policy options to enhance VA's ability to provide timely and accessible care to Veterans. These analyses were informed by data collected through literature reviews, key informant interviews, a 2015 Survey of VA Resources and Capabilities, and other VA and non-VA data sources.

Findings

Assessment of VA Resources and Capabilities

VA operates a unique health care system with broad and deep resources and capabilities for Veterans, including facilities, personnel, and IT infrastructure. However, our assessment identified a number of barriers to the effective planning for and use of these resources and capabilities, which can affect their availability to Veterans.

VA faces a number of challenges in planning for and using its fiscal resources effectively. The total VA budget for fiscal year (FY) 2015 is approximately $60 billion, rising to $63 billion for the advanced FY 2016 appropriation. We were not able to determine whether VA has adequate fiscal resources for health care, because there is no valid benchmark against which to compare VA's budget and spending. We did find, however, a number of issues related to VA's budget process, including concerns about the data used for budget planning, inflexibility in budgeting stemming from the congressional appropriation processes, and challenges in VA's allocation processes. VA develops its health care budget from older data, and there can be problems with the assumptions used in this process. In addition, congressional priorities can affect VA's appropriation, and the impact of increases in purchased care from the Veterans Choice Act on

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the budget in future years is currently unknown. In interviews, facility directors described problems with the allocation system to the Veterans integrated service networks (VISNs), including the use of past data in calculating the allocation and the fact that some facilities undertake various activities to ensure that their allocation is as high as possible in subsequent years. These challenges can leave facilities that are experiencing change over- or underfunded in the current year, and they create incentives for facilities to see more of certain types of patients in order to increase funding in future years. There are also continued challenges with the separate budgets for medical care, capital construction, and IT that do not move in concert and can limit facilities' ability to improve access.

VA has an extensive health care workforce but faces challenges in workforce planning and assessment. As one of the largest providers of health services in the world, VA employs physicians, nurses, other providers, and a range of support staff to provide care directly to Veterans. VA also contracts with private physicians to deliver some services within VA facilities (GAO, 2013b). In FY 2014, VA employed a total of 31,269 physician employees working either full-time or part-time, for a total of 19,900 FTEs. On average, these physicians spend close to 80 percent of their FTEs in clinical care, for a total of 15,543 physician clinical FTEs across all specialties. We identified several challenges associated with VA workforce planning and assessment processes. These include a lack of guidance about what methods should be used, a lack of external productivity benchmarks, inaccurate or incomplete data inputs, and the inability of the data system to adequately account for certain types of providers and patient visits.

VA workforce capacity may not be sufficient to provide timely care to Veterans across a number of key specialties as well as primary care. VA faces shortages of physicians in some geographic areas and of certain physician specialists more generally. These constraints are influenced by a number of key factors, including relatively low salaries, a slow credentialing process, and infrastructure constraints. We found significant variation across facilities and VISNs in terms of productivity. Our estimates must be considered, however, in light of concerns about coding and data quality. In particular, interviewees reported that variations in coding practices, inconsistently entered workload data, and incomplete or poorly detailed physician encounter data make it difficult to consistently measure productivity.

VA operates one of the most extensive systems of health care infrastructure in the country, but the need for additional physical space is a limiting factor in improving access. Of 955 sites, 871 are medical facilities; the remaining sites, considered nonmedical facilities, generally provide outpatient services or residential treatment. On average, the VA system has 18.3 hospital beds per 10,000 enrollees and an inpatient daily census of 11 patients per 10,000 enrollees, for an occupancy rate of 60 percent; however, hospital bed supply varies widely across VISNs. Interviewees in leadership or clinical care positions were generally satisfied with VA medical equipment and supplies, but they noted that physical space was in short supply and that even new facilities can quickly grow out of date. The need for more effective use of existing space was also identified as a key limiting factor in improving access for Veterans.

VA has many outside options for providing care to Veterans, although managing this resource can be challenging. Care is provided to VA enrollees by non-VA entities through several

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programs and various types of payment or contractual arrangements, including the "traditional program," partnership agreements, the Access Received Closer to Home (ARCH) program, the Patient Centered Community Care (PC3) program, and the Veterans Choice Program. Spending for purchased care has grown dramatically—reaching about $7 billion in 2014—and the Veterans Choice Act provides new funding of $10 billion over three years. However, managing this complex resource has proven challenging. Contracting with non-VA providers has been described as a "long and painful" process, and there are well-documented problems with VA's claims processing system. As VA was attempting to address some of the administrative challenges associated with arranging, coordinating, and reimbursing purchased care through the implementation of the PC3 program, for example, the addition of the Veterans Choice program further complicated the situation and resulted in confusion among Veterans, VA employees, and non-VA providers. VA and members of Congress have expressed a desire to more effectively utilize this important resource as demand increases.

VA has been and continues to be an innovator and leader in developing health IT capabilities, although there is room for improvement in some areas. VA is on par with or exceeds other organizations' capability to use IT in care delivery in many regards, including telehealth and MyHealtheVet, VA's online patient portal. However, VA's role as an innovator and leader has been challenged by issues related to the management and planning of its IT systems. For every IT capability we studied, we found clear barriers—including inadequate infrastructure, lack of facility leadership and provider buy-in, and administrative burden—to allowing Veterans to take further advantage of what IT can offer.

Our findings also confirm the results of previous studies concerning strengths and weaknesses in VA's current electronic health record technologies (VistA, that is, Veterans Health Information Systems and Technology Architecture, and VA's Computerized Patient Record System [CPRS]), which suffer from an aging architecture and 10 years of limited development. However, interviews across the spectrum of VA personnel—from management and IT thought leaders to end users—suggest strong support for renewed investment in a modern, home-grown product rather than transitioning to a commercial off-the-shelf alternative. The advantages, disadvantages, and tradeoffs between homegrown versus commercial electronic health record software are discussed in Assessment H.

Taken together, these barriers present a formidable, though not insurmountable, challenge to ensuring that sufficient VA resources and capabilities are available to all Veterans. Addressing these barriers will require a mix of short- and long-term initiatives, as we describe later in the Recommendations section.

Assessment of Access to VA Care

Ensuring Veterans' access to health care depends not just on the level of resources and capabilities available, but on how well VA's health care system addresses Veterans' needs. While our assessment did not find evidence of a system-wide crisis in access to VA care, we found considerable variability across the different dimensions of access (geographic, timely, financial, digital, and cultural) as well as opportunities to improve access, even at the top-performing VA facilities.

Veterans' geographic access to VA care varies according to the access standard used and by region and type of service. Many Veterans have geographic access to VA care, although it varies when using different access standards (that is, 40-mile straight-line distance, 40-mile driving distance, 60-minute driving time in free-flow traffic or rush hour traffic, 60-minute public transit time) and by region. Enrollees' average driving time to the nearest VA medical center (VAMC) or hospital is less, on average, than enrollees' average reported willingness to travel for routine medical care or Medicare beneficiaries' observed average travel times. Veterans who must rely on public transportation have much less access than other Veterans. Further, our assessment found that substantially lower proportions of enrollees have geographic access to advanced and specialized services in VA medical facilities. For example, only 43 percent of enrollees live within 40 miles of VA interventional cardiology services, and only 55 percent of enrollees live within 40 miles of VA oncology services.

Veterans who live far from a VA medical facility have good geographic access to non-VA community hospitals, emergency care, and primary care physicians, but poor access to hospitals and physicians offering specialized services. Nearly all Veterans (96 percent) who live far from VA medical facilities can drive to community and emergency care at non-VA hospitals within 40 miles, but access to more advanced care at academic and teaching hospitals is much lower: Only 15 percent live within 40 miles of a teaching hospital, and only 3 percent live within 40 miles of an academic hospital. These Veterans are also less likely to have geographic access to a range of highly specialized care at non-VA hospitals, including many cardiology, surgery, and oncology services. The same is true for access to non-VA clinicians in the community. A large share of VA enrollees living far from a VA medical facility are within 40 miles of primary care providers, but far fewer of these enrollees are near providers offering highly specialized care. This finding suggests that expanding access to non-VA providers in these regions can help most Veterans seeking routine and emergency care, but will help far fewer Veterans who need access to advanced and specialized care.

Most VA appointments meet VA timeliness standards; however, there is variation in timeliness across the VA system, with poor performance for some VA facilities. Most Veterans complete their appointments within VA timeliness standards of 30 days of the preferred date—that is, the date recommended by the physician or that the Veteran prefers. However, some Veterans who do not receive care within 30 days may be at risk of poor health outcomes. The average number of days that Veterans wait for appointments varies tremendously across VA facilities, indicating substantial opportunities for improvement in some facilities. At 91 top-performing VA facilities, over 96 percent of new primary care patients receive appointments within 30 days of the preferred date. However, 14 VA facilities were far below this benchmark, with less than 84 percent of patients receiving appointments within 30 days of the preferred date. At the top-performing VA facilities, more than 60 percent of Veterans report that they "always got urgent care appointments as soon as needed." At the worst-performing VA facility, this rate was closer to 20 percent. Even at the facilities with the shortest wait times, many Veterans report that they do not always get an appointment as soon as needed, suggesting that even these top-performing facilities do not meet many Veterans' expectations for timely appointments.

Reported wait times for VA care are getting longer. The percentage of appointments completed within 30 days of the preferred date was lower in the first half of FY 2015 than in the first half of FY 2014. Reported declines over this period likely reflect both actual lengthening of wait times—as might be expected, given the increased demand for VA services predicted by VA's Enrollee Health Care Projection Model (EHCPM)—and improvements in the accuracy of the wait-time data.

VA's timeliness standard is much less demanding than alternative standards that have been proposed in the private sector. The standard is also sensitive to the definition of the "preferred date," which has been subject to gaming. For example, the VA Inspector General found that VA staff regularly entered false information regarding preferred dates of care. Therefore, many have questioned whether the VA data and standard provide a valid reference for timeliness of appointments. While it was outside the scope of this assessment to validate these data, we examined whether alternative standards for timeliness could be applied. Alternative standards, such as those that assess the availability rather than completion of appointments, may be less subject to gaming and more comparable to private-sector standards. It is unclear how many VA facilities or non-VA providers meet these alternative standards. We found limited data available to compare VA and non-VA waits for care, but VA wait times do not seem to be substantially worse than non-VA waits, based on the limited available evidence.

On patient surveys, Veterans are substantially less likely than private-sector patients to report getting appointments, care, and information as soon as needed. The top-performing VA facilities scored comparably or worse than average practices in the Consumer Assessment of Healthcare Providers and Systems (CAHPS) Database, which includes a voluntarily participating set of private-sector medical practices and likely overrepresents high-performing practices. VA facilities at the 75th percentile of VA performance scored substantially worse than average CAHPS Database practices.

VA care is considered to be relatively affordable, and demand for VA care may increase if the cost of health care increases. VA is often Veterans' most affordable option for health care coverage. Veterans typically face lower out-of-pocket costs for care in VA than they would if they were privately insured. VA health care workers noted that lack of an affordable private insurance option is a key reason why Veterans enroll in VA. Twenty-eight percent of Veterans responding to the 2014 Survey of Enrollees indicated that their use of VA care would decrease if their financial resources improved. This suggests that, for a substantial minority of Veterans, non-VA care is preferred if available. In interviews, VA administrators and representatives of Veteran Service Organizations noted that Veterans generally like to get their care from VA, but that some Veterans with affordable non-VA care options seek care elsewhere rather than dealing with challenges associated with determining eligibility for services, perceived longer wait times, inconvenience of scheduling processes, and less than state-of-the-art equipment and facilities within VA.

Many Veterans, especially older Veterans, lack Internet access, but the acceptability of digital care is likely to grow as younger Veterans age. Thirty percent of Veterans, especially older Veterans, do not have access to the Internet and therefore cannot access VA's digital services, such as the MyHealtheVet patient portal or telehealth (2013 Survey of Enrollees). As younger

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Veterans age, Internet access and technological skill are likely to grow more common among Veterans, thereby increasing the acceptability and accessibility of digital health care services.

More could be done to increase VA providers' awareness of the changing demographics among Veterans. For example, increased attention to the needs of female Veterans has enabled broad access to basic reproductive health services; however, access to more advanced services is variable by location, and VA health care workers noted that additional steps could be taken by providers to ensure that female Veterans feel respected while receiving care in VA facilities.

Some variation in performance across regions and VA facilities may be inevitable because of differences in patient characteristics. In addition, some localized strategies for improvement may not scale up well because of contextual factors. However, these findings point to opportunities to improve Veteran access to VA care along several dimensions as well as the need to consider alternative standards for measuring access to care.

Assessment of Quality of VA Care

Access to care is only beneficial if high-quality care is provided. VA has long played a national leadership role in the quality measurement arena. The assessment showed that VA health care quality was good overall on many measures and domains compared with non-VA comparators. However, as with access to care, quality performance was uneven across VA facilities, with many opportunities for improvement.

The findings of previous studies of quality of care provided in VA settings compared with non-VA settings vary by quality domain. Studies of safety and effectiveness indicated mixed performance, with 22 of 34 studies of safety and 20 of 24 studies of effectiveness showing that quality of care was the same or better in VA facilities. Only five articles assessed patient-centeredness, but all demonstrated better or same VA care quality compared with care in non-VA settings. Four articles assessed equity in VA settings, with one showing better performance, two showing same performance, and one showing worse performance compared with non-VA settings. The nine articles evaluating measures of efficiency, such as hospital length of stay, demonstrated mostly mixed or worse performance in VA facilities compared with non-VA facilities, although two studies showed better performance. Only one study assessed timeliness of care in VA facilities, and it showed worse performance than the non-VA facilities.

There is substantial variation in quality measure performance across VA facilities, indicating that Veterans in some areas are not receiving the same high-quality care that other VA facilities are able to provide. For example, there was a 21-percentage-point difference in FY 2014 performance between the lowest- and highest-performing VA facilities on the rate of eye exams in the outpatient setting for patients with diabetes. Although this variation is lower than that observed in private-sector health plans, a high-priority goal for VA leadership should be narrowing these gaps to ensure that quality of care is more uniform across VA facilities so that Veterans can count on high-quality care no matter which facility they access.

VA outpatient care outperformed non-VA outpatient care on almost all quality measures. VA hospitals performed the same or better than non-VA hospitals on most inpatient quality

measures, but worse on others. VA performed significantly better, on average, on almost all 16 outpatient measures when compared with commercial, Medicare, and Medicaid HMOs. On average, VA hospitals performed the same or significantly better than non-VA hospitals on 12 inpatient effectiveness measures, all six measures of inpatient safety, and three inpatient mortality measures, but significantly worse than non-VA hospitals on two effectiveness measures and three readmission measures.

On most measures, Veteran-reported experiences of care in VA hospitals were worse than patient-reported experiences in non-VA hospitals. Average VA facility-level performance was significantly worse than non-VA facilities for six of ten patient experience measures, including communication with nurses and doctors.

VA uses many systems for monitoring quality. VA currently uses multiple quality monitoring systems—tailored for different care settings and audiences—to collect and report information about the health of Veterans and the care provided to them. Among these systems is ASPIRE, which is part of the VA Transparency Program, which offers publicly available information on the VA Hospital Compare website about how VA is performing relative to other health care organizations across the country. ASPIRE presents information about all aspects of quality, including preventive care, care recommended for acute and chronic conditions, complications and outcomes of care, and patient-reported measures of health care experiences at the national, regional, and local levels of the VA system. In addition to ASPIRE, VA has more than 500 other quality measures that can be used to monitor quality of care regionally and locally and to inform quality improvement projects.

There were mixed opinions on the impact of VA's many quality measures. In interviews, VA administrators and several health care workers noted that attention to quality measurement has led to positive changes in care delivery, for example, by using quality data to identify high-risk patients for more-intensive case management or to initiate patient education in response to high readmission rates. However, several respondents felt that measuring quality did not always have a positive effect on how facilities deliver care. Some noted that the current list of access and quality measures is "just too long" and the measurement process is a burden for VA providers and other staff members.

This level of variation in performance across VA facilities suggests that significant opportunities exist to improve access to care in VA through systematic performance improvement. These findings suggest that a systematic effort is needed to identify and eliminate unwarranted variation, and to develop and encourage the use of best practices to improve performance across the VA system.

Improving Access for Veterans

Looking to the future, the size, demographics, and health needs of the Veteran population, as described by Assessment A, will change. VA will need to adjust its resources and capabilities to meet the changing demand for services among Veterans. VA combines its resources and capabilities to generate the supply of health care services available to enrollees. Access to care, particularly the timeliness of care, is determined in large part by whether the overall level and geographic distribution of supply is well aligned with Veterans' needs. To provide insight into

potential challenges to ensuring timely access, we compared projected supply with projected demand in FY 2019 under several scenarios, including (1) an increase in the number of VA providers but no change in productivity; (2) an increase in productivity with no change in the amount of resources; and (3) changes in both resources and productivity.

VA forecasts an increase in demand for VA care by FY 2019. VA's EHCPM forecasts a 19-percent increase in demand for VA health care services nationally from FY 2014 to FY 2019, due to a projected 5.1-percent increase in enrollment and the aging of enrollees. Although the forecast assumes that the number of Veterans will decrease, a growing proportion of Veterans are enrolling in VA health care (Milliman Inc., 2014), and the EHCPM model includes an assumption that this trend will continue through FY 2019. While the EHCPM is used by VA for planning purposes, it is possible that its predictions of increased demand for VA health care services will be inaccurate. Estimates from Assessment A suggest that the number of patients using VA health care services is expected to increase through 2019, then decrease thereafter.

Assuming that the EHCPM demand forecast is accurate, VA will face challenges in meeting demand under current provider growth trends. Given the caveats noted above, our projections under our first supply scenario (increase in the number of providers) indicate that, if the supply of VA providers continues to increase at historical growth rates, and other resources grow in proportion so that providers continue to deliver a similar amount of health care (that is, no increase in productivity), it will be more difficult for VA to meet the demand for services and provide adequate access to Veterans in FY 2019. These challenges will be more acute in some regions and at some VA facilities than others, so considerations of distribution will be as important as consideration of levels.

Substantial increases in the productivity of existing resources will be needed to meet projected demand. Our second supply projection considers the effect of increasing productivity of each specialty in each administrative parent to benchmark levels—25th, 50th, or 75th percentile of the FY 2014 productivity distribution. Our projections indicate that, if productivity were increased to at least at the 75th percentile for each specialty at each administrative parent, VA would be able to produce enough health care services to meet projected demand. However, such a large increase in productivity would likely be very difficult to achieve.

If both the number and productivity of resources are increased, VA can produce enough supply to meet projected demand. The third supply projection considers the effect of combining increases in the number of providers and the productivity of resources. We found that, if historical hiring trends were to continue and productivity were raised to the 25th percentile of the FY 2014 distribution, the supply produced in FY 2019 would exceed the projected demand. While the overall level of supply is sufficient to provide timely access to care, there are some VISNs in which demand is expected to exceed supply. As such, Veterans in some regions could experience access problems, indicating a need to redistribute supply across geographic areas to meet all enrollees' health care needs.

Changes in policy can help ensure Veterans' continued access to VA care. Comparing options with a policy objective of increasing Veterans' access to care within the VA system, we found that, of the options we considered, the three with the highest estimated impact on access are formalizing full nursing practice authority, increasing the number of VA physicians, and

expanding virtual access to care. None of these options are mutually exclusive; they could be combined in a number of different ways. Each of these options has different potential barriers that present tradeoffs. The primary barrier to formalizing full nursing practice authority is political (key stakeholder opposition); the barriers to hiring physicians are related to cost and administrative challenges associated with the hiring process; and the primary barrier to expanding virtual access to care is cost.

Options with a policy objective of increasing access outside VA system have considerable uncertainty related to potential impact on access. Greater collaboration with and reliance on private-sector health care organizations to enhance VA capacity to provide timely access to care will be crucial to the success of these options. One option—consolidating existing purchased care programs—has the most certain impact. The current system of overlapping programs was widely cited as problematic and does not have any clear benefits. This option is discussed in greater detail in Assessment C.

The impact and feasibility of increasing non-VA resources available for Veterans' health care would be highly dependent on the scope of the change. Shifting certain types of services from VA to purchased care could potentially improve both access and quality of care, but doing so could also increase challenges in care coordination. Shifting a greater share of services from VA to purchased care would require more fundamental changes to VA. The TRICARE program could serve as a model for an option to restructure VA as a purchaser rather than provider of health care, and, indeed, its relative success within DoD highlights the potential of such an option. However, our analyses indicate that many Veterans without access to VA health care also face significant barriers to accessing purchased care, including distance and cultural barriers. Thus, the option to transform VA from a provider to a purchaser of health care would not necessarily have a significant positive impact on access.

Conclusions

The assessment highlights many opportunities to improve VA capabilities to provide timely and accessible care. We identified a large number of barriers to effective use of VA resources. We also found widespread variation in performance across VA facilities. We did not find evidence of a system-wide crisis in current access to VA care. However, our projections indicate that, without changes, it will be increasingly difficult for VA to provide good access to care for our nation's Veterans.

This assessment has several important limitations, a number of which stem from the fact that the assessment was conducted over a very short time frame. The lack of direct input from Veterans is key. To address this limitation, we conducted analyses of secondary data sources that included Veterans' perspectives, as well as interviews with representatives of Veterans Service Organizations. Another limitation is that the projections of future resources are based solely on provider and productivity data and do not directly include changes in other key resources, such as physical space, equipment, and IT. Moreover, our projection analysis does not account for changes in demand that might occur if supply, and thus access, was increased. A projection model that included all resources and the interactions between them (for example, system dynamics) was beyond the scope of this assessment. Differences between VA and other

health care organizations, in terms of both the organization of the delivery system and the patient population, limit the value of comparisons between VA and non-VA health care organizations. Therefore, in most cases, we used qualitative data from interviews and literature reviews to assess the adequacy of VA's resources and capabilities.

Recommendations for Consideration

Based on the findings of Assessment B, we make several recommendations to improve access to care for Veterans.

VA should use a systematic, continuous performance improvement process to improve access to care. Although many VA facilities achieve very high levels of performance on key access and quality measures, there is also a great deal of variation across the system. A systematic effort is needed to identify unwarranted variation, identify and develop best practices to improve performance, and embed these practices into routine use across the VA system. Some of the best solutions may be developed locally to reflect local needs and contexts. Solutions should be designed to be responsive to Veterans' preferences, needs, and values.

VA should consider alternative standards of timely access to care. Timeliness standards should be reexamined. VA should examine the utility of existing alternative benchmarks, such as same-day availability of the third next available appointment. Access standards for other dimensions, such as cultural access, should also be developed and used in performance monitoring and improvement. VA should develop methods to routinely compare the timeliness of VA care with non-VA benchmarks and publish these comparisons for transparency.

VA and Congress should develop and implement more sensitive standards of geographic access to care. VA should compare the "one-size-fits-all" approach of driving distance to alternative standards that are more sensitive to differences between Veteran subgroups, clinical populations, geographic regions, and individual facilities. This assessment highlighted the importance of time spent driving, mode of transportation, traffic, and availability of needed services as key considerations in assessing geographic access to care.

VA should focus efforts to increase Veterans Choice Program utilization in areas with the lowest rates of geographic access to VA facilities. These areas can be identified in geographic assessments that consider locations of facilities relative to enrollee populations, along with estimates of access to more complex and specialized service offerings in VA facilities.

VA should continue moving toward using a smaller number of quality metrics in quality measurement and improvement activities. VA maintains an extensive set of quality measures. Although use of these measures has led to improvements in care, the proliferation of measures creates burdens on staff and resources and can lead to emphasis on the measures rather than improvement in areas of care that are more likely to improve patient outcomes. VA has already

moved toward reporting systems that rely on a smaller number of measures, such as Strategic Analytics for Improvement and Learning (SAIL).[2]

VA should take significant steps to improve access to VA care. Our projections indicate that increases in both resources and the productivity of resources will be necessary to meet increases in demand for health care over the next five years. The options we considered that have the highest estimated potential impact are formalizing full nursing practice authority, increasing physician hiring, and increasing the use of virtual care. These are commonly proposed options for increasing access to VA care. In addition, new models of health care delivery are emerging rapidly in the U.S. health care system that could improve access to care. VA should seek to be an early adopter of these new models and should build a strategy that enables and supports such innovation.

VA should establish itself as a leader and innovator in health care redesign. Our assessment found that VA has historically been on the leading edge in several important areas, such as development and use of health IT. It is also on the forefront on many other innovative delivery methods, such as team-based primary care. As a large integrated delivery system, VA is well placed to innovate in comparison with many other U.S. health care delivery systems. It should endeavor to maximize this opportunity, given the constraints associated with being a public entity (for example, hiring processes, salaries, budgeting). VA should also endeavor to learn from current leaders in areas where its leadership position has eroded, particularly in health IT, and seek to reestablish its leading position.

VA should streamline its programs for providing access to purchased care and use them strategically to maximize access. Currently available programs are overlapping and confusing to Veterans and VA employees as well as non-VA providers. VA should clearly identify the objectives of purchased care access and streamline programs to meet those objectives.

VA should systematically identify opportunities to improve access to high-quality care through use of purchased care. Some types of care may be more effectively and efficiently delivered by non-VA providers. Identification of these types of care and the impact of shifting care to non-VA providers requires an in-depth systematic analysis that was beyond the scope of this assessment.

These recommendations would help VA improve Veterans' access to care across the VA system and ensure that future demand for VA care can be met. Although this assessment did not find a system-wide crisis in access to VA care, it did identify a high degree of variability in performance across VA facilities, a number of barriers to effective use of VA resources and capabilities, and likely future challenges. These recommendations should be implemented and progress regularly evaluated to ensure continuous improvement in performance. Such improvement will be needed to ensure that we meet our nation's commitment to care for Veterans.

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[2] Although SAIL uses fewer measures to simplify reporting, they are composite measures which still incorporate numerous individual performance measures.

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The views, opinions, and/or findings contained in this report are those of RAND Corporation and should not be construed as an official government position, policy, or decision.

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1   Introduction

1.1   Background

Access to quality health care is a central part of our nation's commitment to Veterans. In February 2014, a recently retired Department of Veterans Affairs (VA) physician alleged that at least 40 Veterans died while waiting for care at the Phoenix VA Health Care System. While the allegations of deaths were not proven, this raised questions about how effectively the commitment to Veterans was being fulfilled (VA, Office of Inspector General, 2014). Does VA have the resources and capabilities to ensure that Veterans have access to the health care they need? What is the best way to ensure that Veterans' needs are met?

Following the Phoenix allegations, the VA Office of Inspector General investigated the timeliness of VA health care, finding that wait lists for appointments were being used inappropriately. Some VA staff regularly entered false information regarding patients' preferred dates of care to minimize reported wait times between the preferred date and the actual date of appointments. They kept paper lists of patients for days or weeks before adding them to the official electronic wait list. The Inspector General also pointed to systemic issues within VA that may limit Veterans' access to care, including lack of available appointments within certain clinical specialties and problems with care transitions for patients discharged from mental health services.

The Phoenix allegations focused a strong spotlight on Veterans' health care. However, accessibility and timeliness of care are longstanding areas of concern within VA. Just in the past decade, there were 20 other reports similar to the VA Inspector General's 2014 report, as well as a series of U.S. Government Accountability Office (GAO) reports addressing time spent waiting for health care, physician staffing levels, and other issues related to health care access. VA has many ongoing programs and initiatives to increase access to care for Veterans, including programs to give Veterans access to non-VA health care providers.

The Veterans Choice Act was passed to address these issues and to provide other short-term improvements in Veterans' access to care. The Veterans Choice Program expanded VA authority to furnish care to Veterans through agreements with non-VA providers. Veterans are eligible for the Veterans Choice Program if they are unable to schedule an appointment within 30 days of their preferred date or live more than 40 miles from a VA medical facility. The Veterans Choice Act includes a number of other provisions designed to increase access to VA and non-VA providers, including improved access to telemedicine through mobile medical centers; 27 new major medical facility leases; increased transparency of performance data on VA providers, including wait times; new residency and other training and education programs; and recruitment and appointment of personnel in occupations identified by the VA Inspector General as having the greatest shortages. The law includes appropriations for VA to support these activities.

Section 201 of the Veterans Choice Act includes a requirement for an independent assessment of VA health care addressing 12 specific questions (denoted A through L, based on the legislative language). This report addresses Assessment B, which the Veterans Choice Act

describes as "an independent assessment of the current and projected health care capabilities and resources of VA, including hospital care, medical services, and other health care furnished by non-VA facilities under contract with VA, to provide timely and accessible care to Veterans" (Veterans Choice Act, Section 201).

1.2   Objectives

The objectives of this report are to assess VA's current and projected resources and capabilities, the level and nature of access to VA care, and barriers and facilitators to access. Against this background, we then explore how selected policies could affect Veterans' access to high-quality care. Specifically, we address the following research questions:

- What are VA's current resources and capabilities in key domains?
- What are current levels of access to VA care?
- What is the quality of care in VA?
- What are VA's projected resources and capabilities to provide timely and accessible care, and how might different policy options enhance VA's resources and capabilities for treating Veterans in the future?

1.3   Scope

We defined key types of health care resources and capabilities, as described in Subsection 1.4. Some types of health care resources are examined in greater detail by other Section 201 assessments. In areas of overlap, we coordinated with the other assessments, providing an overview in this report with reference to more detailed discussions in the other assessment reports.

The following bullets summarize the other assessments conducted as part of this project:

- Assessment A: Current and projected demographics and unique health care needs. We used VA's projections of Veteran demand for health care services to analyze how VA resources and capabilities to provide access to care would change under different policy scenarios. Assessment A discussed VA's demand projections, arrived at an independent projection of how the Veteran population and its unique health care needs will change in the future, and examined how future demand for VA health care could change under different policy scenarios.
- Assessment C: Authorities and mechanisms for care at non-Department facilities. We discussed current VA resources and capabilities to provide access to care under contract and purchased from non-VA entities, and discussed policy options to improve access through greater use of purchased care. Assessment C described the authorities and mechanisms to provide purchased care in detail. While Assessments B and C used similar data to describe purchased care use, Assessment C described policy options to change VA authorities and mechanisms to purchase care in greater detail.
- Assessment D: System-wide access standard. In our assessment of access to VA care, we used access standards in use by VA and compared these with available private-sector

standards. Assessment D performed a more systematic review of standards for access, scheduling, and wait times. (The results of this review were not available while we were conducting our analysis).

- Assessment E: Workflow process for scheduling. We included scheduling as one type of capability studied. Assessment E assessed VA scheduling processes in greater detail.

- Assessment F: Organization, workflow processes, and tools to support inpatient care. Clinical workflow is one type of barrier to access considered in our analyses. Assessment F assessed VA systems and processes that support care delivery within the hospital setting in greater detail.

- Assessment G: Staffing levels at medical facilities: Both Assessments B and G used VA data to estimate provider counts and productivity for physicians and associate providers in the VA system. Assessment G processed and made these data available to Assessment B. Assessment B included estimates of provider counts and productivity for therapists (for example, physical therapists and occupational therapists), which Assessment G did not. Assessment B combined these data with wait-time and interview data to estimate the specialties with capacity constraints and to identify factors affecting capacity. Assessment B also estimated VA enrollees' geographic access to non-VA physicians and estimated potential capacity constraints of those physicians.

- Assessment H: Information technology strategies. We studied VA IT resources and capabilities that directly impact Veteran access to care. Assessment H focused on VA IT in greater detail from the strategy and management perspectives.

- Assessment I: Business processes of the Veterans Health Administration (VHA): Assessments B and I analyzed some common data on purchased care spending. Assessment I assessed processes related to purchased care, such as the accuracy and timeliness of VA payments to vendors and providers, as well as revenue collection for VA provided care.

- Assessment J: Purchasing, distribution, and use of pharmaceuticals, supplies, and devices: We included medical technology and supplies as one type of resource used by VA, while Assessment J focused in more detail on purchasing, distribution, standardization, and use of pharmaceuticals, supplies, and devices.

- Assessment K: Construction and maintenance projects at medical facilities. We included physical infrastructure as one type of VA resource and analyzed geographic access to VA facilities. Assessment K evaluated VA processes to deliver medical facilities, including capital management, construction, leasing, and maintenance.

- Assessment L: Competency of leadership. We did not directly study leadership, but we recognize that it affects the resources and capabilities we studied. Assessment L directly assessed VHA leadership.

1.4   Definitions of Key Concepts

Access to care has been defined in conceptual models that are widely used in research and other assessments of access. Similarly, definitions and frameworks of health care quality and

organizational capacity, resources, and capabilities have been developed. We drew on these frameworks to define the key concepts that are the foundation of Assessment B.

1.4.1   VA Resources and Capabilities

The VA system includes a wide range of health care capabilities that draw on resources owned or leased by VA, as well as resources under contract and purchased from non-VA entities.

Resources are assets that VA can use to provide access to care for Veterans. Important resources include the financial means to support health care for Veterans, human resources, facilities, relationships with other organizations to provide care, and IT (Table 1-1).

Capabilities are the ability of VA to use its resources in coordinated tasks to provide access to care for Veterans (Helfat & Peteraf, 2003). The fact that VA has a resource does not necessarily mean that the resource is used effectively to enable a capability to provide access to care. For example, VA may have a certain number of facilities staffed by cardiologists, but only some of those facilities may have the capability to provide some specialized cardiology services.

Table 1-1. Types of VA Health Care Resources

Types of Resources	Definition
Fiscal	Funding sources and allocations, as well as alternative sources of finance, operating budget, and capital (for example, VA budget allocations).
Workforce and human resources	The employees who support and provide health care for Veterans (for example, physicians, nurses, clinical support staff).
Physical infrastructure	The physical structure needed to support provision of care (for example, medical centers, outpatient clinics, medical equipment).
Interorganizational relationships	Relationships with other organizations that VA can use to improve Veterans' access to care (for example, the Veterans Choice Program).
IT	Information and information technology (IT) resources such as computing and IT equipment, IT support, and databases (for example, patient portals, electronic health records, telemedicine).

Source: Adapted from Meyer et al., 2012.

1.4.2   Access, Timeliness, and Quality

A broad definition of **access** is "the fit between the individual and the health care system" (Fortney et al., 2011; Penchansky & Thomas, 1981). Put another way, Veterans' access to health

care depends on how well the health care system addresses patient needs. Both the characteristics of the health care system and the characteristics of the individual are important in determining this match. For example, can a Veteran with diabetes see a podiatrist before poor foot care leads to infection and possible limb amputation? Can a Veteran with endometriosis and symptomatic anemia have access to a gynecologist for surgery? Does a Veteran with posttraumatic stress disorder (PTSD) have access to psychotherapy with a provider trained in evidence-based treatment for PTSD?

Access to health care services does not automatically translate into actual service use. Veterans may have excellent access to care that, in theory, fits their needs, but they may or may not take advantage of available care to use health care services. Access to care is a prerequisite for use, however, and therefore a key factor affecting Veterans' health and experiences of care.

Access is a general concept that subsumes more specific aspects of the fit between individuals and the health care system (Penchansky & Thomas, 1981). **Timeliness** is a dimension of access focused on how promptly needed care is available (Fortney et al., 2011). The allegations at the Phoenix VA Health Care System focused on time spent waiting for health care appointments, one aspect of timeliness. Our assessment team defined *untimely care* as delays in care that put Veterans at risk of poor health outcomes, either because symptoms are not resolved in a time frame compliant with VA guidelines or because delays cause patients not to follow up with treatment. Delays in care that could put Veterans at risk of death or other poor health outcomes are clearly harmful in a clinical sense. However, even if delays do not directly change patient outcomes, they may be important from the Veteran's perspective. For example, time spent in a waiting room could lead to missed time at work or with family, and long waits for appointments could cause anxiety.

Timeliness of care means different things for Veterans with different health care needs. For example, consider three scenarios:

- A Veteran seeks to enroll in VA health care and establish a relationship with a primary care physician. How long does it take for the Veteran to enroll? How much time elapses between enrollment and the first visit to the primary care physician?

- Following the first visit, the Veteran is referred to a cardiologist and a dermatologist for consultation on two specific health problems. How long is it before the Veteran sees these specialists?

- As a result of these visits, the Veteran requires ongoing care that must be closely coordinated between the primary care provider and the specialist physicians. When the Veteran arrives at the next primary care appointment, will the relevant information from the specialist visits be available to the primary care physician?

In this report, we examine available data on the timeliness of VA health care. Other dimensions of access are listed in Table 1-2. These dimensions—including geographic access to health care providers, financial considerations, digital connectivity, and the cultural acceptability of health care—are vital in ensuring that health care is accessible to Veterans. We did not assess VA's current eligibility structure because our assessment scope was resources and capabilities to provide care, not eligibility for benefits.

Table 1-2. Dimensions of Access to Health Care

Dimensions of Access	Definition
Geographic	The ease of traveling to health care providers. For example, how far does a Veteran live from needed health care services? How long does it take to travel to appointments? Is it possible to take public transportation, and if so, how long is spent in transit?
Timely	The ability to obtain care and get it promptly. For example, when are Veterans able to schedule appointments for needed care? How long do they wait during health care visits?
Financial	Eligibility for VA services and the cost of VA services. For example, how much do Veterans pay out-of-pocket for VA health care services?
Digital	Connectivity enabling digital communications with providers, caregivers, peers, and computerized health applications. For example, do Veterans own or have the right to use digital channels of communication?
Cultural	The acceptability of health services to the patient. For example, can Veterans receive services in a language in which they are comfortable communicating? For a Veteran with a stigmatizing illness, are services offered by providers whose behavior does not cause the Veteran to feel discriminated against?

Source: Derived from Fortney et al., 2011.

The **quality** of health care services is critical to understanding access to care, since access is beneficial only if adequate quality care is provided. The Institute of Medicine has defined six dimensions of health care quality (Table 1-3): Care should be safe, timely, equitable, effective, efficient, and patient-centered (Institute of Medicine, 2001). In this report, we examine the quality of VA health care in comparison with non-VA care as measured in previous studies and by analyzing more recent VA performance data.

Table 1-3. Dimensions of Health Care Quality

Dimension of Quality	Definition
Safe	Avoiding injury to patients from the care intended to help them. For example, do hospitalized patients develop avoidable infections?
Timely	Reducing wait times for both providers and patients. For example, are stroke patients treated quickly?
Equitable	Providing care that does not vary in quality because of personal characteristics such as gender, race/ethnicity, and socioeconomic status. For example, is a heart attack diagnosis more likely to be missed in women than men?

Dimension of Quality	Definition
Effective	Providing evidence-based services to those who could benefit, and not giving services to those unlikely to benefit. For example, do patients with diabetes receive recommended screening?
Efficient	Avoiding waste, including waste of equipment, supplies, ideas, and energy. For example, are duplicate unnecessary medical tests provided to the same patient?
Patient-centered	Providing care that is responsive to individual patient preferences, needs, and values. For example, how well do health care providers communicate with patients?

Source: Institute of Medicine, 2001.

1.5   Improving Access for Veterans

The Veterans Choice Act aims to improve access to VA care in the short term. However, longer-term solutions are also needed to ensure that VA is positioned to meet Veterans' needs in the future. Over time, the size, demographics, and health needs of the Veteran population will change. VA will need to adjust its resources and capabilities to meet the changing demand for services and to select appropriate policies to meet demand. VA has a number of options. For example, some policy options for ensuring access to health care focus on increasing the number and type of resources that VA owns or that it purchases from the private sector. Other policy options for ensuring access to health care seek to improve the productivity of VA's existing capabilities to provide care (for example, by formalizing task assignments in outpatient clinics to improve clinic workflow). These are selected examples among many proposed options for improving the nation's ability to fulfill its commitment to Veterans. We assess a number of policy options designed to improve access, providing information on the expected impact on access, fiscal considerations, operational feasibility, stakeholder acceptability, and the tradeoffs among them.

1.6   Organization of Report

The remainder of this report consists of six sections:

- Section 2 provides an overview of the methods used in the assessment.
- Section 3 provides an assessment of five types of resources and capabilities: fiscal, workforce and human resources, physical infrastructure, interorganizational relationships, and IT.
- Section 4 provides an assessment of access to VA care along five dimensions: geographic, timely, financial, digital, and cultural.
- Section 5 provides an assessment of the quality of VA care, using the six domains outlined by the Institute of Medicine: safety, timeliness, equity, effectiveness, efficiency, and patient-centeredness.

- Section 6 discusses approaches VA could use to adjust resources and capabilities to improve access for Veterans.
- Section 7 describes our conclusions and recommendations.

The report also includes nine appendices, five of which are included in a separate document:

- Appendix A: Methods
- Appendix B: Survey
- Appendix C: References
- Appendix D: Acronyms
- Appendix E: Summary of Qualitative Interviews
- Appendix F: Supplementary Access Materials
- Appendix G: Supplementary Quality Materials
- Appendix H: Projections
- Appendix I: Survey Data Tables.

2 Overview of Methods

2.1 Introduction

In this section, we provide an overview of the mixed-methods approach we used to assess VA's current resources and capabilities, the level and nature of access to VA care, barriers to and facilitators of access, the quality of care, and policy options for enhancing VA resources and capabilities. We collected data through literature reviews, key informant interviews, a survey of VA administrative parent organizations, and from VA and non-VA data sources.[3] We conducted analyses of the data and other secondary sources, including VA and other data sources, to inform the assessment.

In addition, we selected seven "illustrative clinical populations" to provide a more detailed understanding of VA capabilities, resources, and accessibility in selected subpopulations of Veterans. We analyzed these to supplement analyses of VA as a whole in areas where overall analyses are too broad to provide a sufficient understanding of relevant issues.

We also developed a method for projecting future resources to compare with forecasted changes in patient demand for VHA treatment to identify potential gaps. To support analyses of future options for VA to address identified gaps, we used a multipronged approach to identify and analyze a reasonable range of feasible policy options to enhance VA's ability to provide timely and accessible care to Veterans.

This section provides a high-level discussion of the specific methods used in Assessment B, as follows:

- Subsection 2.2: Illustrative Clinical Populations
- Subsection 2.3: Literature Reviews
- Subsection 2.4: Interviews
- Subsection 2.5: 2015 Survey of VA Resources and Capabilities
- Subsection 2.6: Data Sources and Measures
- Subsection 2.7: Data Analyses
  - Resources and Capabilities (Subsection 2.7.1)
  - Access to Care (Subsection 2.7.2)
  - Quality of Care (Subsection 2.7.3)
- Subsection 2.8: Assessing Options for Enhancing VA Resources and Capabilities
  - Future Policy Options (Subsection 2.8.1)

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[3] According to the VHA Handbook (VA, 2013b) an administrative parent is defined as a collection of all the points of service that a leadership group (Medical Facility Director, Deputy Medical Facility Director, Chief of Staff, Associate or Assistant Director, and Nurse Executive) manages. The points of service can include any institution where health care is delivered. All the data originating from these points of service roll up to a single station number representing the administrative parent for management and programmatic activities.

○ Projecting Needed Resources in the Future (Subsection 2.8.2).

Additional information about methodology can be found in Appendix A.

2.2   Illustrative Clinical Populations

To provide a more detailed understanding of VA capabilities, resources, and accessibility in selected subpopulations of Veterans, we selected seven "illustrative clinical populations." We conducted analyses focused on these clinical populations to supplement analyses of VA as a whole in areas where overall analyses are too broad to provide a sufficient understanding of relevant issues. In the analyses of the illustrative clinical populations, we identified the resources needed to treat these populations (for example, types of providers, infrastructure, equipment) and conducted analyses assessing the level of those resources. We measured geographic access to specific services needed by these populations. In addition, the 2015 Survey of VA Resources and Capabilities was designed to provide information specifically about these populations and to identify points in the care process where they may face delays.

We selected the seven illustrative clinical populations to ensure that the portfolio of populations considered in these analyses reflects populations of particular interest to VA (for example, high prevalence, congressional focus, service connection) and is diverse on important characteristics. We defined a clinical population as a group of individuals with a need for specific health care resources. Therefore, a clinical population could include individuals with certain clinical conditions (for example, type II diabetes mellitus, PTSD) or individuals who have received a certain type of medical treatment (for example, who are in need of gynecological surgery). The seven populations selected are Veterans with acute coronary syndromes, colon cancer, PTSD, substance use disorder (SUD), traumatic brain injury (TBI), type II diabetes mellitus, and women's diagnoses requiring gynecological surgical intervention.

We selected clinical populations by applying screening criteria to each candidate population and applying breadth criteria to a subset of populations that met the screening criteria. We defined the screening criteria as follows:

1. **Importance:** Selected clinical populations should be "important," defined as being of particular interest to those seeking to understand VA resources and capabilities, including populations that are either unique to or disproportionately prevalent in the Veteran population. The importance may be due to high prevalence, high costs, or high visibility (that is, listed as VA priorities or which have received specific public, congressional, or legislative attention).

2. **Measurability:** Selected clinical populations should be feasibly identified in the VA population using International Classification of Diseases-9 codes in a reliable and valid manner (subject to limitations of administrative data due to variation in coding practices). This allows for analyses of encounter data to illustrate access-related issues in the selected populations.

We defined the breadth criteria to ensure diversity along the following dimensions:

1. **Type of care:** Medical and behavioral health care services should be represented, as should health care services required to treat service-connected disabilities.

2. **Acuity:** The care required by the selected populations should vary in the level of urgency, covering the range of preventive care, routine chronic illness care, and urgent acute care.

3. **Care setting:** The services typically used by the selected populations should be provided in a variety of health care settings (for example, acute care hospitals, emergency departments, outpatient primary care clinics, outpatient specialty care clinics).

4. **Workforce:** A variety of types of providers who typically treat the selected clinical populations should be represented, including specialists and generalists; medical, surgical, and behavioral health care providers; ancillary staff; and providers who work in teams.

5. **Population diversity:** The conditions should reflect population diversity (sex, age).

We applied the screening criteria using a two-step process. First, to identify important and measurable clinical populations, we selected the 37 conditions identified by the VA–Department of Defense (DoD) Reporting & Analysis Datamart Technical Advisory Group as high-interest groups. We used prevalence data provided by the VA Healthcare Analysis and Information Group to select the 10 most prevalent medical high-interest groups, the five most prevalent behavioral health high-interest groups, and all conditions that were primarily attributable to military service. The result was the 20 populations listed in Appendix A, Table A-1. We made some adjustments to the initial list of 20 populations before applying the breadth criteria to eliminate some populations that were too broad and to meet the population diversity criterion (which required the addition of a population composed mainly of women). Based on input from VA experts in women's health, we included the category of conditions that require gynecologic surgery. We then used the breadth criteria to select six additional clinical populations from the set of 20 to provide the desired diversity of characteristics. In Table 2-1, we list the seven selected clinical populations and describe them based on the breadth criteria.

Table 2-1. Description of How Selected Populations Contribute to Breadth Criteria

Clinical Population	Description of Contribution to Breadth Criteria
Acute coronary syndromes	Acute inpatient care, emergency department care, and chronic illness care. Specialty workforces (cardiology, cardiovascular surgery, emergency medicine, interventional radiology) play a substantial role.
Conditions requiring gynecologic surgery	Surgical conditions. Can be inpatient or outpatient surgery. Specialty workforce (gynecologists, operating room staff trained in gynecologic surgery). Population diversity (women).

Clinical Population	Description of Contribution to Breadth Criteria
Type II diabetes	Primarily routine outpatient care for management of chronic condition. Some acute exacerbations. Primary care workforce, occasional specialty care (endocrinology, nutrition, podiatry, ophthalmology). Often managed by a team.
Colon cancer	Time course is sub-acute, but timeliness of care is particularly important. Infrastructure needs include outpatient clinics, inpatient hospital care (sometimes semi-elective), surgical facilities, and specialized outpatient facilities (for example, chemotherapy, radiation therapy). Primary care for screening and sometimes diagnosis. Specialty workforce (for example, oncology, surgery, radiation therapy) needs predominate after diagnosis.
TBI	Often service-connected. Interdisciplinary, rehabilitation-focused care. Population diversity (younger Veterans). Workforce (neurologists and physical medicine and rehabilitation, and pain specialists).
PTSD	Usually service-connected. Primary care and outpatient specialty mental health; some specialized residential PTSD programs. Workforce includes psychiatrists and psychologists trained in evidence-based psychotherapy for PTSD. Treatment can be delivered via telemental health.
SUD	Chronic condition with acute exacerbations. Primarily outpatient care in primary care, specialty care, or specialty substance abuse care, but frequent emergency care for a subsection of the population. Residential rehabilitation (for example, domiciliary, residential treatment) plays a substantial role; inpatient detoxification services. Some medications are either expensive (injectable naltrexone) or difficult to access (methadone, buprenorphine, injectable naltrexone).

2.3 Literature Reviews

The Assessment B team conducted several literature reviews to provide background and context for the assessment. For each type of resource (for example, fiscal, physical infrastructure), we conducted a targeted literature review to identify information about current levels, trends over time, and key issues and concerns. We also conducted formal, in-depth systematic literature reviews to assess the evidence related to access, quality, and potential policy options for enhancing VA's resources and capabilities.

2.3.1 Targeted Literature Reviews

The targeted literature reviews in each resource area included both the peer-reviewed and gray literature. We developed search terms for each type of resource and searched databases such as PubMed and GreyLit. We reviewed the articles and reports returned by the search and abstracted relevant information. We incorporated data from the literature review into the

analyses of current levels of resources, geographic variation, trends over time, and key issues or concerns. Example questions, sources, and example search terms are shown in Table 2-2.

Table 2-2. Key Questions and Search Terms Used in Targeted Literature Reviews

Resource Category	Sample Questions	Data Sources	Example Search Terms
Fiscal	▪ How does VA develop its budget? ▪ How does VA allocate the funds it receives from Congress? ▪ What are the challenges associated with VA's funding processes and what are the consequences? ▪ How do VA funding and expenditures on medical care compare with the private sector?	▪ PubMed ▪ GreyLit ▪ Congressional testimony	▪ Veterans Administration and: ▪ Budget, expenditure, resource allocation
Workforce and Human Resources	▪ How does VA assess and plan current and future workforce capacity? ▪ What are the observed and perceived constraints on workforce capacity within VA's system? ▪ What factors affect the capacity of the VA workforce? ▪ What types of approaches does VA use to expand workforce capacity?	▪ PubMed ▪ Google Scholar ▪ Grey Literature Report ▪ VA documentation	▪ Veterans Administration and: ▪ Workforce, staffing, human resources, manpower, personnel, scheduling ▪ Physician, nurse, hospitalist, hospital staff, doctor, clinician ▪ Personnel selection, recruit, retention, turnover, burnout, retain ▪ Capacity, capability, productivity, efficiency,

Resource Category	Sample Questions	Data Sources	Example Search Terms
			relative value scales, practice management
Physical Infrastructure	▪ What proportion of a population of Veterans is within a certain distance or travel time from a facility or care? ▪ What are barriers or facilitators to geographic access to health care for Veterans?	▪ Cumulative Index to Nursing and Allied Health Literature ▪ Ovid MEDLINE ▪ PubMed	▪ Veteran and: ▪ Access or geographic or distance or travel ▪ Health or medical or disorder
Interorganizational Relationships	▪ What are the resources and capabilities of non-VA health care organizations to provide additional access to health care for Veterans?	▪ VA and DoD public documents ▪ Reports from the GAO, Congressional Research Service, and VA Office of Inspector General ▪ Congressional testimony	▪ Veterans Administration and: ▪ Purchased care, individual authorizations, Patient Centered Community Care Program (PC3), Access Received Closer to Home (ARCH), Veterans Choice Program, Non-VA Care Coordination, Fee Basis Claims System ▪ Sharing agreements, affiliated academic medical centers, DoD, Indian Health Services, Federally Qualified Health Center (FQHC)
IT	▪ What are the current IT	▪ VA internal	▪ Veterans

Resource Category	Sample Questions	Data Sources	Example Search Terms
	resources and capabilities that VA uses to provide access to care for Veterans? ▪ How do IT resources and capabilities vary across geographic regions and health care facilities? ▪ What are barriers and facilitators to achieving desired levels of IT resources and capabilities in VA?	reports and presentations ▪ PubMed	Administration and: ▪ IT ▪ Clinical video telehealth, VistA (Veterans Health Information Systems and Technology Architecture)/ Computerized Patient Record System (CPRS), data exchange, mobile apps, patient portal, MyHealtheVet

2.3.2 Systematic Literature Reviews

We conducted systematic reviews to assess access, quality, and potential policy options. Systematic reviews follow very rigorous procedures and are intended to provide a comprehensive, in-depth review of the topic under consideration. For these reviews, we followed guidelines outlined in the Preferred Reporting Items for Systematic Reviews and Meta-Analyses Statement (http://www.prisma-statement.org/index.htm). The key steps in these systematic reviews were developing the search strategy (see Table 2-3), selecting studies for inclusion in the review, abstracting data from the selected articles, assessing the quality of the evidence, and synthesizing the results.

Table 2-3. Key Questions and Search/Inclusion Strategies Used in Systematic Literature Reviews

Category	Sample Questions	Search and Inclusion Strategies
Access	▪ How accessible is VA care in each of the dimensions of access outlined by the Assessment B conceptual model of access? ▪ What are the	▪ Search terms included: ○ Veterans and VA health care facilities ○ access (defined as the availability of services) ○ utilization (defined as the use of services) ▪ Searched PubMed for articles between January 1, 2005, and April 10, 2015 ▪ To be included, the article had to evaluate access to care and/or the relationship between access to care

Category	Sample Questions	Search and Inclusion Strategies
	facilitators and barriers to access to care in VA?	- and the utilization of services at VA facilities. - Articles were classified according to characteristics of access outlined by the Assessment B conceptual model.
Quality	How does the quality of care provided by VA compare to that for non-VA health care facilities and systems?	- Started with terms from prior systematic reviews on health care delivered in VA versus non-VA settings (Shekelle, Asch et al., 2010; Kehle, Greer, et al., 2011) - Searched PubMed for articles between January 1, 2005 and January 1, 2015 - To be included, the article had to present a comparison of quality of care in VA and U.S. non-VA settings. - If an article had been included in the previously published systematic review on quality in VA versus non-VA settings, the team used already abstracted data and reviewed the paper to ensure that all dimensions of quality were included. - Articles were classified according to dimensions of quality outlined by the Institute of Medicine.
Policy Options	What are feasible policies or approaches to improving access to care to Veterans?	- Searched PubMed for all English-language articles published from 1995 to present using a broad search strategy combining terms representing VA resources and capabilities and each of the types of VA health care resources shown in Table 1-1 - Also conducted separate targeted searches on policy options raised during key informant interviews, such as contracted care, DoD care, waitlists and scheduling, physician recruitment and hiring and overall access to care, as well as on articles written by specific authors suggested by advisory panel - Searched gray literature for research and policy reports pertaining to timely and accessible care in VA - Articles were abstracted for key findings and recommendations.

Titles and abstracts identified through the search were screened by two team members trained in the critical analysis of literature. An article was selected for full-text screening when both team members agreed it should be included. When differences in the initial assessment (inclusion or not) occurred, the specific abstracts were discussed with at least one other senior member of the Assessment B team.

Each full-text article selected for screening was reviewed by two trained team members using screening forms designed for the review. To be included, the article had to meet inclusion criteria specific to each review. For each article that met the screening criteria, information was independently abstracted by two reviewers using an abstraction form.

Once the forms were completed, all the data were evaluated by the review team, and any discrepancies between reviewers were resolved. Each article was assigned an overall score, based on relevance and quality of statistical methods.

2.4   Interviews

Interviews with VA employees and others with VA expertise addressed questions that could not be answered with sufficient detail by literature review or analysis of quantitative or survey data. Interviews spanned a number of topics and research questions related to VA resources, capabilities, access, and quality, including:

- Types and levels of VA resources
- Barriers and facilitators to increasing levels of resources of different types
- Barriers and facilitators to using resources effectively to provide access to care
- Barriers and facilitators to Veterans' accessing VA care
- Perspectives on quality and access measurement
- Major challenges VA is facing in providing timely and accessible care to Veterans
- Policy options currently being considered and/or evaluated that might help improve VA's ability to provide timely and accessible care
- Feasibility of and potential obstacles to successfully adopting policy options.

2.4.1   Respondent Selection

VA/Expert Respondents. To identify specific offices or individuals within VA that could address the topics outlined above, we searched organizational staffing charts and senior personnel lists supplied by VA, as well as descriptions of the responsibilities of each office available in the 2014 Functional Organizational Manual v2.0a. We identified potential interviewees outside of VA through literature review. These included policy-makers, key stakeholders, and academic and other health care and public policy researchers who authored reports related to VA or health care issues germane to the evaluation of VA capacity.

Facility Respondents. All the topics listed above, with the exception of the policy options topics, required interviews with facility-level personnel. The respondent groups, by facility type, included:

- VA Medical Center (VAMC): Director, Associate Director, Associate Director of Patient Care Services, Chief of Staff, Quality Director, health care providers in seven specialties, paraprofessionals/clinical support staff such as care coordinators, social workers, medical support assistants

- Community-Based Outpatient Clinic (CBOC): Medical Director, nurse managers, health care providers in primary care, behavioral health, and obstetrics/gynecology)
- VISN: Chief Medical Officer, Quality Management Officer, Chief Information Officer.

We drew a purposive sample of VAMCs. We selected the sample to include a variety of facilities that, while not technically representative of the universe of VAMCs, would provide variation on key characteristics. We created six VAMC groups based on three characteristics: capacity, complexity, and metropolitan context. *Capacity* refers to the size of the facility, which was measured in terms of the number of patients served; *complexity* refers to the level of the VAMC's ability to treat a large number of conditions; and *metropolitan context* is the size of the urban area served. Additional information on how we defined these metrics can be found in Appendix A, Subsection A-2.

We began with a list of 150 VAMCs from a September 2014 extract from the VHA Site tracking System that was accurate when we began the selection process in January 2015.[4] We then eliminated some VAMCs from this list of the following reasons:

- Seventeen pairs of VAMCs coreported their statistics in the 2012 Hospital Quality Report Card. Because it was not possible to assign a specific number of visits to each VAMC, we elected to eliminate 17 VAMCs, one in each pair.

- We excluded one VAMC without capacity data available in a small/medium metro area.

- We excluded one VAMC that lacked information on its complexity level.

This left 131 VAMCs for consideration from the initial list of 150. Based on the three attributes, we grouped the VAMCs as shown in Table 2-4.

Table 2-4. Capacity, Complexity, and Metropolitan Context of VAMCs Used in Selecting Interviewees

Complexity	Rural, Small-Capacity	Small/ Medium Metro, Small-Capacity	Small/ Medium Metro, Medium-Capacity	Small/ Medium Metro, Large-Capacity	Large Metro, Small-Capacity	Large Metro, Medium-Capacity	Large Metro, Large-Capacity
Complex (1a–1c)	0	8	24	22	2	8	11
Less Complex (2–3)	20	23	9	0	4	0	0

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[4] VA reclassified its medical facilities in March 2015. Other analysis in this report used these later classifications, which increased the number of VAMCs to 166. See Section 3.3.1.

Complexity	Rural, Small-Capacity	Small/ Medium Metro, Small-Capacity	Small/ Medium Metro, Medium-Capacity	Small/ Medium Metro, Large-Capacity	Large Metro, Small-Capacity	Large Metro, Medium-Capacity	Large Metro, Large-Capacity
Total	20	31	33	22	6	9*	11

Source: Authors' analysis of 2012 Hospital Quality Report Card, Veterans Affairs Site Tracking system extract from September 30, 2014, and American Community Survey.
Notes: *One medium-sized VAMC in a large metro area was missing information on its complexity level. Blue-gray shading indicates groups from which VAMCs were selected for interviews.

We selected VAMCs from the groups shown above. The goal was to provide a distribution across the three categories of interest and to avoid smaller cells that include atypical VAMCs. Given the distribution of size and complexity across urbanization levels, we selected one VAMC from each of the following groups (shaded in Table 2-4):

- Rural, small, less complex
- Small-medium metro, small, less complex
- Small-medium metro, medium, complex
- Small-medium metro, large, complex
- Large metro, medium, complex
- Large metro, large, complex.

Of the 131 VAMCs, we eliminated 23 because they were not in the selected categories, and, to minimize the response burden on facilities, another 29 because they had already been selected for site visits by another Veterans Choice Act Assessment.[5] Due to overlap in these two categories, there were 84 VAMCs remaining to select from.

The final sample included two VAMCs per facility size category and a distribution across urbanization that is roughly proportionate to the distribution of facilities. We made the selection to account for geographic diversity. We also created ratios based on the 2012 report card of primary to specialty visits, and inpatient to outpatient visits, and we aimed for diversity in this regard as well.

We also contacted interviewees at the VISN level. We selected the VISN associated with each VAMC for interviews, unless the VISN was the subject of a site visit by another Veterans Choice Act Assessment (three VISNs). In those cases, the three remaining VISNs that were not subjects of site visits or interviews were substituted.

Finally, we selected one CBOC associated with each VAMC. When possible, we used the

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[5] The number of VAMC site visits was later increased to 38, but this did not affect our selection.

Veterans Affairs Site Tracking data to identify those characterized as multispecialty CBOCs.

2.4.2   Protocol Development

We developed interview protocols that featured defined questions and then used elicitation techniques to provide respondents with space to offer rich answers and make connections on their own. These protocols allowed the team to focus the interviews on specific topics that matched the project goals without overly constraining and shaping respondents' answers.

Protocols were iteratively reviewed to ensure that the research questions were being covered. One to four question sets were targeted to each respondent group. Each protocol included an introduction describing the purpose and ground rules for the interview and covering verbal consent and confidentiality.

All RAND research that involves the acquisition of private, individual-level data are required to follow the common federal rule for the protection of human subjects. These guidelines are described in 45 Code of Federal Regulations 46 and in RAND's Multiple Project Assurance of Compliance (on file with the Department of Health and Human Services). The qualitative interviews underwent review by the Human Subjects Protection Committee, RAND's Internal Review Board. Our Internal Review Board submission included protocols, consent language, a recruitment email script, and a data safeguarding plan.

2.4.3   Interviews

For the expert interviews, we targeted 48 respondents and completed interviews with 38 respondents, representing a response rate of 79 percent. If the respondent consented, the interview was audio recorded and then professionally transcribed for analysis.

For the facility interviews, we targeted 88 respondents overall across the six VAMCs, six VISNs, and six CBOCs. Overall, we were able to identify individuals for the vast majority of respondent groups. We completed interviews with 61 respondents, representing a response rate of 69 percent. All facility interviews were conducted via telephone, usually with multiple interviewers or an interviewer and a note taker. If the respondent consented, the interview was audio-recorded and then professionally transcribed for analysis.

2.4.4   Analysis

Analysis was conducted using Dedoose, a commercial mixed-method, web-based data analysis platform. All interview transcripts were uploaded into Dedoose for thematic analysis. To identify and connect themes from across the interview data, we developed a coding structure for each domain. Domain-specific coding teams developed the coding structure based on the interview protocols and then dual-coded interview transcripts to establish coding reliability for that domain. The coding teams continued to develop codes and refine the coding structure as content was analyzed. Each domain coding team independently coded all transcripts with questions relevant to that domain. The overall code structure was continually revised through dialog within the qualitative team, particularly the team experts in the domain in question.

2.5   2015 Survey of VA Resources and Capabilities

The 2015 Survey of VA Resources and Capabilities was designed to identify clinically meaningful delays in care for the seven illustrative clinical populations chosen for Assessment B, and for primary care more generally. When survey respondents identified a delay in care, they were asked about the reasons for the delay and their proposed solutions. The survey was also designed to identify difficulties VA may be facing in recruiting, hiring, and retaining the clinical personnel necessary to provide care to Veterans in these populations.

The survey sample frame was all of VA's 141 administrative parents (local health care systems with at least one hospital and its affiliate clinics). The administrative parent within VA is defined as

> a collection of all the points of service that a leadership group (Medical Facility Director, Deputy Medical Facility Director, Chief of Staff, Associate or Assistant Director, and Nurse Executive) manages. The points of service can include any institution where health care is delivered. All of the data that originate from these points of service roll up to a single station number representing the administrative parent for management and programmatic activities.

The invitation to participate in the survey was sent via email directly to the Chief of Staff of the administrative parent. The email included instructions, links to the survey modules, and a signed letter from Dr. Carolyn Clancy, VA Interim Under Secretary for Health, encouraging VA employees to assist the Veterans Choice Act assessments. The survey was a web-based survey with eight modules allowing each module to be completed independently. The Chief of Staff was responsible for completing the Chief of Staff module, identifying the most appropriate individual to complete each of the clinical condition modules, and overseeing the completion and return of all survey modules. The survey was in the field for approximately two and a half weeks from Thursday, May 7, 2015, through Tuesday, May 26, 2015.

Detailed survey methods and results are provided in Appendix B.

2.6   Data Sources and Measures

In addition to data collected through the literature reviews, interviews, and survey, Assessment B drew upon various other data sources and measures, as described briefly in this subsection. Information about the analyses conducted using these and other data are found in Subsection 2.7.

2.6.1   Resources and Capabilities

Data sources and the concepts that we measured to assess current resources and capabilities across domains are described in Table 2-5.

Table 2-5. Data Sources and Measures for Assessing Resources and Capabilities (Other Than Literature Review, Interviews, Survey)

Resource Area	Data Sources	Concepts Measured
Fiscal	- Fiscal Year (FY) 2016 VA Budget Request - FY 2014 Veterans Equitable Resource Allocation Handbook	- Congressional appropriation - Allocation of funds to VISNs
Workforce and human resources	- Staffing and productivity data provided by Assessment G. including data collected from: - VISTA New Person File - VISTA Patient Care Encounter File - Monthly Program Cost Report - SK&A Office-Based Physician, Nurse Practitioner, and Physician Assistant Database - VA Planning Systems Support Group Enrollee file - VHA Support Service Center (VSSC) [See Strategic Analytics for Improvement and Learning Cube] - Medical Group Management Association Academic Survey - Medical Group Management Association Physician Compensation and Production Survey from Assessment G	- Supply of physician labor, by specialty - Supply of associate providers - Supply of therapists - Productivity - Location of non-VA providers - Timeliness of care

Resource Area	Data Sources	Concepts Measured
Physical infrastructure	▪ Veterans Affairs Site Tracking System ▪ American Community Survey ▪ American Hospital Association 2014 Annual Survey of Hospitals ▪ VA Planning Systems Support Group Enrollee file ▪ VHA Daily Bed Report, FY 2015 ▪ VA Veterans Transportation Program, 2015 ▪ HUD VASH Utilization Report ▪ HUD 2014 Raw Housing Inventory Count ▪ VA Surveys (Complementary and Alternative Medicine, Cardiovascular Specialty Care Services, Emergency Departments, Pain Management, Physical Therapy, Prosthetics and Sensory Aids Service, Recovery Oriented Mental Health Care, Surgical Services) ▪ VA Clinical Inventory Facility Profile Report ▪ VA Clinical Inventory Facility Services Report	▪ Number and distribution of VA facilities ▪ Complexity of VA facilities ▪ Availability of specific services and technologies related to illustrative clinical populations ▪ Geographic access to VA facilities
Interorganizational relationships	▪ VA/DoD Medical Sharing Office ▪ Fee Basis Claims System extract from Assessment I ▪ VA Central Fee Payment extract from Assessment C ▪ VA Budget Requests 2012-2015	▪ Amount and types of care purchased from DoD ▪ Purchased care spending, utilization, and distribution

Resource Area	Data Sources	Concepts Measured
IT	▪ VSSC	▪ Access to IT capability ▪ Use of the capability ▪ Usability and user satisfaction

2.6.2   Access

We used a number of data sources to assess the five dimensions of access described in Section 1, Introduction (see Table 1-2): geographic, timely, financial, digital, and cultural. To identify performance measures, we conducted an environmental scan of access measures in VA performance measure reporting systems and publications, including the Strategic Analytics for Improvement and Learning Value Model (VA, 2014h), VA Hospital Compare ASPIRE (VA, 2014d), Linking Knowledge & Systems (VA, 2014c), the VA Facility Quality and Safety Report (VA, 2013d), and other published reports. Measures include system-level measures, such as the percentage of new patients who complete a primary care visit within 30 days of their preferred date, and patient-reported measures, such as the percentage of patients reporting that, in the past 12 months when they called for an appointment for care needed right away, they were always able to get an appointment as soon as needed. In addition, the team analyzed 2010–2014 data from the VHA Survey of Veteran Enrollees' Health and Reliance upon VA (Survey of Enrollees). The Survey of Enrollees is an annual survey of more than 40,000 enrolled Veterans designed to collect information on Veterans not available from other sources for the VA Enrollee Health Care Projection Model. Analyses of the Survey of Enrollees allow for assessment of Veterans' attitudes regarding each of the dimensions of access, such as the degree to which VA providers treat patients with respect (cultural access) and the degree to which VA offers Veterans the best value for their health care dollar (financial access).

Table 2-6 shows the data sources and access concepts that we measured. A full list of access measures by domain is found in Appendix A, Table A-3.

Table 2-6. Data Sources and Measures of Access

Access Domain	Data Sources	Concepts Measured
Geographic	▪ VA Survey of Enrollees ▪ Veterans Affairs Site Tracking System ▪ American Community Survey ▪ Esri v10.2 Business Analyst Extension ▪ VA Planning Systems Support Group Enrollee file ▪ VA Clinical Inventory Facility Profile Report ▪ VA Clinical Inventory Facility Services Report ▪ SK&A Office-Based Physician, Nurse Practitioner, and Physician Assistant Database	▪ Ease of getting to VA facilities ▪ Travel distance ▪ Travel time ▪ Accessible by public transit ▪ Veterans' perspectives regarding ease of getting to VA facilities ▪ Proximity to non-VA providers
Timely	▪ VSSC ▪ VA Survey of Healthcare Experiences of Patients Patient-Centered Medical Home (SHEP PCMH) Survey ▪ VA Survey of Enrollees	▪ Timeliness of care for VA primary care, specialty care, and mental health care appointments ▪ Wait times for appointments ▪ Veterans' perspectives regarding timeliness of care, appointments and information
Financial	▪ Medical Expenditure Panel Survey ▪ VA Survey of Enrollees	▪ Cost of VA care ▪ Out-of-pocket expenses ▪ Lost work time ▪ Veterans' perspectives regarding the value of VA care
Digital	▪ VA Survey of Enrollees	▪ Veterans' Internet access
Cultural	▪ VA Survey of Enrollees	▪ Veterans' perspectives regarding the degree to which VA personnel treat them with respect
Cross-Cutting	▪ Yelp reviews of VA facilities	▪ Veterans' comments regarding experiences visiting VA facilities

2.6.3   Quality

We selected a subset of measures for analysis from the more than 500 measures of quality available in the VA system. We prioritized quality measures that reflect national standards and are reported by national performance measurement programs, as follows:

- Measures in the Healthcare Effectiveness Data and Information Set (HEDIS) developed by the National Committee for Quality Assurance (National Committee for Quality Assurance, 2014) for care in the outpatient setting.

- Measures of patient experiences with health care received in the outpatient and inpatient settings from the SHEP. SHEP surveys are adapted from the Consumer Assessment of Healthcare Providers and Systems (CAHPS) family of surveys (Agency for Healthcare Research and Quality [AHRQ], n.d.).

- ORYX measures (also known as the National Hospital Quality Measures) developed by the Joint Commission (Joint Commission, 2015) for care in the inpatient setting.

- Patient Safety Indicators developed by the AHRQ about adverse events and complications of care that may occur in the hospital (AHRQ, 2015).

- Thirty-day risk-standardized mortality and readmission measures developed by the Centers for Medicare & Medicaid Services (CMS) in conjunction with the Hospital Quality Alliance (CMS, 2014) for the inpatient setting.

Table 2-7 contains the data sources and concepts we measured to assess quality. A full list of quality measures can be found in Appendix A.

Table 2-7. Data Sources and Measures of Quality

	Data Sources	**Concepts Measured**
Safety	▪ AHRQ Patient Safety Indicators (data from VA and CMS Hospital Compare for non-VA hospitals) ▪ CMS Hospital Compare (data for VA and non-VA facilities) ○ Outcome measures	**Patient safety** ▪ Adverse events and complications ▪ Inpatient outcomes ▪ Readmission and mortality

	Data Sources	**Concepts Measured**
Effectiveness	**Outpatient** • HEDIS Outpatient Quality Measures (data from VA and National Committee for Quality Assurance reports for non-VA) **Inpatient** • CMS Hospital Compare (data for VA and non-VA facilities) ○ ORYX measures	**Outpatient** • Screening, prevention, and wellness • Chronic condition management • Comprehensive diabetes care • Cholesterol management for patients with cardiovascular conditions • Antidepressant medication management **Inpatient** • Care processes for selected conditions (for example, acute myocardial infarction, pneumonia, heart failure, and surgical care)
Patient-centeredness	• VA SHEP PCMH (data from VA for outpatient experiences; no nationally representative non-VA data) • VA inpatient SHEP (data from VA for inpatient experiences) • CAHPS Hospital Survey (data from CMS Hospital COMPARE for non-VA hospitals)	**Veterans' reports of outpatient care experiences** • Communication with health care providers • Self-management support • Comprehensiveness of care • Helpful, courteous and respectful office staff **Veterans' reports of inpatient care experiences** • Communication with nurses and doctors • Responsiveness of hospital staff • Hospital environment • Care transition

Note: Performance measure data did not allow for assessment of Institute of Medicine quality domains of timeliness, efficiency, or equity.

2.7 Data Analyses

Using the quantitative and qualitative data sources described in the previous subsections, we conducted analyses to assess VA's current resources and capabilities, the level and nature of access to VA care, barriers and facilitators to access, and, where possible, how VA compares with external benchmarks. We looked for and considered external benchmarks for each measure that we assessed. Cases in which we do not report a benchmark reflect one of three possible reasons. In some cases no external benchmark was found. In the others a benchmark was found, but the comparison was deemed invalid due to differences in the patient population

(for example, demographics, health needs, reliance on VHA) or in the way that care is delivered. The third possibility is that the benchmark comparisons were being carried out by another assessment (for example, Assessment G compares VHA physician labor supply and productivity to external benchmarks) and are reported elsewhere.

In this subsection, we briefly highlight the methods used in the analyses of VA Resources and Capabilities (Subsection 2.7.1), Access to VA Care (Subsection 2.7.2) and Quality of VA Care (Subsection 2.7.3).

2.7.1   VA Resources and Capabilities

2.7.1.1   Fiscal Resources

Our primary method for assessing fiscal resources was a targeted review of the literature, with a particular focus on VA documents related to the budgeting and allocation process (see Subsection 2.3). The literature review was complemented by several descriptive quantitative analyses detailing the expenditures on Veterans over time, using publicly available data from catalog.data.gov. We collected qualitative information from facility leadership regarding problems with the allocation models and flexibility with funding. We conducted interviews with congressional experts on VA to understand how congressional priorities impact VA's overall allocation (see Subsection 2.4).

2.7.1.2   Workforce

We used a number of measures to assess VA's health care workforce resources and capabilities. We developed descriptive data tables describing total workforce and productivity estimates for physicians, associate providers (for example, nurse practitioners, physician assistants, social workers, clinical nurse specialists), and therapists (for example, physical, speech, and occupational therapists). We generated reports for representative specialties, including those relevant for the illustrative clinical populations, that contain summary data at the facility level on physician workforce capacity and productivity within a given specialty. We also used wait-time data in combination with specialty-specific productivity estimates to identify facility-specialty combinations that may be particularly prone to capacity constraints.

We interviewed VA employees and others with VA expertise to gather information related to resources, capabilities, access, and quality. In particular, we asked about any provider number and productivity issues that may be causing capacity constraints at their facility. We supplemented these analyses with an extensive review of the literature (see Subsection 2.3).

VA providers. We measured the supply of the *specialty workforce* using full-time equivalent (FTE) counts for physicians, associate providers, and therapists. We used various FTE measures. For overall measures of FTE counts, we used "worked" FTEs, which does not include non-work-related paid time such as paid leave. For all other FTE measures, we used "clinical" FTEs which is a subset of worked FTEs calculating after removing non-clinical activities such as administration and research. We measured specialty physician and associate provider productivity using relative value units (RVUs), a commonly used method of counting health care output that weights each health care service for the time and other resources needed to

provide it. Because of the way RVUs are constructed, they are best used for comparisons within rather than across specialties. For therapists, we measured productivity in terms of the number of encounters per therapist clinical FTE. For *primary care*, we measured productivity of physicians by measuring "panel size" of primary care physicians, which we defined as the number of unique patients (by social security number) seen by each primary care physician per year. We also assessed variation in specialty care workforce supply and productivity and the extent to which various factors might affect workforce supply through changes in the recruitment and retention of various provider types. We also combined wait-time and productivity data to assess the source of potential capacity constraints (that is, insufficient FTE or productivity). For each of the seven illustrative clinical populations, we selected a subset of specialties that care for patients within the population and characterized facilities based on a measure of accessibility (measure of wait times for new patients) and productivity (RVU estimates). We used the wait-time variables to categorize each facility-specialty combination as having high or low wait times and described the distribution of these capacity constraints across facility-specialty combinations. We then used the findings from the literature reviews and interviews to identify specialties for which there are likely capacity constraints as well as potential causes of capacity constraints.

2.7.1.3 Physical Infrastructure

We identified and geocoded the locations of all VA health care sites: hospitals, VAMCs, health care centers, multispecialty CBOCs, primary care CBOCs, other outpatient services sites, extended care sites, and domiciliary residential care treatment programs. We also identified and geocoded the locations of Transportation Services and Veteran Housing Services.

We reported enrollee-adjusted size estimates (average daily number of patients per 10,000 enrollees) for each medical facility, aggregated at the VISN level. We also examined the number and distribution of sites by their complexity level. Each site has a range of capabilities. We identified and defined clinical care services that are definitive for one or more of the seven illustrative clinical populations described in Table 2-1. Table 2-8 lists an example of such services for TBI. A full list of 27 services and their definitions is provided in Appendix A (see Table A-2). To provide more detail about resources available for specific conditions, we report the number and distribution of sites that offer the services needed for the selected clinical populations.

Table 2-8. Example of Condition-Specific Services for Traumatic Brain Injury

Services	Definition
Polytrauma Support Clinic Team	An interdisciplinary team of health care providers who provide and coordinate rehabilitation services for patients with traumatically induced structural injury and/or physiological disruption of brain function as a result of an external force. Polytrauma support clinic teams also conduct comprehensive evaluations of patients with positive TBI screens, and develop and implement rehabilitation and community reintegration plans.
Polytrauma Network Site	Site that provides inpatient and outpatient rehabilitation care and coordinate polytrauma and TBI services throughout the VISN, generally with less comprehensive services than Polytrauma Rehabilitation Centers. (VA-specific term)
Polytrauma Rehabilitation Center (Program)	Regional referral center for the comprehensive acute rehabilitation for Veterans with complex and severe polytrauma. Polytrauma rehabilitation centers maintain a full staff of dedicated rehabilitation professionals and consultants from other medical specialties to address the complex medical and psychosocial needs of patients with polytrauma. These centers serve as a resource for educational programs and best practice models for other facilities across the polytrauma support clinic. (VA-specific term)
TBI Specialty Care	Specialty services designed for evaluation and treatment for patients with TBI.

Sources: All definitions, except for TBI, adapted from the VHA Handbook 1172.01, March 20, 2013. Definition for TBI provided by RAND experts.

To examine how VA facility locations, size, complexity, and service offerings may be related to delays in care, we interviewed 29 medical facility staff[6] and Veteran advocates about their experiences in the system. Interviewees were asked to describe how physical infrastructure is used in patient care. We asked about physical space, medical equipment and supplies, diagnostic capabilities, exam rooms, and inpatient facilities. We discussed the extent to which these parts of VA infrastructure are undersupplied, adequate, or oversupplied. Interviewees

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[6] Interviewed staff included facility associate directors, chief medical officers, clinicians, and administrators.

were also asked to comment on strategies that could address under- or oversupply of physical infrastructure.

2.7.1.4 Interorganizational Relationships

We used several measures to describe the extent of care provided through relations with non-VA entities. Measures of utilization included non-VA outpatient visits, mental health outpatient visits, and patients treated in non-VA inpatient settings compared with VA facility utilization. We also measured total VA spending on various categories of purchased care as well as care purchased from VA partners such as DoD and the Indian Health Service.

We performed a targeted literature search to obtain information on VA purchased care. In addition, the team reviewed qualitative information gathered from interviews conducted by Assessments B, C, and I, and responses to questions contained in the 2015 Survey of VA Resources and Capabilities regarding the use of non-VA medical care. This information provided additional context and detail regarding the various types of VA purchased care and the challenges associated with accessing, utilizing, coordinating, and reimbursing care.

2.7.1.5 IT

We conducted a review of the academic and gray literatures to identify the full range of IT resources and capabilities in use at VA and any evaluations of their impact on timely and accessible care. We selected six capabilities as most relevant to Assessment B. Three of these are emerging modes of access: (1) telehealth (clinical video in particular), (2) patient portal (MyHealtheVet), and (3) mobile applications (limited to those that facilitate Veteran communication with VA). Two capabilities are hypothesized to be relevant to timely and accessible care via their relationship to efficiency of VA providers: (4) data exchange (including within VA, VA-DoD, and VA–private sector) and (5) core electronic health record functionalities (with a specific focus on the impact of usability). We also identified one capability (or class of capabilities) that we hypothesized is relevant to timely and accessible care by prevention, addressing the "demand" side of care: (6) care management (home monitoring in particular). We collected a variety of measures related to these capabilities.

We used interviews with stakeholders internal and external to VA to address the mechanisms by which the capability may affect timely and accessible care to Veterans, VA's resources and capabilities to use the capability, and barriers to expanding use of and improvements to the capability. We led or participated in three different types of qualitative data collection efforts. First, we recruited for and conducted our own interviews with stakeholders inside and outside of VA. Second, we participated in facility-level interviews led and coordinated by the qualitative team. Third, we participated in interviews led and coordinated by Assessment H.

2.7.2 Access to VA Care

2.7.2.1 Geographic Access

We built a geographic information system (GIS) that would facilitate geographical analyses of VA resources and enrollees in 2013–2014, extending methods used in previous studies of

access to health care (Branas et al., 2005; Nallamothu et al., 2006; Klein et al., 2009; Culpepper et al., 2010; Concannon, Nelson, Goetz, & Griffith, 2012; Concannon, Nelson, Kent, and Griffith, 2013). A GIS links data by place and facilitates analyses that account for joint distributions of geographic, facility, population, and other data. Data are organized in a GIS by *layer group,* a capability that readily enables analysis in a variety of different geographic aggregations. The GIS was built in Esri's ArcGIS Version 10.2.

The primary outcome of the analysis is an estimate of the proportion of the enrollee population with access to VA and non-VA providers. Enrollees are Veterans who have signed up for the VA health care system.[7] We analyzed several different access standards, including a 40-mile straight line distance, 40-mile driving distance, 60-minute driving time, and 60-minute public transit time. All driving time analyses were adjusted in separate analyses for traffic slowdowns during rush hour travel in 101 metropolitan areas for which observed rush hour slowdowns are documented in the *2012 Urban Mobility Report* (Schrank, Eisele, & Lomax, 2012).

The team estimated the proportions of enrollees who have geographic access—according to each of these standards—to VA medical facilities with different levels of complexity and different capabilities. The VA system measures complexity of each administrative parent and its satellite VAMCs and CBOCs in six levels. The VA system also identifies specialized services and capabilities that are available to treat individual clinical populations; we looked at access to 27 of these services. These analyses focused on access to physical infrastructure, such as beds and clinical care space, and access to diagnostic and interventional medical technology, such as catheterization labs and coronary artery bypass graft suites for patients with acute coronary syndromes. In all analyses, we assessed variation in geographic access estimates by VISN.

We also estimated geographic access to purchased care for enrollees living outside the 40-mile driving distance boundaries around VA medical facilities. This assessment focused first on access to non-VA hospitals at three levels of complexity (academic, teaching, and community hospitals). Next, we focused this assessment on access to non-VA clinicians practicing in 12 clinical specialties.

2.7.2.2   Timeliness

We analyzed system-level measures of timeliness, including wait times for primary care, mental health care, and specialty care appointments, as well as Veteran reports regarding access to timely care, appointments, and information from the SHEP PCMH survey. We assessed timeliness of care in VA overall and compared across VA facilities. Nationally representative data for non-VA settings are not available for these measures. Therefore, we provide context for VA performance on these measures by presenting data on non-VA performance from the literature (for measures of wait time) and a public database (for SHEP measures).

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[7] Not all enrollees have actually received VA health care, but we use enrollees as our primary means of distinguishing that group of Veterans who are eligible to access VA health care.

For each measure, we conducted descriptive analyses of the performance rates available at the facility level, noting the variation in performance across facilities nationwide. We summarized the distribution of each measure using the mean, minimum, maximum. Means reported in Section 4 were calculated as a simple unweighted mean of the facility-level means. A VA benchmark was calculated as the mean of the top 10 percent of VAMCs based on performance for each measure. This benchmark reflects the rate of performance on a given measure that has been shown to be achievable at 14 VA facilities. For measures related to wait times in the first half of FY 2015, we classified the performance of each facility into one of three categories relative to the benchmark: "near the benchmark" (within 0.5 standard deviation [SD] above or below the benchmark), "below the benchmark" (0.5 to 2.0 SD below the benchmark), or "far below the benchmark" (>2.0 SD below the benchmark).

The statistical significance of the difference between each pair of means for VA and non-VA facilities was tested using a t-test. We tested for statistically significant differences in SHEP PCMH scores on selected measures between VA hospitals grouped by their performance on wait times for primary care, specialty care, and mental health care, using t-tests for pairwise comparisons with Bonferroni adjustment for multiple comparisons.

For measures with rates available for more than one year, we created a descriptive time series and classified changes over time as improving, worsening, or remaining the same, using the Cohen's d statistic as a measure of effect size to determine whether an improvement is large enough to be of interest after accounting for variability in the data. Cohen's d is calculated by dividing the change over time in measure rates by the standard deviation of the rates in the earliest time period. As variability of a measure rate decreases relative to the magnitude of the change in measure rates over time, the magnitude of Cohen's d increases, indicating a larger effect. According to Cohen (1988), no specific value or cutpoint indicates when an effect is significant or meaningful; however, he suggested three categories of effect magnitude: "small, $0.2 \leq d < 0.5$," "medium, $0.5 \leq d < 0.8$," and "large, $d \geq 0.8$."

We analyzed data from the Survey of Enrollees regarding Veterans' attitudes related to each of the dimensions of access, and analyzed online reviews of VA facilities to assess the relative frequency of comments related to access in each dimension.

The team analyzed five years of data (2010–2014) from the Survey of Enrollees to describe attitudes of Veterans related to access to VA care. We assessed the proportion of Veterans completely agreeing or agreeing with each question relevant to access over time, and by Veteran characteristics, including age, sex, race/ethnicity, income, employment status, insurance status, self-reported health, and priority group. To determine the degree to which observed changes over time were due to changes in the sociodemographic composition of Veterans, we also conducted multivariate logistic regressions predicting each question of

interest. Models included independent variables for all the Veteran characteristics noted above, as well as an indicator variable for each year.[8]

In addition, we analyzed narrative reviews of VA facilities submitted by users of the online rating website Yelp. Yelp reviews are posted voluntarily, and therefore may not be representative of the full population of Veterans; however, the reviews are useful for gaining perspectives from Veterans regarding barriers and facilitators to access to care at VA facilities. We identified VA facilities by their telephone numbers, combined duplicate Yelp entries for the same facility, and excluded reviews for nonmedical services offered by the facilities (for example, canteens or cafeterias). With permission from Yelp, we collected from the website full-text reviews posted between July 2007 and March 2015. One researcher read a subset of the reviews to identify thematic categories that reflect a concept or theme that could be present or absent in any particular review. We paid particular attention to the dimensions of access identified in the Assessment B conceptual model.

2.7.3   Quality of VA Care

We compared quality measures across VA facilities where available using the same methods used in analysis of timely access measures (Subsection 2.7.2.2). For each quality measure, we conducted descriptive analyses of the performance rates available at the facility level, noting the variation in performance across facilities nationwide. We summarized the distribution of each measure using the mean, minimum, and maximum. The performance rates for the quality measures reported in Section 5 and Appendix G tables were calculated as unweighted means of the facility-level means.[9] A VA benchmark was calculated as the mean of the top 10 percent of VAMCs based on performance for each measure. The statistical significance of the difference between each pair of means for VA and non-VA facilities was tested using a t-test.

For HEDIS quality measures for outpatient care, we compared VA performance rates with those for commercial, Medicaid, and Medicare health plans, as reported by the National Committee for Quality Assurance State of Health Care Quality Report (National Committee for Quality Assurance, 2015). The measures used by VA and the National Committee for Quality Assurance differ in some important ways (see Appendix A for details).

For ORYX quality measures for inpatient care (The Joint Commission, 2015), we compared VA performance rates between VA and non-VA hospitals as reported on the CMS Hospital Compare website. For other inpatient measures, we compared VA performance rates provided by VA (some measures) and on CMS Hospital Compare (other measures) with data for non-VA

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[8] The Survey of Enrollees data collection modes changed in 2012. Our multivariate modeling did not explicitly account for this, but the trends we report are consistent in the time periods before and after 2012, suggesting that reported changes over time reflect true differences in Veterans' responses.

[9] The value of mean measure rates calculated for this report may differ slightly from means reported in VA publications for the same time period, due to differences in methods used to calculate the means. For this report, we calculated an unweighted mean of facility-level means, whereas VA calculates a national mean value for each performance measure based on patient-level data.

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hospitals on CMS Hospital Compare. To ensure optimum comparability between VA and non-VA facilities in our analysis, we identified a subset of non-VA facilities with similar characteristics using data from the American Hospital Association (American Hospital Association, 2014). This dataset includes facility-level characteristics for 135 VA facilities and 6,332 non-VA facilities.[10] We analyzed measures for this report for which there were data available both for VA patients and the non-VA comparison groups. The full set of quality measures used in this assessment is shown in Appendix A, Subsection A.5.

To identify non-VA hospitals most similar to VA facilities, we conducted propensity score matching based on the predicted likelihood that a non-VA facility could be a VA facility given certain characteristics (covariates). Our approach for identifying matched non-VA facilities is described in Appendix A, Subsection A.5.2. For matching, we selected four facility characteristics most likely to differ between VA and non-VA hospitals, and shown to be predictive of performance on Hospital Compare measures (Lehrman et al., 2010): bed size (<100 beds, 100-199 beds, and 200+ beds), Census division (East North Central, East South Central, Mid-Atlantic, Mountain, New England, Other, Pacific, South Atlantic, West North Central, and West South Central), location (urban, rural),[11] and teaching status (teaching facility, nonteaching facility).[12] Three non-VA facilities were matched to each VA facility. After conducting propensity score matching, there were no significant differences between VA and the matched non-VA facilities for any characteristic in the model, indicating that the two sets of facilities were well matched. In estimating the results for VA and non-VA comparison groups, if a VA hospital had a missing value for a measure, the non-VA hospitals matched to that hospital were excluded from the analysis of that measure. In addition, if one of the matched non-VA hospitals had a missing value for a measure, the remaining two non-VA hospitals were "up-weighted" by a factor of 3/2 or 1.5, and if two of the matched non-VA hospitals had a missing value for a measure, the remaining hospital was "up-weighted" by a factor of 3. Results are presented for comparisons of VA facilities and non-VA hospitals overall. Appendix A, Subsection A.5.2 provides additional detail regarding the propensity score matching methods.

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[10] Seven of 135 VA facilities in the American Hospital Association could not be matched to the CMS Hospital Compare file, and were therefore not included in the analysis of CMS Hospital Compare measures (see Appendix A, Subsection A.5.2 for more detail).

[11] Facilities are categorized as urban or rural based on the American Hospital Association definition: "A rural hospital is located outside a Metropolitan Statistical Area (MSA), as designated by the U.S. Office of Management and Budget (OMB), effective June 6, 2003. Urban hospitals are inside Metropolitan Statistical Areas."

[12] Teaching facilities are defined to include major and minor teaching hospitals, with a major teaching hospital having a Council of Teaching Hospitals designation and a minor teaching hospital having another teaching hospital designation. Facilities without a teaching hospital designation were classified as nonteaching facilities.

2.8   Policy Analysis

2.8.1   Developing Policy Options

To identify and evaluate potential policy options for improving VA's ability to provide timely and accessible care to Veterans, we used a multipronged analytic approach combining data from a systematic literature review, key informant interviews, and quantitative analyses projecting the impact of various policy scenarios on access, with ongoing input and guidance from a panel of in-house advisors with expertise in VA health care delivery research and operations.

First, in consultation with our in-house advisory panel, we established a framework of potential policy options based on 1) their primary objective to enhance timely access to care either within VA or outside VA and 2) the approach to achieving the stated objective, either by modifying the amount and/or type of resources utilized or by increasing the productivity of existing resources.

Second, we established the criteria for evaluating policy options. We began with a standard set of evaluation criteria, which we refined for saliency to current VA context through an iterative process using data from key informant interviews, a systematic literature review, and input from our advisory panel. Our final set of evaluative criteria included impact on access, fiscal impact, stakeholder acceptability, and operational feasibility. Additional information about how we refined our evaluation criteria is found in Appendix A (see Subsection A-6.1).

Third, we identified a set of potential policy options for improving VA's ability to provide timely and accessible care to Veterans through the systematic literature review. The literature review approach is described above in Table 2-3 and in Appendix A (see Subsection A.6.2). We used this initial set of options as a starting point for developing a final list of policy options and iteratively added, removed, and modified options as further information was collected through the key informant interviews and advisory panel guidance.

Finally, we applied the evaluation criteria to each of the final policy options. We excluded from our final list policy options that (1) were infrequently raised during interviews, or (2) were expected to face significant challenges with respect to at least two of the evaluation criteria. We used the evaluation criteria to compare and contrast items on the final list of selected policy options in order to provide context for their viability as an approach to improving timely and accessible care in VA.

2.8.2   Projecting Future VA Resources and Capabilities

We projected the amount of health care services supplied under several scenarios and compared these figures to projected demand from VA's Enrollee Health Care Projection Model (EHCPM). The demand projections have some limitations (described in Section 6), but are used in VA planning. Assessment A projects how factors affecting demand, such as the size and composition of the Veteran population and their unique health care needs, will change over time, but does not provide estimates of the demand that VA will face. Still, the estimates from A provide useful context for interpreting and assessing the EHCPM demand estimates. The

results from Assessment A indicate that the number of VA patients is expected to rise slowly through FY 2019 and then begin to decrease. This is consistent with the increases in demand projected by the EHCPM through FY 2019. However, based on results from Assessment A, we expect to see decreases in demand after FY 2019.

In the first supply scenario, the projection accounts for changes in the number of VA providers based on historical trends but assumes no changes in productivity between FY 2014 and FY 2019. This projection indicates how the growth in VA provider supply would need to differ from historical growth rates to meet the demand EHCPM projects if there were no other changes that affect productivity. The second supply scenario projects the health care services supplied, accounting for changes in the productivity of existing resources, holding the provider supply constant between FY 2014 and FY 2019. This projection provides an estimate of the effect of productivity changes alone with no changes in the amount of resources. In the third supply scenario, we allow both the number of providers and their productivity to change.

Under supply scenario one, we forecasted the number of provider FTEs, given historical trends, for each specialty and administrative parent combination. We estimated a time series regression model using FTE data from the VA Productivity Cube for FY 2008 through FY 2014. We then compared the percentage growth in FTEs between FY 2014 and FY 2019 to the percentage growth in projected demand from the EHCPM over the same time period. If the difference in the growth rate is large, it is more likely that VA will have difficulty meeting projected demand under this scenario. For example, if, from FY 2014 to FY 2019, an administrative parent has a 10-percent increase in cardiology FTEs and a 15-percent increase in cardiology demand RVUs, the growth in projected demand would exceed the growth in projected supply and thus could point to a potential gap in the future.

For supply scenarios two and three, we estimated how much additional supply can be created through improved productivity (that is, RVU per FTE). For supply scenario two, we estimated how much additional supply can be achieved in FY 2019 over realized supply in FY 2014 if low-productivity providers increase their productivity (holding the number of FTEs constant). We created benchmarks that represent realistic productivity levels that could be achieved in VA system. To do this, we analyzed FY 2014 variation in services provided at each administrative parent in each specialty (measured as RVUs per provider FTE). We identified the 25th, 50th, and 75th percentiles of the distributions of productivity for each specialty. We then projected the effects of increasing productivity of existing resources at all administrative parents to at least the level of the 25th, 50th, and 75th percentile of the FY 2014 distribution for each specialty:

- **Productivity Level 1**: All administrative parents operate at least at the FY 2014 25th productivity percentile within each specialty nationally
- **Productivity Level 2:** All administrative parents operate at least at the FY 2014 50th productivity percentile within each specialty nationally
- **Productivity Level 3:** All administrative parents operate at least at the FY 2014 75th productivity percentile within each specialty nationally.

In scenario three, we projected the effect on supply of an increase in the productivity of low-productivity providers in combination with the forecasted change in FTEs.

We also analyzed several hypothetical policy options that explore how the projected demand for FY 2019 might be met through better matching demand RVUs to capacity FTEs without adding additional FTEs. These policy options involve either redistributing the demand geographically through a mechanism such as telehealth, or redistributing the supply through targeted layoffs and hiring or incentivizing current providers to relocate. To project this option, we assessed how many RVUs would be gained for each specialty if all administrative parents were performing at or above the current 25th, 50th, and 75th percentile of RVU/FTE for each specialty. We then compared this gain in RVUs to the projected increased demand of RVUs from FY 2014 to FY 2019 from the EHCPM. We calculated this change in RVUs as a percentage of the sum of the total FY 2014 RVUs and the proposed RVU gain. This percentage reflects the proportionate amount of care that would be redistributed to achieve the 75th percentile performance on RVUs/FTE across all administrative parents.

2.9   Section Conclusion

This section has provided a high-level discussion of the following methods used in Assessment B:

- **Illustrative clinical populations:** We selected seven illustrative clinical populations to provide a more detailed understanding of VA capabilities, resources, and accessibility in selected subpopulations of Veterans, and to supplement analyses of VA as a whole.

- **Literature reviews:** We conducted several literature reviews to provide background and context for the assessment. For each type of resource (for example, fiscal, physical infrastructure), we conducted a targeted literature review to identify information about current levels, trends over time, and key issues and concerns. We also conducted formal, in-depth systematic literature reviews to assess the evidence related to access, quality, and potential policy options for enhancing VA's resources and capabilities.

- **Interviews:** We conducted interviews with VA employees and others with VA expertise to address questions that could not be answered with sufficient detail by literature review or analysis of quantitative or survey data. Interviews spanned a number of topics and research questions related to VA resources, capabilities, access, and quality.

- **2015 Survey of VA Resources and Capabilities:** The 2015 Survey of VA Resources and Capabilities was designed to identify clinically meaningful delays in care for the seven illustrative clinical populations chosen for Assessment B, and for primary care more generally. The survey also sought to identify difficulties VA may be facing in recruiting, hiring, and retaining the clinical personnel necessary to provide care to Veterans in these populations.

- **Data sources and measures:** Assessment B drew upon numerous data sources and measures to assess current resources and capabilities across domains, to assess the five dimensions of access, and to analyze the quality of care available in the VA system.

- **Data analyses:** Using both quantitative and qualitative data sources, we conducted analyses to assess VA's current resources and capabilities, the level and nature of access

to VA care, barriers and facilitators to access, and, where possible, how VA compares with external benchmarks.

- **Assessing options for enhancing VA resources and capabilities:** We developed a method for projecting future resources to compare with forecasted changes in patient demand for VHA treatment to identify potential gaps. We used a multipronged approach to identify and analyze a reasonable range of feasible policy options to enhance VA's ability to provide timely and accessible care to Veterans.

In the following sections, we will show the results of the analyses we performed using these methods. Additional information about the methods can be found in Appendix A.

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3   Assessment of VA Resources and Capabilities

VA is a unique, extensive health care delivery system with a large number and variety of resources and capabilities at its disposal. VA's estimated FY 2015 budget for health care is about $60 billion, and the FY 2016 advanced request is $63 billion. VA includes 144 hospitals, approximately 700 outpatient clinics, more than 30,000 employed physicians, and more than 25,000 associate providers and therapists. VA is unique in both its scope and its roles. In terms of scope, no other U.S. health care system has a comparable geographic reach and diversity of health care resources.

Primary among VA's roles is direct health care service delivery to the more than 9 million Veterans enrolled for VA health care (2.8 percent of the U.S. population). However, VA does not provide care for all Veterans, or even all enrollees; 42 percent of Veterans are enrollees, and 64 percent of enrollees are users of VA health care. Among users, while some receive all of their health care from VA providers, others have coverage through health insurance such as Medicare, Medicaid, or private coverage. VA estimates that current VA users get, on average, about 21 percent of their total physical medicine visits from VA, 38 percent of their emergency room visits from VA, and 66 percent of their prescriptions from VA.

VHA operates several dozen specialty programs and "Centers of Excellence" largely focused on clinical topics of special importance to Veterans (e.g., the War Related Illness and Injury Study Center). While the organization and mandates vary by topic, both the programs and centers are generally based in VAMCs and offer patient care as well as conduct research and do outreach to both patients and health care providers. Many operate as "hub-and-spoke" systems with the centers serving as hubs and having relationships with other VA medical facilities. For example, there are 16 Epilepsy Centers of Excellence and several dozen other medical facilities that belong to the National VA Epilepsy Consortium.

VA also performs roles other than direct patient care that contribute to its unique position. These roles include health care training and graduate medical education, research, and national security emergency support.

In this section, we examine the resources and capabilities that VA currently has at its disposal to generate the supply of health care services available for Veterans. As described in Section 1, we categorize the resources and capabilities into five broad domains:

- Fiscal resources
- Workforce and human resources
- Physical infrastructure
- Interorganizational relationships
- IT.

For each domain, we describe the current level of resources and capabilities, as well as barriers to using them effectively. Where possible, we also describe variation in the level of resources and capabilities across VISNs and administrative parents. In a small number of cases, we are able to compare VA resources and capabilities against external benchmarks to provide a sense

of where VA stands relative to the private sector. In most cases, however, the differences between VA and other health care systems and the populations they serve make such comparisons difficult to interpret and thus of limited value.

3.1   Fiscal Resources

Fiscal resources are critical to VA's current and future ability to provide accessible, high-quality care. As described in Section 1, fiscal resources constitute the revenue stream or funding mechanisms for the organization. Meyer, Davis, and Mays (2012) describe a variety of measures for analyzing fiscal resources, including overall budget and sources of revenue, as well as expenditures such as per capita spending. A higher level of financial resource is not necessarily an indication of better performance on health outcome measures, since financial resources contribute to an organization's ability to acquire or develop other resources and capabilities such as hiring staff, funding programs, or acquiring physical infrastructure (Mays et al., 2009).

In this subsection, we examine VA's financial resources in two ways:

- Assess the budget development process and how it is affected by congressional priorities.
- Consider how funds are allocated to facilities and identify any problems with the allocation process as well as other constraints on the funding process that prevent facilities from using money effectively.

The first approach we use for assessing VA fiscal resources is to examine the VA budgeting process. As described below, there are indications that VA develops its medical services budget from older data and that there can be problems with the assumptions used in this process. Medical administration, facilities, and IT budgets are developed through separate processes.

We also consider how congressional priorities affect the VA budget. Congress appropriates VA's budget as a nondefense discretionary program; thus, congressional priorities can influence both the level of money available and the way VA chooses to spend the money once allocated. Funding for other large federal health programs differs in important ways from the VA health program. Medicare is considered an entitlement program; funding is provided from the Medicare Trust Fund, spending is mandatory, and the program's annual cost has no formal budget constraint. TRICARE funding is included in the DoD appropriation and is therefore discretionary, but the benefit is well defined, and DoD must cover any costs incurred beyond the appropriated funding. Congressional priorities can also direct money away from the overall budget for patient care toward specific programs through the special purpose funds. According to interviewees at VA medical facilities, these "silos" of money can make it difficult for facilities to efficiently make use of their entire budgets in any given year.

A second approach we use to assess VA's fiscal resources is to examine how VHA's own allocation process affects the level of resources available across regions. VHA's allocation process can cause difficulties for particular facilities because the allocation method also uses data from several years prior to the actual allocation year, although the allocation method is different from the method used to create the budget projections. Allocations for items such as facilities and IT can also affect the facility-level spending process. We also consider other

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funding constraints identified by facility leaders that they believe limit their ability to use resources effectively.

In addition, we discuss whether we can use comparisons of the level of spending that results from the budgeting and allocation processes to private-sector spending to assess whether VA's total level of financial resource is adequate. While in theory such comparisons would be useful, as will be discussed below, in practice the differences in the patient population and the way care is delivered between VA and the private sector make comparisons of per capita spending difficult to interpret and thus of limited value.

A summary of the methods used in these analyses is shown in the box.

Overview of Methods and Data for Assessment of Fiscal Resources

- To assess VA's budget process, we conducted a targeted literature review of VA documents, government reports, peer-reviewed literature, and recent congressional testimony. Data sources included the FY 2016 VA Budget Request and FY 2014 Veterans Equitable Resource Allocation Handbook.
- The literature review was complemented by several descriptive quantitative analyses detailing the expenditures on Veterans over time, using publicly available data from catalog.data.gov.
- We also interviewed VA leadership in the VA Central Office and in facilities for their perspectives on the budget and allocation processes.
- For complete details of the methods used to assess fiscal resources, please refer to Section 2 of this report.

3.1.1 VA Budget for Health Care

VA is funded through annual congressional appropriations. Most VA funds are budgeted through *advance appropriations*, which are typically designated one or more years in advance of the time the funds become available. The intent of advance appropriations is to give VA additional time to plan spending. *Regular appropriations* act as supplements to fund unexpected needs that arise (Panangala, 2014).

As with other federal departments, budget planning for VA starts roughly 18 months before the appropriation decision by Congress. The agency develops a budget request using the EHCPM, described in greater detail below. The budget is then sent to the Office of Management and Budget for review, and then submitted to Congress as part of the President's budget in January, nine months before the beginning of the fiscal year. Congress holds budget hearings during the spring months and develops an appropriations bill giving federal agencies the authority to spend the specified funds. In recent years, passage of the appropriation bill containing VA health care funding has generally been delayed, necessitating a continuing resolution that freezes spending at the prior year level and precludes spending on new programs.

VA's budget for the variable costs of outpatient and inpatient care is formulated using the EHCPM, which projects the estimated demand and cost for services. The budget includes funding for medical staff, supplies, and equipment. EHCPM was first introduced in 1998 to

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support the forecasting of Veteran health care enrollment as mandated by the Veteran's Health Care Eligibility Reform Act of 1996 (Congress, 1996). For FY 2016, the model projects about 90 percent of the health care budget (VA, 2015a). The remaining 10 percent consists of several categories of services that are modeled separately from the EHCPM. For example, capital planning and some IT services are planned centrally for VA through a separate process. There are several additional programs not budgeted through the EHCPM, including the Civilian Health and Medical Program Veterans Administration, which provides care to widows, spouses, and dependents of some Veterans, and purchased care, which allows Veterans to use private providers under some circumstances (Panangala, 2014).

Congress approves the overall VA budget, adjusting it up or down. In an unusual step, Congress, in passing the Veterans Choice Act in 2014, provided additional funds through an appropriation to be spent over three years on purchased care for certain Veterans unable to get care in VA facilities. During the typical appropriations process, members of Congress can influence VA priorities by highlighting the need for specific medical services or programs during budget hearings. After VA proposes a budget based on its projected needs, Congress approves the budget or a modified version of it, VA then allocates the money to the VISNs and the VISNs further allocate funding to facilities (discussed in Subsection 3.1.2).

3.1.1.1 Budget Process

As noted above, the EHCPM is VA's main budgeting tool and is used to project the demand for medical services. The EHCPM consists of three submodels: the Enrollment Projection Model, the Utilization Projection Model, and the Unit Cost Projection Model, all of which we describe below (GAO, 2011b; Milliman, Inc., 2014). The results of the Enrollment and Utilization Projection Models are combined to generate an estimate of the quantity of medical services that enrollees will want to obtain from VHA (that is, the quantity of medical services demanded), annually for 10 years. The Unit Cost Projection Model is then used to translate the quantity of services demanded into an estimated cost of delivering those services in each year.

Enrollment Projection Model. This model divides the Veteran population into enrolled and non-enrolled pools and then calculates new enrollment by applying the historical enrollment rate to the non-enrolled pool. In any fiscal year, expected enrollment is equal to current enrollment plus net new enrollment. Age, VA benefits eligibility, geographic area, and special conflict status are the four main demographic characteristics used to calculate the enrollment rates.

Utilization Projection Model. This model uses utilization data from the recent prior time period for a variety of service categories (Harris, Galasso, & Eibner, 2008). Milliman estimates utilization rates by compiling utilization data from a variety of sources, including VA, Medicare, and commercial claims databases. Utilization rates for the approximately one-half of VA users who are age 65 or older are developed from combined VA and Medicare data for this population. Utilization rates for younger users are adjusted from Milliman's proprietary rates based on commercial health plan data. The adjustments reflect differences in the VA population compared with the general population (which obtains health care from the private sector). The model determines a VHA-specific utilization rate by service, which is then applied

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to the projected average number of enrollees. The utilization projection also incorporates variation according to geographic location, benefits, age, gender, morbidity, and reliance on VA health care versus other sources of care to which enrollees have access.

Unit Cost Projection Model. The third submodel derives detailed VA unit costs on the basis of VA's Decision Support System direct costs, Medicare-allowable charges, and charges non-VA providers bill VA in various health care services categories. The derivation also involves a comprehensive set of adjustments to account for the characteristics of VA health care services and case-mix. Total projected expenditures in a given projection year are obtained by multiplying the estimated enrollment, utilization rate, and unit costs.

Concerns about the EHCPM. A number of concerns have been raised about the EHCPM. The model is proprietary and highly complex, so it is difficult to evaluate (Harris, Galasso, & Eibner, 2008). Substantial and detailed adjustments are required to adapt commercial health plan utilization data to the VA enrolled population under age 65, who have different health needs and use VA for only some of their health care. Assessment A discusses these problems in further detail. The utilization rates for Medicare-age enrollees, which are measured from data on utilization of VA and other providers through Medicare, are more directly tied to actual service use by this population.

VA constructs unit costs based on a combination of VA's Decision Support System financial data for services VA provides that others do not (such as some mental health or special prosthetic programs). VA uses Medicare or community payment rates for some of the more granular levels of detail. The average cost for a given service goes through a variety of adjustments to account for geographic location or to reflect the additional needs of sicker patients. Harris, Galasso, and Eibner (2008) found that the unit cost approach does not take into account the true marginal cost of increased utilization, which would have to include whether there was enough space for staff to see more patients, or whether more expensive equipment would be needed.

The EHCPM also uses available data to project forward several years into the future. VA uses separate trend adjustments to account for changes in medical inflation and utilization rates for particular services. Since projections are based on the current allocation, the amount budgeted and subsequently funded will be adequate only if the current budget is adequate and the assumptions used to estimate trends are correct. Otherwise, it may take several years for the errors to be recognized. For example, among those who have other insurance, reliance on VA for services can vary over time, and major U.S. policy changes, such as the 2010 Patient Protection and Affordable Care Act, can impact reliance on VA if there is a resulting increase in the number of younger Veterans with other insurance.

Assessment A analyzed data on the Veteran population, enrollment, and use of VA health care and developed projections through 2024. For many years, VA has seen a steady trend upward in the number of Veterans enrolling and using VA health care, even while the total Veteran population has steadily decreased. If this upward trend continues at a steady rate, EHCPM will account for this trend appropriately. However, if the trend accelerates (as it did in the years before and after 2000), the budget projection will fall short of what is needed to maintain access. The analysis in Assessment A identifies reasons for uncertainty in projecting the number

of users in future years, but concludes that the upward trend is likely to end in the next decade. In this case, future budget requests are less likely to fall short of requirements.

Facilities capital improvements and IT budgets. These items are budgeted separately from the EHCPM, often using prior trends to budget for major line items, such as facility maintenance and administrative costs. Budgeting these items separately means the needs of facilities in terms of having a completed building lease in which to house new staff may not be completed in a coordinated fashion (GAO, 2011b). The facilities capital improvements budget is developed through the master plan, which includes major and minor construction projects and nonrecurring maintenance projects such as renovation of existing facilities. Recurring maintenance is part of the overall medical care budget and includes funding for maintenance, engineering services, linen cleaning, etc. The IT budget is developed for the whole VA through the board of the Office of Information and Technology (Department of Veterans Affairs, Office of Information and Technology, 2014).

Assessments K and H discuss the budgeting process for facilities and IT, respectively, in greater detail. Assessment H found that VA should revise the planning and budgeting process to ensure business needs are effectively identified, prioritized, and funded and used to drive IT investments. Assessment K found that there is a shortfall between the actual budgeted amount and the amount needed to adequately maintain older buildings, and this gap is projected to widen over time. Assessment K also found that VA could more efficiently use existing space by outsourcing facility maintenance or operating administration.

Payments from third-party payers. VA gains a small portion (approximately 5 percent, or $3.2 billion, of the $63 billion for FY 2016) of its budget through collections from third-party payers for non-service-connected care at VA facilities and copayments for various services (VA, 2015a; VA, 2014e). VA is mandated to cover the costs of care provided to Veterans with disabilities rated at 50 percent or higher, to certain other groups of Veterans, and for service-connected medical conditions. The Balanced Budget Act of 1997, however, authorized VHA to bill private insurers and collect copayments for non-service-connected care. This collection is deposited to the Medical Care Collections Fund to cover expenses for providing the medical care with no fiscal year limit.

VA is prevented by law from billing Medicare (fee-for-service or Medicare Advantage plans), the main source of other insurance for Veterans (VA, 2015a).[13] Since Medicare Advantage plans are paid a capitated rate for providing care to all enrollees, the government is paying twice for the same services when Veteran enrollees instead use VHA. A study found that half of the Veterans enrolled in both VA and Medicare Advantage plans used both systems to access care (Trivedi et al., 2012).

There are various initiatives within VHA to improve the collection of both copayments and payments from third-party payers—issues that Assessment I describes further. The process has

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[13] VA, however, is allowed to bill private supplemental insurers ("Medigap" plans) for non-service-connected medical care.

not always gone smoothly. A 2004 GAO report studied the costs associated with collecting payments from third-party payers for the Medical Cost Collections Fund (GAO, 2004a). The report found that many VISNs underreported the cost of collecting these claims. The report recommended that VHA improve the uniformity of the collections process by issuing guidelines concerning which costs associated with collections should be reported.

3.1.1.2 Current Funding Level

The FY 2016 advanced appropriation includes $49 billion for medical services, $6.2 billion for medical support and compliance, $5.0 billion for medical facilities, and $3.2 billion in collections (VHA, 2015a). Table 3.1-1 details the major operations categories and the estimated budget for 2015 along with either revised requests or advance appropriation amounts for FY 2016 and FY 2017. For FY 2016, the advanced appropriation of $63.1 billion is a 7-percent increase above the FY 2015 enacted level. The advanced appropriation is a request, and the level of funding is dependent on Congressional approval.

Table 3.1-1. Major Categories of VA Budget Allocation (in Millions)

Fund Account	2015 Request	2016 Advance Approp.	2016 Revised Request	2017 Advance Approp. Request
Medical Services	$45,383	$47,603	$48,727	$51,673
MCCF Collections	$3,048	$3,253	$3,227	$3,300
Medical Services (with collections)	$48,431	$50,856	$51,954	$54,973
Less: Veterans Choice Act	*($740)*	*N/A*	*($1,573)*	*N/A*
Subtotal	**$47,691**	**$50,856**	**$50,381**	**$54,973**
Medical Support & Compliance	$5,880	$6,144	$6,214	$6,524
Less: Veterans Choice Act	*($11)*	*N/A*	*($17)*	*N/A*
Subtotal	**$5,869**	**$6,144**	**$6,197**	**$6,524**
Medical Facilities	$4,739	$4,915	$5,020	$5,074
Less: Veterans Choice Act	*($1,017)*	*N/A*	*($775)*	*N/A*
Subtotal	**$3,722**	**$4,915**	**$4,245**	**$5,074**
Total	**$59,639**	**$61,915**	**$63,810**	**$66,571**
Total, less Choice Act	**$57,871**	**$61,915**	**$61,445**	**$66,571**

Source: Reproduced from the FY 2016 VA budget request (VA, 2015a).
Note: The estimates for the Choice Act do not include some funds for IT and facilities, so the total does not add to $5 billion.

The Veterans Choice Act is expected to affect spending in several areas, including medical services and facilities. The Veterans Choice Act allocated $5 billion for VA to use in directly providing medical services, including hiring more than 9,600 new providers in primary care, specialty care, and mental health care.[14] The breakdown of part of the $5 billion is shown in Table 3.1-1, in the form of subtractions (substitutions) from the 2015 and 2016 budgets. The Act also allocated $10 billion to be spent on private-sector health services. If the Veterans Choice Act increases demand for purchased care, meaning that some Veterans access services through the community that they would otherwise have accessed through VHA, this may transfer additional spending from VA's existing budget. The estimates of the transfer amount range from $452 million to $733 million in 2017 (VA, 2015a). However, these estimates are uncertain, as the number of Veterans who will ultimately access the program is unknown.

Spending on additional resources for VA care funded by the Veterans Choice Act will need to be incorporated into budget requests for FY 2018, which are now being developed for inclusion in the President's 2017 Budget. The additional funds for the Veterans Choice Cards were not funded through the regular appropriations process. As a result, it is unclear how the overall budgeting process will be affected after these funds are exhausted. The Congressional Budget Office estimated that the increase in VHA spending would be approximately $42 billion over the 2014–2017 period, derived from both the additional ability of Veterans to use purchased care and the money allocated to hire additional staff within VHA (Congressional Budget Office, 2014).

3.1.1.3 Congressional Priorities and Their Impact on the Budget

The GAO has stated that, "Budgeting is and will remain an exercise in political choice, in which performance can be one, but not necessarily the only, factor underlying decisions" (GAO, 2002b). Congressional priorities can affect the budget both through the overall level of appropriation and by authorizing extra spending, as was done with the Veterans Choice Act. Hearings also give Congress the opportunity to emphasize certain programs or to raise or address constituent concerns. Ultimately, because VA is one of many federal departments, the funding for VA is affected not only VA's request and congressional priorities for VA, but also the needs of other departments and programs included in the federal budget.

Recent areas of concern. For the 113th and 114th Congresses, the major areas of recent concern in terms of medical services are access (both wait times for appointments and travel distance), quality of and access to behavioral health services, and the ability of VA and DoD medical information systems to talk with each other. We focus here on wait times and geographic accessibility for Veterans because these concerns have led to the most-recent direct congressional action affecting the VA budget.

As a result of concerns over wait times for appointments and geographic accessibility, Congress passed the Veterans Choice Act in 2014, which, as described above, provided additional funding

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[14] Section 801 provides $5 billion for spending on hiring more physicians and improvements in infrastructure. Section 802 provided $10 billion for purchased care.

to VA both to increase the use of non-VA providers ($10 billion) over three years and to hire more clinical and support staff in-house ($5 billion). Interviews with congressional experts noted that the Veterans Choice Act added another layer to existing purchased care programs. Congressional experts said that the enactment of the Veterans Choice Act means that, eventually, all the purchased care programs, such as PC3 or the traditional purchased care program, will have to be reconciled, since they are attempting to achieve the same goals.

The Veterans Choice Act provided three years of mandatory spending for VA. Since VA is typically funded from discretionary funds in the appropriations bills, after three years, ongoing increases in spending for activities derived from the Veterans Choice Act will have to come from discretionary funds. This has the potential to affect the overall adequacy of VA funding if the budget is not increased to account for ongoing costs related to the Veterans Choice Act, particularly since the act required the hiring of additional providers, which will lead to recurring costs in the budget going forward. Congressional experts said that, in the long term, the VA discretionary appropriation will have to fund these costs. If the purchased care funded through the Veterans Choice Act is extended, the presumption is that Congress will fund it. The additional staff will have to be incorporated into VA's existing budget projection models (the EHPCM, discussed above), leading to increases in VA's overall budget.

In general, Congress does not give VA specific earmarks or funds to be spent on specific services, except for purchased care through the Veterans Choice Act. However, the committee hearings process gives VA direction on where Congress *would like* to see emphasis placed. In turn, the VA Central Office can respond with directives to emphasize certain programs or service lines. The Central Office can also allocate funds that have to be spent for specific purposes, thus being directly responsive to congressional concerns. Many facilities, however, view these funds as taking away from direct patient care. This will be discussed in the subsection on allocation below.

In summary, the main issues identified with the VA budget process include concerns about the data used for budget planning and inflexibility in budgeting stemming from the congressional appropriation processes. VHA develops its budget from older data, and there can be problems with the assumptions used in this process. In addition, Congress can influence VA through the agency's overall appropriation, by providing extra funding off-cycle or by emphasizing specific priorities through the hearings process. Issues highlighted during the hearings process are often turned into special purpose funds from the VA Central Office.

3.1.2   Allocation of Funds

In the previous subsection, we described how the budget is formulated and enacted. We now turn to a discussion of VA's process for allocating the congressional appropriation to the VISNs, which is a separate process from the one used for budget formulation. We also discuss issues with the allocation process that may lead to constraints at the VISN and facility level. Finally, we discuss other constraints not related to the allocation process, but that can also hamper facilities' effective use of fiscal resources.

3.1.2.1   Allocation Process

Once Congress approves the overall appropriation, VA allocates funding to the VISNs through the Veterans Equitable Resource Allocation (VERA) model. This is a separate process and formula from the EHCPM, which is used to develop the overall budget. These models operate independently, as they serve different purposes. The VERA model serves to split the VA "budget pie" into equitable pieces, using a capitated-style model, while the EHPCM is designed to formulate the size of the overall "pie." Capitation is a process through which health insurance plans pay providers a set fee per person per year, which may be adjusted for health risks. Capitation arrangements incentivize health providers to manage their patients' overall utilization, as any unused funds become profit at the end of the year. VERA differs in several important ways from the usual capitation system. It allocates funding based on actual users, excluding enrollees in the area served by the VISN who do not receive any care. Because patients in different VISNs have a different mix of health care, the model incorporates a risk adjustment formula. Because VA patients obtain only some of their care from VA, this formula is based on the medical conditions treated at VA. Finally, VA has the aligned incentives of an integrated system with capitated payments, but not the same incentive to manage utilization to the point of expecting profits at the end of the year—all funds need to be obligated or spent.

Under VERA, the general purpose funding for medical care is allocated based on the number and types of patients treated and includes funds for administration and some facility maintenance. Specific purpose funds are allocated separately according to special legal or programmatic requirements, national support functions, and projects for which VA thinks that economies of scale can be achieved at a national level.

Patients are classified into types according to health condition, severity, age, and priority group, and the VISN receives an expected payment per patient type per year (2014 VERA Book [VA, 2014j]).[15] Specific purpose funds are allocated for a variety of programs, including prosthetics, rural health, and homelessness. Patients are broken out into 60 categories of health conditions and then rolled up into 10 price groups based on severity of condition. The 10 main groups roll up into the three main categories of complex care, basic vested care, and basic nonreliant care.[16] Complex care is the most expensive category, and these patients account for 4 percent or less of the VHA population but about one-quarter of the spending (2014 VERA Book [VA, 2014j)].

Table 3.1-2 summarizes the payment per patient for each of the 10 condition groups, as well as an example condition or service under the condition group. The payment per patient in each category is calculated using the proportion of total funds each group costs using VA's internal data. There are adjustments for location-specific differences in labor costs and high-cost patients. High-cost patients are defined as those in the top 1 percent of spending for priority

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[15] Priority groups establish eligibility for VA health care based on service-connected disability, income, and other factors.

[16] The term *vested* reflects those Veterans receiving the majority of their care at VA.

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groups 1 through 6, or those with very long stays in community living centers. The threshold for the 2014 VERA model was based on utilization from 2012, with a threshold amount of $108,000 for standard cases and $242,000 for long stays in the community living centers (2014 VERA Book [VA, 2014j]).

Table 3.1-2. VERA Allocation Amounts per Condition Group

Price Groups	Diagnosis Example	Priority Groups 1–6	Priority Groups 7–8
1. Non-Reliant	Pharmacy use only	$291	$222
2. Basic Medical, Heart, Lung & GI	Cardiovascular disease	$2,729	$1,621
3. Mental Health	Addictive disorders	$3,534	$2,394
4. Oncology, Legally Blind	Oncology	$5,094	$3,339
5. Multiple Problem	Multiple medical	$12,214	$10,059
6. Significant Diagnosis	Metastatic cancer	$21,730	$17,447
7. Specialized Care	Stroke	$16,373	$11,824
8. Supportive Care	Needs home-based primary care	$30,096	$22,197
9. Chronic Mental Illness	Schizophrenia & dementia	$28,902	$28,902
10. Critically Ill	Polytrauma	$64,518	$60,639
10a. Long Stay Community Living Center	Nursing home care	$166,261	$166,261

Source: Reproduced from VA's 2014 VERA Book (VA, 2014j).

Note: *Non-reliant* indicates those who receive the majority of their care outside VA facilities in Priority Groups 7–8.

3.1.2.2   Allocation Levels

The VERA model in 2014 allocated 78 percent of the medical services funds from the congressional appropriation, with 22 percent withheld for the specific purpose funds. VISNs also received transformation funds to support initiatives to improve the coordination of and access to health care (for example, patient aligned care teams, telehealth). As discussed earlier, VISNs also oversee collection of copayments and, in some cases, billing of third parties for non-service-related care provided by VA. Table 3.1-3 shows estimates of the funds received by each VISN in each of these categories for FY 2014, the year for the latest VERA data. Table 3.1-3 shows that there was some reallocation of funding during the year from geographic areas with lower than expected levels of population served or lower utilization relative to areas whose utilization was higher than expected.

Table 3.1-3. VERA Allocations, Specific Purpose, Transformation, and Estimated Receipts, by VISN, FY 2014 (in millions)

VISN	FY 2014 VERA General Purpose Total*	FY 2014 Specific Purpose*	FY 2014 Trans-formation*	FY 2014 Projected Collections	FY 2014 Projected Reimbursements	FY 2014 Projected Totals	Total % Change from FY 2013 to FY 2014
01 Boston	$1,995	$323	$9	$125	$6	$2,458	0.3
02 Albany	$935	$155	$7	$54	$3	$1,154	2.4
03 Bronx	$1,637	$284	$10	$92	$9	$2,032	−1.7
04 Pittsburgh	$2,010	$289	$8	$121	$7	$2,434	−2.5
05 Baltimore	$1,122	$235	$4	$78	$5	$1,443	2.7
06 Durham	$2,247	$431	$18	$209	$7	$2,913	3.4
07 Atlanta	$2,479	$433	$13	$178	$10	$3,112	3.5
08 Bay Pines	$3,567	$620	$9	$290	$38	$4,524	−2.0
09 Nashville	$1,879	$286	$7	$155	$11	$2,338	0.0
10 Cincinnati	$1,660	$217	$10	$110	$7	$2,004	0.6
11 Ann Arbor	$1,756	$272	$13	$113	$3	$2,157	2.9
12 Chicago	$1,915	$357	$5	$168	$18	$2,462	2.2
15 Kansas City	$1,613	$289	$6	$132	$6	$2,046	−0.8
16 Jackson	$3,197	$632	$9	$215	$7	$4,061	2.9
17 Dallas	$1,999	$346	$10	$127	$10	$2,492	1.2
18 Phoenix	$1,719	$274	$9	$106	$7	$2,114	4.5
19 Denver	$1,233	$299	$9	$111	$3	$1,654	6.4

VISN	FY 2014 VERA General Purpose Total*	FY 2014 Specific Purpose*	FY 2014 Trans-formation*	FY 2014 Projected Collections	FY 2014 Projected Reimbursements	FY 2014 Projected Totals	Total % Change from FY 2013 to FY 2014
20 Portland	$1,904	$347	$15	$135	$3	$2,405	3.5
21 San Francisco	$2,287	$363	$27	$122	$23	$2,822	3.8
22 Long Beach	$2,456	$455	$26	$105	$9	$3,052	0.4
23 Minneapolis	$2,106	$291	$5	$190	$10	$2,602	1.3
VHA Totals	**$41,715**	**$7,198**	**$229**	**$2,935**	**$202**	**$52,280**	**1.5**

Source: VA's 2014 VERA Book (VA, 2014j).

Notes: *Values are estimates, reported prior to the end of the fiscal year. VISNs 13 and 14 do not exist, as they were combined into VISN 23.

The VERA model governs allocations from VHA to the VISN level. VISNs, in turn, govern the allocation to facilities. Prior to 2011, each VISN could vary in how it weighted different criteria in determining the allocation, including funding in the previous year, workload, and square footage of the facility. In 2011, VA introduced a new model, called the Medical Center Allocation System, to distribute VERA funding from the VISN to facilities; this mode included a new measure of workload called "patient-weighted work" (2014 VERA Book [VA, 2014j]). The measure took existing measures for resource-adjusted workload and added factors for high-resource-intensity patients, differences in costs at the facility level, and a facility complexity level. This facility-level model has not been reviewed extensively, though in 2011 GAO did review the initial phase of the process and found that networks were adjusting the amounts for particular facilities after the Medical Center Allocation System calculation had been done without adequate documentation for the reasons (GAO, 2011a).

While the VERA model allocates funding for medical services, the budgets for capital planning and IT are handled through separate processes for the whole VA (not just VHA). IT projects are developed according to a strategic plan and are prioritized by IT Investment Governance Boards (Department of Veterans Affairs, Office of Information and Technology, 2014). Assessment K discusses in greater detail the process for capital improvements to facilities. In summary, the requests for capital projects are put on the prioritized list of projects called the Strategic Capital Investment Plan, which was established in 2012 (VA, 2015c). The process includes an analysis of facility-level gaps in space, workload/utilization, access levels, and even wait times and compares them with capital assessment and strategic plan. Projects are prioritized according to six criteria ranging from improving safety and security to "rightsizing" the inventory. While the total budget for major and minor capital outlays is under $5 billion for 2015, the facilities budget estimates that over $50 billion would be needed to complete all projects based on current market conditions (VA, 2015c).

3.1.2.3   Issues in the Allocation System

In interviews, facility directors described three main concerns with the VERA allocation system to the VISNs. The first is that the time lag in calculating the allocation can leave some facilities underfunded if their Veteran populations are growing quickly. Facilities are cognizant of the need to undertake various activities to ensure that their allocation is as high as possible in subsequent years. These may take the form of seeing more patients for more medical conditions or providing more services for the same patients and medical conditions to obtain a higher allocation from the VISN. To the extent that all facilities behave in this way, the allocations will not change much in the short run because the budget is fixed. Over the longer run, however, the behavior could increase the budget projected by EHCPM.

The VERA model was originally created to reduce geographic inequities in funding, given the shift of Veterans from the northeast to the south and west and the potential for cost differences related to climate and local health labor markets. Since its inception in the late 1990s, the VERA model has been updated based on feedback from a series of RAND and GAO reports (GAO, 1997a; Wasserman et al., 2001; Wasserman et al., 2003; Wasserman et al., 2004). Initial improvements to the model increased the number of patient classification categories from three to 10 to better identify the health risks of the population, and included

extra payments for patients with outlier spending (Wasserman et al., 2004). A 2002 GAO report noted that, because VERA is in part based on workload, VA facilities were incentivized to see more patients, which may be good if the increased workload alleviates access problems (GAO, 2002a). The report noted three key concerns, however, including the need for better identification of workload, adjustments for age of facility, and accounting for the degree to which Veterans seek care through VA rather than seeing non-VA providers using other forms of insurance. If Veterans are more reliant on VA and using more VA services, the costs will increase. Both these factors can potentially influence the costs of caring for patients in a given year, but may not be reflected in the VERA allocation.

Using older data. While the VERA system is largely viewed as an equitable way to divide a fixed budget, it is important to note that the system used with VERA is relying on past data rather than the same projected data used in the EHPCM. For example, the population counts for the 2014 allocation for basic care use the average number of users from 2010–2012, whereas complex care patients use a five-year average. This process can leave VISNs over- or underfunded in a given year if demand is changing rapidly unless VA can reallocate funding from other VISNs. It will be able to do this only if the aggregate funding is high enough. Other systems would provide a set fee (adjusted for health status) for all expected enrollees, regardless of whether they actually use any services. While VERA does attempt to predict workload, this time lag can leave certain networks and facilities that experience strong demographic shifts with insufficient funding. Many facility leaders interviewed noted the two-year time lag in the VERA allocations as a problem for areas that are growing quickly. For example, one respondent said the process caused them to start the year with a projected deficit:

> We had to take some steps locally to deal with that and delayed some funding of programs, that type of thing, to make sure we were going to close the year out—and we'll do fine now. But dealing with the increased workload that we're experiencing in conjunction with having budget challenges obviously makes for some very tough decisions.

Other issues. Respondents noted that their facilities were performing various activities to ensure that the VERA allocation was as high as possible. For facilities that are losing patients due to being in areas with poorer weather or less favorable economic conditions, there is pressure to maintain a patient load:

> We lose Veterans constantly during the year to death, to out-migration, and to changing patterns of the Veterans that sometimes they don't need to use us. They have private health insurance and they won't come to us. So that's constantly changing during the year but we lose about 3,000 Veterans per year and we replace at least those 3,000 and usually a couple hundred more.

In addition to losing patients to other areas, some facility directors said that, to ensure that their allocation better reflects their actual utilization, they are conscious to code services accurately: "Probably about five years ago we started looking at a lot of the things that impact VERA to make sure that we were maximizing . . . or we were documenting correctly, we were coding correctly, we were getting everything completed within the amount of time to capture the appropriate workload." It should be noted, however, that the coding systems in VA have

not worked particularly well, and Assessment I examines this issue in further detail. Additionally, Assessment G found that VA providers may not fully document and accurately code all of their clinical workload.

Respondents even suggested that there is some degree of including additional services to hit various workload levels:

> So there's different facilities in the system that have learned to ensure to maybe have a consult from surgery. After surgery was done you do a home-based primary care visit, 10 visits over maybe three weeks to make sure that they're up and running but then you're going to get reimbursed for that and your VERA value is going to be higher.

The process of adding services can also lead to attracting patients with more-complex needs in order to increase funding levels. However, this is likely to be a zero-sum proposition across VISNs in the short run until the budget projection model can incorporate the increases in severity of patients and increase the overall budget request.

> If we hire a cardiologist, is that going to attract more Veterans to us for cardiology services, which then turns into the VERA process, you know, they look at that and you're funded two years down the road [and] because you have additional Veterans coming in who have additional complexity and this is where you get your funding from.

While many respondents felt that the VERA methodology left them at a disadvantage, it should be noted that this concern was not uniform. Other respondents said that the VISNs are able to fill in funding gaps:

> What usually happens, at least from my experiences at the network or the VISN level, through their methodologies to distribute the VERA monies, those things can be somewhat smoothed and the VISN and the medical center can be a little bit more responsive, as far as to the real-time needs.

Others say that the VERA model is doing a relatively good job of gauging the workload and cost of doing business in different areas of the country:

> In that VERA funding model, I understand there is a component piece that is just for rural aspects of health care. That actually gives you a little bit of a bump and allows you to earn a little bit more, recognizing that costs in rural America are higher than other places.

3.1.2.4 Additional Funding Constraints

Through interviews with facility leaders, we identified several other constraints to using allocated funds efficiently at the facility level. Most facilities identified an inability to use their budgets flexibly across pots of money for IT, facilities, and medical care. Facility leaders felt that the capital planning process is misaligned with the budget process and said that they are not able to roll over funds from one year to the next. Finally, many respondents also noted that many, but not all, centralized VA processes were a barrier to providing adequate patient care. We discuss each of these issues here.

Lack of flexibility in spending. As described above, at a broad level, the VA appropriation for VHA is divided into accounts for medical care, medical support and compliance, and some

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nonrecurring maintenance. The money is not fungible across domains because of appropriations law: "Appropriations shall be applied only to the objects for which the appropriations were made except as otherwise provided by law" (U.S. Code Title 31, Section 1301). For example, a VA Office of Inspector General report found that the Chief Business Office was in violation when it used $92.5 million to build a claims processing system. The violation was due to using funds from the Medical Support and Compliance appropriation rather than the IT Systems appropriations (VA Office of Inspector General, 2015b).

Many facility leaders said the inability to shift money between the major allocation line items, such as maintenance and medical services, makes it difficult to adequately manage the budget in a year:

> The pots of money, they've got to stop. . . . If you would actually trust the individuals that you have put in place to run your hospitals and realize what those resources were needed for that certain facility, then you would be able to manage it much better.

Another respondent noted that the lack of flexibility is detrimental to their ability to respond quickly to workload shifts:

> We have so many various appropriations in fenced money that it makes it very difficult in the field to deal operationally with your finance. So what it does is it really ties the hands of the facility and VISN leadership in making decisions quickly in response to workload shifts and that type of thing, because money is tied up in special purpose or fenced. That is a huge, huge issue I think for VHA.

Special purpose funds. VA facility leadership we interviewed believe that the special programs money take away from the overall budget for patient care: "They'll take money off the top and then allocate that money to the fields to provide seed money to start new programs, which is good. The problem is then they hire three people in D.C. to manage that program." Many respondents said VA Central Office initiatives removed flexibility from their budget and planning process:

> So they decide what your needs are, they decide that you need 15 mental health providers and say, "Here you go. You can only spend this money on this." And then at the end of the year if you didn't necessarily need that, you can't use the money for different operations somewhere else. You would have to return that money to Central Office.

One director said that, even if there is funding, in addition to having enough demand for the given service, the extra money may come without any regard to the physical space or IT requirements needed to fulfill the request: "[With the Veterans Choice Act money] we've been given the dollars to hire additional staff and in many cases people think, 'Where am I going to put them?'" Another respondent stated that their facility was told to hire more than 150 new staff for mental health:

> And in order to do that we're putting up modular buildings until the space is available. Then we can start bringing the people onboard. But you can't recruit until you have that space to accommodate that staff. So it works great when the money comes at the beginning of the fiscal year. You have time to plan well and you've got the space. But

when it comes at a very restricted time or the timeline is very short it makes it a challenge.

Finally, one respondent noted that requests from the Central Office may also come without enough or any funding attached:

The expectations on those mandates come that you are to address them immediately. . . . You're given a budget and you are reminded all the time that you have to stay within this budget; you have to manage within this budget. Usually then you go to staffing because that's where most of your budget is allocated to. And so where do you cut staffing, or where do you delay bringing people onboard? And that always impacts on quality of patient care.

While many facility leaders expressed frustration at the special purpose monies being diverted from the overall pot of money to be allocated through VERA, Central Office officials did say that some of the special purpose funding allows VA to respond to both congressional and Veteran Service Organization groups in a timely way:

It all ends up back in the field. It is just managed centrally, so although there is a tug sometimes because every VISN and every facility would like to get their money un-earmarked, if you will. "Don't tell me how much to spend on prosthetics. I will figure that out myself. Just give me the money," so there is that dynamic tension, but we seem to vet that out pretty well by making sure that what is in specific purpose is either required by law or some other special motivating factor.

Difficulty in funding new construction or renovations. Many respondents said that the ability to quickly approve facilities and IT requests would help them expand capacity in areas where it is needed most. The facilities master plan approves major and minor construction projects. It can take years for the process to authorize a project. An audit from the VA Office of Inspector General found that construction projects were often not well managed and needed more oversight (VA, Office of Inspector General, 2014a). The report indicates that the time required to insert projects into the timeline can mean that the final project may have no correlation to current demand:

Although projects under $1 million are selected and approved annually, a [Strategic Capital Investment Plan] project proposal submitted in FY 2014 will be scored, and if approved in FY 2015, will receive design funds in FY 2016 and construction funds in FY 2017 (page 9).

Many respondents also described the process for getting new buildings or major renovations into the capital strategic plan as cumbersome:

As the director of an organization, of a health care system, that if we identify a need to lease an extra 10,000 square feet to meet the demand and provide the source to the Veterans, it shouldn't take at the level of the deputy secretary to loop things quickly through the organization.

As a result, many respondents said the space constraints negatively affect their ability to hire providers: "The number of Veterans we're seeing is increasing, yet you can't add new parking, you can't add new offices, you can't add new exam rooms in a reasonable, even an

unreasonable, amount of time." Planning for new space can be difficult for facility leadership to anticipate:

> You know, you try to plan as much as you can in advance, but you just can't read the tea leaves all the time. And so when you try to make adjustments to clinics, to facilities, it's a multiyear approval and funding process, before you even get into construction. That slows us down.

No incentive to save for capital planning. While VA is similar to other capitated systems, such as a health maintenance organization (HMO), money not used on patient care at the end of the year cannot be saved and put toward new equipment or capital planning. Funds have to be obligated fairly quickly in the year in a "use-it-or-lose-it" fashion:

> You have to compete with all the other facilities across the country and then Congress decides what they're actually going to fund for that year and it may be two to three years down the line. So if I was running a private-sector hospital, I would be able to utilize a variety of different funding methods to do this, but it doesn't even benefit me to save resources during the year because I can't apply that to any of the following years.

Beyond saving money for capital projects, the critique about the lack of incentive to save money was also noted for within-year funding, so that there are no reserves at the facility level for emergencies, because all the funds have to be obligated six months into the year:

> I understand that we can't show Congress that we have all this equipment money sitting there at the end of the year, but having to have it obligated and spent in the first six months makes absolutely no sense. You need to hold onto a little bit in case something bad happens, something breaks, something goes wrong.

While there is a drive to obligate money as quickly as possible, some facility leaders said they readied a list of additional equipment or projects to absorb any last-minute funding. Respondents noted that there can be a rush to spend extra money at the end of the year: "The other thing is that sometimes then in late-August/mid-August, and all of the sudden they say, 'We've got money but you've got to spend it by September the 30th.' We've learned how to deal with that because it's happened year after year."

Centralized processes that take time away from patient care. IT, like capital infrastructure, does not all come from the same pot of money. As a result, managing the IT resources is challenging, as is requesting new items: "We need the ability to manage the IT budget in conjunction with the business." Another respondent noted that the centralized IT process across all of VA creates its own problems.

> So the disconnect you have is, we put money in the budget to buy more telehealth medical equipment. We get it. We don't score high enough in [the Office of Information and Technology], so we don't get the pipelines [bandwidth], if you will, and so we end up with equipment we can't fully utilize or we can't utilize it to maximum capacity if we've got small lines.

Beyond the centralized processes for facilities and IT requests, many respondents expressed frustration with the central contracting office. One respondent said the contracting process is a barrier to effective and timely care:

> I've got an issue on my desk right now where I've got a patient I need to send out to a long-term acute facility, not a typical community nursing home. We'll have to do an emergency contract, make phone calls every single day to get this done in two months. . . . You know how much executive time, not just for me but my associate director, the Chief of Staff, chief of social work, chief of logistics, calling around, doing . . . that is insane and this is something we have created within the VA.

Other concerns about the contracting process included the extensive reporting requirements and the requirements to prioritize small businesses for contracting in rural areas. One respondent summarized the situation as difficult at best:

> [The] simpler the process can be made to be, the better our Veterans will benefit. So as we go to pay bills, as we enter into contracts, the magnitude of things we have to do to expend that money on behalf of our Veterans sometimes slows the process and gets in the way. But we understand we're a public entity with a trust and that we have to do our due diligence to ensure that we're following the law, but that comes at an expense of the speed and volume of care.

Despite these findings from facility leadership on the difficulty in dealing with central processes, it is not necessarily true that all centralized processes are inefficient. For example, Central Office officials highlight that there may be efficiencies in centralizing certain business processes such as billing or paying claims for purchasing care from non-VA providers: "We looked at the fee basis care program . . . it was three or four years ago, and basically found that it was total chaos. And part of what was recommended there was greater standardization and more consistency because that is an area where there should be more consistency."

3.1.3 Comparing the Adequacy of VA's Health Spending with Private-Sector Spending

In the previous subsections, we discussed the budget development and allocation processes and described various problems with the allocation process that can cause facilities to be over- or under budgeted in a particular year. These problems include the time lag in the data, incentives for facilities to increase workload to increase future funding, and large maintenance costs for older buildings. However, these analyses do not directly answer the question of whether VA has enough money to provide timely and accessible care.

To answer this key question, we would need some benchmark against which to compare VA's costs of care. There is no natural comparator, given the integrated delivery system of VA, with its differences in population. There are other integrated delivery systems, such as Kaiser Permanente or Geisinger Health, but their beneficiaries generally receive all their care from their system, something that is not true for VA. This limits the value of such comparisons. The differences in the Veteran population compared with the private-sector population are discussed in detail in Assessment A. In 2011, the Congressional Budget Office estimated that the spending on Veterans of recent conflicts in Iraq and Afghanistan could total $40–55 billion from 2011 to 2020, since advances in technology have allowed many service members to survive injuries that were previously fatal (Congressional Budget Office, 2011).

Over the past two decades, many studies have attempted to address the question of whether VA care is more cost-effective than the same care would have been if purchased from the private sector; these studies have produced divergent findings. A 2009 study found that overall VA health costs and inpatient services costs are substantially higher than in the private sector (33 percent and 56 percent, respectively), but drugs prices are lower in VA (Weeks et al., 2009). In contrast, other studies have found that the cost of care provided in VA is lower. In an earlier set of articles in *Medical Care* in 2003–2004, the authors concluded that the cost to taxpayers for VHA services would be 15.6 percent higher if the same set of services were provided at Medicare payment rates (Render, Roselle, Franchi, & Nugent, 2003; Render, Taylor, Plunkett, & Nugent, 2003; Hendricks, Whitford, & Nugent, 2003; Nugent, Grippen, Paris, & Mitchell, 2003; Roselle et al., 2003; Nugent, 2004). A major driver of the difference in costs at the time was drug prices, since VHA negotiates lower prices for pharmaceuticals, and, at that time, Medicare's Part D drug benefit had not yet been enacted. Even now that Part D has been implemented, however, the price for VHA drugs is still lower than Medicare's; Medicare is prohibited from negotiating drug prices as VHA does.

The studies have similar methodologies, which is to price the same "basket" of services in either Medicare or the private sector. Weeks et al. (2009) estimated VA costs by determining the proportion of spending on the particular service and then dividing this by the number who received the service. They used the Medical Expenditure Panel Survey to estimate the cost in the private fee-for-service environment for the same basket of services. The *Medical Care* series of articles used Medicare allowed amounts for services and did a microcosting study to document the variety of services VA provided that do not ordinarily show up in administrative records because VA does not have to bill for them as an integrated delivery system. Both these methods fail to control for the variety of other costs, such as benefits for employees or the severity of patients that may make private-sector or Medicare estimates lower or higher.

Comparisons to the private sector, such as those described in these studies, are difficult to interpret because having lower spending is not necessarily an indication of more efficient spending. The Congressional Budget Office found that comparing per capita spending between VA and the private sector can be misleading because of differences in patient populations served and the fact that many Veterans, including users of VA health care, have at least part of their medical needs met at private facilities through Medicare or private insurance (Congressional Budget Office, 2014). The Congressional Budget Office found that comparing the costs of care for particular services (the cost of providing the service rather than total spending, which would include the quantity of services and their prices) can be a better approach. However, the Congressional Budget Office found that even this approach can be problematic because VA is an integrated delivery system, so not all services are assigned unit costs as they would be in a fee-for-service environment. Additionally, incentives are more aligned in integrated delivery systems, which can affect the intensity of services for each procedure. Thus, we conclude that comparisons of VA spending with that in the private sector are not valid ways of measuring whether VA has enough resources to provide timely and accessible care to Veterans.

3.1.4 Subsection Summary

VA is funded through annual congressional appropriations. Congress approves the overall VA budget, adjusting it up or down. Assuming that VA has requested enough money to meet its needs, and that Congress approves the budget, VA then allocates the money to its care networks VISNs and then to facilities. In passing the Veterans Choice Act in 2014, Congress, in an unusual step, provided additional funds through a mandatory appropriation to be spent over three years.

We were not able to determine whether VA has adequate fiscal resources for health care, given Veteran demand. There is no objective measure or benchmark against which to compare VA's budget and spending to know whether it has sufficient funding to provide timely and accessible care. Additionally, data are not available to measure unmet demand due to access barriers (not enough funding) or to assess the productivity of VA in delivering health care services with its current level of resources (not efficient at using existing resources). Shortcomings in the data for assessing access are discussed further in Section 4 of this report and in Assessment D's review of access standards. Shortcomings in assessing productivity are detailed in the Assessment G report.

We found that VA faces a number of barriers in planning for and using its fiscal resources effectively. The main issues identified in the VA budget process include concerns about the data used for budget planning and inflexibility in budgeting stemming from congressional appropriation processes. VHA develops its budget from older data using models that project past utilization and trends into the future. If access barriers curtail demand, past utilization will underestimate the resources required to provide access. If past trends are a poor predictor of future trends, budget requests will be too high or too low. As we discuss elsewhere in this report, VA does not have sufficient data to accurately identify unmet demand, and we were not able to evaluate EHCPM prediction accuracy over time. As discussed earlier and in the Assessment A report, however, it is possible that demand will level off in the coming years. If it does, this should facilitate budget projection.

Congressional priorities can affect VA's appropriation, as with the enactment of the Veterans Choice Act. The impact of increases in purchased care from the Veterans Choice Act on the budget in future years is currently unknown. The additional providers hired with Veterans Choice Act funds will also need to be accounted for in the next budget cycle.

The allocation of the funds to VISNs for medical services is based on a quantitative model designed to capture the local cost of service, the severity of patients, and the overall workload of a facility. This process is generally thought to be equitable. However, we found that it is using data that are several years behind the current allocation year. Unless VA and the VISNs closely monitor utilization and spending trends during the execution year and reallocate funding as needed, reliance on two-year-old data can leave facilities that are experiencing strong demographic trends over- or underfunded in the current year, and creates incentives for facilities to see more of certain types of patients in order to increase funding in future years.

Interviewees indicated that the separate IT and facility budgets are insufficiently linked to medical service funding and are detrimental to their ability to respond quickly to the need to

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expand workforce at a facility. Facility directors believe that Central Office processes take too long, and facility directors lack flexibility to move money between funding streams. They also said that they lack flexibility to manage special purpose funding efficiently across their facilities.

In the next subsection, we turn from a focus on fiscal resources to consider VA's workforce and human resources capacity, that is, the employees who support and provide health care for Veterans.

3.2   Workforce and Human Resources

While VA's fiscal resources fund its health care system, VA's workforce and human resources consist of the people who support and provide health care for Veterans. VA employs physicians, nurses, and other providers directly, owning and operating hospitals and other facilities to meet eligible Veterans' needs under a fixed budget. VA also contracts with private physicians to deliver some services within VA facilities (GAO, 2013c). Additionally, as described in Subsection 3.4, under special circumstances VA will purchase care. As such, VA capacity to deliver services is affected by the capacity of both the VA and the non-VA workforce.

Understanding VA's total workforce capacity is complex due to this mix of internal and contracted services, but generally this capacity depends on two key factors:

- The number of providers, which will depend on the ability of VA to hire and retain staff at each facility
- Provider productivity, which is shaped by factors such as sufficiency of support staff, IT capabilities; VA's staff management capabilities, including culture and policy; and physical infrastructure (for example, number and size of exam rooms).

This subsection is divided into four parts. The first part describes how VA assesses and plans for the number of providers required to meet the needs of VA beneficiaries. The second part describes the numbers of clinicians providing direct patient care at VA and their productivity. The third part determines where the biggest workforce capacity constraints might exist by specialty. Finally, the fourth part discusses why workforce-related capacity constraints might exist. When comparing across specialties, we focus on 12 specialties that care for the seven illustrative clinical populations considered in Assessment B.

A summary of the methods used in these analyses is shown in the box.

> **Overview of Methods and Data for Assessment of Workforce and Human Resources**
> - To assess VA's health care workforce resources and capabilities, we developed descriptive data tables describing total workforce and productivity estimates for physicians, associate providers, and therapists, and generated reports for representative specialties, including those relevant for the illustrative clinical populations.
> - We used worked clinical FTE counts for physicians, associate providers, and therapists to describe the current workforce and work RVUs to measure specialty physician and associate provider productivity. For therapists, we measured productivity in terms of the number of encounters per therapist

clinical FTE. For primary care, we measured physician productivity by measuring "panel size," that is, the number of unique patients seen by each primary care physician per year.

- We assessed variation in specialty care workforce supply and productivity and the extent to which various factors might affect workforce supply through changes in the recruitment and retention of various provider types.

- We interviewed VA employees and others with VA expertise to gather information related to workforce planning, productivity, and barriers to recruiting and retaining workers. We supplemented these analyses with an extensive review of the literature.

- For each of the seven illustrative clinical populations, we selected a subset of specialties that care for patients within the population and characterized facilities based on a measure of accessibility (measure of wait times for new patients) and productivity (RVU estimates). We used the wait-time variables to categorize each facility-specialty combination as having high or low wait times and used the findings from the literature reviews and interviews to identify specialties for which there are likely capacity constraints as well as potential causes of capacity constraints.

- Data sources used in these analyses include staffing and productivity data provided by Assessment G (including data collected from the VISTA New Person File, VISTA Patient Care Encounter File, and the Monthly Program Cost Report); SK&A Office-Based Physician, Nurse Practitioner, and Physician Assistant Database; VA Planning Systems Support Group Enrollee file; MGMA surveys; and VSSC [See Strategic Analytics for Improvement and Learning Cube]

- For complete details of the methods used to assess workforce and human resources, please refer to Section 2 of this report.

This subsection will not discuss most indirect factors associated with provider capacity as they are discussed in other parts of this report or in other assessments:

- Assessment A addresses the demand for services.

- Subsection 3.4 of this report and Assessment C discuss purchased care.

- Subsection 3.3 of this report and Assessment K examine the space and medical supply inputs that can influence the number of providers available.

- Subsection 3.5 of this report discusses in greater detail the IT initiatives that may affect provider productivity.

- Assessment G constructs provider productivity measures and FTE counts, benchmarking them against private-sector productivity.

In addition, there is nontrivial overlap between work performed by Assessments B and G in terms of VA workforce. Both Assessments B and G use VA data to estimate provider counts and productivity for physicians and associate providers in the VA system. Assessment G processed and made these data available to Assessment B. Assessment B combines these data with wait-

time and interview data to identify the specialties with capacity constraints and factors affecting capacity in order to describe potential capacity constraints of those physicians. Assessment B also develops estimates of provider counts and productivity for therapists (for example, physical therapists and occupational therapists).

Despite the significant overlap between Assessments B and G, there are important differences in the approach to estimating provider FTE counts. In order to calculate total FTE counts, Assessment B focused on the worked FTEs, whereas Assessment G focused on paid FTEs, which includes worked FTEs plus additional labor mapping categories, most notably leave. We felt it was most appropriate for Assessment B to focus explicitly on the amount of time providers spent working (that is, worked FTEs). We believe that this is a closer reflection of the amount of resources available to provide timely, accessible care for Veterans. Differences in the FTE definitions have the most significant effect on estimates of the total number of providers as well as estimates of the proportion of time that providers spend performing clinical duties.

3.2.1   Assessing and Planning for Workforce Capacity

In this subsection, we discuss how VA assesses and plans for the number of providers required to meet the needs of VA beneficiaries. These processes lay the foundation for VA's workforce capacity. It is important to understand how these processes work and what their strengths and weaknesses are. This subsection also includes a brief discussion of how VA measures provider productivity and whether deficiencies exist in this process. We also discuss improvements to productivity measurements and workforce planning that were developed as part of the 2014 VA Interim Workforce and Succession Strategic Plan.

3.2.1.1   VA Approaches to Assessing and Planning for the Health Care Workforce

To determine the optimal number of health care providers in each facility, VA uses several tools to measure the workload and productivity of providers and the timeliness and quality of care they deliver. Generally, these reports are accessed by both facility and VISN leadership, but facility leadership are generally responsible for assessing staffing levels and taking personnel actions.

- **Primary care workload.** To measure the workload or productivity of primary care physicians, VA staffing models use a panel size method, which sets limits on the number of services a provider can deliver and the number of patients for which the provider can be accountable. The VA definition of a patient panel differs meaningfully from non-VA definitions. VA defines a panel as the number of patients that have visited a VA primary care provider within a defined time period (for example, 12 months for new patients and 24 months for established patients). Conversely, most non-VA providers define panels as all patients for which a provider is responsible regardless of the timing of their most recent visit. This may have unknown effects on comparison of panel sizes within and outside of VA.

- **Specialty care workload.** For specialty care, VA recently developed a staffing model based on work RVUs—values used for determining the relative time and intensity required to deliver a given service. RVUs are designed to determine physician payment in Medicare

and are used by most other payers. RVUs consist of a facility portion and a work portion. Our RVUs focus exclusively on the "work" portion of the RVU. A service with a higher work RVU is one that requires more time or more intensity work by a provider. VA differs from non-VA health care systems in the way they use productivity metrics. Outside of VA, productivity measures are often not used at all. When they are used, they are not typically used for workforce capacity planning.

- **Facility-level productivity.** Facility-level productivity estimates are calculated as the sum of the work RVUs divided by the number of physicians working at that facility. Facility-level RVUs are calculated separately for each facility by specialty. VA uses these values to estimate the number of providers needed to care for its projected specialty care patient population.

Determining primary care capacity. VA uses the Primary Care Management Module to assign each patient to a primary care team composed of one primary care provider and various support positions. To determine primary care team capacity, VA sets panel size expectations based on the number of active patients assigned to each primary care provider. Panel size expectations vary depending on levels of support staff, space, and patient complexity. Some facilities are also experimenting with linking factors such as patient experiences or outcomes to their estimates of needed staffing levels (Griffin & Swan, 2006). At a June 2014 House subcommittee hearing, Dr. Thomas Lynch, the Assistant Deputy for Clinical Operations and Management of VA, mentioned that VA may start using RVU-based approaches to assess productivity, efficiency, staffing, and capacity for primary care services, but details were not discussed at length in the documents we identified (House Committee on Veterans Affairs, 2014).

Determining specialty care capacity. The Office of Productivity, Efficiency, and Staffing produces productivity benchmark data for specialty care providers based on the distribution of productivity estimates within VA, given that little national guidance exists for most specialties. The source of the data is the Physician Productivity Cube (PPC), a unique national data set that houses VA specialist workforce, workload, and productivity data from various Corporate Data Warehouse databases. Like many private-sector health care organizations, VA measures specialty care productivity in the PPC as work RVUs (VHA, 2014), supplemented by information on the number of encounters and the number of patients. VA then created the Specialty Productivity Access Report and Quadrant Tool (SPARQ), which uses PPC data to generate user-friendly, summative reporting for VA facilities to review facility or specialty-specific productivity and wait-time data. This report allows VA and facility leadership to identify where a facility's wait times are long compared with other VA facilities and to understand the extent to which long wait times might be driven by low productivity relative to other facilities. SPARQ can be used to generate reports using PPC data to assist VA and facility leadership in evaluating specialty productivity, access, staffing, and efficiency (OPES, 2014).

One interview respondent described how the PPC helped them identify ways to improve productivity:

> So [the PPC] is a tool that everybody uses across VA, and we use it extensively here. What we're finding is that there are far too many people that are doing administrative

work that probably should be doing more clinical work. So we have been slowly but surely relentlessly cracking down on that.

Most facility leaders we interviewed described workforce planning as an iterative process; they rely on sister facilities and other comparative benchmarks to determine staffing levels, while also keeping apprised of access measures—primarily wait times—to ensure that staffing is adequate for demand in each specialty. However, they reported that they use the wait-time and productivity data available in the PPC and SPARQ and are interested in further refinements to the data (see below). Respondents cited these analyses of provider workload and related assessments of provider capacity as key inputs when facilities try to identify causes of poor access in certain specialties: "If we're struggling to get patients seen, then we're looking at all of the possibilities: Are there things we can do to make them more efficient? Is there a way to schedule additional clinics using either fee or part-time?"

VA has improved its tools for tracking productivity and workload over the past decade. VA relies heavily on the PPC to track provider workload and productivity and has used this data repository to develop user-friendly summative tools for facilities to review practice performance. RVU-based productivity measures have become the standard for specialty physicians. Discussions regarding its use for measuring primary care productivity are currently taking place, and it will likely become a VA physician-wide method in the future. Steps to advance the effective use of these data in staffing and workload decision making will likely occupy VA for the foreseeable future.

3.2.1.2 Challenges VA Faces in Planning for and Assessing the Health Care Workforce

We identified several key challenges associated with VA staff planning and assessment processes. These include a lack of guidance about what methods should be used, a lack of external productivity benchmarks, inaccurate or incomplete data inputs, and the inability of the data system to adequately account for certain types of providers and patient visits.

The VA Office of Inspector General determined in 2012 that VA facilities often do not have staffing plans because of unclear direction on which methodologies to use to identify occupations that are experiencing shortages (VA, Office of Inspector General, 2012a). In 2015, the VA Office of Inspector General also found that the methods to identify staffing shortages are not adequate because they are based on VA regional rankings, which do not have enough detail at the facility level to help facility leadership set staffing targets (VA, Office of Inspector General, 2015a).

The 2012 VA Office of the Inspector General report also highlighted the fact that many specialties do not have productivity standards—an issue that both the VA Office of the Inspector General and the GAO have repeatedly pointed out over the past two decades (GAO, 1997b; House Committee on Veteran' Affairs, 2013; VA, Office of Inspector General, 2012a). VA continues to work on this important issue. The PPC allows hospitals and health care systems to compare themselves against national medians, medical centers of similar size and complexity, and private-sector benchmarks. However, most studies that compare VA with the private sector highlight the fact that significant variation in patient populations, modes of care delivery, and

payment structures make a clean comparison difficult (Asch et al., 2004; Yaisawarng & Burgess, 2006). Assessment G addresses this issue in detail.

The accuracy of some data inputs into the staff planning process can be problematic. In particular, interviewees reported that variations in Current Procedural Terminology coding practices, inconsistently entered workload data, and incomplete or poorly detailed physician encounter data make it difficult to consistently measure productivity. Some interviewees expressed concern that RVU-based workloads do not capture the full spectrum of services provided because individual procedures and other services are not as reliably coded as bills generated in a fee-for-service system. As a consequence, the differences in RVUs between providers or facilities could reflect differences in coding practices rather than true differences in productivity. In addition, with an integrated delivery system, services and costs for services are not measured in individual units, making calculations of RVUs and comparisons to the private sector difficult. Some interview respondents noted issues with the accuracy of the labor-mapping data: "We're finding that . . . some people have been credited for doing things that they really shouldn't get credit for doing in terms of admin time, education time, and so forth."

The current data systems do not adequately account for certain types of providers in the staff planning process. Internal VA documentation highlighted several issues with data tracking that continue to be a problem (VHA, Office of Productivity, Efficiency, and Staffing, 2014b). For example, providers working for VA under contract are not directly counted in the FTEs for specialty care because the system includes only data for VA-salaried physicians. VA facilities can expand their workforce by using part-time providers acquired via contracts between VA and its affiliates (contracts), or via relationships with independent providers that work at VA for a fee (fee-basis). Contract providers have appointments at facilities with formal VA affiliations, such as medical schools. Fee-basis providers accept a temporary, intermittent, or part-time appointment for a fee, but they are not necessarily linked to a VA affiliate. Contracted and fee-based providers are unique from purchased care in that they work within the walls of VA.

Given that there is no data source available for the FTE value for in-house fee or contract physicians, the PPC does not calculate a direct productivity measurement for contracted physicians. Another issue is that the system does not provide specialty specificity for advanced practice providers, so encounters that have only a nurse practitioner or physician assistant listed cannot be easily mapped to specialties in the PPC. Additionally, medical residents are not distinguished from fully qualified physicians in practice productivity measures and are not included in specialty-specific counts, which may artificially lower productivity measures by specialty grouping. Perceived problems with productivity assessments have led some facilities to implement policies to improve the usefulness and accuracy of these data, including establishing procedures for comparing labor-mapping data to providers' scheduling grids. However, these procedures are labor-intensive and not widely implemented.

The data systems also are not able to fully account for certain types of visits. Interview respondents described how new initiatives such as telehealth and group clinics have strained the utility of these metrics:

> We have group visits that allow us to treat eight or 10 patients in a group setting, and if
> the wrong code is being used in the group setting, sometimes we don't get the workload

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credit, and it looks like it might be a productivity issue whereas, in fact, the provider is
working very hard, is very productive; he's just not getting credit.

Despite progress in productivity and workload measurement, there are still a handful of
challenges VA needs to overcome to ensure that the data and tools it uses to plan and assess
the health care workforce are more valid and reliable. In addition to standardizing staff level
and productivity targets, VA is still refining the micro-level data that feed into its data systems.
Steps to address these accuracy issues have been taken, but adjustments to the way clinical and
administrative data are collected and classified are needed to improve upon existing systems.

3.2.2 Current VA Health Care Workforce Resources and Capabilities

Current VA capacity is a function of the number of providers in the VA workforce and their
productivity. This subsection provides an overview of the current (FY 2014) VA staffing numbers
and productivity data. One of the largest providers of health services in the world, VA had
nearly 300,000 employees in 2014 (Healthcare Talent Management, Workforce Management &
Consulting Office, & Veterans Health Administration, 2014). While VA's workforce grew 15.8
percent from 2008 to 2012, the growth rate slowed over that period. In this subsection, we
describe the numbers of clinicians providing direct patient care at VA and their productivity.
Although many types of employees provide VA patient care, because of limitations in the data
available to us, we focus on clinical providers, such as physicians; associate providers, such as
nurse practitioners and physician assistants; and therapists, such as physical and occupational
therapists. In other parts of this report, we will discuss issues involving other employees (for
example, registered nurses and support) that might affect the numbers and productivity of the
billing providers and therapists. Throughout this discussion, we use the "facility" as the unit of
analysis. We consider a facility to include an administrative parent facility, often a VAMC, and
its associated outpatient clinics (for example, CBOCs).

3.2.2.1 Workforce Numbers

Physicians spend their time in various ways, including providing clinical care, conducting
research, performing administrative tasks, and teaching. As a result, the number of physicians
employed by VA may overstate the level of resources allocated to patient care. Therefore, we
focus on the number of clinical FTEs: If a physician works full-time for VA but only half in clinical
care, he or she contributes 0.50 clinical FTEs. Clinical FTEs also include clinical activities outside
face-to-face patient appointments, but do not include other labor mapping categories, such as
paid leave. In FY 2014, VA employed a total of 31,269 physician[17] employees working either full-
time or part-time, for a total of 19,900 FTEs. On average, these physicians spend close to 80
percent of their FTEs in clinical care, for a total of 15,543 physician clinical FTEs across all
specialties. On average, there were approximately 121 physician clinical FTEs per parent facility.

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[17] Consistent with VA methodology for designating "physicians," this category also includes a small set of
nonphysician clinicians including psychologists and chiropractors.

Physicians. Table 3.2-1 summarizes FY 2014 physician clinical FTEs and physician clinical FTEs per 1,000 unique patients for an illustrative set of specialties, focusing explicitly on 12 specialties that serve the illustrative clinical populations. The specialties with the largest FTE counts were mental health (an average of 34.2 physician clinical FTEs per facility) and internal medicine (an average of 27.94 physician clinical FTEs per facility). Other specialties were not as well represented. For example, the average physician clinical FTE per facility was 1.12 for endocrinology and 0.80 for obstetrics and gynecology.[18] The number of physician clinical FTEs in each specialty varied across facilities. The greatest variations, as measured by coefficient of variation, were for physical medicine and rehabilitation, emergency medicine, thoracic surgery, and mental health.

Table 3.2-1. VA Physician Clinical FTEs Overall and Per 1,000 Unique Patients at the Facility Level, FY 2014

Specialty	Count of Facilities	Overall Clinical FTEs —Mean (Standard Deviation)	Overall Clinical FTEs— Coefficient of Variation	Clinical FTE Per 1,000 Unique Patients at Each Facility— Mean (Standard Deviation)	Clinical FTEs Per 1,000 Unique Patients at Each Facility— Coefficient of Variation
Mental health	140	34.2 (21.36)	0.62	0.69 (0.24)	0.35
Internal medicine	140	27.94 (17.09)	0.61	0.57 (0.14)	0.25
Emergency medicine	111	4.11 (3.30)	0.80	0.08 (0.06)	0.75
Cardiology	126	3.01 (1.96)	0.66	0.06 (0.03)	0.47
Surgery	126	2.96 (1.58)	0.53	0.06 (0.03)	0.48
Gastroenterology	112	2.48 (1.57)	0.63	0.04 (0.02)	0.44
Physical medicine and rehabilitation	124	2.44 (2.11)	0.86	0.05 (0.04)	0.75

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[18] Although VA does not offer obstetrical services, the related specialty is referred to as "obstetrics and gynecology" both within and outside the VA. We retained this nomenclature to be consistent with non-VA workforce analysis and internal VA documentation.

Specialty	Count of Facilities	Overall Clinical FTEs—Mean (Standard Deviation)	Overall Clinical FTEs—Coefficient of Variation	Clinical FTE Per 1,000 Unique Patients at Each Facility—Mean (Standard Deviation)	Clinical FTEs Per 1,000 Unique Patients at Each Facility—Coefficient of Variation
Neurology	126	2.25 (1.44)	0.64	0.04 (0.02)	0.52
Hematology-Oncology	105	1.94 (1.15)	0.59	0.04 (0.02)	0.44
Thoracic surgery	67	1.14 (0.85)	0.75	0.02 (0.02)	0.84
Endocrinology	99	1.12 (0.71)	0.63	0.02 (0.01)	0.59
Neurological surgery	54	0.94 (0.63)	0.67	0.02 (0.01)	0.66
Obstetrics and gynecology	81	0.8 (0.61)	0.76	0.16 (0.10)	0.64

Source: Authors' analysis of VISTA New Person File, VISTA Patient Care file, and Monthly Program Cost Reports provided by Assessment G.

We also considered a measure that accounts for the number of patients seen in each facility: physician clinical FTEs per 1,000 unique patients who visited that facility in the past fiscal year. This measure allows for more comparable measurement across facilities, given that facilities can vary in size or number of affiliated sites, for example. In mental health, we found an average of 0.35 physician clinical FTEs per 1,000 unique patients, and, in emergency medicine, the facility average was 0.08 physician clinical FTEs per 1,000 unique patients. As expected, for most specialties, there was less variation across facilities in the number of providers per 1,000 unique patients than there was for total clinical FTEs. This likely reflects the fact that some of the variation across facilities in FTEs is explained by the size of the facility as measured by the total number of unique patients visiting that facility.

Some of this variation in FTEs per 1,000 could be explained by differences in regional practice patterns, differences in patient complexity, or differences in the use of contracted providers. For illustrative purposes, we also examined variation in the FTEs per 1,000 unique patients across VISNs. We found significantly less variation compared with the facility-level analysis. To illustrate the variation across VISNs, in Figure 3.2-1 we show the distribution for the specialties with the two highest coefficients of variation (neurological surgery and thoracic surgery). There is substantial variation in the FTEs per 1,000 patients in these two specialties. For example, for thoracic surgery, one VISN has as many as 0.02 clinical FTEs per 1,000 unique patients and another has as few as 0.001 clinical FTEs per 1,000 unique patients.

Figure 3.2-1. VA Clinical FTEs per 1,000 Unique Patients by VISN for Select Specialties, FY 2014
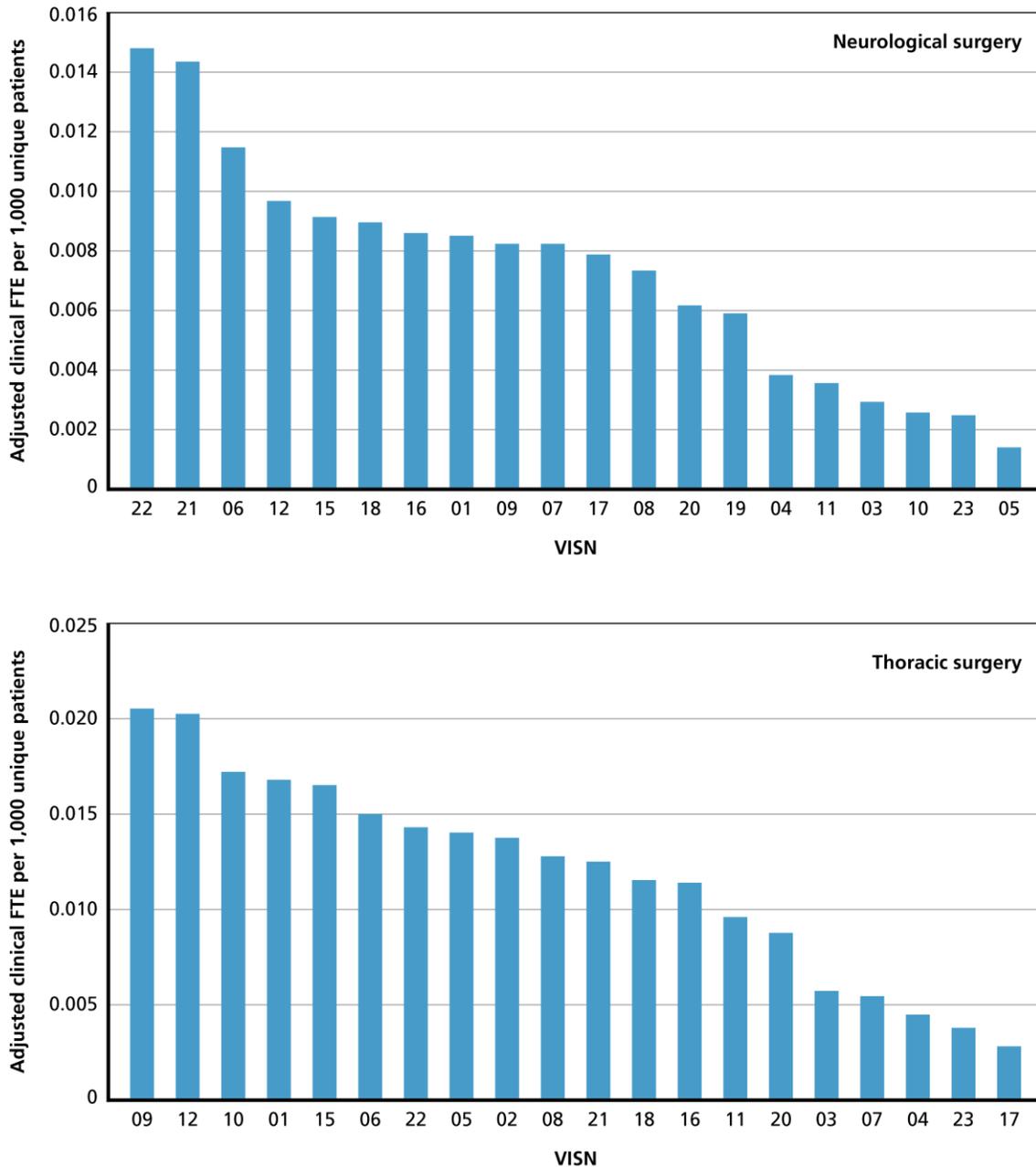
MS4675B-3.2-1

Source: Authors' analysis of VISTA New Person File, VISTA Patient Care file, and Monthly Program Cost Reports provided by Assessment G.
Notes: City hubs associated with each VISN are listed in Table 3.1-3. One VISN is missing from the neurological surgery figure because that VISN does not have any clinical FTEs dedicated to that specialty.

Furthermore, to account for this variation across VISNs, we also performed regression analysis to create estimated FTE values controlling for VISN and patient complexity level at each facility.

Although we do not show these estimates, they suggest that there is still significant variation across facilities that cannot be explained by region and patient complexity.

Finally, the variation that we observe across facilities should be interpreted with caution, particularly for some of the specialties with relatively low FTE numbers. Specialties with the highest coefficients of variation tend to be those with small provider counts. For example, while thoracic surgery shows high levels of variation across VISNs, the mean FTEs per 1,000 unique patients type is only 0.02. Thus, a difference of less than 0.04 FTEs per 1,000 unique patients between the VISNs with the highest and lowest number of FTEs seems substantial, though is less so in absolute terms.

Primary care physicians work across a number of different specialties at VA. Assessment G worked with the Office of Primary Care to identify which of the 15,543 physician clinical FTEs are currently working in primary care clinics. That process yielded 3,385 primary care physician clinical FTEs. Table 3.2-2 shows the average number of primary care clinical FTEs across facilities. On average, there are 24.2 primary care physician clinical FTEs per facility or 0.62 physicians per 1,000 unique patients. We found relatively less variation across VISNs (data not shown).

Table 3.2-2. VA Primary Care Physician Clinical FTEs Overall and Per 1,000 Unique Patients at the Facility Level, FY 2014

Specialty	Overall Clinical FTEs— Mean (Standard Deviation)	Overall Clinical FTEs— Coefficient of Variation	Clinical FTEs per 1,000 Unique Patients— Mean (Standard Deviation)	Clinical FTEs per 1,000 Unique Patients— Coefficient of Variation
Primary care physicians	24.18 (15.06)	0.62	0.62 (0.16)	0.26

Source: Authors' analysis of primary care data provided by Assessment G.

Associate Providers. Associate providers (that is, nurse practitioners, physician assistants, clinical nurse specialists, certified registered nurse anesthetists, and social workers) support and supplement the work of physicians in VA. In FY 2014, VA employed 21,141 associate providers who work either full-time or part-time, for a total of 15,386 worked FTEs. Associate providers spent 94 percent of their time in clinical work, for a total of 14,441 clinical FTEs. These clinical FTEs consisted of 3,626 nurse practitioners, 1,587 physician assistants, 396 clinical nurse specialists, 598 certified registered nurse anesthetists, and 8,221 social workers. These associate providers cannot easily be mapped to a particular specialty, so we provide only the overall number per facility. In Table 3.2-3, we present information on the associate providers per physician clinical FTE. For nurse practitioner, clinical nurse specialist, and physician assistant positions, we present the clinical FTEs per all physician clinical FTEs; for social workers, we use

mental health providers; and for certified registered nurse anesthetists, we use anesthesiologists. For all other associate providers, we use all providers as the denominator. The greatest variation across facilities was seen for clinical nurse specialists, with an average of 0.023 clinical FTEs per 1,000 unique patients and a coefficient of variation of 1.13.

Table 3.2-3. VA Associate Provider Clinical FTEs Overall and Per 1,000 Unique Patients at the Facility Level, FY 2014

Specialty	Count of Facilities	Overall Clinical FTEs—Mean (Standard Deviation)	Overall Clinical FTEs—Coefficient of Variation	Clinical FTEs Per 1,000 Unique Patients at Each Facility—Mean (Standard Deviation)	Clinical FTEs Per 1,000 Unique Patients at Each Facility—Coefficient of Variation
Social worker	140	26.95 (25.64)	0.95	0.57 (0.45)	0.80
Nurse anesthetist	112	5.34 (3.97)	0.74	0.098 (0.055)	0.56
Physician assistant	135	4.65 (4.75)	1.02	0.097 (0.097)	1.00
Nurse practitioner	140	4.37 (5.50)	1.26	0.090 (0.099)	1.11
Clinical nurse specialist	116	1.21 (1.43)	1.18	0.023 (0.026)	1.13

Data sources: Authors' analysis of VISTA New Person File, VISTA Patient Care file, and Monthly Program Cost Reports provided by Assessment G.

Assessment G also identified which of the associate providers work in primary care. That process yielded 1,188 primary care NP clinical FTEs and 330 primary care PA clinical FTEs. Table 3.2-4 shows the average number of primary care associate provider clinical FTEs across facilities.

Table 3.2-4. VA Primary Care Associate Provider Clinical FTEs Overall and Per 1,000 Unique Patients at the Facility Level, FY 2014

Specialty	Count of Facilities	Overall Clinical FTEs—Mean (Standard Deviation)	Overall Clinical FTEs—Coefficient of Variation	Clinical FTEs Per 1,000 Unique Patients at Each Facility—Mean (Standard Deviation)	Clinical FTEs Per 1,000 Unique Patients at Each Facility—Coefficient of Variation
Nurse practitioner	139	8.54 (5.42)	0.63	0.25 (0.14)	0.56
Physician assistant	103	3.2 (2.83)	0.88	0.09 (0.08)	0.88

Data sources: Authors' analysis of VISTA New Person File, VISTA Patient Care file, and Monthly Program Cost Reports provided by Assessment G.

Therapists. Therapists also play a key role in caring for Veterans. In FY 2014, VA employed 5,615 FTE therapists, who spent 95 percent of their time in clinical work, for a total of 5,339 clinical FTEs. These clinical FTEs consisted of 1,793 physical therapists, 1,000 occupational therapists, 1,007 audiologists, 698 recreational therapists, 257 kinesiotherapists, 331 blind rehabilitation therapists, and 305 speech language pathology therapists. Table 3.2-5 presents the mean number of clinical FTEs across facilities by type of therapist. Physical therapists account for the largest number of clinical FTEs, on average, compared with the other therapist groups.

Table 3.2-5. VA Therapist Clinical FTEs Overall at the Facility Level and Per 1,000 Unique Facility Patients, FY 2014

Specialty	Overall Clinical FTEs—Mean (Standard Deviation)	Overall Clinical FTEs—Coefficient of Variation	Clinical FTEs Per 1,000 Unique Patients—Mean (Standard Deviation)	Clinical FTEs Per 1,000 Unique Patients—Coefficient of Variation
Physical therapy	12.33 (7.83)	0.64	0.26 (0.11)	0.42

Specialty	Overall Clinical FTEs— Mean (Standard Deviation)	Overall Clinical FTEs— Coefficient of Variation	Clinical FTEs Per 1,000 Unique Patients— Mean (Standard Deviation)	Clinical FTEs Per 1,000 Unique Patients— Coefficient of Variation
Occupational therapy	7.28 (5.80)	0.80	0.15 (0.09)	0.60
Audiology	7.25 (4.50)	0.062	0.15 (0.05)	0.33
Recreation therapy	5.28 (4.68)	0.89	0.12 (0.12)	1.00
Kinesiotherapy	3.74 (3.82)	1.02	0.08 (0.07)	0.88
Blind rehabilitation	3.12 (4.58)	1.47	0.06 (0.08)	1.33
Speech language therapy	2.36 (1.83)	0.78	0.05 (0.03)	0.60
Overall	37.86 (24.98)	0.66	0.78 (0.34)	0.43

Source: Authors' analysis of VISTA New Person File, VISTA Patient Care file, and Monthly Program Cost Reports provided by Assessment G.

3.2.2.2 Workforce Productivity

In these analyses, specialty physician productivity is defined as work RVUs per physician clinical FTE. Work RVUs assigned to a particular procedure or office visit reflect the relative level of time, skill, training, and intensity needed to provide that service. Higher RVU work takes more time, more intensity, or both. Because of the way work RVUs are constructed, they are best used to compare productivity within specialties rather than across them. For primary care

services, VA productivity is measured using panel sizes. For therapists, productivity is measured as the number of encounters in a fiscal year. All of these are measured per clinical FTE. Assessment G examines physician productivity in detail and compares VA physician productivity to commercial benchmarks.

Specialty Care. The greatest variations in physician productivity were in neurosurgery and thoracic surgery, while the smallest variations were in internal medicine, neurology, mental health, and surgery (Table 3.2-6).

Table 3.2-6. VA Work RVUs Per Physician Clinical FTE for Select Specialties at the Facility Level, FY 2014

Specialty	Count of Facilities	Work RVUs— Mean (Standard Deviation)	Work RVUs— Coefficient of Variation
Gastroenterology	112	7,348 (3,414)	0.46
Cardiology	126	5,887 (2,379)	0.40
Neurological surgery	54	5,290 (11,116)	2.10
Surgery	126	3,874 (1,321)	0.34
Thoracic surgery	67	3,561 (2,781)	0.78
Hematology-Oncology	105	3,560 (1,531)	0.43
Emergency medicine	111	3,531 (1,552)	0.44
Endocrinology	99	3,496 (1,616)	0.46
Neurology	126	3,487 (1,161)	0.33
Physical medicine and rehabilitation	124	2,828 (1,230)	0.44
Obstetrics and gynecology	81	2,800 (1,314)	0.47
Internal medicine	140	2,768 (431)	0.16
Mental health	140	2,666 (498)	0.19

Source: Authors' analysis of VISTA New Person File, VISTA Patient Care file, and Monthly Program Cost Reports.

Some of this variation in productivity could be explained by differences in regional practice patterns or differences in patient complexity. To examine this, we also examined variation across VISN by physician specialty. In general, we found less variation in physician specialist productivity by VISN than by facility. However, there was still substantial variation across VISNs. Figure 3.2-2 shows the distribution of productivity per FTE for the two physician specialties with the largest variation (that is, neurological surgery and thoracic surgery). For example, for neurological surgery, one VISN has as many as 5,471 RVUs per FTE and another has as few as 38 RVUs per FTE.

Figure 3.2-2. VA Work RVUs Per Physician for Select Specialties at the VISN Level, FY 2014
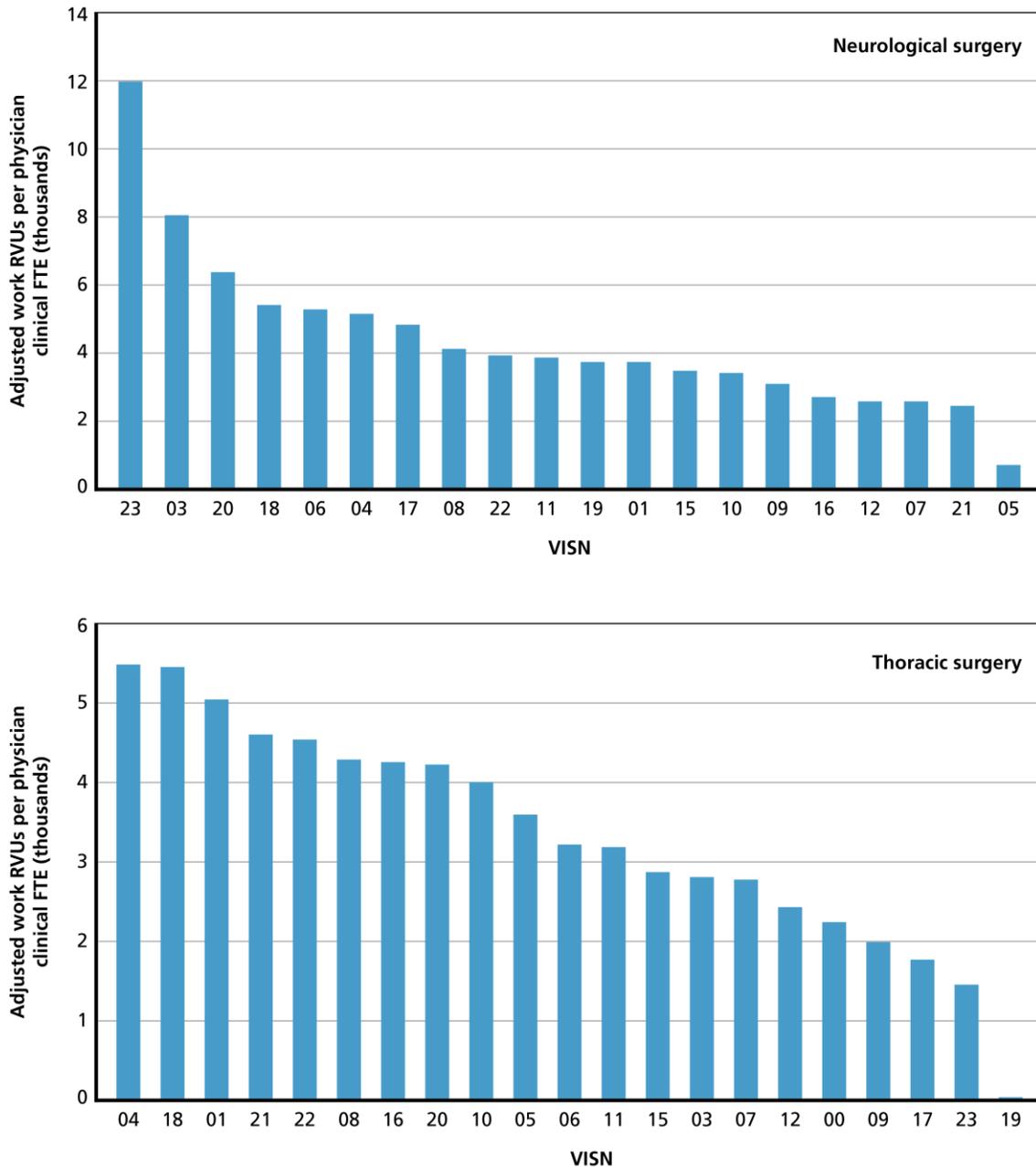
Source: Authors' analysis of VISTA New Person File, VISTA Patient Care file, and Monthly Program Cost Reports provided by Assessment G.

Notes: City hubs associated with each VISN are listed in Table 3.1-3. One VISN is missing from the neurological surgery figure because that VISN does not have any clinical FTEs dedicated to that specialty.

To further examine variation in productivity, we used regression analysis (as we did in the provider count estimates) to create estimated productivity values controlling for VISN and

patient complexity level at each facility. Although we do not show these estimates, they suggest that there is still significant variation across facilities that cannot be explained by region and patient complexity.

There is also significant variation in the productivity of associate providers across facilities. Table 3.2-7 shows that nurse anesthetists and clinical nurse specialists have the highest level of variation across facilities.[19]

Table 3.2-7. VA Work RVUs Per Associate Provider at the Facility Level, FY 2014

Specialty	Count of Facilities	Work RVUs—Mean (Standard Deviation)	Work RVUs— Coefficient of Variation
Physician assistant	135	1,913 (1,539)	0.80
Nurse practitioner	140	1,833 (1,511)	0.82
Clinical nurse specialist	116	1,746 (1,719)	0.98
Social worker	140	893 (544)	0.61
Nurse anesthetist	112	413 (995)	2.41

Source: Authors' analysis of VISTA New Person File, VISTA Patient Care file, and Monthly Program Cost Reports provided by Assessment.

Contracted Providers. Most VA facility leaders we interviewed used either fee-basis or contract providers to some extent, based largely on the demand for services and the accessibility of specialty care. In many locations, the demand for certain services was too low to justify hiring full-time staff: "We have quite a few [fee-basis physicians], particularly in surgery because we can pay them higher and they're intermittent, and it doesn't make sense to hire a full-time person." Most VAMCs were affiliated with university medical centers and relied on these facilities to provide a pool of contract and fee-based providers to supplement full-time VA staff. Interview respondents identified emergency department physicians, hospitalists, and surgeons as the specialties most often filled with contract or fee-based providers.

Table 3.2-8 reflects the percentage of all work RVUs (VA, contract, residents, and other employees) attributed to fee-basis and other (providers without a labor mapping) physicians

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[19] Clinical nurse specialists are doctoral- or masters- prepared advanced practice registered nurses who function in a variety of capacities, such as quality improvement, nursing education, and diagnosis and treatment of specific patient population.

and associate providers across facilities that use contracted physicians. Overall, fee-basis and other providers account for about 10.7 percent of total work RVUs. Fee-basis and other specialist physicians and associate providers account for 12.5 percent and 6.2 percent, respectively, across all specialties. Emergency medicine has the highest proportion of RVUs attributed to contract physicians (29.68 percent), while physician assistants account for the highest proportion among associate providers (8.56 percent).

Table 3.2-8. Percentage of Total Work RVUs Attributed to Fee-Basis and Other Physicians and Associate Providers at the Facility Level, FY 2014

Specialty	Count of Facilities	% of Total Work RVUs
Emergency Medicine	123	29.68
Neurological Surgery	69	28.66
Thoracic Surgery	85	28.46
Gastroenterology	122	12.23
Obstetrics & Gynecology	104	11.52
Internal Medicine	140	11.32
Surgery	134	10.23
Neurology	133	8.46
Cardiology	137	7.98
Endocrinology	111	6.78
Hematology-Oncology	119	5.97
Physical Medicine & Rehabilitation	128	5.03
Overall		12.50
Associate Providers		
Physician Assistant	137	8.56
Nurse Practitioner	140	7.34
Social Worker	141	2.90
Overall		6.20

Source: Authors' analysis of VISTA New Person File, VISTA Patient Care file, and Monthly Program Cost Reports provided by Assessment G.

However, many interview respondents described challenges with using fee-basis and contract providers. Most respondents preferred to hire full-time staff, primarily for accountability and stability reasons. Some described significant disadvantages to using contract providers compared with fee-basis or full-time providers, including the cost per FTE, the time required to negotiate contracts, and the degree of accountability: "Even though you can put items in a

contract that you hold people accountable to, they're not as accountable as people who actually work for you and are long term and are devoted to [the facility] and its Veterans." For these reasons, most respondents preferred to use fee-basis providers to fill in gaps. Other perceived advantages of fee-basis providers included flexibility, lower cost per FTE, and higher productivity: "Fee is more of a productivity model. So folks tend to be productive if they're working in a fee arrangement versus a salaried arrangement."

Primary Care. We examined the productivity of primary care providers by examining the mean panel sizes per clinical FTE within each parent facility for general primary care (Table 3.2-9). In 2014, the mean panel size was 1,128 patients per physician FTE and 874 patients per associate provider FTE, with moderate variation across facilities.

As mentioned in Section 3.2.1.1, VA uses the Primary Care Management Module to model panel size expectations per provider FTE at the facility level, adjusting for levels of support staff, space, and patient complexity. VA facilities can further adjust the models to set their own maximum panel sizes for their providers based upon local factors and using the guidance in the PCMM handbook. For example, a facility may set a lower maximum panel size for a new provider or for a provider serving a population with special needs.

We compared the actual mean panel sizes at each facility to the modeled and maximum panel size targets for each facility to identify facilities that appear to have "excess" capacity.[20] We identified a facility as having "excess capacity" if its panel sizes were less than their modeled or maximum panel sizes. We found that 75-91 percent of all facilities had excess capacity among their physicians' panels to manage more primary care patients, whereas between 67-72 percent of facilities had excess capacity among their associate providers' panels.

Table 3.2-9. VA Panel Size Per Primary Care Provider Clinical FTE, September 30, 2014

	Average Panel Sizes Per Clinical FTE—Mean (Standard Deviation)			Proportion of All Facilities with Excess Capacity Based on:	
	Actual Panel Size	Modeled Panel Size	Maximum Panel Size	Modeled Panel Size	Maximum Panel Size
Physicians	1,128 (165.8)	1,306 (71.8)	1,207 (161.8)	90.6%	75.0%
Associate providers	874 (197.2)	982 (62.3)	940 (194.4)	71.8%	66.9%

Source: Authors' analysis of VISTA New Person File, VISTA Patient Care file, and Monthly Program Cost Reports provided by Assessment G (September, 2014).

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[20] Memphis (TN) VAMC and its associated clinics are currently piloting a new version of the Office of Primary Care's Primary Care Management Module. As a result of the ongoing pilot, data from these sites was unavailable and is therefore excluded from our analysis.

The fact that a large proportion of facilities have "excess capacity" in their primary care panel might be interpreted in three potentially contradictory ways. First, these findings might suggest that VA facilities have more than sufficient numbers of primary care providers to provide required primary care for VA patients. Second, this data may also suggest that significant productivity constraints limit the number of patients facilities can manage in their panels, meaning that they are unable to meet their panel size targets. Third, it is possible that the VA algorithm for assessing panel sizes overestimates the number of patients that primary care providers can manage. Findings from the 2015 Survey of VA Resources and Capabilities and qualitative interviews provide some insight into this issue (discussed in more detail below). Survey data shows that VA facility representatives view primary care physicians as some of the most difficult providers to recruit and retain in VA facilities. The qualitative interviews indicate that primary care providers' have difficulty seeing as many patients as staffing models would expect due to issues with information technology and support staff. Altogether, the data suggests that there are likely capacity constraints among primary care providers, but the data cannot provide conclusive evidence regarding the nature and scope of the constraints.

Therapists. Finally, we also examined variation in productivity among therapists across administrative parent facilities. We found substantial variation across facilities in the number of annual encounters per therapist (Table 3.2-10). The most variation across parent facilities was in recreation therapy, kinesiotherapy, and blind rehabilitation therapy. The number of encounters per therapist, however, does not account for the intensity of the encounters or the case mix at the facility, which may differ systematically across types of therapy. Therefore, comparisons within a particular category are more useful than comparisons across types for understanding differences in productivity.

Table 3.2-10. VA Encounters Per Therapist Clinical FTE at the Facility Level, FY 2014

Specialty	Mean (Standard Deviation)	Coefficient of Variation
Recreation therapy	2,136 (1,736)	0.81
Audiology	2,000 (598)	0.30
Kinesiotherapy	1,811 (1,232)	0.68
Physical therapy	1,631 (448)	0.27
Occupational therapy	1,420 (554)	0.39
Speech language therapy	1,191 (372)	0.31

Specialty	Mean (Standard Deviation)	Coefficient of Variation
Blind rehabilitation	850 (433)	0.51

Source: Authors' analysis of VISTA New Person File, VISTA Patient Care file, and Monthly Program Cost Reports provided by Assessment G.

Subsection Summary. In this subsection, we described current numbers (as of FY 2014) of key provider types currently working in the VA system by total numbers of provider clinical FTEs as well as the number of clinical FTEs per 1,000 patients at a facility. We also described the relative productivity of various provider types. We found significant variation across facilities and VISNs in terms of provider counts and productivity. The greatest variations in physician productivity were in neurosurgery and thoracic surgery, while the smallest variations were in internal medicine, neurology, mental health, and surgery.

3.2.3 Specialties with Potentially Insufficient Workforce Capabilities

In this subsection, we attempt to identify specialties for which the current workforce capabilities have had the greatest challenges providing timely care to patients. To do this, we first present results from an analysis of wait-time data by specialty, as longer wait times could potentially signal insufficient workforce capabilities. We then present related findings from the literature review and interviews. In Subsection 3.2.4, we attempt to identify workforce-related challenges to providing timely care within specialties that have potentially insufficient capabilities.

3.2.3.1 Wait-Time Data by Specialty

We first analyzed VA wait-time data to identify the specialties with the longest wait times among the 12 specialties discussed in Subsection 3.2.2, comparing wait times across all these specialties. To measure wait times, we used four specific measures, including the percentage of appointments completed within 30 days of preferred date and the mean wait time in days from preferred date, measured both for new and established patients. The data were collected from the VA SPARQ tool. We found that wait times were longest for neurological surgery, neurology, gastroenterology, and physical medicine and rehabilitation (Table 3.2-11).

Table 3.2-11. VA Wait Times for New and Established Patients by Specialty at the Facility Level, FY 2014

Specialty	New Patients—% of Appointments Completed Within 30 Days of Preferred Date	New Patients—Mean (Standard Deviation) Wait Time in Days from Preferred Date	Established Patients—% of Appointments Completed Within 30 Days of Preferred Date	Established Patients—Mean (Standard Deviation) Wait Time in Days from Preferred Date
Neurological surgery	90.0	8.73 (11.36)	96.2	5.78 (9.44)
Neurology	92.4	7.06 (6.93)	94.9	5.41 (4.91)
Gastroenterology	92.3	6.61 (9.82)	95.5	4.82 (5.94)
Physical medicine and rehabilitation	94.1	6.47 (7.07)	96.6	3.81 (3.06)
Internal medicine	92.9	4.95 (6.29)	97.8	2.60 (2.01)
Endocrinology	96.1	4.25 (5.73)	96.6	3.72 (3.58)
Surgery	96.9	4.25 (3.56)	98.7	2.68 (2.07)
Obstetrics and gynecology	96.4	4.06 (3.79)	97.6	2.82 (2.30)
Cardiology	96.8	2.86 (3.78)	97.0	3.59 (7.73)
Hematology-Oncology	99.0	2.11 (3.77)	99.2	1.78 (1.61)
Thoracic surgery	99.1	2.03 (2.53)	99.1	2.33 (4.63)
Mental health	98.6	1.56 (3.14)	98.8	1.12 (2.29)

Sources: Authors' analysis of VISTA New Person File, VISTA Patient Care file, and Monthly Program Cost Reports provided by Assessment G; VA wait-time data for FY 2014 and the first half of FY 2015 obtained from VSSC by The MITRE Corporation.

We recognize that the wait-time variables are imperfect measures and that the "preferred date" may have relatively low validity and reliability. Therefore, wait times should not be viewed as a reliable estimate of the actual number of days that a patient must wait for an appointment. The VA wait-time data and standards are discussed in greater detail in Subsection 4.2.1.

Although the number of patients receiving appointments within 30 days is quite high across all specialties (that is, greater than 95 percent for established patients and greater than 90 percent for new patients), there are significant outliers across the facilities in terms of the average number of days that a patient has to wait; we have identified these differences as having high versus low wait times. We identified facilities as having high wait times for a given specialty if the average wait time for new patients for that specialty was above the 75th percentile of the

wait-time distribution. The difference in average wait times was roughly 10 days between facilities with low (2.07 days) versus high (11.67 days) wait times. In Table 3.2-12, we show that these patterns hold across specialties. All of the differences in wait times are statistically significant.

Table 3.2-12. VA Average Wait Times Across Facility-Specialty Combinations with High Versus Low Wait Times

Specialty	Low Wait Times— Number of Facilities	Low Wait Times— Mean (Standard Error) Wait Time in Days from Preferred Date for New Patients		High Wait Times— Number of Facilities	High Wait Times—Mean (Standard Error) Wait Time in Days from Preferred Date for New Patients	
Cardiology	114	2.09	(0.14)	11	9.91	(1.28)
Endocrinology	72	2.26	(0.15)	26	10.15	(0.85)
Gastroenterology	69	2.48	(0.16)	40	13.37	(1.60)
Hematology-oncology	98	1.56	(0.13)	6	8.04	(0.91)
Internal medicine	99	2.69	(0.13)	40	10.26	(0.84)
Mental health	135	1.40	(0.07)	4	6.39	(0.33)
Neurological surgery	27	1.85	(0.27)	21	16.96	(2.25)
Neurology	65	3.03	(0.20)	58	12.10	(1.00)
Obstetrics and gynecology	55	2.41	(0.20)	22	9.58	(0.63)
Physical medicine and rehabilitation	64	2.38	(0.19)	49	12.02	(1.12)
Surgery	86	2.30	(0.15)	37	8.80	(0.38)
Thoracic surgery^	59	1.72	(0.90)	1	17.43	–
*Overall**		2.13	(0.04)		11.41	(0.40)

Sources: Authors' analysis of VISTA New Person File, VISTA Patient Care File, and Monthly Program Cost Reports provided by Assessment G; VA wait-time data for FY 2014 and the first half of FY 2015 obtained from VSSC by The MITRE Corporation

+We report standard errors in this table (as opposed to standard deviations) as they were used as the basis for statistical testing.

^Only one facility had high wait times for thoracic surgery.

*Across all facility-specialty combinations.

3.2.3.2 Literature Review, Interview, and Survey Results on Specialty Workforce Capacity

The literature reviews, qualitative interviews, and 2015 Survey of VA Resources and Capabilities identified a number of specialties with potentially insufficient workforce capacity. The 2014 VA Interim Workforce and Succession Strategic Plan reported five challenging specialties related to retaining and recruiting physicians and for which demand is growing, including gastroenterology, cardiology, psychiatry, orthopedic surgery, and primary care. In the analysis of wait times, we also identified gastroenterology as a specialty with potentially insufficient workforce capabilities, and 67.3 percent of respondents to the survey reported challenges hiring and retaining gastroenterologists. We did not find high wait times for psychiatry, but respondents to the survey reported significant challenges in hiring (82.6 percent) psychiatrists. We also found relatively low wait times for cardiology, and relatively few respondents reported difficulty hiring and retaining cardiologists. The 2014 Strategic Plan noted that they also had difficulty hiring orthopedic surgeons. Although we did not include orthopedic surgery in Table 3.2-11, the specialty did have relatively high wait times (7.8 days) compared with other specialties. There are no wait times specifically attributable to the "primary care" providers that we discussed in Subsection 3.2.2, but in the 2015 Survey of VA Resources and Capabilities, 71.8 percent of the responding chiefs of staff reported difficulty recruiting or retaining primary care physicians.

In our interviews, multiple respondents identified 12 specialties and provider types with shortages: mental health, urology, orthopedic surgery, hospitalist, physical therapy, eye care (ophthalmology and optometry), audiology, ear-nose-and-throat, dermatology, vascular surgery, general surgery, and neurology. However, the number of interviews was small, so the results cannot be used to identify systematic shortages across these disciplines. We did, however, find substantial wait times in neurology data, which accords with the interviews.

In terms of the literature review, we did not identify peer-reviewed articles that discuss VA capacity constraints across all these specialties; thus, we focus our discussion on the five specialties mentioned in the 2014 Strategic Plan.

Psychiatry and/or Mental Health. This was the most commonly mentioned shortage in the interviews, with about one-third of respondents indicating a shortage at their facility. Like many other specialties, the psychiatry workforce is aging; the average psychiatrist is older than 55, and the proportion younger than 40 is declining (Scully & Wilk, 2003). Psychiatrists are in high demand, largely because of increased rates of PTSD from recent combat operations (Tanielian & Jaycox, 2008). Although PTSD is certainly contributing to an increase in demand for mental health services, VA enrollees suffer from a high rate of mental health burden. In fact, Assessment A found that approximately 50 percent of VA patients had at least one mental health diagnosis, including depression and anxiety disorders. VA mental health staffing shortages were frequently discussed in the literature (VA, Office of Inspector General, 2015a). A 2011 survey noted identified that 71 percent of mental health professionals thought that the number of mental health personnel in their VA medical center was not adequate (VA, Office of Inspector General, 2012b). Though the specialty's growth rate, which is the annual net increase in providers from the previous year, jumped from 2.4 percent in FY 2012 to nearly 7 percent the

following year (as a result of a mental health hiring initiative), psychiatry also had the second-highest loss rate in VA (8.9 percent) in FY 2013, primarily due to providers quitting (Healthcare Talent Management, Workforce Management & Consulting Office, & Veterans Health Administration, 2014).

Gastroenterology. National projections of the gastroenterologist workforce predict supply shortages and rising demand, tied largely to increased rates of colorectal cancer screening and an aging population. For example, Dall et al. (2009) predict a shortfall by 2020. The 2014 Strategic Plan noted that for VA, gastroenterology had one of the highest demand growth rates in FY 2012. Powell et al. (2009) surveyed 95 percent of VAMCs to assess how quality initiatives were affecting follow-up with patients who had positive colorectal cancer screenings. Gastroenterology capacity constraints were the most commonly cited barrier to timely follow-up (Powell et al., 2009). Similarly, a report investigating gastroenterology consult delays at the VAMC in Columbia, S.C., identified suboptimal staffing as a factor (VA, Office of Inspector General, 2013). Most gastroenterology managers and clinicians we interviewed described staffing deficiencies caused by positions not being filled, difficulty getting approval for new hires, and shortages in support staff including nurses and clerks.

Orthopedic Surgery. There is very little literature that directly examines the VA orthopedic surgery workforce, which had VA's highest total loss rate in FY 2013 at 9.9 percent (Healthcare Talent Management, Workforce Management & Consulting Office, & Veterans Health Administration, 2014). However, a 2013 GAO report that touched on the frequency of VAMCs referring patients to non-VA providers (purchased care) for orthopedic surgery services cited facility size, limitations in the recruitment of needed specialists, and lack of providers who can assist in the event of a complication during surgery (GAO, 2013c). A 2013 VA survey of 152 VAMCs found that, of the 113 that provide inpatient surgery, 96 percent (109) offered orthopedic specialty procedures (VA, 2014a). In total, 414 surgeons were VA-paid, 156 were contracted, and 199 were fee-based.

Cardiology. A 2012 VA Office of Inspector General report identified cardiology as one of 33 physician specialties with lower than expected productivity levels (VA, Office of Inspector General, 2012a). Dall et al. (2009) found, at the national level, a current shortage and predicted it would worsen over the next 20 years. The study projected greater demand for cardiology services because of an aging population and a workforce nearing retirement (43 percent are older than 55). Fye (2004) predicted a 20 percent decrease in the age-adjusted supply of cardiologists by 2020 and a likely increase in demand resulting from increased incidence and prevalence of cardiovascular disease tied to population aging and obesity (Fye, 2004). While these trends are not VA-specific, they are relevant, as VA competes for cardiologists in the national market.

Primary Care. Even though the primary care workforce is the fastest growing in VA, recent media reports and the 2014 Strategic Plan have identified primary care as having potential capacity constraints (Oppel Jr., 2014; Healthcare Talent Management, Workforce Management & Consulting Office, & Veterans Health Administration, 2014). The U.S. Health Resources and Services Administration reported on the adequacy of future primary care supply to meet demand (Health Resources and Service Administration, 2013). Nationally, the demand for

primary care services is forecasted to grow more rapidly than primary care supply, due largely to an aging and growing population and the expansion of insurance coverage following health care reform. The 2014 Strategic Plan highlights shortages in primary care physicians, driven by higher demand from a patient population that is aging and has a greater proportion of women, who tend to use more primary care services than their male counterparts.

3.2.3.3 Subsection Summary

In this subsection, we attempted to identify particular specialties that have potential capacity constraints. We found that a number of specialties likely have potential capacity constraints. Although the various data sources used suggested that there are capacity constraints across various and often divergent specialties, our data analyses suggest further that there are potential significant capacity constraints within orthopedic surgery, neurology, gastroenterology, psychiatry, and primary care.

3.2.4 Potential Causes of Capacity Constraints

Drawing on wait-time and productivity data as well as the interviews, literature review, and 2015 Survey of VA Resources and Capabilities, this subsection discusses why workforce-related capacity constraints might exist.

To better understand what is driving the differences in wait times, we compared productivity across facility-specialty combinations. If productivity values are significantly lower at facilities with high wait times, one could conclude that differences in wait times are likely driven by differences in relative productivity. Conversely, if productivity is generally equivalent across high- and low-wait-time facilities or if productivity at facilities with high wait times is significantly higher compared with facilities with low wait times, this would suggest that high wait times are likely driven by an insufficient number of providers.

In Table 3.2-13, we compared productivity estimates across facility-specialty combinations with low versus high wait times. The productivity estimates are not significantly different across the vast majority of specialties. This supports the hypothesis that differences in wait times across facilities are likely largely driven by insufficient numbers of providers, as opposed to productivity deficits across the facilities with high wait times. For the one specialty for which the productivity estimates are different (gynecology), productivity was higher for high-wait-time facilities. For one specialty (mental health), productivity was significantly lower in high-wait-time facilities, suggesting that some of the difference in wait times may be attributable to relative productivity across facilities.

Table 3.2-13. VA Average Productivity Across Facility-Specialty Combinations with High Versus Low Wait Times

Specialty	Low Wait Times—Mean RVUs (Standard Error)	High Wait Times—Mean RVUs (Standard Error)
Cardiology	6,758	6,509

Specialty	Low Wait Times—Mean RVUs (Standard Error)	High Wait Times—Mean RVUs (Standard Error)
	(967)	(841)
Endocrinology	3,550 (200)	3,369 (279)
Gastroenterology	7,522 (408)	7,206 (559)
Hematology-oncology	3,594 (157)	2,782 (297)
Internal medicine	2,794 (46)	2,700 (55)
Mental health*	2,678 (43)	2,248 (192)
Neurological surgery	3,770 (421)	8,107 (3820)
Neurology	3,499 (147)	3,549 (146)
Gynecology*	2,588 (153)	3,497 (332)
Physical medicine and rehabilitation	2,798 (156)	3,060 (170)
Surgery	3,854 (145)	3,987 (211)
Thoracic surgery^	3,634 (372)	1,407 (NA)

Sources: Authors' analysis of VISTA New Person File, VISTA Patient Care file, and Monthly Program Cost Reports provided by Assessment G; VA wait-time data for FY 2014 and the first half of FY 2015 obtained from the VSSC by The MITRE Corporation
* Statistically significant difference at p<0.05.
^Only one facility had high wait times for thoracic surgery.
+We report Standard Errors in this table (as opposed to standard deviations), as they were used as the basis for statistical testing.

To further explore the relationship between provider counts, productivity, and wait times, we performed a regression analysis. We regressed average wait times from preferred date for new patients on productivity and clinical FTEs per 10,000 unique patients, controlling for facility

complexity and specialty. We use FTEs per 10,000 unique patients, as opposed to 1,000 unique patients, to generate coefficients that are of an interpretable magnitude. Because wait times were heavily skewed, we constructed the dependent variable as the natural logarithm of wait times. We found that FTEs per 10,000 unique patients were negatively associated with wait times. That is, an increase in the FTEs per 10,000 unique patients would be expected to be associated with a decrease in wait times. We found no statistically significant relationship between productivity and wait times. Table 3.2-14 lists the coefficient, standard error, and p-value for the two variables of interest in the regression model. According to this model, a one-unit increase in clinical FTEs per 10,000 patients is associated with an 8.77 percent decrease in average wait times for a given specialty. This suggests that, consistent with our previous hypothesis, problems with timely access seem to be associated primarily with provider counts as opposed to productivity.

Table 3.2-14. Effect of VA FTEs per 10,000 Unique Patients and Productivity on Wait Times

Variable	Coefficient	Standard Error*	P-Value
Productivity	0.0000034	0.0000045	0.459
Clinical FTEs per 10,000 unique patients	−0.08768	0.024	<0.001

Source: Authors' analysis of VISTA New Person File, VISTA Patient Care file, and Monthly Program Cost Reports.
Note: *Standard errors clustered by facility.

Consistent with our analysis of the wait-time and productivity data, interview respondents cited insufficient numbers of providers, driven by various challenges in hiring and retaining VA staff. Interviewees, however, also noted a number of other issues that hamper provider productivity in their facilities. We were often unable to tie these challenges to any specific specialty, so we provide an overview of these challenges more generally. Assessment G reviews the evidence on these issues in more detail.

3.2.4.1 Hiring

More than half the facilities interviewed indicated that they had insufficient funds to hire additional staff. Respondents cited "FTE caps" and funding earmarked for specific provider types that could not be used to hire others. One respondent noted that the caps do not correspond to local demand: "You have to also be able to increase your full-time equivalent to be able to address that demand. For us for several years we've been under an FTE cap, which has prevented us from being able to bring in and grow the number of people that we need."

Moreover, while staffing models and business case analyses may call for facilities to add staff, most respondents indicated that having adequate space for them to work is a challenge. Expanding space takes much longer than hiring new providers, so the problem can take years to resolve. Respondents also noted that adding physicians generates additional demand for ancillary services: "When you talk about expanding providers and talking about extra space, then you're also talking about hiring additional environmental management staff, you're talking

about extra burden on pharmacy, lab, pathology, radiology. All of those other services also have an impact."

The large majority of respondents indicated that noncompetitive salaries compared with the private sector and the proximity of university-affiliated and private facilities make it difficult to recruit VA providers. VA Central Office sets pay tiers for each job classification, specifying minimum and maximum annual salaries that facilities can offer. Respondents indicated that they struggled with recruiting providers, even at the high end of pay tiers: "When you get into dermatology, neurosurgery, those kinds of things, the top of our pay scale is sometimes at best half of what they would make in the private sector." Table 3.2-15 shows that VA salaries are indeed well below the private practice averages and are sometimes commensurate but generally lower than academic medical center practices, upward of 35 percent lower in the case of neurological surgery. Endocrinology is the only exception, with VA salaries averaging slightly higher than academic medical center salaries, though still lower than private-practice salaries.

Table 3.2-15. VA Physician Total Compensation Compared with Non-VA Physicians

Specialty	VHA Average	MGMA Private Practice Mean	MGMA Academic Practice Mean
Cardiovascular disease	$269,023	$441,777	$277,180
Emergency medicine	$225,648	$327,441	$273,045
Endocrinology	$202,594	$238,418	$180,372
Gastroenterology	$270,615	$553,574	$299,531
Hematology-oncology	$223,973	$484,558	$258,012
Internal medicine	$195,287	$250,348	$196,582
Neurological surgery	$350,011	$794,217	$557,880
Neurology	$202,290	$298,000	$207,613
Obstetrics and gynecology*	$234,595	$344,661	$253,485
Physical medicine and rehabilitation	$216,649	$274,871	$233,599
Surgery	$283,111	$415,368	$337,014
Thoracic surgery	$329,624	$519,688	$443,425

Source: VA analysis of VA PAID Cube, Medical Group Management Association (MGMA) Academic Survey 2014, 2013 data, MGMA Physician Compensation and Production Survey 2014 provided by Assessment G.
Note: *While VA does not have obstetrics, only combined obstetrics and gynecology metrics are available in the MGMA dataset.

Local market characteristics also contribute to staffing shortages. All respondents described challenges hiring at least one specialty—most frequently mental health, urology, orthopedic surgery, physical therapy, and hospitalists. Rural facilities experienced particular difficulties: "It's also very difficult to get specialists into small clinics because they prefer to live in the city where they have potential for income and their families want to live."

Once a job offer is made, inefficiencies in the privileging and credentialing process and bureaucratic requirements for salary negotiation make bringing providers on staff a long process: "Every time I have an open position I'm amazed by the number and the quality of the applicants that I get. But the H[uman] R[esources] process is in a state of utter paralysis." Not only does this make hiring new staff laborious, but it also means that often VA will lose otherwise interested and qualified candidates. The interview data conform to previous independent recommendations VA needed a more streamlined system for on-boarding new staff (Northern Virginia Technology Council, 2014).

Data from the 2015 Survey of VA Resources and Capabilities provide additional information about the challenges VA faces in hiring and retention. The survey asked facility leadership about difficulties in hiring and retaining particular categories of staff, related to the treatment of the illustrative clinical populations (for example, TBI, PTSD, colon cancer). In addition, chiefs of staff were asked about personnel categories that spanned multiple conditions. For those facilities reporting that there were difficulties in recruiting or retaining staff in the given category, respondents were asked about barriers to recruitment and retention. We provide descriptive statistics for the two illustrative specialties with significant reported hiring problems for physicians (that is, primary care and mental health). For primary care providers, the top two reasons for problems in recruiting were the geographic location of the facility (46.5 percent) and noncompetitive wages (47.7 percent). The top two reasons for difficulty hiring problems for psychiatrists were noncompetitive pay (60 percent) and the geographic location of the facility (36.8 percent).

3.2.4.2   Retention

Much of the literature and many of the interviews discussed issues with retaining VA employees. Although the previous subsection focused largely on physicians, this subsection also includes information about VA leadership, all staff, care teams, and providers. According to the 2014 Strategic Plan, VA lost more than 100,000 employees from 2008 to 2012, of which 47 percent resigned or were transferred and 34 percent retired (Healthcare Talent Management, Workforce Management & Consulting Office, & Veterans Health Administration, 2014), and hired a total of 164,135 employees to maintain and grow the workforce. Despite these losses, VA's annual turnover (4.3 percent in 2013) or "quit rate," which does not include voluntary retirements or external transfers, is lower than the health care industry's as a whole (16.5 percent).

Studies on VHA staffing have focused on job satisfaction and burnout as a source of retention problems (Garcia et al., 2014; Helfrich et al., 2014; Mohr, Bauer, & Penfold, 2013; Salyers et al., 2013; Teclaw & Osatuke, 2014; Weeks, Wallace, & Wallace, 2009). "Burnout" is distinct from poor job satisfaction in that it is "characterized by emotional exhaustion, depersonalization,

and a low sense of personal accomplishment." Facility leaders we interviewed similarly identified burnout as an issue, particularly in primary care. Operational issues, including technological challenges stemming from new VA initiatives, and a once advanced but increasingly outdated health IT system, were said to be causing burnout, rather than helping to relieve it.

VA processes lead to frustrations for providers, particularly related to the level of oversight and a perceived lack of resources to provide the type of care providers would prefer:

> Most docs and clinical people really want to provide excellent care, and they just get frustrated when they can't do it, when something is getting in the way of it. . . . . It's almost like on the administrative side we don't trust that the clinical folks will do the right thing. And again, that seems like an ingrained institutional impediment to success.

As with recruiting, respondents commonly cited the inability of facilities to offer competitive salaries and benefits (for example, educational debt reduction plans). This is particularly problematic in areas where geographic pay adjustments differ significantly between regions geographically close to one another:

> The second a provider or someone else like a mental health professional walks on board. . . . they're immediately looking for their next job down south where they can increase their pay and automatically get that higher geographic adjustment… so we have extremely high turnover in areas where the geographic pay is not matched out in the rest of the system.

As with the recruitment questions on the survey, we also asked a number of questions related to retention problems to supplement the interview findings. Again, we provide illustrative results for two specialties, primary care and psychiatry, for which respondents reported significant difficulty retaining providers. For primary care physicians, the top two reasons for retention problems were dissatisfaction with supervision and management support as well as dissatisfaction with workload. For psychiatrists, the top two reasons were dissatisfaction with workload (43 percent) and dissatisfaction with pay (38 percent). These were followed closely with burnout (33 percent). 40.4 percent of facilities reported that burnout was the top reason for retention problems with psychologists. The second reason was lack of opportunity for professional growth or promotion (38 percent).

3.2.4.3   Productivity

All respondents described resource constraints related to provider productivity at their facilities. They cited infrastructure issues (for example, space shortages, medical technology shortages), challenges with appointment scheduling, increased clerical tasks from new initiatives, a lack of support and clerical personnel, and cultural issues among VA providers and support staff that inhibit efficient patient care.

As described previously, most leaders we interviewed were actively trying to add space to accommodate new provider staff, as well as make existing staff more productive. Certain specialties may be more affected by infrastructure challenges due to their need for specialized

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work spaces: "We're impacted by the number of operating rooms that are available and have to schedule around them, which sometimes can be challenging when you've got five specialties that all want to operate on the same day."

Respondents also described provider frustration with medical record alerts, scheduling system malfunctions, and scheduling mistakes that inhibit their efficiency. Most facility leaders described frustrations with VA's CPRS, including an overwhelming number of patient alerts that providers must review: "Let's say I order lab work or an X-ray on a person or a consult. . . . From the day I do it, anything else that happens to that thing, I get a view alert on it. . . . That has been driving [providers] nuts." Interviewees perceived that these challenges reduced providers' overall productivity.

Scheduling challenges were also relevant to telehealth appointments. While the availability of remote visits increase access to care for patients in remote areas, implementing technology and scheduling processes puts a strain on the host facility:

> One of the challenges with Tele visits has been that there's almost been this assumption that it in some way will either make docs more productive or overcome some of the staffing challenges. . . . There's still somebody on the other end that's having to be there for that appointment. And they often take more time than it does to do a face-to-face.

Interviews with facility leaders suggest that productivity may be negatively impacted by providers doing too many administrative or other below-license tasks: "What I hear from a lot of the individual docs is that a lot of their time is spent on 'view alerts' . . . which are not really relevant or necessary in the process of taking care of a patient, or on completing various paperwork electronically that, for one reason or another in the VA system it's not allowed for someone else to do that work." Additionally, facility leaders reported that new screening and prevention protocols add tasks to providers' workloads that are often performed by lower-level staff in the private sector.

> You'll have a doc that's working without an assigned nurse, with a rotating clerk who may or may not be very familiar with how to be scheduling patients in that area. And it may be a different person the next week. There's clinics where the docs have to be the ones to go out to the waiting room to find the patients to bring them back to check their vital signs, et cetera. . . . That's not an efficient way to be able to utilize very expensive staff, and it keeps them from being able to see the volume of patients that they could see.

Physician assistants and nurse practitioners could perform some of the care coordination and other duties, but VA policy limits the privileges of advanced practice providers, with nurse practitioners experiencing greater limitations to their prescribing authority: "Nurse practitioners who are licensed independent practitioners, however, cannot prescribe typically to the extent of their license. Or nurses who can't do certain protocols because we implement procedures that will not allow them to do that."

All respondents indicated that their facilities have implemented the Patient Aligned Care Teams model to deliver primary care at their facility. Some respondents discussed Patient Aligned Care

Team requirements as a barrier to both taking on new primary care physicians and increasing productivity among existing ones. Patient Aligned Care Teams "teamlet" requirements necessitate that each new primary care provider be matched with a registered nurse, an administrative clerk, and a nurse case manager, tripling the number of staff that facilities must take on for each new primary care provider position: "Our administrative staff is just decimated. . . . We have four P[atient] A[ligned] C[are] Teams, so those teams should be a provider, a [registered nurse], a [licensed vocational nurse], and an administrative person. So right now, we have one out of the four here of the administrative people." Moreover, while teamlets are intended to include staff to shift many administrative and clinical tasks away from providers, in practice many providers are still doing below-license work: "In primary care . . . if you don't have your nurse there to do these CPRS alerts, you're doing them and you'll just get buried in a lot of administrative, and even the nurse shouldn't even be doing most of it, but it's the way our system is. . . . It just makes you a lot less productive." The challenges and clerical demands associated with new initiatives, such as PACT and health information technology, are likely key drivers of capacity constraints in VA primary care.

Survey data confirm the interview findings. Across both the Chief of Staff and the condition-specific modules, respondents report that the most significant barriers to productivity are related to administrative requirements. For example, 60 percent of chiefs of staff said that administrative requirements were a major impediment to productivity. Respondents across both the Chief of Staff and disease-specific modules also reported productivity was limited because many providers perform administrative activities that others could perform and because there are not enough support staff. Particular to some of the individual conditions, 42 percent of respondents for TBI reported that no-show rates for visits negatively impacted productivity "a lot." Fifty percent of respondents for the PTSD module said that the scheduling system was inadequate, significantly impacting productivity, a concern that was also reflected in qualitative interviews.

Beyond logistical barriers to delivering care, a few respondents mentioned that the culture of VA may inhibit efficient delivery of patient care. On the provider side, one respondent described the tendency of providers to want control over their own schedules and patient load, which increases the administrative time they report. Clinical time may also be impacted by provider work preferences: "We have some providers that have been here for a long time. They've seen a set number of patients or had a way of working that was very flexible… so there's kind of a cultural shift that has to take place in order to get everyone to try to get the same level of productivity from each, struggling with some providers who want 45 minutes for their patient per appointment." On the support staff side, another respondent perceived the environment at VA as an impediment to a team-based environment, which in turn, impacts efficiency: "Often in the VA with a unionized workforce, with very specific prescribed job duties and position descriptions, it's much more of a 'no, that's not my job' or 'no, you're not my boss' whether it's said overtly or not."

3.2.4.4   Subsection Summary

In sum, we heard in the interviews that recruitment, retention, and productivity at VA facilities all contribute to capacity constraints in various ways. Representatives from all facilities we

spoke to described challenges with workforce capacity to keep up with growing patient demand for VA services. Physician shortages may be due to national or local supply of physicians, desirability of the geographic area, or space constraints in facilities, among other factors. In addition, the shortage within VA is likely influenced by retention and recruitment factors including funding for providers, salary, and human resources processes. Productivity constraints stem from challenges with recruiting and effectively utilizing support staff, infrastructure issues, technological challenges, and cultural issues that may be endemic to VA.

3.2.5 Subsection Summary

As one of the largest providers of health services in the world, VA had nearly 300,000 employees in 2014. While VA's workforce grew 15.8 percent from 2008 to 2012, the growth rate slowed over that period. Overall, contract providers account for about 3.5 percent of total workforce.

In this subsection, we described current numbers (as of FY 2014) of key provider types currently working in the VA system by total numbers of provider clinical FTEs as well as the number of clinical FTEs per 1,000 patients at a facility. We also described the relative productivity of various provider types. For physicians and associate providers, we used work RVUs per clinical FTE as measures of productivity, whereas for primary care physicians we used panel sizes and for therapist we used encounters. We identified several key challenges associated with the VA staff planning and assessment processes. These include a lack of guidance about what methods should be used, a lack of external productivity benchmarks, inaccurate or incomplete data inputs, and the inability of the data system to adequately account for certain types of providers and patient visits.

We found significant variation across facilities and VISNs in terms of productivity. Likewise, we also found variation in wait times across facilities and specialties. The greatest variations in physician productivity were in neurosurgery and thoracic surgery, while the smallest variations were in internal medicine, neurology, mental health, and surgery. In general, we found less variation in physician specialist productivity by VISN than by facility. These estimates must be considered, however, in light of concerns about coding and data quality discussed throughout this subsection.

Analysis of VA data, literature reviews, and interviews suggests that VA workforce capabilities may not be sufficient to provide timely care to Veterans across a number of key specialties as well as primary care. These constraints are influenced by a number of key factors affecting the size and productivity of the VA workforce. Particularly, interviewees reported that relatively low salaries, a slow credentialing process, and infrastructure constraints likely lead to challenges with hiring and retaining providers. Survey respondents reported that the most significant barriers to productivity are related to administrative requirements. We also found that infrastructure issues, challenges with appointment scheduling, increased clerical tasks from new initiatives, a lack of support and clerical personnel, and cultural issues likely inhibit provider productivity at VA.

3.3 Physical Infrastructure

The VA workforce is supported by a vast physical infrastructure. VA owns and leases equipment and health care sites of varying types and capabilities. In addition, VA operates housing, transportation, and other support services that assist Veterans and connect them with health care sites. VA encompasses one of the most extensive systems of health care physical infrastructure in the country. Its facilities serve approximately 9 million enrollees living in every region, from the most urban to the most rural locations. With the exception of the Military Health System, no other integrated medical system seeks to deliver every type of medical care in every region of the country. In the private sector, Kaiser Permanente may come closest, with 9.6 million members, 38 hospitals, and 618 medical offices, but Kaiser has a relatively small geographic footprint compared with VA.

VA engages in extensive efforts to plan for the delivery of health care without overinvesting in medical technologies and other costly infrastructure (Phibbs, Cowgill, & Fan, 2013). Assessment K describes capital management, construction, leasing, maintenance, and other planning processes in greater detail. In this subsection, we provide a focused inventory of the physical infrastructure and resources available in VA-owned and VA-contracted facilities. We describe, in turn, the number, types, complexity, size, and medical service capabilities of VA medical facilities, and offer an inventory of support services that help connect Veterans with care. We also discuss the role of VA's physical infrastructure in ensuring that Veterans have access to care and identify barriers or challenges faced by VA in relation to its physical infrastructure.

A summary of the methods used in these analyses is shown in the box.

Overview of Methods and Data for Assessment of Physical Infrastructure

- To assess VA's physical infrastructure, we identified and geocoded the locations of all VA health care sites, Transportation Services, and Veteran Housing Services. We also examined the number and distribution of sites by their complexity level. We identified and defined clinical care services that are definitive for one or more of the seven illustrative clinical populations.

- To examine how VA facility locations, size, complexity, and service offerings may be related to delays in care, we interviewed 29 medical facility staff and Veteran advocates about their experiences in the system.

- These analyses were supplemented by a literature review to understand the proportion of Veterans within a certain distance or travel time from a facilities or care, and to identify barriers and facilitators to geographic access.

- Data sources used in these analyses included the Veterans Affairs Site Tracking System, American Community Survey, American Hospital Association 2014 Annual Survey of Hospitals, VA Planning Systems Support Group Enrollee file, VHA Daily Bed Report, FY 2015, VA Veterans Transportation Program, 2015, HUD VASH Utilization Report, HUD 2014 Raw Housing Inventory Count, VA Surveys (Complementary and Alternative Medicine, Cardiovascular Specialty Care Services, Emergency Departments, Pain Management, Physical Therapy, Prosthetics and Sensory Aids Service, Recovery Oriented Mental Health Care,

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> Surgical Services), VA Clinical Inventory Facility Profile Report, and VA Clinical Inventory Facility Services Report.
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> - For complete details of the methods used to assess physical infrastructure, please refer to Section 2 of this report and Appendix A-3.

3.3.1 VA Health Care Sites

VA organizes its health care sites in a kind of nested structure. At the highest level, all sites are associated with one of 21 VISNs, which manage all resources within their service areas.[21] At the next level, every health care site falls under an "administrative parent"—a single leadership group that oversees a collection of health care sites (VA, 2013f) and is headed by a director. VAMCs can provide both inpatient and outpatient services. There are also free-standing health care sites (meaning they are not co-located with a VAMC), as described in Table 3.3-1.

Table 3.3-1. Types and Numbers of VA Health Care Sites

Site Type	Definition	Total	Medical Facility Total
Hospital	Any VA-owned, -staffed, and -operated facility providing acute inpatient and/or rehabilitation services	144*	144*
VAMC	A VA point of service that provides at least two categories of care (inpatient, outpatient, residential, or institutional extended care)	166	163
Health care centers	A VA-owned, VA-leased, contract, or shared clinic operated at least five days per week that provides primary care, mental health care, and on-site specialty services, and performs ambulatory surgery and/or invasive procedures that may require moderate sedation or general anesthesia	14	14
Multi-specialty CBOC	A VA-owned, VA-leased, mobile, contract, or shared clinic that offers both primary and mental health care as well as two or more specialty services on-site	185	185
Primary care CBOC	A VA-owned, VA-leased, mobile, contract, or shared clinic that offers both medical (on-site) and mental	509	509

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[21] The VISNs are numbered through 23, but several were merged, so there are no VISNs 13 and 14.

Site Type	Definition	Total	Medical Facility Total
	health care (either on-site or by telehealth), and may offer support services such as pharmacy, laboratory, and X-ray		
Other outpatient services site	Sites that do not meet the criteria to be classified as a CBOC or health care center	74	0
Extended care	Encounters between Veterans and providers in either VA institutional care or VA non-institutional care	2	0
Domiciliary residential care treatment program	Encounters between Veterans and providers within the VA health care system that require an overnight stay in residential bed sections	4	0
Total		955	871

Source: Definitions, VA table comparing old to new Veterans Affairs Site Tracking System definitions. Number of facilities, Veterans Affairs Site Tracking System data, second quarter 2015.

Notes: Facility counts changed over the study period as a result of site reclassifications. The numbers in this report come from an April 2015 extract from the Veterans Affairs Site Tracking System that followed a major VHA site reclassification in March of 2015. We received the extract on April 15, 2015. Other assessments may have used Veterans Affairs Site Tracking System extracts from other dates, which were based on earlier definitions and therefore have different facility counts, or based on a proposed classification system from 2014 differing in some ways from the actual new classifications.

*All hospitals are also considered VAMCs.

A new VA site classification system was adopted in March 2015 (VA, 2013f, VHA, Office of the Assistant Deputy Under Secretary for Health for Policy and Planning, 2015).[22] Most, but not all, VA sites that offer health care services are considered "medical facilities." The Veterans Affairs Site Tracking System facility database identified 955 sites as of the second quarter of FY 2015. Of these, 871 are considered medical facilities, and 84 are nonmedical facilities. The nonmedical facilities include 74 "other outpatient services sites," which provide outpatient services but do not meet classification criteria as a CBOC or health care center; three VAMCs;[23]

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[22] The handbook defining the new classifications was published in December 2013, but they were not formally implemented until March 2015.

[23] These three VAMCs offer at least two categories of care, but not inpatient care, and do not meet VA criteria as outpatient medical facilities. According to information provided by VA's Planning System Support Group, only VAMCs that have an outpatient classification of health care center, multispecialty CBOC, or primary care CBOC

two extended care sites; and four domiciliary residential care treatment program sites. Note that every hospital is also part of a VAMC; there are no "free-standing" hospitals.

Figure 3.3-1 shows the locations of the four medical facility types, Veteran population[24] densities, and boundaries of the 21 VISNs. VA medical facilities are concentrated in the Northeast, Mid-Atlantic, and West Coast regions, where large numbers of Veterans live. VA medical facilities are less concentrated in the Southwest, plains states, mountain states, and Northwest, where fewer Veterans live. Section 4 discusses geographic access to VA care in more detail.

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are considered medical facilities. This applies to four VAMCs; however, one of these also contains a hospital, so it retains its designation as a medical facility.

[24] This refers to the entire Veteran population, not just enrollees. Although non-enrollees cannot use VA medical facilities, they could potentially enroll in the future.

Figure 3.3-1. Locations of VA Medical Facilities and the Veteran Population Density
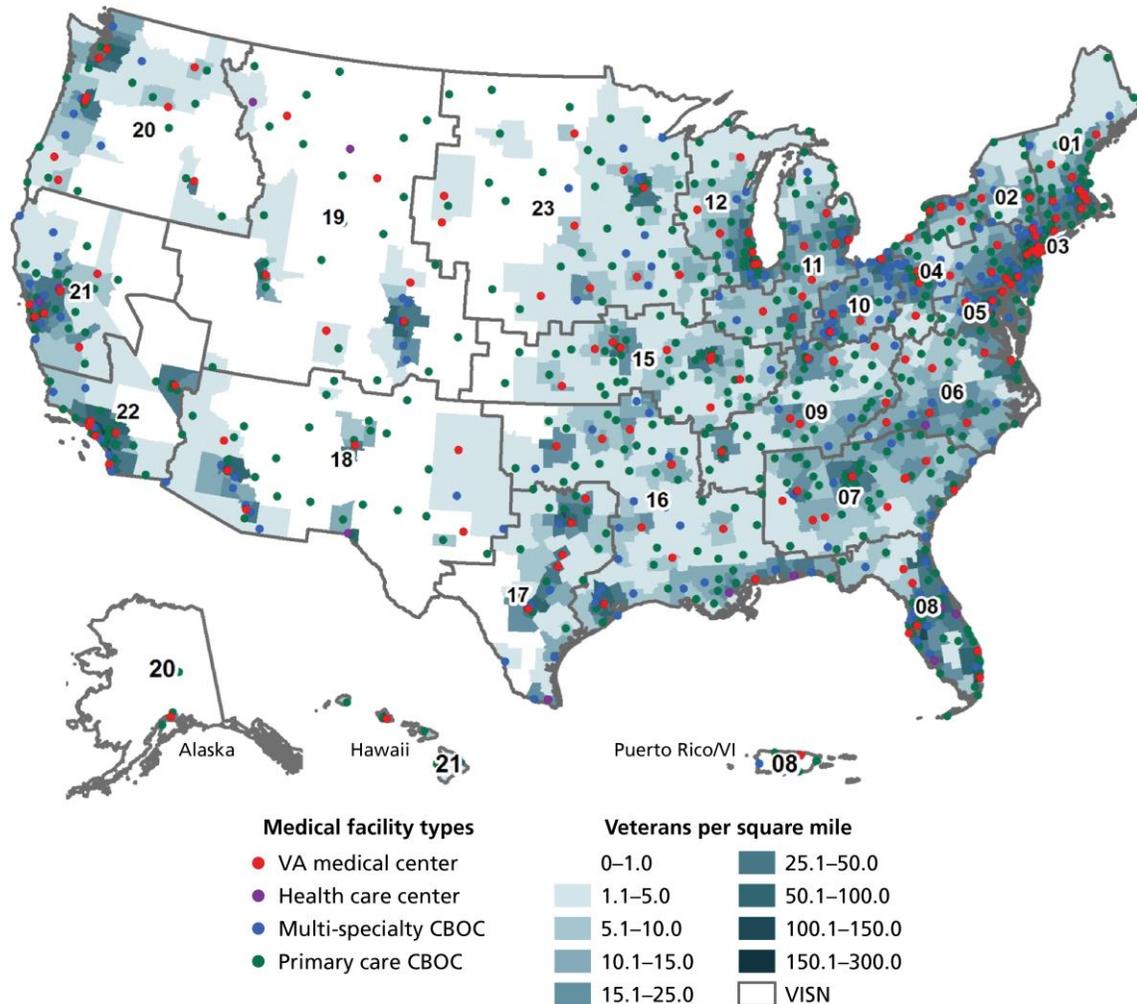
Sources: Authors' analysis of facility and location information from Veterans Affairs Site Tracking System data, second quarter 2015. Veteran population density expressed as number of Veterans per square mile based on Assessment A projections, which utilize American Community Survey data.

3.3.2 Facility Size and Usage

VA facilities vary widely in size and usage, much like those in the private sector. Tables 3.3-2a and 3.3-2b presents two measures of facility size, expressed as rates per 10,000 enrollees by VISN. The first measure is the number of operating hospital beds for the time period selected; the count excludes beds that are temporarily closed for any reason. The second measure, average daily census, is the average number of inpatients per day of service.[25] This is calculated

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[25] VA does not report outpatient daily census.

by dividing cumulative bed days of care for the fiscal year to date by the number of calendar days in service (VSSC, 2011). The third measure, bed occupancy, is the average inpatient daily census divided by the total number of hospital beds.

Table 3.3-2a. VA Operating Beds per 10,000 Enrollees, by Bed Type

	Hospital	Nursing Home	Domiciliary	CWT/ TR
National average	18.3	14.9	8.5	0.7
VISN Min, max	11.5, 43.4	7.0, 33.7	4.1, 17.6	0.0, 2.7
VISN interquartile range	14.8, 20.2	11.4, 19.8	5.9, 13.4	0.4, 0.9

Table 3.3-2b. VA Average Daily Census per 10,000 Enrollees, by Bed Type, and Hospital Bed Occupancy

	Hospital	Nursing Home	Domiciliary	CWT/ TR	Bed Occupancy
National average	11.0	10.2	6.2	0.5	60%
VISN Min, max	7.3, 15.8	5.4, 20.1	2.9, 14.6	0.0, 1.9	36%, 70%
VISN interquartile range	9.0, 12.8	6.6, 14.8	4.1, 10.3	0.2, 0.6	59%, 64%

Sources: Operating Beds and Average Daily Census from VHA Daily Bed Report, FY 2015. Enrollee population from VA Planning Systems Support Group Enrollee file (Phibbs, Cowgill, & Fan, 2013).
Notes: CWT/TR is Compensated Work Therapy Transitional Residential. The interquartile range is estimated by ranking VISN-level estimates from lowest to highest and reporting estimates at the 25th and 75th percentiles.

There are various types of hospital beds within VAMCs (Tables 3.3-2a and 3.3-2b). Hospital beds may be designated for specific uses: blind rehabilitation, internal medicine, neurology, psychiatry, rehabilitation medicine, spinal cord, and surgery. Nursing home beds are for patients requiring long-term care. Domiciliary beds are for Veterans in various residential care programs (see VA, 2010).[26] CWT/TR beds are for Veterans in that rehabilitation program.

On average, the VA system has 18.3 hospital beds per 10,000 enrollees and an inpatient daily census of 11 patients per 10,000 enrollees. This works out to 60-percent average occupancy across VA facilities. Among the 21 VISNs, occupancy ranges from a high of 70 percent to a low of 36 percent. VISNs cluster tightly in the middle 50 percent of the distribution; there are long

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[26] This includes the Domiciliary Care for Homeless Veterans program, which is also discussed in Section 3.3.1.4, Support Services.

"tails" below the 25th and above the 75th percentiles. This suggests that efforts to reduce variation in occupancy could be focused on outliers.

Hospital bed supply varies widely across VISNs, with a maximum 43.4 hospital beds per 10,000 enrollees (the VISN with the highest bed supply also has the lowest occupancy rate). The other bed types have higher usage (data not shown) than hospital beds: Nursing home beds are, on average, 69 percent occupied, domiciliary beds are 73 percent occupied, and CWT/TR program beds are 70 percent occupied.

VA also operates a number of mobile medical units, which are vans or other large vehicles equipped to deliver certain types of care in rural areas or to be deployed in case of large-scale emergencies. According to a 2014 audit, VA operated at least 47 mobile medical units, but the audit lacked the exact number and the amount of patient use (VA, Office of Inspector General, 2014c).

3.3.3 Facility Complexity

A large share of VA medical facilities is classified as "high complexity" (Table 3.3-3). The complexity level is based on the patient populations, clinical services, educational and research missions, and administrative structure of the administrative parent and its satellite facilities (VHA Office of Productivity, Efficiency, and Staffing, 2015).[27] Medical facilities are classified in three levels, with Levels 1a–1c representing the most complex facilities; Level 2, moderately complex facilities; and Level 3, the least complex facilities. Table 3.3-3 shows the complexity level of the administrative parents; all medical facilities are assigned the same complexity level as the parent.

Table 3.3-3. Count of VA Administrative Parents by Level of Complexity

Complexity	Administrative Parents— Number	Administrative Parents—%
1a - High	32	23
1b - High	15	11
1c - High	27	19
2 - Medium	32	23
3 - Low	31	22
Excluded	3	2
Total	**140**	**100**

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[27] Seven variables are considered in estimating facility complexity: volume and patient case mix, clinical services provided, patient risk calculated from VA patient diagnosis, total resident slots, an index of multiple residency programs at a single facility, total amount of research dollars, and the number of specialized clinical services.

Source: Veterans Affairs Site Tracking System data, second quarter 2015.

Notes: The numbers in this report come from an April 2015 extract from Veterans Affairs Site Tracking System that followed a major VA site reclassification in March of 2015. One administrative parent, in the Philippines, is not included in the table because its complexity level was not available.

3.3.4 Service Provision

In addition to sites where health care is delivered, VA's physical infrastructure includes the medical technology[28] used at VA facilities for specific health services. Examples include imaging equipment, specialized surgical suites, emergency departments, consultation rooms for outpatient services, and beds for inpatient services. For this report, we focus on 27 services used in the care of seven illustrative clinical populations at VA and non-VA medical facilities. In Table 3.3-4 we present the seven populations, the 27 services, and the number of VA medical facilities that provide the services.

Table 3.3-4. Number of VA Sites with Selected Clinical Population-Specific Services

Services (by Clinical Population)	Number of Facilities (% of 933* Total Health Care Sites)
Acute Coronary Syndromes	
Non-invasive cardiology services	170 (18)
Emergency department	114 (12)
Coronary care unit	112 (12)
Interventional cardiology	79 (8)
Telemetry (if Critical Care Unit [CCU]/Intensive Care Unit [ICU] is not available)	77 (8)
Diagnostic cardiac catheterization	76 (8)
Cardiac surgery	75 (8)
Colon Cancer	
Primary care clinic	895 (96)
Computerized tomography scan	175 (19)
Oncology services	168 (18)
Colonoscopy	167 (18)

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[28] Medical technology can be considered distinct from medical IT, an important capital resource that is described in Subsection 3.5 of this report.

Services (by Clinical Population)	Number of Facilities (% of 933* Total Health Care Sites)
Surgical services	130 (14)
TBI	
Specialty care	207 (22)
Polytrauma support clinic team	88 (9)
Polytrauma network site	23 (2)
Polytrauma Rehabilitation Center (Program)	5 (1)
Type II Diabetes Mellitus	
Primary care clinic	895 (96)
Diabetes specialty or endocrinology clinic	379 (41)
Podiatry clinic	323 (35)
Ophthalmology clinic	169 (18)
PTSD	
Mental health services	848 (91)
Psychotherapy	672 (72)
Domiciliary Residential Rehabilitative Treatment Program	45 (5)
SUD	
Mental health services	848 (91)
Outpatient specialty care	549 (59)
Methadone	347 (37)
Inpatient detoxification	146 (16)
Residential treatment	64 (7)
Conditions Requiring Gynecological Surgery	
Gynecological surgery services	98 (11)

Source: RAND estimates derived from the VA Planning Systems Support Group (PSSG) Enrollee file, the VA Clinical Inventory Facility Profile Report, and the VA Clinical Inventory Facility Services Report datasets extracted on February 4, 2015. Discrepancies between our counts for individual services and those from other data extracts have two sources: a) there are minor changes over time in reported inventory counts b) our counts of some services represent combinations of variables from our sources. Appendix table F-10 documents the specific

variables we used to construct our counts for each service.

Notes: *The total number of VA facilities that could potentially deliver health care services is 955. However, inventories of condition-specific services were missing for 22 facilities.

3.3.5 Support Services

Other VA resources and capabilities help to connect a Veteran to medical care. These include Veterans Centers, transportation services, and housing services.

Veterans Centers. Veterans Centers provide counseling, outreach, and referral services to Veterans and their family members. The 300 centers in 2010 served 191,000 people (VHA, 2015).

Transportation Services. Transportation Services support Veterans who are unable to drive to medical facilities. VA runs some programs directly, while independent organizations run others. VA had approximately 80 transportation programs that it managed or purchased nationwide as of April 2015, and we obtained data for 75 of them from transportation services managers. The 75 programs collectively serve 310 CBOCs and 154 other locations with 834 vehicles. Data on the number of Veterans served and the number of rides provided was not available. While a number of states, counties, VSOs, and possibly other organizations also provide transportation services to Veterans, we were unable to identify comparable data on their services. All VISNs except VISN 4 have some type of transportation available, but some serve more locations than others (Table 3.3-5).

Table 3.3-5. VA Transportation Services by VISN

VISN	Number of Vehicles	Number of CBOCs Served	Number of Native American Reservations Served	Number of Vet Centers Served	Number of State Veteran Homes* Served
01 Boston	41	29	4	10	11
02 Albany	58	14	1	0	0
03 Bronx	61	9	1	1	1
04 Pittsburgh**	NR	NR	NR	NR	NR
05 Baltimore	18	8	0	1	0
06 Durham	16	6	0	0	1
07 Atlanta	36	23	1	4	6
08 Bay Pines	113	26	1	5	3
09 Nashville	32	16	4	7	8
10 Cincinnati	27	12	0	1	0
11 Ann Arbor	67	11	1	1	3

VISN	Number of Vehicles	Number of CBOCs Served	Number of Native American Reservations Served	Number of Vet Centers Served	Number of State Veteran Homes* Served
12 Chicago	69	17	3	5	4
15 Kansas City	47	16	0	0	1
16 Jackson	29	14	2	2	2
17 Dallas	30	8	0	0	1
18 Phoenix	59	21	5	4	3
19 Denver	43	22	10	4	6
20 Portland	34	14	5	5	1
21 San Francisco	4	1	0	0	0
22 Long Beach	22	19	0	2	1
23 Minneapolis	28	24	5	4	3
Total	**834**	**310**	**43**	**56**	**55**

Source: VA Veterans Transportation Program, 2015.
Notes: *State Veteran Homes provide nursing home or adult day care services to Veterans. They are formally recognized and surveyed by VA but they are operated by individual states.
**Data for VISN 4 were not reported (NR).

Housing Programs. Housing programs serve Veterans who might otherwise be homeless. A January 2014 estimate put the number of homeless Veterans at approximately 50,000, down from 150,000 five years earlier (National Alliance to End Homelessness, 2015). Programs include direct VA housing programs, vouchers for community programs, and services that assist homeless Veterans but do not provide beds. In FY 2014, VA provided specialized homeless services to almost 265,000 Veterans and made available approximately 80,000 beds, both directly and through community partners. These beds were provided through four programs (VA, 2014i):

- The Housing and Urban Development–Veterans Affairs Supportive Housing (HUD-VASH) Program has provided more than 58,000 rental vouchers to Veterans.
- The Homeless Providers Grant and Per Diem Program, which makes grants to community-based agencies to programs transitional housing, provides about 15,000 beds.
- The Domiciliary Care for Homeless Veterans program provides time-limited residential treatment to homeless Veterans with mental health and substance use disorders. Approximately 2,500 beds were available at 48 sites.
- Health Care for Homeless Veterans provides outreach and case management to homeless Veterans, and operates approximately 4,000 beds.

VA directly provides services under the latter two programs. While the areas served by most VAMCs have some housing services available, Table 3.3-6 shows a high ratio of vouchers and Homeless Providers Grant and Per Diem Program beds to the enrollee population in VISN 22. VISN 21 provides a high number of Health Care for Homeless Veterans beds.

Table 3.3-6. Housing Services per 10,000 Enrollees, by VISN, 2015

VISN	HUD-VASH Vouchers	Homeless Providers Grant and Per Diem Program Beds	Domiciliary Care for Homeless Veterans Beds	Health Care for Homeless Veterans Beds	Supportive Services for Veteran Families Rapid Re-Housing for Veterans (projected)	Non-VA Permanent Supportive Housing for Veterans (projected)
01 Boston	14.5	27.6	2.6	3.9	143.3	15.4
02 Albany	9.9	9.0	1.8	4.7	145.4	9.4
03 Bronx	18.3	25.0	6.4	5.2	205.0	22.1
04 Pittsburgh	10.7	17.5	4.9	4.1	95.4	6.4
05 Baltimore	18.1	17.9	4.0	6.0	117.2	13.8
06 Durham	11.1	8.6	0.6	2.5	78.4	2.8
07 Atlanta	15.2	8.3	3.2	3.0	80.3	3.4
08 Bay Pines	15.7	13.7	1.6	3.7	129.9	4.2
09 Nashville	11.6	16.3	0.8	1.6	89.3	3.7
10 Cincinnati	12.9	14.1	5.1	4.5	96.9	9.3
11 Ann Arbor	15.0	21.7	2.4	6.0	115.1	7.6
12 Chicago	13.7	17.5	2.8	5.2	93.3	9.2
15 Kansas City	12.5	8.7	6.5	5.2	55.1	4.6
16 Jackson	14.0	11.1	1.3	4.1	91.5	3.0
17 Dallas	13.8	7.1	1.7	4.6	110.3	3.1
18 Phoenix	19.1	12.4	3.5	5.0	95.4	5.7
19 Denver	21.2	21.1	2.9	3.4	97.3	4.0
20 Portland	21.0	17.1	3.4	2.0	109.4	8.6
21 San Francisco	35.7	24.7	1.8	12.3	190.6	13.2
22 Long Beach	52.6	44.9	3.2	5.5	167.5	10.4
23 Minneapolis	6.7	9.7	1.6	1.7	47.1	6.9

VISN	HUD-VASH Vouchers	Homeless Providers Grant and Per Diem Program Beds	Domiciliary Care for Homeless Veterans Beds	Health Care for Homeless Veterans Beds	Supportive Services for Veteran Families Rapid Re-Housing for Veterans (projected)	Non-VA Permanent Supportive Housing for Veterans (projected)
Total	17.4	16.5	2.7	4.3	109.7	7.1

Sources: HUD-VASH Vouchers, HUD-VASH Utilization Report, December 2014; these figures reflect vouchers available as of December 2014, rather than the number used in 2014. Bed counts, FY 2015 Bed Report. Supportive Services for Veteran Families and Permanent Supportive housing projections developed by the VA Center for Applied Systems Engineering, based on HUD's 2014 Raw Housing Inventory Count.

Notes: HUD-VASH Vouchers: Housing and Urban Development–Veterans Affairs Supportive Housing Program vouchers for rental assistance. SSVF: Supportive Services for Veteran Families. Domiciliary Care for Homeless Veterans is a subset of the broader domiciliary programs described in Subsection 3.3.2, so these numbers represent a portion of the numbers in Table 3.3-2.

VA's Supportive Services for Veteran Families program funds non-VA organizations to provide services that promote housing stability among low-income Veteran families. In FY 2014, the program served almost 124,000 individuals—about 77,000 of them Veterans.

Finally, some Veterans find permanent supportive housing (in facilities that provide case management to persons with disabilities or other conditions that make it difficult to live independently) with non-VA organizations, some of which reserve beds for Veterans. VA estimates the number of beds reserved for Veterans at 6,400 (VA Center for Applied Systems Engineering based on HUD's Raw Housing Inventory Count). However, VA does not directly fund these services.

3.3.6 VA Physical Infrastructure and Access to Care

We interviewed 29 individuals in leadership or clinical care positions at VISNs, VAMCs, or CBOCs about their experiences with VA physical infrastructure. When other respondents, including Veteran advocates, spontaneously commented on infrastructure, we also included their comments. Respondents were generally satisfied with the availability and quality of VA medical equipment and supplies, though this varied across facilities and types of equipment. Few interviewees raised concerns about oversupply of infrastructure, but evidence suggests that decommissioned facilities are only slowly repurposed, and facility and Central Office leaders pointed out that maintenance of these facilities is costly.

Physical space was most commonly cited as being in short supply, and many interviewees said that this perceived shortage limits provider productivity and increases the need for non-VA

inpatient care, in particular. VAMC leadership and clinical staff discussed the need to continually update physical space to keep pace with the evolving needs of medical equipment (for example, physical space, network connectivity) and changing standards for best practices in patient care (for example, single-occupancy rooms to improve patient experience and infection control). This was especially true for respondents working in older facilities. Some described how, over time, incremental expansions and renovations have resulted in work environments that negatively affect productivity and/or patient experience because the resulting facilities feel disconnected, "cobbled together," or overcrowded.

Interviewees identified several barriers to increasing construction, leasing space from non-VA facilities, or reconfiguring or repurposing existing space. For example, the approval process for new construction can be lengthy and challenging (Assessment K describes these challenges in detail). Some respondents indicated that, when new construction is completed, the facility may no longer meet existing needs; however, construction was generally seen as positively contributing to patient care and provider productivity. Similarly, at times leasing new space was also described as such a time-consuming process that even "emergency leases" are not obtained quickly enough to respond to ever-changing needs.

3.3.7 Subsection Summary

VA operates one of the most extensive systems of health care infrastructure in the country. Of 955 sites, 871 are medical facilities; the remaining sites, considered nonmedical facilities, generally provide outpatient services or residential treatment. VA medical facilities are concentrated in regions with the most Veterans: the Northeast, Mid-Atlantic, and West Coast. A large share of VA medical facilities are classified as "high complexity," which is based on the patient populations, clinical services, educational and research missions, and administrative structure of the administrative parent and its satellite facilities.

On average, the VA system has 18.3 hospital beds per 10,000 enrollees and an inpatient daily census of 11 patients per 10,000 enrollees, for an occupancy rate of 60 percent. Hospital bed supply varies widely across VISNs, with a maximum 43.4 hospital beds per 10,000 enrollees (the VISN with the highest bed supply also has the lowest occupancy rate).

VA's physical infrastructure also includes medical technology such as imaging equipment, specialized surgical suites, and emergency departments, as well as resources including Veterans Centers, housing programs, and transportation services. Interviewees in leadership or clinical care positions are generally satisfied with VA medical equipment and supplies, but they note that physical space is in short supply and even new facilities can quickly grow out of date. Interviewees identified several barriers to increasing construction, leasing space from non-VA facilities, or reconfiguring or repurposing existing space, including a lengthy approval process and changing needs.

In the next subsection, we consider additional resources and capabilities available to VA through relationships with non-VA partners.

3.4   Interorganizational Relationships

Relationships with non-VA partners represent additional resources and capabilities that VA can utilize to provide timely and accessible care to Veterans. Veterans may use purchased care when VA cannot provide the care, VA care is not geographically accessible, VA cannot provide the care in a timely manner, or when care can be provided more cost-effectively by a partner. Care is provided to VA enrollees by non-VA entities through several programs and various types of payment or contractual arrangements that VA has negotiated with its partners.

In this subsection, we describe the complex web of arrangements that VA has in place to provide care to Veterans, including the different types of arrangements for care provision, the volume of patients seen under these arrangements, and expenditures. We begin with an overall summary of the purchased care program (Subsection 3.4.1) and then discuss two main components of purchased care: VA programs for community care (Subsection 3.4.2) and VA partnerships to deliver care (Subsection 3.4.3). In Subsection 3.4.4, we briefly describe the process of selecting a purchased care program, a topic discussed in detail in Assessment C. We also describe challenges in utilizing care delivered by non-VA entities (Subsection 3.4.5) and provide a summary (Subsection 3.4.6).

A summary of the methods used in these analyses is shown in the box.

Overview of Methods and Data for Assessment of Interorganizational Relationships

- We used several measures to describe the extent of care provided through relations with non-VA entities. Measures of utilization included purchased care outpatient visits, mental health outpatient visits, and patients treated in non-VA inpatient settings compared with VA facility utilization. We also measured total VA spending on various categories of purchased care as well as care purchased from VA partners such as DoD and the Indian Health Service.

- We performed a targeted literature search to obtain information on VA purchased care. To obtain additional context and detail regarding the various types of VA purchased care and the challenges associated with accessing, utilizing, coordinating, and reimbursing care, the team reviewed qualitative information gathered from interviews conducted by Assessments B, C, and I, and responses to questions contained in the 2015 Survey of VA Resources and Capabilities regarding the use of non-VA medical care.

- Data sources used in these analyses included the VA/DoD Medical Sharing Office VA Fee Basis Claims System data extract from Assessment I, VA Central Fee data extract from Assessment C, and VA Budget Requests 2012-2015.

- For complete details of the methods used to assess interorganizational relationships, please refer to Section 2 of this report.

3.4.1   Overview of VA Purchased Care

VA has multiple channels through which it purchases care for enrolled Veterans from non-VA providers. Purchased care may be either *emergency* or *preauthorized*; an authorization for

treatment in the community is required for any purchased care other than an emergency. VA reimburses the costs of emergency transportation and medical care at non-VA facilities for service-connected medical conditions and for Veterans who have no other source of payment for the care.[29] Before the passage of the Veterans Choice Act, VA *had the option* to offer care in the community if VA services were geographically inaccessible or if VA facilities were not available to meet a Veteran's needs. Preauthorized programs include the "traditional" program, care obtained through partnership agreements, the ARCH pilot, the PC3 program, and the Veterans Choice Program (Figure 3.4-1). Assessment C examines these mechanisms in detail along with the underlying authorities through which VA purchases care. In this subsection, we quantify, to the extent possible, the contribution of these programs and partnerships to VA's resources and capabilities. We briefly discuss each program in Subsection 3.4.2.

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[29] The Veterans Millennium Health Care and Benefits Act allows for payment of emergency care not related to service-connected conditions under certain circumstances.

Figure 3.4-1. VA Purchased Care Programs and Partnerships
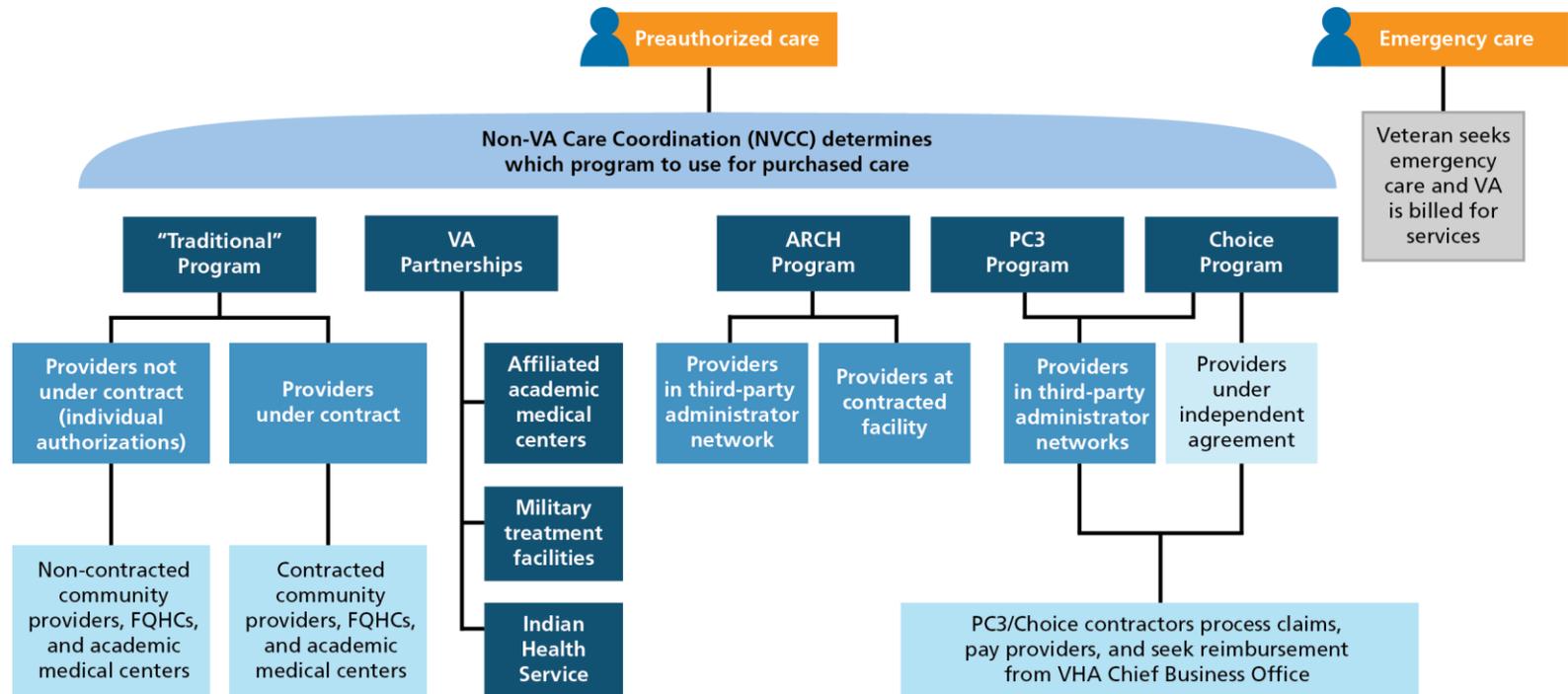
Source: Authors' analysis of VA documents.

The Non-VA Medical Care program,[30] formerly known as "fee care" or "fee-basis care," refers to all care for enrolled Veterans provided in non-VA facilities and paid for by VA (we refer to this as "purchased care"). It has evolved from a very small program initiated in 1945[31] into a substantial source of care for enrolled Veterans. Spending for purchased care captured by the Fee Basis Claims System increased from $3 billion in FY 2008 to $5.5 billion in FY 2014.[32] Additional spending not captured by the Fee Basis Claims System, such as payments to state nursing homes and lump sum payments under some contracts, brings the total of 2014 purchased care payments to $7 billion,[33] which represents 15 percent of the VA medical services budget (Office of Management and Budget, 2015). The top categories of medical care purchased through the program are dialysis (national contract), skilled and unskilled home health services, radiation therapy, diagnostic testing, physical therapy, inpatient hospitalization, and emergency care (Office of Management and Budget, 2015). This mix could change moving forward as utilization of purchased care under the Veterans Choice Program increases.

Across all programs, outpatient medical care represents the largest share of VA purchased medical care expenditures, accounting for about 36 percent of total purchased medical care spending ($20.3 billion) for FY 2008–2012 (Table 3.4-1). From FY 2011 to FY 2014, the number of non-VA outpatient visits increased from 12.2 million to 14.2 million, though they remained at about 15 percent of total VA outpatient visits (Figure 3.4-2).

Table 3.4-1. VA Spending by VA Purchased Care Category, FY 2008–FY 2012

Type of Care	Percentage of All Purchased Medical Care Expenditures
Preauthorized outpatient—Medical	36.3
Preauthorized inpatient	22.7
Home health	13.3
Community nursing home	12.3
Emergency care for Veterans for non-service-connected conditions	8.8
Emergency care for Veterans with service-connected conditions	4.5

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[30] This new name was established in 2013 to promote clarity since the terms "fee care" and "fee-basis care" were used inconsistently.

[31] The Chief Medical Officer of VA recognized that many hospital admissions of World War II Veterans could be avoided by treating them before they needed hospitalization and instituted a program for "hometown" medical and dental care at government expense for Veterans with service-connected ailments.

[32] This figure is based on a data extract provided by VA to Assessment I.

[33] We were unable to fully reconcile the difference between the $5.5 billion figure in the data extract from VA and the $7.0 billion figure included in the OMB document.

Type of Care	Percentage of All Purchased Medical Care Expenditures
Preauthorized outpatient—Dental	1.8
Compensation and pension exams	0.3
Total	100.0

Source: Adapted from Table 2 ("VA Spending and Utilization by Fee Basis Care Category, FY 2008 Through 2012") in GAO, 2013c.

Figure 3.4-2. Number of VA and Purchased Care Program Outpatient Visits, 2011–2014
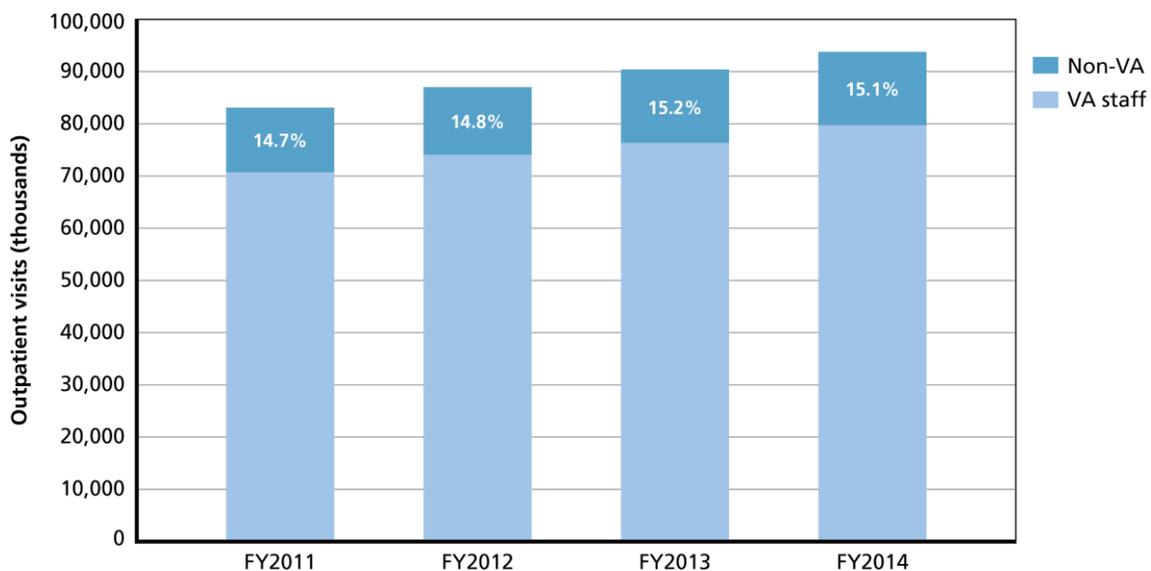
Source: Authors' analysis of VA Congressional Budget Submissions 2012–2015.
Note: Includes mental health outpatient visits.

Mental health outpatient care is one of the few categories of care for which utilization data are readily available. Mental health care is provided mostly at VA facilities; in 2014, only 2.3 percent of these visits involved non-VA providers (Table 3.4-2). We were unable to identify recent data on the volume of other categories of outpatient purchased care, such as primary care. Inpatient (non-ambulatory) care accounts for the second highest level of purchased care spending, and in 2014, 22 percent of VA enrollees who received inpatient care were treated at non-VA facilities (Table 3.4-3).

Table 3.4-2. Number of VA-Provided and VA-Purchased Mental Health Outpatient Visits, FY 2014

	VA Care	Purchased Care	% Purchased Care
Mental Health Outpatient Visits	11,874,040	270,308	2.3

Source: Office of Management and Budget, 2015.

Table 3.4-3. Number of Patients Treated in VA and Non-VA Inpatient Settings, FY 2014

	VA Facilities	Non-VA Facilities	% Non-VA
Patients Treated in Inpatient (nonpsychiatric) Facilities	483,800	136,760	22.0

Source: Office of Management and Budget, 2015.

From 2008 to 2014, the number of unique Veterans utilizing purchased care increased by about 52 percent (Figure 3.4-3), and in 2014, 20 percent of all VA medical care users utilized some purchased care. Some demographic groups of VA enrollees rely more heavily on purchased care than others. As an example, 33 percent of women Veteran patients received at least some outpatient care through the Non-VA Medical Care Program in 2010 compared with 16 percent of men, and highly rural[34] women VA patients were more likely than highly rural men to use non-VA outpatient services (54 percent of highly rural women compared with 29 percent of highly rural men) (Frayne & Mattocks, 2012). VA facilities may lack the necessary volume of women patients to support the required care (for example, mammography) or have not historically provided particular gender-specific types of care (for example, obstetrical care) (Frayne & Mattocks, 2012).

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[34] VHA defines "highly rural" as patients with addresses located in a county with fewer than seven residents per square mile, on average.

Figure 3.4-3. Number of Unique Veterans Who Received Purchased Care, 2008–2014
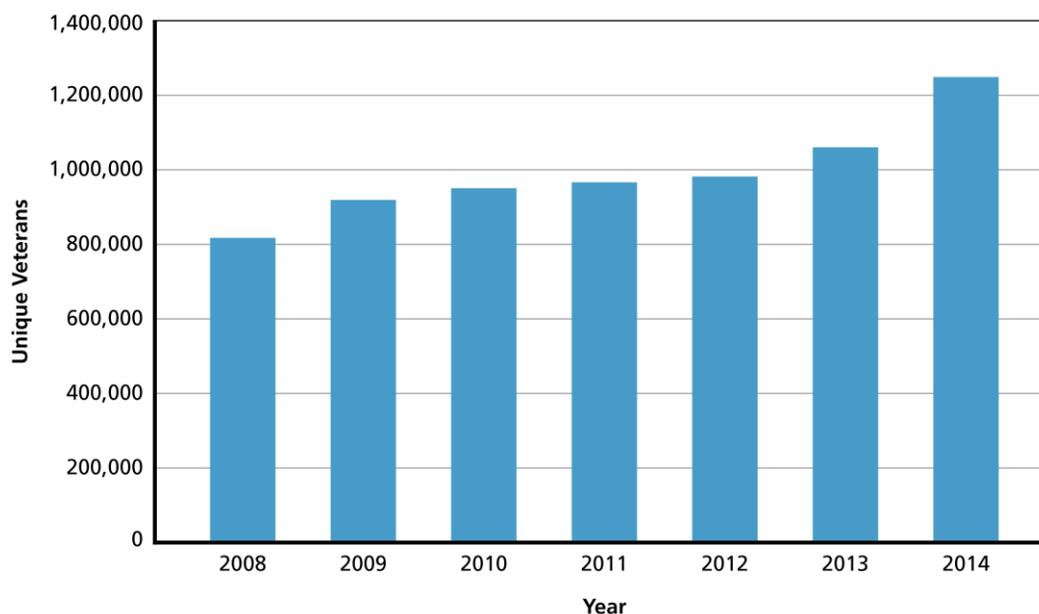
Source: Data extract from VA Central Fee Payment Files provided to Assessment C.

There is significant variation in purchased care spending across VAMCs. In 2014, the mean amount spent among VA stations that had purchased care claims was $38.4 million; the highest amount was $151 million. VISNs 8 and 20 each had multiple VAMCs within the top 10 for spending on purchased care in the period 2012–2014.[35]

3.4.2 VA Programs for Purchased Care

VA has multiple programs and partnerships through which it may arrange care for Veterans with non-VA providers. Some VA partners, such as Federally Qualified Health Centers (FQHCs) and academic medical centers, may participate in multiple programs. We briefly describe each of these options below.

3.4.2.1 Traditional Program

In its traditional program, VA provides either individual authorizations for care with a non-VA provider (or a fee card for a small group of rural Veterans) or it contracts with local providers, academic medical centers, or FQHCs for particular services as needed. Prior to 2011, VA paid providers on an internally developed fee schedule or based on Medicare rates, which resulted in variability across VAMCs and VISNs. In 2011, VA began using applicable Medicare rates consistently, which likely contributed to a slight decline in total spending for purchased care in FY 2012 (GAO, 2013c). Individual authorizations and local contracts for purchased care have

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[35] These numbers are derived from authors' analysis of the data extract VA provided to Assessment I.

been supplemented and, in some circumstances, replaced by other vehicles as VA attempts to standardize its purchasing process, performance metrics (for example, for access and medical records sharing), and reimbursement rates. VA has determined that any future local contracts with non-VA providers must "produce benefits beyond PC3 (see Subsection 1.1.2.3) or address a need beyond PC3" (Robinson, June 11, 2014), and we learned in our interviews that this policy is updated to cover care provided through the Veterans Choice Program.

3.4.2.2 ARCH Program

The ARCH program is a small pilot, established in 2011 and initially intended to run for three years, aimed at improving access for Veterans in rural and underserved areas. The pilot was implemented at five sites (Pratt, KS; Caribou, ME; Farmville, VA.; Flagstaff, AZ; and Billings, MT), two of which chose to provide primary care, and three of which chose specialty care. Participation was limited to Veterans living in those counties who were enrolled when the pilot started and met one of three criteria: (1) lived more than 60 minutes driving time from the nearest VA health care facility providing primary care; (2) lived more than 120 minutes driving time from the nearest VA acute care facility; or (3) lived more than 240 minutes from the nearest VA tertiary care facility. Humana Veterans Health Services and Cary Medical Center (Maine only) serve as the third-party administrators. A recent evaluation of the initial three-year pilot reported that 5,945 Veterans received care through 27,705 outpatient encounters and 1,073 inpatient discharges (Altarum Institute, 2015). The pilot was extended to 2016 as part of the Veterans Choice Act legislation.

3.4.2.3 PC3 Program

The PC3 program was initiated in 2012 as a follow-on to an earlier pilot program that also used a third-party administrator in an attempt to improve the management and oversight of purchased care.[36] The PC3 program was intended to address some of the identified weaknesses in VA's traditional purchased care vehicles, such as lack of provider credentialing, mismanagement of local contracts, variability in reimbursement rates, untimely and inaccurate payment of provider claims, and inadequate sharing of medical documentation by external providers, while addressing the need to provide more timely care to Veterans.

In the fall of 2013, VA awarded two regional contracts to Health Net Federal Services and TriWest Healthcare Alliance to provide external care for Veterans when a VAMC determines that it cannot provide the needed care due to a lack of specialists, geographic inaccessibility, and other factors. The program began in April 2014 after an approximate six-month implementation period in which the administrators built their provider networks and established the necessary infrastructure. Initially, PC3 was focused on specialty care, including

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[36] Project HERO (Healthcare Effectiveness through Resource Optimization) was a pilot program implemented in four VISNs between 2007 and 2013 that utilized third-party administrators with networks of primary and specialty care providers.

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mental health, but in August 2014 VA expanded the scope of the program to include primary care services.

PC3 contracts with the third-party administrators contain requirements for scheduling appointments within five days of receipt of VA authorization and ensuring that a patient can be seen within 30 days, providing an appointment reminder in writing, following up to ensure the appointment occurred, and paying provider claims within 30 days. Contracted providers also agree to return medical documentation within 14 days for outpatient visits and 30 days for inpatient visits. Health Net and TriWest negotiate reimbursement rates with providers that are, on average, 94.5 to 97.5 percent of Medicare rates for medical and surgical services, lower than the Medicare rates VA pays for individual authorizations (Robinson, June 11, 2014).

A recent VA Office of Inspector General review of the PC3 program (2015) reports that utilization of the program fell short of expectations in 2014, with only 6,900 completed authorizations and spending of $3.8 million for health care services. VA spent an additional $15.1 million on implementation and administrative fees for the program in 2014. VA projected utilization rates—PC3 authorizations divided by all purchased care authorizations—of 25 to 50 percent, but only achieved a 9-percent utilization rate in 2014. The VA Office of Inspector General attributes the low utilization to a combination of inadequate provider networks and lack of a strong implementation plan to ensure that VAMCs use the PC3 program over individual authorizations. If VA implementation costs are prorated over the base year and four option years, the FY 2014 PC3 contract cost would total about $7 million. In comparison, the VA Office of Inspector General estimates that the cost of providing the care through individual authorizations would have been $4 million. This $3 million additional cost compares to a VA estimate of $13 million in savings for FY 2014 as a result of the new program. The third-party administrators continue to attempt to add providers to their networks as they receive better information from VA about demand for various types of care by location.

3.4.2.4 Veterans Choice Program

The most recent addition to the VA purchased care landscape is the Veterans Choice Program. Established by law in August 2014, this program empowers Veterans to seek care based on their distance from the closest VA medical facility and an inability to schedule an appointment at a VA facility within 30 days. Unless it is reauthorized, the temporary program will end when the allocated funds of $10 billion are used or no later than August 7, 2017. With only three months allowed for implementation, VA expanded its contracts with the PC3 third-party administrators, Health Net and TriWest, and they quickly established the infrastructure for the program. As such, all PC3 providers are automatically eligible to be Veterans Choice providers; those providers who do not wish to participate in the PC3 program but who would like to be a Veterans Choice provider must sign an agreement with one of the administrators. In order to participate, providers must be Medicare-eligible, agree to accept Medicare rates, and agree to submit Veteran care reports after providing medical services.

VA leadership highlighted the challenge in predicting Veteran uptake for the program, forecasting spending over the next three years that ranges from $3.8 billion and $12.9 billion (McDonald, Februrary 11, 2015). Early reports indicate lower than expected levels of utilization.

VA reported that, from the program's launch on November 4, 2014, to March 18, 2015, 46,429 Veterans had received authorizations for care under the Veteran's Choice Program, and non-VA providers had scheduled 44,461 appointments. As a comparison, in an average month, 6.4 million appointments are completed in VA and 1.3 million appointments are completed through purchased care programs (Gibson, 2015). Further, it was reported that VA is on track to spend only $1.1 billion on the program this year (Miller, April 30, 2015). To make the program available to more Veterans, VA announced in late March 2015 a change in the calculation used to determine the distance between a Veteran's residence and the nearest VA medical facility from a straight-line distance to driving distance.

3.4.3 VA Partnerships to Deliver Care

VA extends its capacity through partnerships with DoD, the Indian Health Service, academic medical centers, FQHCs, and community mental health and substance use providers.

3.4.3.1 DoD

VA and DoD collaborate to deliver benefits and services to Veterans, service members, military retirees, and beneficiaries. This partnership was established as a result of legislation that directed the organizations to look for opportunities to share medical resources,[37] and activities are overseen by the DoD–VA Joint Executive Committee. There are three vehicles for collaboration—sharing agreements,[38] joint ventures, and Joint Incentive Fund projects. Sharing agreements, which may cover a single service or multiple services, are typically negotiated by the heads of individual VA and DoD medical facilities, with review at the VISN and VA/DoD Sharing office at VA and the DoD/VA Program Coordination Office on the DoD side. Reimbursement rates for medical services are typically based on the Tricare Civilian Health and Medical Program of the Uniformed Services rate discounted by 10 percent (VA/DoD Health Executive Council, 2003), representing a savings relative to Medicare rates. Sharing agreements also allow for the exchange of services.

As of March 2015, there were 144 active VA/DoD sharing agreements nationwide between 48 VAMCs and 74 military treatment facilities for services, which include direct patient medical care; shared space; and administrative, dental, mental health, laundry, and ancillary services (VA/DoD Medical Sharing Office, March 11, 2015). Of the 74 military treatment facilities involved in sharing agreements, 38 provide direct medical care to Veterans. In 2014, VA reimbursed DoD $119.1 million for services rendered, about equivalent to the amount spent in 2013 (VA/DoD Medical Sharing Office, March 11, 2015).

VA and DoD have several joint ventures, which involve a higher level of collaboration than sharing agreements and require commitments of at least five years. Joint ventures may involve multiple health care services, joint capital planning, and shared risk. Like sharing agreements,

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[37] Public Law 97-174, VA/DoD Health Resources Sharing and Emergency Operations Act of 1982.

[38] Sharing agreements are written contracts that allow VA to buy, sell, or exchange health care resources and services with non-VA facilities.

the local partners determine whether they wish to work together, and approval must be obtained from department-level staff at both organizations. There are 10 joint venture locations (Petzel, 2013), including the North Chicago clinic, the only integrated VA/DoD federal health care center. These locations are listed in Table 3.4-4.

Table 3.4-4. VA and DoD Joint Venture Locations

DoD Facility	VA Facility	Location
Naval Health Clinic/ Joint Base Charleston/Naval Hospital and Beaufort	Charleston VAMC	Charleston, SC
Naval Health Clinic Jacksonville	Miami VAHCS CBOC	Key West, FL
Keesler Air Force Base	VA Gulf Coast HCS	Gulf Coast FL
Wm Beaumont Army Medical Center	El Paso VAHCS	El Paso, TX
Nellis Air Force Base	VA Southern Nevada HCS	Las Vegas, NV
David Grant Medical Center	N. California VAHCS	Fairfield, CA
Kirkland Air Force Base	New Mexico VAHCS	Albuquerque, NM
Tripler Army Medical Center	VA Pacific Island HCS	Honolulu, HI
Elmendorf Air Force Base	Alaska VAHCS	Anchorage, AK
James A. Lovell Federal Health Care Center	James A. Lovell Federal Health Care Center	North Chicago

Source: Petzel, 2013.

The third type of DoD-VA collaboration is the Joint Incentive Fund project, which provides funding for pilot projects across the two departments. The intent is to incentivize innovative DoD/VA sharing initiatives at the facility, regional and national levels. Project proposals are selected from an annual call for proposals across VA and DoD. From 2003, when Congress established the Joint Incentive Fund, until 2012, 130 projects were funded at a cost of $418 million (GAO, 2012a). A 2012 GAO report indicated that this bottom-up process was likely insufficient to identify the full range of new opportunities for collaboration, and recommended more systematic investigation (GAO, 2012a).

3.4.3.2 Indian Health Service

VA and Indian Health Service announced a joint national agreement in 2012 under which VA agreed to reimburse Indian Health Service for direct care provided to eligible American Indian and Alaska Native Veterans. By July 2014, the two departments had completed 83 implementation plans, which establish processing and payment procedures at 108 health care facilities. VA also established 61 reimbursement agreements with Tribal Health Programs for tribally run health care facilities so that they can receive reimbursement for direct care services.

In FY 2014, VA reimbursed approximately $11.2 million to Indian Health Service and the Tribal Health Programs for direct care services, up from $6.2 million in 2013 (VA, 2015a).

3.4.3.3 Academic Medical Centers

Affiliation and sharing agreements with academic medical centers provide VA with internal capacity as well as external resources. Affiliations were initiated in 1946 in an effort to assist VAMCs in recruiting high-quality physicians and to provide training sites for medical school residents and students (Leeman & Kilpatrick, 2000). VA is now the largest provider of medical training in the nation, accomplishing this through affiliation agreements between 152 VAMCs and 130 of 141 accredited U.S. medical schools (VHA, Procurement and Logistics Office, 2014). Affiliation agreements are standard templates that may be subject to review by the VA Medical Sharing /Affiliate Office depending on the size and type of agreement. VA has recently moved these contracting activities from VAMC employees to VISN staff.

In addition to individual authorization for Veteran care at academic medical centers, VA enters into multiyear sharing agreements with academic medical centers to provide care inside and outside of VA facilities. There are three types of sharing agreements—those that are based on a specified number of hours logged by a provider at VA facilities, those that are based on the number of procedures that are performed either at VA facilities or off-site, and those that are based on the number of patients served either at VA or off-site (VHA, Procurement and Logistics Office, 2014). In FY 2007, VA had a total of 1,714 clinical sharing agreements, valued at $1.7 billion, with affiliated institutions, including medical schools and teaching hospitals. Of these, 669 were sole-source contracts, with a value of $575 million (VA, Office of Inspector General, 2008). In 2014, VA reported spending $1.17 billion under all clinical sharing agreements with affiliates and $185 million under noncompetitive affiliate contracts. We were not able to determine the breakdown of spending for direct care of Veterans and ancillary and support services or between care provided in VA facilities and care provided at academic medical centers.

3.4.3.4 FQHCs

As federally funded organizations, FQHCs are required to be located in medically underserved areas or to provide service to medically underserved populations. Given the large population of rural enrolled Veterans, FQHCs represent an important potential source of care. Providers at FQHCs may provide care to Veterans as a contracted CBOC, through individual authorizations, as part of specific contracted services, or that is not reimbursed by VA (Heisler, Panangala, & Bagalman, 2013). As an example of FQHC-contracted services, as of February 2012, VA had 52 contracts for FQHC-provided counseling services across 13 VISNS (Heisler, Panangala, & Bagalman, 2013). Through various actions, Congress has repeatedly encouraged VA collaboration with FQHCs, particularly for the care of rural enrolled Veterans (Heisler, Panangala, & Bagalman, 2013).

3.4.3.5   Community-Based Mental Health and Substance Use Clinics

In 2014, VA established pilot partnerships with 24 community-based mental health and substance use clinics in nine states. These partnerships were formed in direct response to Executive Order 13625 in 2012, which directed VA, DoD, and the Department of Health and Human Services to take the necessary actions to ensure that Veterans, service members, and their families receive needed mental health and substance use services and support (Department of Defense, Department of Veterans Affairs, & Department of Health and Human Services, 2013). VA initiated the pilots to determine how community partnerships could help provide mental health and substance use services in areas that have staff recruitment and/or wait-time issues for mental health and substance use services. Sites were selected based on recruitment issues, performance data, and a willingness to participate; they were funded for one year. The partnerships offer a range of resources, such as telemental health, staff sharing, and space utilization agreements to allow VA providers to provide care in the community clinics. VA is conducting an evaluation of the pilot projects to determine the impact on Veteran access, wait times, and experience with mental health and substance use care at the participating clinics.

3.4.3.6   Non-VA CBOC Operators

VA provides care to Veterans at 694 CBOCs,[39] which may be VA-owned and -operated, leased but staffed by VA personnel, or contracted sites in which the space is not VA owned and the staff are not VA personnel. In 2009, about 25 percent of CBOCs were contracted (Panangala & Mendez, 2010); the percentage contracted fell to about 15 percent in 2015. Some organizations may operate multiple CBOCs. As an example, a Humana subsidiary, Valor Healthcare, operates 21 CBOCs across the country. VA has also operated CBOCs in partnership with DoD facilities, Indian Health Service, and FQHC facilities. Under the standard VA contracts for CBOCs, contractors provide "health care staff, medical facilities, medical equipment, supplies, and all administrative functions sufficient to achieve the contracted level of care in a manner consistent with VHA standards" (Panangala & Mendez, 2010). VA also requires the contractor to utilize VA's CPRS for documentation of all patient-related care. VA pays its CBOC contractors a monthly capitated rate based on each enrolled patient. These payments are not included in the total purchased care spending of $7 billion for 2014.

3.4.4   Selecting a Purchased Care Program

Prior to the implementation of the Veterans Choice Program, VA had an established hierarchy to guide VAMC decision-making about which program to utilize for purchased care (Figure 3.4-4). The first option is a VA facility, followed by care provided by other federal agencies, sharing agreements or university affiliations, PC3 or local contracts, and finally, individual authorizations. Interviewees indicated that compliance with this hierarchy is variable at the

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[39] This count reflects the changes to the Veterans Affairs Site Tracking System definitions in March 2015. The total includes 509 primary care CBOCs and 185 multispecialty CBOCs.

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local level. With the addition of the Veterans Choice Program, VA is working to update its guidance to VAMCs about selection of the appropriate program.

Figure 3.4-4. Hierarchy for Referrals to VA Purchased Care Programs
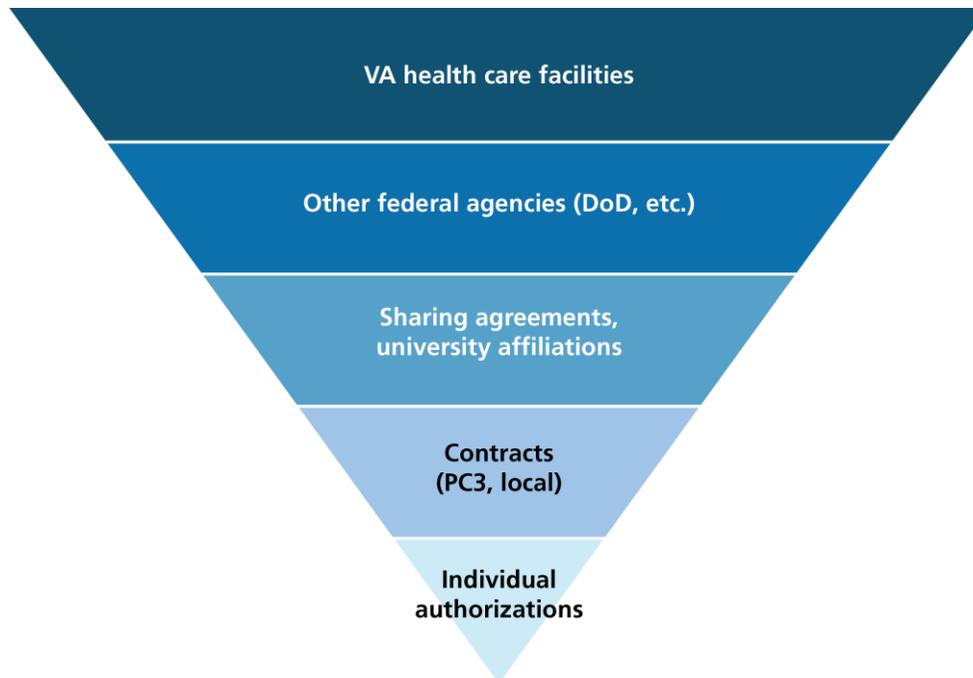
Source: Robinson, 2014.

3.4.5 Challenges in Utilizing Care Delivered by Non-VA Entities

Relations with external entities that provide care to Veterans represent an important resource for VA; however, stakeholder interviews, Veteran service organization testimony, and government reports all point to numerous challenges associated with utilizing purchased care. These barriers reduce the potential of this resource to provide timely and accessible care. Some of these challenges are discussed in more detail in the Assessment C report, but we provide a brief overview below and describe some ways in which VA is addressing the challenges.

3.4.5.1 Confusion About the Various Purchased Care Programs

The addition of the Veterans Choice Program further complicated an already complex system of authorities and purchased care programs and has created confusion among Veterans, VAMC staff, and providers. A survey conducted by the Veterans of Foreign Wars indicated that Veterans did not understand the eligibility criteria for the Veterans Choice program (Veterans of Foreign Wars of the US, March 2, 2015). VA has acknowledged gaps in employee and Veteran understanding of the program and related processes. To address these issues, VA has expanded its outreach efforts for Veterans and has developed employee trainings, named local "Choice Champions," and is developing documentation to support local decision-making on using the appropriate non-VA program. Community provider confusion stems from the fact that

providers may be referred Veteran patients through multiple purchased care programs, each of which may have a different reimbursement rate and documentation requirements.

3.4.5.2   Contracting Issues

In interviews, VA officials and experts indicated that contracts that VA negotiates directly with providers (not PC3 or Veterans Choice Program agreements) may take months to put in place and therefore reduce VA's ability to respond to local needs in a timely way and discourage non-VA providers from contracting with VA. One VA expert commented:

> In previous work I've done in interfacing with private facilities who've had to work with VA, a common refrain was that they would rather do the work for free than to deal with the painful VA contracting processes that typically take many months and is very resource intensive; it took more resources to execute a contract than just do the work and take care of the Veterans themselves.

As part of VA's FY 2016 President's Budget, VA asked Congress for legislative change to the current contracting rules to streamline the process of purchasing care when other options are not available.

3.4.5.3   Monitoring Access to and the Cost of VA Purchased Care

Historically, VA has not had the ability to track the wait times for Veterans to be seen by non-VA providers or the relative costs of VA and purchased care (GAO, 2013c). VA is beginning to monitor the timeliness of outside care through the implementation of the PC3 program as well as the Non-VA Care Coordination program. The Non-VA Care Coordination program utilizes VA personnel to schedule appointments with non-VA providers and document the wait time, among other things. However, VA has indicated to the GAO that it will not be able to monitor wait times for all purchased care until it completes a redesign of the claims processing system, which is expected in 2016 (Williamson, 2014). In its 2013 report, GAO also indicated that VA cannot assess the relative cost of purchased care due to an inability to analyze data on all services and charges for an episode of care. VA responded that it is working to improve its systems to enable this analysis but provided no timeline for implementation (Williamson, 2014). These challenges limit the effective use of this resource.

3.4.5.4   Information Sharing/Care Coordination/Fragmentation of Care

A lack of information sharing and coordination of care with non-VA providers is a problem that is not unique to VA; fragmentation of care and information sharing are issues throughout the U.S. health care system. As in the private sector, fragmentation can adversely affect the quality and cost of Veteran care, particularly as VA referrals to non-VA providers increase. In the 2016 Independent Budget, the authors described the Veteran experience under the traditional program:

> The IBVSOs [Independent Budget Veteran Service Organizations] believe VA has the obligation to lift the burden from Veteran patients who are bridging the fragmented and disconnected care VA buys from the private sector. Veterans are currently assumed to lead the sharing of information and communication between private providers and VA

> when receiving VA-purchased care, particularly through fee-for-service. (AMVETS, Disabled American Veterans, Paralyzed Veterans of America, & Veterans of Foreign Wars of the U.S., 2015, p. 177)

VA is attempting to improve coordination through information sharing requirements for PC3 and Veterans Choice Program providers and through the Non-VA Care Coordination program. However, health records are typically faxed from non-VA providers and scanned into the VA system, decreasing their utility. VA has piloted electronic health information exchange with DoD and private providers, and these efforts are discussed in Subsection 3.5.

3.4.5.5   Collaborations with DoD

A 2012 GAO report identified several key challenges in the collaborations between VA and DoD. First, the lack of interoperability in the IT systems impedes access to patient information. At some joint sites, workers even use two computers on the same desk to accommodate the incompatible systems. Although the two departments are no longer working on a common electronic health record, at some sites they are utilizing a software viewer that allows clinicians to jointly access health record systems. Second, the two departments use different business and administrative practices, including coding and billing systems, which can delay reimbursement. Different internal processes for provider credentialing and overlapping information security requirements also pose challenges for staff. For Veterans, gaining entry to military bases can be challenging. The entry requirements are designated by base commanders and may change over time to reflect the needs of the base. For Veteran patients, and people who accompany them to appointments, additional documents, entry delays, and background checks may pose barriers to site entry. Finally, VA and DoD do not have an aligned process for approving potential joint endeavors, so projects may not move forward when approvals and funding are on different timelines (GAO, 2012a).

3.4.5.6   Claims Processing Problems[40]

Problems with the accuracy and timeliness of reimbursement for purchased care may affect the willingness of providers to accept VA patients and thereby limit this important resource. Purchased care medical care claims processing has undergone intensive scrutiny by the VA Office of Inspector General, the GAO, and others and was found to need attention and improvement. The VA Office of Inspector General reports (2009 and 2010) documented hundreds of millions of dollars in erroneous payments or missed revenue collection opportunities. VA has been working to improve business processes through the consolidation of staff and funding for purchased care claims processing under the Chief Business Office and through audits of VISN efforts to improve the timeliness of provider payments. Additionally, care provided through the PC3 and Veterans Choice programs is reimbursed by the third party administrators rather than VA.

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[40] Assessment I is addressing Business Processes, including claims processing.

3.4.6 Subsection Summary

Care provided to Veterans through relations with non-VA entities represents a substantial and growing resource for VA. Care is provided to VA enrollees by non-VA providers through several programs and various types of payment or contractual arrangements that VA has negotiated with its partners. Preauthorized programs include individual authorizations; care obtained through partnership agreements between VA and DoD, Indian Health Service, and other entities; the ARCH program; the PC3 program; and the Veterans Choice Program.

Managing this resource has proven challenging. As VA was attempting to address some of the administrative challenges associated with arranging, coordinating, and reimbursing purchased care through the implementation of the PC3 program, the addition of the Veterans Choice program further complicated the situation and resulted in confusion among Veterans, VA employees, and non-VA providers. Both the PC3 and Choice programs have been underutilized relative to VA projections, and the PC3 program did not achieve the savings expected in 2014. In fact, care provided through the PC3 program cost more than it would have cost VA to purchase the care through individual authorizations due to the overhead costs, according to the VA Office of Inspector General. In addition, VA has not had the ability to track the wait times for Veterans to be seen by non-VA providers or the relative costs of VA and purchased care. VA also faces a lack of information sharing and coordination of care with non-VA providers, which can be detrimental to quality. Collaboration with DoD has also proved challenging and has limited the opportunities for gaining efficiencies through the sharing of resources.

VA and members of Congress have expressed a desire to more effectively utilize this important resource as demand increases. VA has been working to improve business processes through the consolidation of staff and funding for purchased care claims processing and through audits of VISN efforts to improve the timeliness of provider payments and has asked for changes in the law to allow a more streamlined contracting process. It is also working with the third-party administrators and VA staff to attempt to increase utilization of the PC3 and Choice programs.

In the next subsection, we take a closer look at VA IT resources (computing hardware, peripheral devices, software), which are used to support a wide range of capabilities that affect the ability of VA to deliver timely and accessible care.

3.5 IT Resources

IT resources (computing hardware, peripheral devices, software) support a wide range of capabilities that affect the ability of VA to deliver timely and accessible care. VA IT is being examined in detail in Assessment H from the strategy and management perspectives, and Assessment E will cover IT related to scheduling systems, so we have focused Assessment B on the IT resources that support a set of six IT capabilities that directly impact Veteran access to care:

- Telehealth: the use of technologies to provide clinical care when distance separates patients and providers

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- MyHealtheVet: a patient portal that Veterans can use to perform actions such as downloading their medical record, sending messages to their providers, and refilling prescriptions

- Mobile applications: software that Veterans can use to monitor their health from their smartphones

- VistA/CPRS: VA's IT platform for patient records and clinical care and the graphical user interface for the electronic health record system

- Data exchange between local VA systems, with DoD, with private-sector providers, and directly with patients

- Care management: programs, often facilitated by IT, that attempt to proactively provide care for patients with the goal of improving outcomes and saving costs.

This subsection describes the types and extent of VA resources that support each capability, how they can be used to improve timely and accessible care for Veterans, variation in current use within VA, comparisons with non-VA organizations, and barriers to expansion.

A summary of the methods used in these analyses is shown in the box.

Overview of Methods and Data for Assessment of IT Resources

- To identify IT resources and capabilities, we conducted a targeted review of the academic and gray literatures, focusing on six capabilities identified as most relevant to Assessment B: telehealth, MyHealtheVet, mobile applications, data exchange, core electronic health record functionalities, and care management.

- We used interviews with stakeholders internal and external to VA (conducted by our team, the qualitative team, and Assessment H) to address the mechanisms by which the capability may affect timely and accessible care to Veterans, VA's resources and capabilities to use the capability, and barriers to expanding use of and improvements to the capability. We also reviewed the academic literature and gray literature, including VA publications supplied to us by key informants, from 2010 to the present.

- Additional data concerning access to IT, use of IT, and usability and user satisfaction were obtained from the VHA Support Service Center.

- For complete details of the methods used to assess IT resources, please refer to Section 2 of this report.

3.5.1 Telehealth

VA defines telehealth as the use of technologies to provide clinical care when distance separates patients and providers. The main objective of telehealth is to increase access by bringing the full breadth of VA care to locations where these services do not exist (for example, rural outpatient clinics, Veterans' homes). The roles of telehealth in expanding access to care in VA are further discussed in Appendix E. Telehealth has been a focus for VA for more than a decade, and VA is now recognized as a world leader in this area, with no other delivery system offering such an extensive range of telehealth services at such a large scale.

3.5.1.1 Current Telehealth Utilization

Telehealth within VA consists of three modalities: clinical video telehealth, store and forward telehealth, and home telehealth (Table 3.5-1). We will describe primarily the first two in this subsection because home telehealth will be discussed in the context of tools for care management in Subsection 3.5.6.

The resources required vary considerably depending on the modality and the service line (for example, specialty care, primary care); however, clinical video telehealth programs generally require equipment (for example, telehealth cart with or without peripherals to support a physical examination), a consulting clinician at the remote site (for example, VAMC), an assisting provider and/or telehealth clinical technician at the patient's site, Internet bandwidth sufficient to support two-way transmission of video or other modality, and dedicated space at both the remote and patient sites.

Table 3.5-1. Telehealth Definitions

Modality	Description	Objective
Clinical video telehealth	Use of real-time interactive video conferencing, sometimes with supportive peripheral technologies, to assess, treat and provide care to a patient remotely. Typically, clinical video telehealth links patient(s) at a clinic to provider(s) at another location; however, it can also connect a remote provider and a patient at home.	▪ Provide access to specialists practicing in regional medical centers ▪ Reduce travel burden for Veterans in remote or underserved areas
Store-and-forward telehealth	Use of technologies to acquire and store clinical information (for example, high-resolution images, sound, and video) that is then made available to a provider at another location for clinical evaluation. It is frequently used in radiology, dermatology, and diabetic retinopathy.	▪ Provide access to specialists practicing in regional medical centers ▪ Reduce travel burden for Veterans in remote or underserved areas
Home telehealth	Applies care and case management principles to coordinate care using health informatics, disease management, and technologies such as in-home and mobile monitoring, messaging, and/or video technologies.	▪ Facilitate continuous (non-episodic care) to improve clinical outcomes ▪ Provide acute and chronic care management, and promote health and disease prevention

Sources: Darkins, 2013, and "VA Telehealth Services" at http://www.telehealth.va.gov/.

According to VA data, 690,000 Veterans (approximately 12 percent of VA enrollees) utilized one or more telehealth modalities in FY 2014, engaging in more than 2 million telehealth visits (VA,

2014f). Telehealth use has grown rapidly in recent years. For example, 380,000 unique Veterans participated in store-and-forward visits in 2014 compared with 311,000 the year before, and approximately 250,000 patients used clinical video telehealth between VA clinics in 2014 compared with 203,000 in 2013. In 2014, 4,000 Veterans received clinical video telehealth visits directly into their homes versus 2,250 in 2013. In FY 2014, VA's Office of Rural Health alone funded a set of initiatives that saved rural Veterans approximately 8 million miles in travel, representing 38 miles saved per telehealth visit. This represents a small piece of the overall impact of telehealth for patients in VA, including increased convenience and reduced time and travel costs. In recent years, telehealth has expanded to cover 45 specialties. Detailed operations manuals now provide specific guidance for several clinical telehealth services including Telemental Health, TeleDermatology, TelePrimary Care, TeleAudiology, TeleRehabilitation (including amputation care), TeleNutrition, TeleWomen's Health, and TeleRetinal Imaging. More than 11,406 VA staff members are trained annually to build competencies related to the business, clinical, and technology aspects of all three modalities, according to VA staff.

While telehealth is used in a wide range of clinical areas, a few types of encounters account for the majority of utilization. In 2014, four types of encounters accounted for more than 50 percent of all clinical video telehealth encounters: mental health, MOVE! Weight Management Program (a weight management program), clinical pharmacy, and primary care medicine. Three encounter types accounted for 98.9 percent of all store-and-forward telehealth encounters: diabetic retinal screening, electrocardiography, and dermatology (Table 3.5-2) (Telehealth Cube, VSSC, 2015d). The facilities survey conducted in coordination with this assessment found that among five specific clinical conditions (PTSD, SUD, TBI, colon cancer, and type 2 diabetes), clinical video telehealth between provider and patient was the most widely used telehealth modality. According to survey respondents, this was usually conducted with a provider in a VAMC (77 percent of the time) and patients at a CBOC (67 percent of the time, the patient was at a small or medium CBOC). However, some patients at VAMCs were on the receiving end of clinical video telehealth as well.

Table 3.5-2. Number of VA Telehealth Encounters by Type, 2014

Encounter Type	Number of VA Telehealth Encounters
Clinical video telehealth	
Mental health clinic	374,919
MOVE! Weight Management Program Group*	142,984
Clinical pharmacy	69,507
Primary care medicine	52,689
Psychiatry	51,642

Encounter Type	Number of VA Telehealth Encounters
PTSD clinical team	31,745
Audiology	31,476
Mental health integrated care	28,633
Nutrition/dietetics	28,238
Anti-coagulation clinic	26,264
Diabetes	23,351
Mental health clinic group	21,597
Psychology	20,728
Substance use disorder group	19,793
Physical therapy	15,511
Store-and-forward telehealth	
Diabetic retinal screening	424,485
Electrocardiography	185,816
Dermatology	129,823
Cardiology	3,226
Pulmonary function	2,716

Source: VA, 2015d.

Notes: "MOVE! Weight Management Program Group" is a national weight management program. Encounter types are defined by VA using "stop codes," which are internal VA codes that categorize encounters by the site and/or type of care delivered.

Veterans report very high levels of satisfaction with these widely used telehealth services. Surveys of Veterans in 2013 found that 94 percent were satisfied with clinical video telehealth, 95 percent with store-and-forward telehealth, and 84 percent with home telehealth (VA Telehealth Services Fact Sheet, FY 2014c). Furthermore, a 2014 survey of 11,000 clinical video telehealth users found that 88 percent preferred telehealth to traveling a long distance to see a provider (VA, 2015a).

3.5.1.2   Telehealth Use Outside VA

Comparative data on telehealth use from outside VA are limited because there are few organizations using telehealth at a similar scale. Where comparative data are available, it is clear that VA is delivering more care and a greater range of services via telehealth than private-sector organizations. The federal Indian Health Service is also widely implementing telehealth,

but no publicly available data describe the full extent of its reach. VA and the Indian Health Service are in a unique position to set the industry standard, in part due to their ability to structure services based on their institutional missions with fewer concerns about the impact on revenue than fee-for-service health systems. VA also has fewer barriers to telehealth (such as state medical licensing requirements) than the private sector. Next, we describe telehealth usage for several public and private-sector organizations that have published data on this topic.

Kaiser Permanente: Kaiser Permanente in Northern California reported that the number of virtual visits (including email, telephone, and video) for its 3.4 million members grew from 4.1 million in 2008 to 10.5 million in 2013. Kaiser has not independently reported the number of video visits, but expects them to surpass the number of in-person office visits by 2016 (Pearl, 2014).

Indian Health Service: Although we could not identify any literature on the full extent of the Indian Health Service's telehealth use, the Indian Health Service is aggressively pursuing telehealth because Indian Health Service and tribal health care facilities are predominantly in rural and isolated settings with little access to specialty services, and travel costs to bring patients to specialists are prohibitive. As one example, the Alaska Federal Health Care Access Network has been installed in 250 sites throughout Alaska. In 2013, 1,686 clinicians used this system to deliver 36,229 episodes of care for 22,982 patients—16 percent of all Alaskan natives (Hays et al., 2014).

Medicare: In 2009, fewer than 14,000 Medicare beneficiaries (of approximately 8 million eligible due to their rural location) engaged in 38,000 telehealth visits. As such, telehealth reached approximately 0.2 percent of the eligible population in that year. Of the 38,000 telehealth visits, 62 percent were for mental health services: pharmacological management (47 percent), individual psychotherapy (8 percent), and psychiatrist diagnostic interview examinations (7 percent). Almost one-third were office and other outpatient visits, and 5 percent were end-stage renal disease consultations (Gilman & Stensland, 2013).

Department of Defense: The DoD National Center for Telehealth and Technology oversees projects related to mobile health, telehealth, and other emerging technologies. Within DoD, the Army conducted approximately 36,300 encounters in FY 2013, the majority of which involved soldiers in garrison. The Center provides resources for active-duty soldiers, reserves, and their families. The Army's telehealth program covers 28 different specialties, but it focuses heavily on behavioral health: Tele-behavioral health accounts for 85 percent of the total telehealth volume in garrison and 57 percent in operational environments (Bloch, April 16, 2014). Virtual care is provided through various means, including a telephonic nonmedical counseling program as well as the mobile applications described below, some of which are developed jointly with VA (National Center for PTSD, 2014). The Air Force and Navy have some of their own programs as well as some joint efforts, for example, tele-critical care, tele-behavioral health, and provider-to-provider tele-consultation in the Pacific (Bloch, 2014).

3.5.1.3   Telehealth Innovation

While VA continues to refine and expand its traditional telehealth offerings, it also regularly develops and tests potential innovations. For example, clinical video telehealth was introduced

in 2002, but VA is expanding telehealth to serve patients in their homes rather than telehealth-enabled clinics. Piloted in 2012, this program allowed 2,248 Veterans to receive secure encrypted video consultations in their homes and on their personal computers by 2013. A year later, the number of Veterans served by this program nearly doubled to 4,000 (Darkins, 2014; VA, *VA Virtual Health Care Access Presentation*, 2015). While the program is adding eligible Veterans each month, a number of barriers exist to its further expansion. Interview participants noted that various program requirements, such as the need for Veterans to have their own webcams and high-speed Internet, are significant barriers to participation. A 2013 survey of Veterans found 70 percent accessed the Internet, but 8 percent of these Veterans had only a dial-up connection (ICF International, 2013; VA, 2013b). Furthermore, interview participants explained that Veterans drop out of the program due to lack of technical support, as the national telehealth help desk cannot talk directly to patients to resolve their IT challenges.

Other examples of innovative pilots identified by interview participants included the Telehealth Intensive Care Unit (TeleICU), Telewound, and teleanesthesiology. TeleICU connects VAMC ICU staff with TeleICU central monitoring center staff for real-time interaction and patient monitoring, which especially benefits VA's ICU patients in rural and smaller VAMC ICUs that may be understaffed (VA, 2014a). Telewound, on the other hand, is an example of store-and-forward telehealth. According to one interview participant, six VISNs were recently given funding to implement programs in which images of wounds would be sent to a wound care technician to help guide the treatment process at a remote location. Finally, in teleanesthesiology, Veterans who previously saw multiple providers for pre-operative care can now go to a CBOC and see both a nurse and an anesthesiologist via clinical video telehealth in a 45-minute period.

3.5.1.4 Geographic Variation in Telehealth Use

While telehealth is widespread in VA, use varies considerably across regions and populations. VA has released statistics demonstrating that telehealth reaches rural Veterans preferentially, which aligns with VA's goals to increase access to the underserved. While rural Veterans constitute 30 percent of the Veteran population, they represented 45 to 55 percent of all telehealth users in 2013–2014 (Peterson, 2014; VA, 2014f).

However, internal VA data suggest considerable variation across VISNs in the percentage of Veterans who accessed telehealth in FY 2014 (Figure 3.5-1). For example, the percentage of unique patients that used one or more modality in a given VISN varied from 8 percent to 22 percent.

Figure 3.5-1. Percentage of Veterans Using Telehealth Modalities by VISN, FY 2014
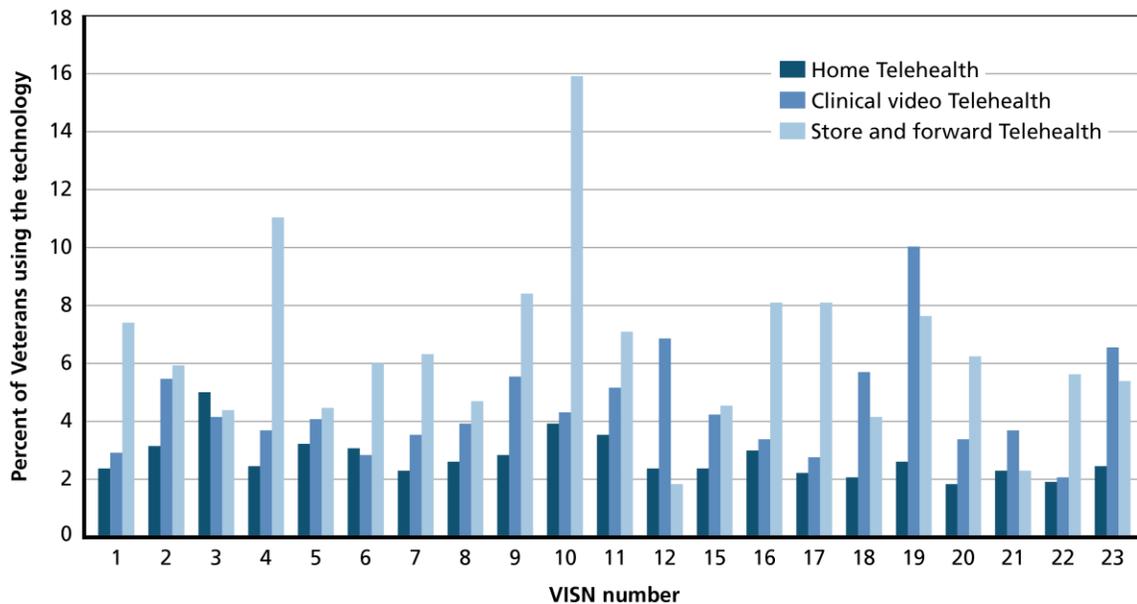
MS4675B-3.5-1

Source: Telehealth Cube (Virtual Care Modality, FY 2014 data), VSSC, 2015.
Notes: VISNs 13 and 14 do not exist. City hubs associated with each VISN are listed in Table 3.1-3.

The geographic reach of telehealth encounters is fairly limited because VISNs primarily serve patients in their own regions. In 2014, 99 percent of telehealth visits (clinical video and store-and-forward) were delivered within VISNs rather than across VISNs, with only six VISNs providing telehealth consults to 10 or more other VISNs. VISNs 1, 11, and 19 had the largest proportion of their total telehealth visits with patients in other VISNs (a range of 3–7 percent) (VA, 2015b). VISN 19, for example, provides genetic counseling services via telehealth to patients across VA. The fact that telehealth is a relatively localized phenomenon may represent a missed opportunity for load balancing across the VA system.

Interview participants identified several reasons why VISN-to-VISN telehealth is not more widespread. First, staff at a given VAMC may not know which VAMCs outside of their VISN have extra capacity and what services are offered. Second, VISN-to-VISN telehealth has negative implications for workload credit. "When you have a local provider and patient you get credit for one visit. When you are connecting to another facility outside your VISN, you get a 0.5," one participant explained. Finally, there is a shared understanding that, as a training institution, each medical center must have its own capabilities. According to another interview participant:

> Part of VA is doing education and you don't want to take educational opportunities away, so for things that are pretty basic…you want to provide that care at the local site if you are a teaching hospital, so we can't lose sight of that. You can't say that hospital A is going to do cardiology for everyone because

hospital B and C also have cardiology programs that need to support their residency programs.

Just as there is limited use of VISN-to-VISN telehealth, relatively few Veterans are accessing telehealth from non-VA sites, such as non-VA medical facilities. Greater use of non-VA sites would offer additional convenience for Veterans and further increase access in communities where VA has limited or no presence. Of the approximately 250,000 Veterans who used clinical video telehealth in 2014, only 0.3 percent were at non-VA sites other than their homes. Interview participants mentioned several sites with which their VAMC clinicians currently connect, including non-VA hospitals and long-term care facilities, universities, and prisons; they also acknowledged that non-VA sites are underutilized and their use should be expanded.

3.5.1.5 Barriers to Greater Use of Telehealth

VA performance measures currently address the proportion of Veterans using any form of virtual care (for example, telehealth, secure messaging, and e-consults) as well as one or more modalities of telehealth. In FY 2015, VA's target is to have 16 percent of unique Veterans using the three types of telehealth.

Although telehealth has grown rapidly, its growth has fallen short of VA targets, reaching 11–12 percent of Veterans in 2013 and 2014. This led VA to survey VISNs and VHA Telehealth Services in summer 2014 regarding barriers to telemedicine use. VA found that the leading barriers were insufficient space for telehealth, inadequate Office of Information and Technology and Biomedical Engineering infrastructure and support, lack of leadership/provider buy-in, and insufficient staffing resources. Our interviews largely confirmed these findings, with a few minor differences. Interview participants did not independently identify insufficient staffing resources as distinct from provider buy-in; however, in a few instances they described problems filling the position of CBOC telehealth clinical technician. Interview participants also placed greater emphasis on insufficient bandwidth at CBOCs. Below we describe each leading barrier in greater depth.

Insufficient space for telehealth. According to VA internal analyses, "New services that can be provided at CBOCs where they did not exist before, such as TeleAudiology, TeleRetinal Imaging, and TeleCardiology, require a clinical room or space for the patient to be able to connect via video to the provider at the remote site. Therefore, new telehealth clinics compete with space created for and currently used for in-person primary care visits." Interview participants also echoed this concern, explaining that "there are major space constraints at CBOCs" and "telehealth and face-to-face care are in constant competition for space." As one interview participant explained, "Telehealth really got started in 2012, and by that time, other specialties were already there. Everyone had to find one room for telehealth, but that is often all we have."

Inadequate Office of Information and Technology and Biomedical Engineering infrastructure and support. As VA is currently organized, the Office of Information and Technology is responsible for IT assets and resources across VA, while clinical devices and their associated computer hardware are managed by Biomedical Engineering, which is under VHA but separate from other VHA technology programs. As a result, while programs like MyHealtheVet and many

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telehealth services are managed within VHA, the Office of Information and Technology or Biomedical Engineering may provide technical support. According to VA's internal assessment of barriers to telehealth, "VISNs have reported that the decentralization of Office of Information & Technology and Biomedical Engineering; the interdependent yet uncoordinated relationship between them; and the lack of national guidance for clarity on roles and responsibilities, have all contributed to issues with coordination and communication which has impeded the expansion of Telehealth services" (VHA Telehealth Services, 2014).

Interview participants referenced the same challenges, focusing specifically on difficulties engaging with the Office of Information and Technology to obtain resources and support. One specific complaint from multiple interview participants focused on Internet bandwidth: particularly at rural CBOCs, interviewees described insufficient bandwidth as a barrier to clinical video telehealth visits. At the same time, concern about bandwidth was not universal; several interview participants said this was a problem in the past but has largely been resolved. VA analyses also point out that while VA staff perceive existing bandwidth to be a problem, the extent to which it is problematic in practice is unclear. According to VA internal analyses:

> Although IT bandwidth capacity has been raised as a central issue by VISNs, the Office of Information & Technology has completed an analysis which showed that 1.1 percent of circuits have reached an 80 percent capacity/utilization threshold (75 out of 6,565). The Office of Information & Technology states that 96 percent of data circuits run at less than 60 percent utilization on average, with a median utilization of 20 percent.

As the VA report states, "It is not clear yet whether bandwidth is truly a limiting factor," or whether it is perceived as such because sites do not know to request additional bandwidth or do not receive it when needed. Interview participants expressed many challenges with the Office of Information and Technology, including that the regionalization has created a gap between assessment of requirements and managing bandwidth and performance to meet those needs. Communication gaps between VAMCs and the Office of Information and Technology are addressed in Assessment H.

Lack of provider buy-in. Clinicians who were interviewed expressed mixed views about telehealth. While some regularly provided telehealth visits within their VISN, others said they lack the capacity to add another service. As one clinician said, "I can tell you that in cardiology we're not ready for [telehealth] because it is adding a service where physicians are already stretched and it's not an efficient service. It is not like you'd be able to see more patients because it is more efficient. It would just be more patients and harder on you." Front office and administrative staff noted that providers are more likely to engage in telehealth in facilities "where leadership holds clinical staff accountable" and where telehealth use is incentivized. At the time of this report, VA as a whole has no specific performance measure or policies that require providers to offer telehealth. One interview participant explained: "Some have tied in performance pay for providers. This happens sporadically, on a service-by-service basis, not at the facility level."

Other barriers. Although these are the most significant barriers that interview participants identified, it is not an exhaustive list. Select interview participants highlighted burdensome

business rules with respect to credentialing and privileging, and complexities related to scheduling (both discussed in more detail in Assessment H). Interestingly, no interview participants cited patient acceptance as a major barrier. Although interview participants acknowledged that "telehealth is not for everyone," the consensus was that most Veterans— even older Veterans who may not be familiar with the technology—are accepting of telehealth. According to one clinician, "Patients like it. They say anything they can do through . . . they call it the TV . . . helps them. If they don't have to get on the road, they like it."

3.5.1.6   A New Form of Telehealth: e-Consults

A promising new form of telehealth is e-Consults, which has been spreading to more VA sites. These electronic consults allow primary care physicians to contact specialists who review the patient record and respond with treatment advice or recommend an in-person visit. Providers submitting requests for e-Consults to local specialists are instructed to use the feature only for non-emergent issues, and specialists are expected to respond within three business days. Because the request process occurs within CPRS, relevant medical records, lab results, and other test results are available to the consultant via the electronic health record (McAdams, Cannavo, & Orlander, 2014).

In interviews, primary care physicians have praised the potential of e-Consults as a fast and easy way to increase efficiency of provider communication (Zuchowski et al., 2015). Early survey results show very high rates of satisfaction among primary care physicians (93 percent satisfied) and patients, with lower satisfaction rates for specialists (53 percent satisfied). A 2010 survey found similar results, with primary care physicians and Veterans very satisfied (median of 5 on a 1–5 scale) and specialists reporting slightly less satisfaction (3.5) (Rodriguez et al., 2015). Specialists were concerned that e-Consults did not decrease the utilization of face-to-face visits, though more agreed that the program increases quality of care. Researchers concluded that in some cases e-Consults eliminate the need for a face-to-face visit, thereby reducing patient travel and copays. When an e-Consult does not eliminate the need for a face-to-face visit, it can still increase appropriate pre-visit diagnostic testing or treatment adjustments, improve care coordination, and reassure the patient's primary care physician (McAdams, Cannavo, & Orlander, 2014).

In 2014, VA Central Office updated its policy to allow three levels of workload credit for e-Consults based on time spent responding to consults, a move that may increase specialist satisfaction. The authors conclude that the program seems to meet the goal of "using telehealth to improve Veterans' access to specialty care and coordination of care between [primary care physicians] and specialists."

3.5.2   MyHealtheVet

MyHealtheVet is a patient portal available to all Veterans who have Internet access and have been properly authenticated by VA. Users can download their medical record and send secure messages to their providers concerning clinical questions and prescription refill requests. To prevent fraud, VA has required in-person authentication following online registration to validate the patient's identity before they can gain full use of the services.

As of March of 2015, a total of 3.2 million people had ever registered for MyHealtheVet since its inception in 2004. 1.86 million have gone through the in-person authentication process and 1.2 million have opted to use secure messaging. As illustrated in Table 3.5-3, a large proportion of this activity has occurred within the past five years. 2.1 million Veterans, providers, and family members have registered since 2010 and the number of logins recorded since then has an average yearly growth rate of 48 percent. In addition, the rates at which patients have chosen to authenticate and use secure messaging demonstrate increased adoption: by 2014, secure messaging grew by 150 times compared with 2010, and in March 2015, almost 1 million messages were exchanged between providers and patients, according to internal VA records.

Table 3.5-3. Growth Trends in the Adoption and Use of MyHealtheVet, 2010-2014

Fiscal Year	New Registrations	New Authentications	VA Patients Opting-In for Secure Messaging	Unique Registrants Logging In	Total Logins	Total VA Patients
2010	240,300	83,700	2,300	569,900	6,199,600	6,000,110
2011	349,500	193,900	100,900	778,200	9,349,200	6,166,191
2012	497,000	470,300	375,600	1,122,100	16,419,400	6,333,091
2013	535,700	439,100	312,600	1,353,700	22,913,400	6,484,664
2014	513,900	382,400	300,700	1,537,500	28,755,200	6,616,963

Source: Internal VA data and Bagalman, 2014.

The use of secure messaging is also increasing, with VA patients or their health care team initiating 39 percent more messages in FY 2015 than in a similar period in 2014 (VA, 2015a). Secure messaging has been associated with fewer urgent care visits (Shimada et al., 2013), suggesting that increased use could free up resources and ultimately improve access to in-person care. One interviewee noted that a recent evaluation found that just 11.6 percent out of 1,000 secure messages contained questions on health issues, while around 55 percent requested services that could be covered by registered nurses or pharmacists such as medication refill requests and scheduling questions.

MyHealtheVet use varies widely across VA facilities and VISNs. The cross-sectional MyHealtheVet study of 6 million Veterans described above (Shimada et al., 2014) reported registration rates ranging from less than 10 percent to almost 35 percent of patients seen at the facility. Authentication rates ranged from three percent to 30 percent of patients. There is also wide variation in the use of secure messaging at the VISN level, ranging from less than 17 percent to 37 percent of unique Veterans receiving care at VA (excluding pharmacy) in FY 2014 (authors' analysis of VSSC data). Facilities with volunteers or computers on-site to help Veterans register and use the tool had higher rates of MyHealtheVet uptake (Shimada et al., 2013). Patient demographics influenced the likelihood of uptake as well—those using MyHealtheVet were more likely to be younger, white, female, and more affluent. Uptake also

varied with diagnosis, with higher uptake among those with trauma-related or mental health diagnoses, human immunodeficiency virus, hyperlipidemia, and spinal cord injuries (Shimada et al., 2014).

A new feature of MyHealtheVet is access to full medical notes written by clinicians, allowing Veterans to better understand their care, correct errors, and improve engagement. After a successful pilot in which researchers found that "Viewing their records appears to empower patients and enhance their contributions to care" (Woods et al., 2013), VA in 2013 made clinical notes available through MyHealtheVet, including outpatient primary care and specialty visit notes, discharge summaries, and emergency department visit notes (VA, 2013a). A survey of early adopters found that a majority of the users of VA's version, called VA Notes, agreed that "accessing their notes will help them to do a better job of taking medications as prescribed (80.1 percent) and be better prepared for clinic visits (88.6 percent)" (Nazi et al., 2014).

Secure messaging use has been included in VA performance measures; VA's 2013–2015 Strategic Plan for National Telehealth Services aimed to reach 50 percent of Veterans using virtual care (VA, Office of Patient Care Services, 2012). Given a projection of telehealth being able to reach 16 percent of Veterans, secure messaging and other tools like e-Consults would have to reach 34 percent to reach the 50 percent target. As described above, use has been increasing, and while some facilities have reached this 50 percent target, no VISN has. VA reports 32 percent use overall of any virtual care modality in FY 2014 (VHA Support Service Center Capital Assets, 2014).

Frequent surveys of MyHealtheVet users suggest that they are happy with the tool. At least 75 percent expressed satisfaction with a number of aspects, including content, functionality, look and feel, and site performance (VA, 2015b). Providers mentioned that it has facilitated their ability to address lower-risk issues or tasks since many patients utilize email and "electronic communication is a huge time saver" compared with other means such as the telephone.

However, there are barriers to further expanding the use of MyHealtheVet. VA employees we interviewed noted that in addition to the administrative burden on users of registering for MyHealtheVet, issues with the technology have hindered broader adoption. Veterans must have Internet access if they want to use MyHealtheVet, and a 2013 survey found that 30 percent of Veterans do not access the Internet. This is particularly an issue for rural Veterans, who are less likely to have Internet access; internal estimates from 2013 suggest that while 68 percent of urban Veterans report Internet access, only 59 percent of highly rural Veterans do. Interviewees also noted that Veterans with access to their medical information do not necessarily understand the clinical information in their MyHealtheVet profile.

Providers suggest that this confusion may require additional consultations or secure messages to explain the data. However, this issue may be mitigated by proxy access, which is in the process of being implemented. This will let a Veteran give a spouse or caregiver access to a MyHealtheVet account in their own name, rather than using the Veteran's login credentials. Lastly, the literature has noted navigability, readability, and other usability issues (Haun et al., 2014); an upcoming redesign is intended to improve ease of use.

In addition to these hurdles for patients, providers also face barriers that decrease their willingness to use the system, including a lack of integration with other clinical data systems. Providers use one electronic system for clinical documentation, but they need to enter a separate system to access secure messages. This lack of integration is partly by design due to security concerns and partly due to technical limitations, though there is awareness and desire for better integration of all virtual care systems on the part of many staff and leaders we interviewed. The OneVA program[41] may be the beginning of this integration attempt; interviewees told us that the Federal Emergency Management Agency Chief Information Officer will be taking a role in leading integration as well.

Providers also cited time burdens associated with answering secure messaging as a barrier to using MyHealtheVet, claiming they were not credited for their time using the tool. Even though office staff handle many of the messages, such as refill requests and appointment scheduling, the tool requires a lot of physician time. However, these concerns seem to have been heard by administrators, who have begun rolling out a "secure messaging workload credit" in an effort to increase provider use and satisfaction. They also plan to improve categorization of messages in the upcoming MyHealtheVet redesign so that messages are routed appropriately.

Patient portals "have the potential to improve both quality and access to care" (Emont, 2013). Evidence shows they can increase care efficiency and productivity, decrease the volume of phone calls and visits, improve chronic disease management, and engage patients. In addition, portal usage can create cost savings due to fewer phone calls, online scheduling, and other features (Emont, 2013). Other studies suggest that the benefits of these tools are limited to populations with the health literacy required to access and understand its features, which may enhance the educational and racial disparities in care for older Americans (Smith et al., 2015). Two recent systematic reviews, however, suggested that there are not enough data to show an impact of portals on medical outcomes (Goldzweig et al., 2013; Kruse, Bolton, & Freriks, 2015).

MyHealtheVet is similar to tools used by other major health care systems, though given the many contextual differences, direct comparisons are not possible. For reference, 62 percent of U.S. hospitals had a patient portal as of 2014 (Wise et al., 2015), and registration rates in each health group varied. For example, 25 percent of primary care patients at Geisinger registered with their portal as of 2011. Kaiser Permanente's portal registration reached 25 percent in 2009 (Emont, 2013) and was up to 73 percent by 2013. Kaiser Permanente's portal allows patients to choose a doctor, schedule appointments, view laboratory results, and order refills (Pearl, 2014). Satisfaction with the Kaiser Permanente tool is very high: 87 percent said in a 2013 survey that messaging with their doctor "did a very good or excellent job of meeting their needs." Kaiser Permanente also reported 2.3 million telephone visits in 2013, also with very high satisfaction results (Pearl, 2014).

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[41] The OneVA Enterprise Architecture program's mission is to "serve as a strategic planning and management tool that helps VA's leadership chart the course for the Department's transformation into a 21st century organization." (http://www.ea.oit.va.gov/EAOIT/OneVA/EAOneVAEA.asp)

3.5.3   Mobile Applications

Mobile applications (apps)—software that Veterans (or anyone) can download and use from their smartphones to monitor their health—may improve access in many ways: assisting in self-help for people who do not need high levels of care, providing supplemental therapy in conjunction with care, and reducing stigma in seeking mental health support.

VA's Office of Connected Health has been rolling out apps for Veterans as well as providers. Media coverage has been enthusiastic:

> VA distributed over 10,000 tablets to clinicians across the country last year and launched a mobile app store with more than a dozen apps to provide Veterans with access to health services. The apps have been downloaded by more than 300,000 users since their release, according to VA officials (Jayakumar, 2015).

However, this article also notes that VA is "cautious," keeping the apps separate from electronic records and primarily using them to dispense general advice.

As of May 2015, 22 apps were available in the VA app store (https://mobile.va.gov/appstore), up from 11 in December 2014 (VA, 2014b). However, in interviews with VA leaders and health care providers, we found little use or even awareness of these tools. Chiefs of staff and medical directors were generally unable to discuss any apps actually used by patients or providers. While some were aware of an app store for Veterans, the use of mobile applications to engage Veterans with their providers appears to be limited.

Mental health is the clinical area with the greatest app use, with 11 different apps and many downloads (Table 3.5-4; we have not identified comparable download counts for the other 11 VA mobile apps). Most are self-help tools that can be used in conjunction with formal therapy. VA's first app was PTSD Coach, which has been downloaded 180,000 times in 85 countries and translated into several languages.

Table 3.5-4. VA Mobile Applications

App Name	Description	Launch Date	Countries	iOS Downloads	Android Downloads	Total Downloads
311VET	Allows Veterans to ask general VA Benefits questions and receive answers 24/7/365	May 20, 2015	59	2,280	1,077	3,357

App Name	Description	Launch Date	Countries	iOS Downloads	Android Downloads	Total Downloads
ACT Coach	Connects Veterans to a provider for acceptance and commitment therapy	Feb 5, 2014	56	4,685	n/a	4,685
CBT-i Coach	Used in cognitive behavioral therapy for insomnia	Jun 5, 2013	80	30,080	11,515	41,595
Concussion Coach	A resource to treat concussion or mild TBI symptoms	Nov 18, 2013	64	4,390	n/a	4,390
CPT Coach	Helps treat PTSD through cognitive processing theory	Feb 6, 2014	49	5,121	n/a	5,121
Exposure Ed	Provides information on military-related exposures to health care providers	Jan 13, 2014	20	2,500	n/a	2,500
Imaging Viewing Solution	Allows VA clinicians and other relevant staff to view patients' X-rays and other stored images	NA	NA	NA	NA	NA

App Name	Description	Launch Date	Countries	iOS Downloads	Android Downloads	Total Downloads
Mindfulness Coach	Resources to help a Veteran practice mindfulness	Jan 31, 2014	75	13,787	n/a	13,787
MOVE! Coach App	A weight self-management app	Nov 18, 2014	43	4,660	n/a	4,660
Moving Forward	Tools to learn problem-solving skills	Jan 31, 2014	47	2,588	n/a	2,588
Parenting2Go	Tools to learn parenting skills	Jan 31, 2014	26	1,292	n/a	1,292
PE Coach	Helps treat PTSD through prolonged exposure therapy	Mar 12, 2012	64	18,693	12,902	31,595
PFA Mobile	Tool for responders providing psychological first aid after a disaster	Aug 29, 2012	60	11,398	1,446	12,844
PTSD Coach	Resource for patients coping with PTSD	Apr 7, 2011	89	115,926	67,859	183,785
Stay Quit Coach	Tools to help Veterans who have quit smoking	May 30, 2013	64	4,620	n/a	4,620

HTML 5 applications (web-based, not downloaded):

HTML5 App Name	Description	Launch Date	Users	Total registered
Airborne Hazards and Open Burn Pit Registry (HTML5)	Online database of health information provided by Veterans and service members about exposures to airborne hazards	April 2014	64,039	41,555
Antibiogram App (HTML5)	Provides VA care team members with antibiotic resistance data	NA	NA	NA
Launchpad (HTML5)	A tool to access all apps that require a secure logon	NA	NA	NA
Mobile Blue Button (HTLM5)	Allows Veterans to access, print, and download information from the electronic health record	NA	NA	NA
Scheduling Manager (field test, limited audience) (HTML5)	Allows Veterans to receive and book appointment requests	NA	NA	NA
Summary of Care (HTML5)	Lets Veterans receive and view VA medical information	NA	NA	NA
Veteran Appointment Request (field test, limited audience) (HTML5)	Allows Veterans to request primary care and mental health appointments	NA	NA	NA

Sources: VA, 2015g, and internal VA communication, Office of Connected Health.

Note: NA indicates that the cell is not applicable because the app has not been nationally released.

None of these apps is integrated with electronic health records, though better integration is planned in the future, as noted above. One example is a new app called "MH PRO," through which mental health patient-reported outcomes from Veterans will be collected and integrated into the electronic health record. One interviewee suggested that this technology could be used in conjunction with telehealth, with Veterans completing a range of home exercises that would

normally be sent on paper via mail or fax, which would help providers obtain immediate feedback.

As a point of comparison, Kaiser Permanente, also a leader in health IT, provides more than 100 Internet, mobile, and video applications that allow patients to make appointments, access their health information, and exchange secure messages with their doctors (Pearl, 2014). However, most health care applications are created by companies, such as electronic health record vendors or other businesses, rather than health care systems, so VA is showing leadership in this effort.

VA mobile apps hold great promise to increase access to care, but due to limited functionality and requirements surrounding their use, there is little evidence that they have done so to date.

3.5.4   VistA/CPRS

VistA is VA's IT platform for all patient records and every aspect of VA operations related to clinical care (for example, clinical documentation, inpatient bed management, outpatient scheduling, supply inventory). VistA is developed and implemented locally; there are actually "126 different VistAs," one for each local health care system. While local facilities substantially develop their own modules and other customizations, they widely incorporate some of the approximately 200 separate modules/applications that VA certifies for national use (VA, 2013c).

CPRS is the graphical user interface to the electronic health record and the order entry system, the parts of VistA used by providers and nurses for day-to-day care of patients at their facilities. When released in 1997, CPRS was widely acknowledged to be innovative and the best in its class. Nearly 20 years later, it is still considered by many to have functionality on par with commercially available systems. However, previous reports have noted that little development has occurred over the past 10 years, and that both the underlying architecture and the functionality of the system are in danger of becoming obsolete (Veterans Health Administration Office of Health Information Product Effectiveness, 2012).

In 2012, VA conducted a comprehensive study of end-user perceptions of CPRS to identify its strengths and weaknesses (Veterans Health Administration Office of Health Information Product Effectiveness, 2012). The resulting report summarized the findings of 297 interviews with clinical and administrative personnel. While it made clear that a substantial number of respondents had a "positive impression of VistA and CPRS," particularly compared with their experiences with other electronic health record systems, it also identified a number of shortcomings, several of which might impede timely and accessible care.

One example detailed in the 2012 report was the existence of "shadow" scheduling systems:

> The project team heard from many participants who maintain 'shadow' scheduling systems using a myriad of programs. While these shadow systems may present a provider's calendar in an easily viewable format, these systems lack the security of VistA. This also creates the possibility of having multiple, incorrect schedules if the shadow schedule is not updated simultaneously when appointments are changed or cancelled.

. . . Several service areas use secured Microsoft Excel spreadsheets to schedule and track appointments. . . . Clinicians at one VAMC maintain paper records to track multiple providers' schedules across specialty areas.

This finding illustrates the centrality of VistA/CPRS to the provision of timely and accessible care. It might be said that the event that triggered the Veterans Choice Act (and this report) was facilitated by a culture of using unauthorized workarounds to make up for a VistA shortcoming (the lack of flexible and usable scheduling tools).

Other key areas for improvement identified in the 2012 VA report included the following:

- Non-intuitiveness of all but the most basic "paper chart equivalent" features
- Tools to support clinical workflow
- Nursing documentation tools
- Mechanisms for secure communication
- Clinical decision support
- Medication reconciliation at discharge
- Clinical reminders
- Alert fatigue
- Lack of a usable problem list functionality
- Lack of organizational or search functionality in "VistA Imaging"
- Inadequate cross-facility and remote access functionality
- Integration with other systems.

For this report, we interviewed CPRS end-users, IT engineers, and management personnel at local and national levels. Our findings were strongly aligned with those of the 2012 VA report: While nearly all shortcomings described in the previous report were also mentioned by current interviewees, there was also positive sentiment for certain CPRS design elements (for example, substantial use of free text), which were perceived to be "care-centric" rather than "billing-centric." Many noted that CPRS is rapidly losing ground to more modern IT systems, but few (if anyone) suggested that CPRS should be exchanged for a commercial off-the-shelf alternative. Many gave voice to the importance of an IT system designed for workflows unique to VA and to the needs of Veterans.

Interviewees noted three primary ways in which CPRS usability can negatively affect the provision of timely and accessible care: time burden of physician/CPRS interaction, faulty transmission and assimilation of information, and the lack of a mechanism for ensuring that future care occurs when it should.

3.5.4.1 Time Burden of Physician–CPRS Interaction

Inefficient tasks in CPRS (for example, unnecessary mouse clicks, unnecessary data entry, or unnecessary time spent assimilating information) mean more time spent with the computer and less spent addressing a patient's concerns. One notable theme to emerge from interviews

is that the inefficiencies with the greatest impact are perceived to be a result of policy decisions, rather than deficiencies in CPRS's functionality.

Central office management is strongly perceived as being overzealous in using CPRS to enforce clinical directives, mandate data collection, and measure compliance. The following quotes are representative:

> Performance measures have really gotten out of hand…Initially there were 10 clinical reminders that were really clinical and useful. . . . Now there are an excessive number. . . Many of these exist for the purposes of data collection. Some of the most onerous ones are unrelated to clinical care.

> We're cluttering up everything to the point that a provider can't work anymore because there's just too many things that you have to address regarding one patient, much of which has nothing to do with their health.

"Clinical reminders" were singled out as a mechanism by which a series of time-consuming patient interactions (and associated documentation) are mandated and compliance audited. Some estimated that a registered nurse or physician spends an average of 15–30 minutes of each visit responding to reminders. For example, one physician noted that he was required annually to ask any hypertensive patient with a body mass index in the "overweight" range whether the patient would like to enroll in an obesity reduction program ("MOVE"), whether or not the patient appeared obese, and whether or not the patient had previously declined. For diabetic patients, providers are required to document a "monofilament exam" to detect diabetic nerve damage at regular intervals, whether or not the patient was already known to have permanent nerve damage. For patients who say they are depressed (whether or not that is their primary reason for a visit), completion of a "suicide prevention reminder" reportedly can take 30 minutes to an hour. One interviewee said his patient went to the emergency room complaining of chest pain, and because he also indicated that he was depressed, "the nurses wanted to take care of the suicide reminder before doing the [electrocardiogram (EKG)]."

Some interviewees indicated that clinical reminders can sometimes be useful (for example, to trigger colon cancer screening). On the other hand, one reported that clinical reminders are not used for patient care at all at her facility because they are not considered reliable. She reported that providers relied on their own improvised systems to track clinically important information, and that responding to reminders was something done for the sake of managers. The between-system variation in the perceived value of reminders is consistent with reports that implementations of VistA/CPRS vary substantially, as does investment and expertise in tasks such as reminder development (Veteran's Health Administration, Office of Health Information Product Effectiveness, 2010).

3.5.4.2 Faulty Transmission and Assimilation of Information

Ensuring that providers use all relevant clinical information to make therapeutic decisions was highlighted as an important component of care access. For a patient to access appropriate follow-up care after an abnormal laboratory or radiology test, there must be a failure-proof mechanism by which an appropriate clinician in an appropriate timeframe sees and acts on the

results. More generally, it is important that each provider who treats a patient for a given constellation of symptoms has access to all elements of the evaluation (both objective data and subjective opinion) that occurred previously.

Interviewees identified several problem areas in this regard:

- **Clinical reports are "buried" in VistA Imaging.** VistA Imaging was developed as a module to store the image data from diagnostic tests (for example, X-rays, EKG tracings (Kuzmak & Dayhoff, 1998)). It is not part of CPRS although it can be launched via a web interface from CPRS. Increasingly, VistA Imaging has been used to store other clinically relevant information. At many facilities, it is the standard place to store scanned text reports of clinical evaluations or diagnostic tests obtained outside the VA system (VA, 2013c). If, for example, a Veteran is referred outside the system for a colonoscopy or ultrasound examination, the results typically are faxed to VA and stored on VistA Imaging. Because these reports are not indexed or searchable, the results might never be seen by a VA provider or incorporated into clinical care (Veterans Health Administration Office of Health Information Product Effectiveness, 2012). Even if one provider sees the report initially, lack of searchability means that others looking for the same information might overlook it.

- **Important information is obscured in an increasing volume of notes.** There is a perception that the number and length of notes has been increasing, in part due to mandatory documentation that is perceived to be of little clinical value. Copying and pasting old notes was also mentioned as a source of increased "noise" that reduces the visibility of important information. The "Where's Waldo" problem has been described as an inherent pitfall of electronic health record systems, not just CPRS (Hartzband & Groopman, 2008).

- **"Alert Fatigue."** Certain abnormal lab or radiology results can trigger automatic alerts to the providers that ordered them or to other personnel. Interviews suggest substantial variation across facilities. For example, at one institution, abnormal fecal occult blood tests are automatically routed to gastroenterology, where administrative personnel ensure that appropriate follow-up action is taken; at others, follow-up is the sole responsibility of the ordering provider. In general, clinicians feel overwhelmed by the number of alerts they receive and fear important ones are overshadowed by unnecessary "administrative alerts" that do not require clinical action.

3.5.4.3   Lack of a Mechanism for Ensuring That Future Care Occurs as Planned

Often, some combination of patient demographics, clinical history, symptoms, treatment guidelines, or provider judgment suggests that a particular type of care should occur at a specific time. For example, a radiologist might recommend a new chest X-ray in six months after an abnormality was found, or a clinician might want to repeat a laboratory test or reevaluate a patient's symptoms at some specific point in time. Several interviewees noted that CPRS lacks a mechanism for ensuring that such follow-up occurs and that, by and large, each provider is left to develop his/her own workarounds, such as using paper notebooks or electronic spreadsheets to track future plans, using the CPRS "problem list" in a way for which it

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was not designed, and documenting "planned future care" at the end of each visit note, and then consistently looking for previous notes during future appointments. While these workarounds might be effective to various degrees, they were generally regarded as failure-prone, particularly when a patient follows up with a provider other than the one initially seen.

3.5.4.4 Subsection Summary

VistA/CPRS are integral to the delivery of timely and accessible care to Veterans. Previous studies have identified a number of strengths and weaknesses of the current technology; our findings confirm them and highlight ways in which CPRS can impact access to care. Whereas VistA was once considered the vanguard, an aging architecture and 10 years of limited development has threatened its future viability. However, interviews across the spectrum of VA personnel—from management and IT thought-leaders to CPRS end-users—suggest strong support for renewed investment in a modern home-grown product rather than transitioning to a commercial off-the-shelf alternative. Interviewees expressed belief that many of the shortcomings of VistA/CPRS are also shortcomings of commercial systems.

We have not evaluated new IT initiatives such as VistA Evolution that are currently in the development stage. These are covered in Assessment H.

3.5.5 Data Exchange

As stated above, ensuring that providers are able to view all available clinical information is an important component of access to care. Whether the missing data are located inside or outside VA, the detrimental impact on access is similar. All U.S. health care providers face challenges exchanging information, especially with other institutions. We describe four forms of data exchange relevant to VA: between local VA systems, with DoD, with private-sector providers, and directly with patients.

3.5.5.1 Data Exchange Between Local VA Systems

Clinical data within each VAMC are stored in a unified medical record and are easily accessible to any facility within that administrative parent, which is similar to other large provider organizations. Data sharing across administrative parents is currently available through the Remote Data Viewer, a more recent application called VistAWeb, and an application currently being rolled out called Joint Legacy Viewer. All these applications allow providers to view data in other VAMCs, but they do not allow providers to do any other operations such as order tests. Our interviews with key informants suggest that they are used frequently by many VA clinicians every week. Clinicians noted limitations with these applications in terms of their ability to integrate seamlessly as part of their workflows, which likely has resulted in lower use than is clinically optimal, while others were unfamiliar with these capabilities altogether. They mentioned that the interface is quite different from that of CPRS for local data, which might be an impediment to some clinicians. Several key informants agreed that data exchange across VISNs works well if a user knows that the data exist (that is, if the user does not think to look for outside records, their existence will not be apparent). One key informant said, "VistAWeb is a hidden gem that people don't know enough about."

One key informant acknowledged that provider IT capabilities that allowed for better workflow integration would save clinicians time, but suggested that usage of existing data exchange capabilities was widespread enough that improvements would not result in large benefits to patients, as most clinicians can find the data when they really need them. In contrast, another said a better integrated system would allow Veterans access to better quality and more timely medical advice, especially Veterans who travel frequently. The integration of medication data is more robust. When a clinician prescribes a medication, the Veteran's drug history is checked against all medications prescribed in any VA location.

While private-sector organizations also face similar challenges with data exchange, direct comparisons to VA are difficult due to differences between organizations and lack of data. The science of data exchange usage measurement is still in its infancy.

VA plans to replace its existing data exchange functionality as part of its VistA Evolution rollout. This version is designed to integrate data across all administrative parents. The primary barriers to improving internal data exchange are technical and organizational in nature and are covered in Assessment H.

3.5.5.2   Data Exchange with DoD

Interest in sharing data between VA and DoD is long-standing. Approximately 400,000 TRICARE beneficiaries receive VA care in a given year (calculated by the authors from the 2010 National Survey of Veterans [Westat, 2010]). Some VA and DoD facilities share resources, and if these arrangements expand, the need for VA-DoD data exchange will also increase.

VA clinicians currently can access DoD data for many years through VistAWeb using the same workflow as accessing data from other VA regions. Reports from stakeholders indicate this happens roughly 250,000 times per week. However, the DoD record is often a scanned report, which limits its utility, especially if it is dozens or hundreds of pages long. They also mentioned that retrieving DoD records is feasible but that providers often do not bother because it is not worth the effort. One said, "I have never seen information on the DoD system."

For VistA Evolution, VA plans to make interoperability with DoD systems a priority and to achieve this by December 31, 2016 (VA, 2014g). This involves creating a unified lifetime health record for Veterans and service members that can be accessed by clinicians at any point in time, regardless of where the information is stored. One benefit of this upgrade is the facilitation of care coordination between providers from different facilities, which may increase the quality of and access to care. In addition, the integration and intercommunication between medical devices can result in time savings and fewer errors in Veteran care. Assessment H describes VistA Evolution in greater depth.

3.5.5.3   Data Exchange with Private-Sector Providers

The purpose of the Virtual Lifetime Electronic Record (VLER) project is to facilitate data exchange between VA and the private sector. This kind of data exchange among unaffiliated institutions is known as health information exchange. In development for roughly five years, the project is partnering with 35 external organizations. In 2012 there were 1,764 unique VA

providers who retrieved data from a provider outside VA (Byrne et al., 2014). More recent data supplied by key informants found 800 transactions per week in which a VA provider sought and received data from a private-sector provider.

Key informants familiar with the VLER project identified the following barriers to data exchange between VA and external organizations:

- Consent: Federal laws require consents from each patient (Goldstein & Rein, 2010).
- Technology: Finding the records can take as much as four minutes.
- Record matching: Finding patient records is challenging because of variation in which traits the data partners use to identify patients; VLER has found the most success matching records based on Social Security number, but the number is being used less frequently.

These barriers are consistent with the findings from evaluations of other health information exchanges (Rudin et al., 2014). Studies of other exchanges have emphasized workflow barriers, which may also be a problem with VLER, but we did not speak with end-users so we cannot be certain. Because VLER is being developed for use within VistAWeb, workflow barriers may be less of a concern for VA than for other exchanges. Other barriers related to technical issues are discussed in Assessment H.

Some of the above barriers are being addressed by VA. For example, to confront delays, VLER is experimenting with pre-accessing a patient's records prior to a visit. Other barriers, such as the patient record matching problem, are an issue for all health information exchanges.

It is difficult to evaluate the VLER project based on usage data because of the nascent state of health information exchange usage measures and little evidence of value brought by exchanges. Three recent literature reviews found limited evidence of impact other than in the emergency department and usage on the order of two to 10 percent of visits. By connecting with 35 distinct partners with 15 vendors (for VLER DIRECT) and beginning to share data, VA maybe at the forefront of interorganizational, cross-vendor data exchange. However, as noted in a recent systematic review, relatively few data exchange initiatives have been formally evaluated (Rudin et al., 2014).

3.5.5.4 Data Exchange with Veterans Directly

Veteran access to their own medical record can serve two purposes. The first is that, until more robust data exchange methods are in place, Veterans can carry their own medical record on visits to their providers. The second, which is discussed in Subsection 3.5.2, is that access to a personal record may allow Veterans to keep better track of their health encounters and increase their understanding of their medical conditions.

As stated in Subsection 3.5.2, VA is a leader in providing patients with access to their own health data via the "Blue Button" mechanism, which allows them to download their entire record from MyHealtheVet in a standardized electronic format. Considering that around 70 percent of Veterans access health care through non-VA facilities, tools such as "Blue Button" could help improve the quality and coordination of care (Hynes et al., 2007; Nazi et al., 2014).

Barriers to improved access are the same as those of access to MyHealtheVet (see Subsection 3.5.5.2).

3.5.6 Care Management

Care management programs attempt to proactively provide care for patients with the goal of improving outcomes and saving costs that can be spent for other purposes, such as expanding access. IT has the potential to be an important component in care management. Care management is an active area of research and development in VA and other organizations. For this reason, we did not attempt to document the complete inventory of IT capabilities that support care management in VA, which includes a wide range of functionalities such as registries, dashboards, and predictive analytics (Wang et al., 2013a). Few such programs have been formally evaluated and it is difficult to assess the capability without such an evaluation.

One program that has been evaluated in VA is the home telehealth program, which was implemented nationally in 2003 to 2004. Published in 2014, a retrospective matched cohort study of 4,999 Veterans found that the costs of patients receiving home telehealth decreased by 4 percent, while the cohort not receiving home telehealth saw a 48-percent increase (Darkins, 2014). The author contrasts VA's program with others, pointing out that VA's program involves a "biopsychosocial model" in which care coordinators give more than technical advice. A 2013 audit of the home telehealth program by the Office of Inspector General questioned whether this capability was used to its greatest potential, pointing out that its recent growth does not includes the kinds of patients who would most benefit (VA, Office of Inspector General, 2015d).

3.5.7 Overarching Informational Resources Issues

Several themes emerged across the various IT capabilities. These include the existence of organizational barriers, the need for more widely available wireless internet at VA facilities, the tension between information security and accessibility, and the existence of several innovative programs to improve VA's IT capabilities.

3.5.7.1 Organizational Barriers

Managers and providers across the VA system commented on the organization's ability to develop, maintain, and deliver IT tools. On one hand, the dynamic nature of these technologies requires an agile development process that is able to quickly iterate and enhance products. Units involved in this process highlight that administrative barriers in the approval process stymie development and that there is generally "too much focus on planning and reporting and not enough on execution."

On the other hand, there is a lack of strategic focus in how management has addressed technology issues on a project-by-project basis, instead of holistic product management. Hence, different lines receive varying levels of attention and budget. These organizational issues, along with others related to communication across units, have an impact on IT strategy and are addressed in greater detail in Assessment H.

3.5.7.2 IT Infrastructure: Wireless Internet at VA Facilities

Wireless Internet (wifi) enables use of mobile technology, such as iPads, both for patients and for providers. However, according to the results of our facilities survey, wifi is not widely available at VA medical centers. According to survey respondents, patients and guests can expect blanket wifi everywhere at only 21 percent of VAMCS, and no wireless Internet at all in almost 40 percent. Staff have higher rates of reliable access, but 38 percent of them also have no access at VAMCs. Wifi access is even lower at CBOCs, where 72 percent have none for patients and 64 percent do not have it for staff. Even when there is access, it is often not extensive or reliable. The lack of reliable wifi likely impedes innovation in and use of mobile health applications at VA.

3.5.7.3 Security versus Access to Information

As demand for new health IT applications increase, there is a heightened tension between keeping the information secure while at the same time allowing it to be accessible at the appropriate times and places. We found that this tension tends to manifest in the form of how existing security policies are interpreted and implemented.

3.5.7.4 Future Improvements

For all the capabilities we investigated, there were plans for improvements. We focused primarily on VA's existing rather than projected capabilities, because it is challenging to accurately project IT capability into the future. In particular, it is difficult to know which IT projects will succeed, as many fail or are delayed, in VA and in the IT industry in general. It is beyond the scope of this work to exhaustively describe VA's innovation program and would be impossible to accurately predict which ones will have the most potential for scaling and the extent to which they will improve timely and accessible care for Veterans. Instead, we briefly mention a few innovative projects under way as illustrative examples.

- Mobile CPRS: This capability will allow providers to access the medical record on their mobile device.

- Proxy access into MyHealtheVet: This capability will allow family or friends of Veterans to more easily serve as caregivers by allowing them to log in to the Veteran's medical record, with permission from the Veteran.

- Annie texting program: The Annie program—named after Lt. Annie G. Fox, the first woman to receive the Purple Heart for combat—is in a pilot stage. It focuses on texting patients with congestive heart failure, diabetes, hypertension, and weight concerns as well as sending appointment reminders. The scope will expand after the pilot is evaluated (Evans, 2014).

- Watson: VA has a new $16 million contract with IBM Watson, which has been discussed in the media (for example, Ravindranath, 2014) though VA has made little information available to date. One VA interviewee described a plan to use Watson to "find lurking problems in the medical record"; the tool can review medical notes to identify missed problems, and then the clinician can check to see what data contribute to identifying that problem. It also is capable of searching the medical literature. The VA employee posited that, "this could save 3–5 minutes per visit based on better searching for information in the record."

3.5.8 Subsection Summary

Overall, we found that VA is extensively using many health IT capabilities in a variety of ways that support delivery of timely and accessible care to Veterans. Our assessment shows that VA is on par or exceeds other organizations' capability to use IT in care delivery in many regards.

For example, telehealth—the use of technologies to provide clinical care when distance separates patients and providers—has been a focus for VA for more than a decade, and VA is now recognized as a world leader in this area. Users of MyHealtheVet express satisfaction with the site's content, functionality, and performance. VA also continues to develop mobile applications (apps)—software that Veterans can download and use from their smartphones to monitor their health.

Among every capability, we found clear barriers to further taking advantage of what IT can offer. Some of these barriers are faced by all health systems, while others are unique to VA. Although telehealth has grown rapidly, its growth has fallen short of VA targets, reaching 11–12 percent of Veterans in 2013 and 2014; key barriers to further use include insufficient space for telehealth, inadequate infrastructure and support, and lack of leadership/provider buy-in. There are also barriers to expanding use of MyHealtheVet, including the administrative burden on users of registering and issues with the technology. Providers also face barriers that decrease their willingness to use the system, including a lack of integration with other clinical data systems. VA mobile apps hold great promise to increase access to care, but due to limited functionality and requirements surrounding their use, there is little evidence that they have done so to date.

Previous studies have identified a number of strengths and weaknesses of the current VistA/CPRS technology; our findings confirm them and highlight ways in which CPRS can impact access to care. Whereas VistA was once considered the vanguard, an aging architecture and 10 years of limited development has threatened its future viability. However, interviews across the

spectrum of VA personnel—from management and IT thought-leaders to CPRS end-users—suggest strong support for renewed investment in a modern home-grown product rather than transitioning to a commercial off-the-shelf alternative. Interviewees expressed belief that many of the shortcomings of VistA/CPRS are also shortcomings of commercial systems.

3.6   Section Conclusion

VA operates a unique health care system with broad and deep resources and capabilities. However, VA faces many barriers to using resources in the most effective way that will need to be addressed in order to improve performance for Veterans. Some of these barriers are specific to VA, while some affect the U.S. health care system more broadly:

- **Fiscal resources:** We identified concerns about the data used for VA's budget planning as well as challenges related to budgeting inflexibility resulting from the congressional appropriation processes and challenges related to VA's allocation processes.

- **Workforce and human resources:** VA faces shortages of physicians in some geographic areas and of certain physician specialists more generally. These constraints are influenced by a number of factors, including relatively low salaries, a slow credentialing process, and infrastructure constraints. There are also challenges associated with VA workforce planning and assessment processes, including challenges in selecting methods, identifying external benchmarks, and obtaining complete and accurate data.

- **Physical infrastructure**: Interviewees in leadership or clinical care positions were generally satisfied with VA medical equipment and supplies, but they noted that physical space was in short supply and that it was difficult to update the physical space in older buildings to accommodate new medical technology and equipment.

- **Purchased care:** VA has many outside options for purchasing care, including several programs and various types of payment or contractual arrangements. However, managing these overlapping programs has been a challenge.

- **IT resources:** VA has been and continues to be an innovator and leader in developing IT capabilities, although there is room for improvement in some areas, including issues related to the management and planning of its IT systems. Among every IT capability we studied, we found clear barriers to further taking advantage of what IT can offer, including inadequate infrastructure, lack of facility leadership and provider buy-in, and administrative burden.

In the next section, we examine how VA's resources and capabilities are utilized by assessing Veterans' access to VA care.

4 Assessment of Access to VA Care

As discussed in the previous section, VA operates a unique health care system with broad and deep resources and capabilities. However, ensuring Veterans' access to health care depends not just on the level of resources and capabilities available, but on how well VA's health care system addresses Veterans' needs. In this section, we assess Veterans' access to care along the five dimensions described in Section 1: geographic, timely, financial, digital, and cultural. For each dimension, we describe access within the VA system, compare access in VA to non-VA settings when reasonable comparisons are available, describe consequences of access deficiencies, and outline potential opportunities for improvement.

These analyses use many data sources, including Veteran and enrollee locations and demographics, inventories of VA and non-VA medical facilities and infrastructure, U.S. road network data (to estimate distances), performance measures tracked by VA, evidence from peer-reviewed literature, qualitative interviews with VA health care administrators (VISN quality management and medical officers, VAMC associate directors, CBOC directors and site managers) and health care providers (CBOC and VAMC providers, VAMC nurses and paraprofessionals), and online reviews of VA facilities.

A summary of methods used in these analyses is shown in the box.

Overview of Methods and Data for Access to VA Care

- We conducted a systematic literature review to examine the accessibility of VA care across the five dimensions of access (geographic, timely, financial, digital, cultural) and to identify facilitators and barriers of access.
- We analyzed narrative reviews of VA facilities submitted by users of the online rating website Yelp.
- We conducted additional data analyses specific to each of the dimensions, as described below.

Geographic

- To assess geographic access, we built a GIS, using Esri's ArcGIS Version 10.2. We analyzed enrollee access to VA medical facilities with different levels of complexity and different capabilities using several different access standards, including a 40-mile straight line distance, 40-mile driving distance, 60-minute driving time, and 60-minute public transit time. In all analyses, we assessed variation in geographic access estimates by VISN.
- We also estimated geographic access to purchased care for enrollees living outside the 40-mile driving distance boundaries around VA medical facilities. We assessed access to non-VA facilities with different levels of complexity and different services as well as non-VA clinicians practicing in 12 clinical specialties.
- Data used in these analyses included the VA Survey of Enrollees, Veterans Affairs Site Tracking System, American Community Survey, Esri v10.2 Business Analyst Extension, VA Planning Systems Support Group Enrollee file, VA Clinical Inventory Facility Profile Report, VA Clinical Inventory Facility Services Report,

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and the SK&A Office-Based Physician, Nurse Practitioner, and Physician Assistant Database.

Timeliness

- We analyzed system-level measures of timeliness, including wait times for primary care, mental health care, and specialty care appointments, as well as Veteran reports regarding access to timely care, appointments, and information from the SHEP PCMH survey. For each measure, we conducted descriptive analyses of the performance rates available at the facility level, noting the variation in performance across facilities nationwide. For measures with rates available for more than one year, we created a descriptive time series and classified changes over time as improving, worsening, or remaining the same.
- We also analyzed five years of data (2010–2014) from the Survey of Enrollees to describe attitudes of Veterans related to timely access to VA care. Data used in these analyses included VSSC, VA SHEP PCMH Survey, and VA Survey of Enrollees.

Financial

- To assess financial access, we assessed the cost of VA care, out-of-pocket expenses, and Veterans' perspectives regarding the value of VA care. For these analyses, we used data from the Medical Expenditure Panel Survey and VA Survey of Enrollees.

Digital and Cultural

- Our assessment of digital and cultural access focused, respectively, on Veterans' internet access and Veterans' perspectives regarding the degree to which VA personnel treat them with respect. In measuring digital and cultural access, we used data from the VA Survey of Enrollees.

- For complete details of the methods used to assess access in all of these dimensions, please refer to Section 2 of this report and Appendix A-1.

4.1   Geographic Access

In this report, we have defined geographic access as the ease of traveling to health care providers. For example, how far does a Veteran live from needed health care services? How long does it take to travel to appointments? Is it possible for the Veteran to take public transportation, and if so, how long is spent in transit? As described above, geographic access is one of several types of access. Because the Veterans Choice Act set a standard of 40 miles maximum distance from VA medical facilities, geographic access is an important dimension for our assessment of VA health care.

4.1.1 Effects of Geographic Factors on Enrollment in VA, Use of VA Health Care Services, and Health Outcomes

Travel time to VA facilities and availability of transportation affect enrollment in VA, reliance on VA, and use of certain health care services. Although Veterans may face similar challenges in traveling to care regardless of whether the care is provided by VA or private-sector providers (Wakefield et al., 2007), VA health care providers we interviewed noted that a long distance from a facility or concerns about transportation to the nearest facility may lead Veterans to seek alternative sources of health care. Studies of female, Medicare-eligible, and rural Veterans support this view, finding that these Veterans are less likely to seek or continue to seek care from VA if they live farther away from VA facilities (Petersen et al., 2010; Buzza et al., 2011; Liu et al., 2011; Hamilton et al., 2013; Nayar et al., 2013; Friedman et al., 2015). Similarly, Veterans who are eligible for both VA care and Medicare are more likely to rely on Medicare than VA if they live in rural areas or metro-adjacent areas, or live more than 50 miles from a VA facility (Hynes et al., 2007; Kramer et al., 2011; Shen et al., 2005; Weeks et al., 2005). Veterans who live farther from VA facilities have been shown to be less likely to visit a VA pharmacy for prescriptions, receive a transplant, have radiation treatment, or use radiology or laboratory services at a VA facility than Veterans who live inside VA service areas or in urban areas (Weeks & West, 2007; French et al., 2012; Patterson et al., 2014).

In interviews, VA health care workers concurred with findings of prior studies reporting that although coordination and continuity of care within VA are generally good, challenges are faced by those who live far away (McCarthy et al., 2007; Skolarus et al., 2013). One study of Veterans with serious mental illness found that those who lived farther from VA had fewer visit days, but more visits per day, suggesting that Veterans who live farther away are more likely to "chain" appointments by scheduling more than one in a single day (McCarthy et al., 2006).

Veterans who live farther from health care facilities also face a greater likelihood of adverse health outcomes. For example, greater distance from a VA or other transplant center has been shown to be associated with lower likelihood of being waitlisted for a liver transplant and receiving a liver transplant, and greater likelihood of death among Veterans who are eligible for liver transplantation (Goldberg et al., 2014). Another study found that distance from a VA facility was significantly associated with PTSD symptom presentation. In particular, female Iraq and Afghanistan Veterans living 11 to 25 miles from the closest VA facility were twice as likely as Veterans located 0 to 10 miles from the nearest facility to belong to intermediate and high-symptom PTSD latent classes (Hebenstreit, Madden, & Maguen, 2014).[42]

Although distance and transportation are the dominant factors determining Veterans' geographic access to VA care, availability of convenient parking may also affect Veterans' use of VA facilities. Insufficient parking was among the top 10 most common themes described in the

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[42] The authors suggest that further research is needed to examine whether Veterans with higher-intensity PTSD live in rural regions because their acuity demands it, or whether distance from treatment elevates disease acuity.

online rating website Yelp reviews about VA facilities; of 1,547 comments posted to Yelp about VA facilities between 2007 and 2015, 6 percent mentioned parking, with twice as many comments noting inadequate parking than adequate parking.

4.1.2 Alternative Standards for Geographic Access to Care

The Veterans Choice Act defines geographic access to care using a standard of a maximum distance of 40 miles between a Veteran's residence and any VA medical facility. Veterans living within 40 miles of a medical facility are considered to have adequate geographic access to care. Those living beyond this distance are eligible for the Veterans Choice Program, which provides Veterans with an opportunity to seek purchased care located closer to their homes. This standard was initially measured by VA along a straight line between residence and facility, but was reinterpreted in March 2015 as driving distance measured along roadways (Hicks, 2015).

The recent change in this rule illustrates that the standard for geographic access can make a difference in who qualifies for the Veterans Choice Program. In this subsection, we examine alternative standards for geographic access to care, including 40-mile straight-line and driving distances, among others.

4.1.2.1 The 40-mile Driving Distance Standard

Figure 4-1 shows the geographic distribution of VA medical facilities (VAMCs, health care centers, multispecialty CBOCs, and primary care CBOCs) surrounded by 40-mile driving distances for enrollees.[43] VA medical facilities of different types are shown as colored dots. Concentrations of enrollees are shown in blue-gray areas, with darker shades representing places where more enrollees live. The 40-mile areas around VA medical facilities are depicted with yellow-shaded polygons. Figure 4-1 shows that 40-mile driving distances surrounding VA facilities reach the vast majority (92.7 percent) of VA enrollees.

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[43] Figure 4-1 shows enrollees' geographic access to VA medical facilities, while Figure 3.3-1 showed VA medical facilities and population density of all Veterans (including enrollees and non-enrollees).

Figure 4-1. Enrollees' Geographic Access to VA Medical Facilities: 40-Mile Driving Distance
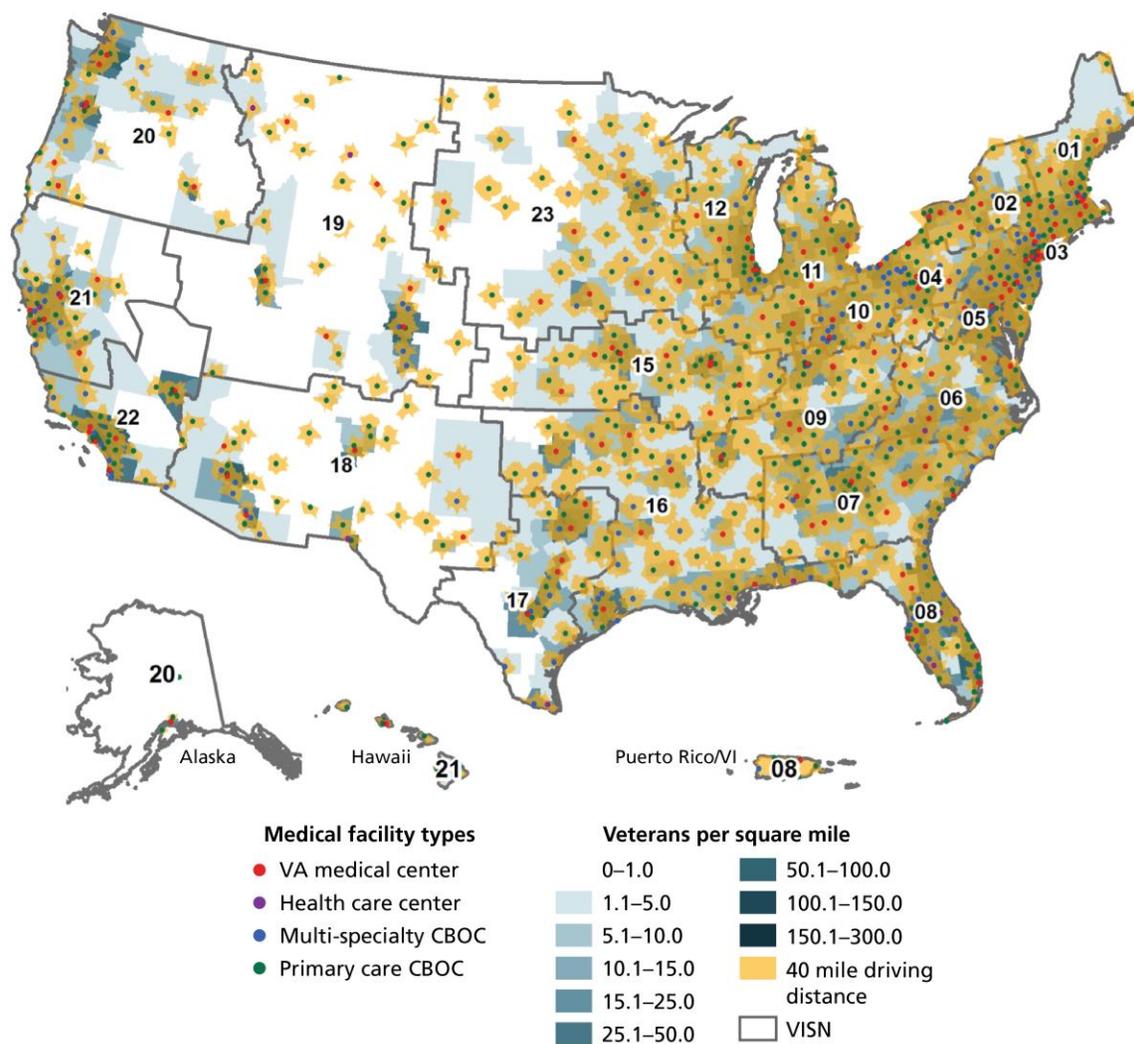
Medical facility types
- 🔴 VA medical center
- 🟣 Health care center
- 🔵 Multi-specialty CBOC
- 🟢 Primary care CBOC

Veterans per square mile

0–1.0	50.1–100.0
1.1–5.0	100.1–150.0
5.1–10.0	150.1–300.0
10.1–15.0	40 mile driving distance
15.1–25.0	VISN
25.1–50.0	

Sources: Authors' analysis of Veterans Affairs Site Tracking System and VA Planning Systems Support Group Enrollee file from second quarter 2015.

4.1.2.2   Other Geographic Access Standards

A limitation of this distance standard is that it does not account for differences in travel speed in urban versus rural areas or in private versus public transportation. Enrollees traveling in rural areas and by private vehicle may cover 40 miles much more quickly than those in urban areas or by public transportation. An alternative approach accounts for travel *time* instead of *distance*, a standard used widely in studies of geographic access to care (Branas et al., 2005; Klein et al., 2009; Concannon et al., 2010; Concannon et al., 2011; Concannon et al., 2013; Barbash et al., 2014). Travel time can further be considered for people with access to a car and for people using public transportation. Figures 4-2 and 4-3 show how four standards of geographic access overlap in Pittsburgh, Pennsylvania, and Southern California, respectively.

The 40-mile straight-line distance standard is depicted as a gray circle around the VA medical facility. The 40-mile driving distance standard is shown in red. The 60-minute driving time is shown in blue; areas of overlap between this standard and the 40-mile driving distance standard are shown in purple. The 60-minute public transportation time standard is shown in yellow.

Figure 4-2. Four Geographic Access Standards in Pittsburgh
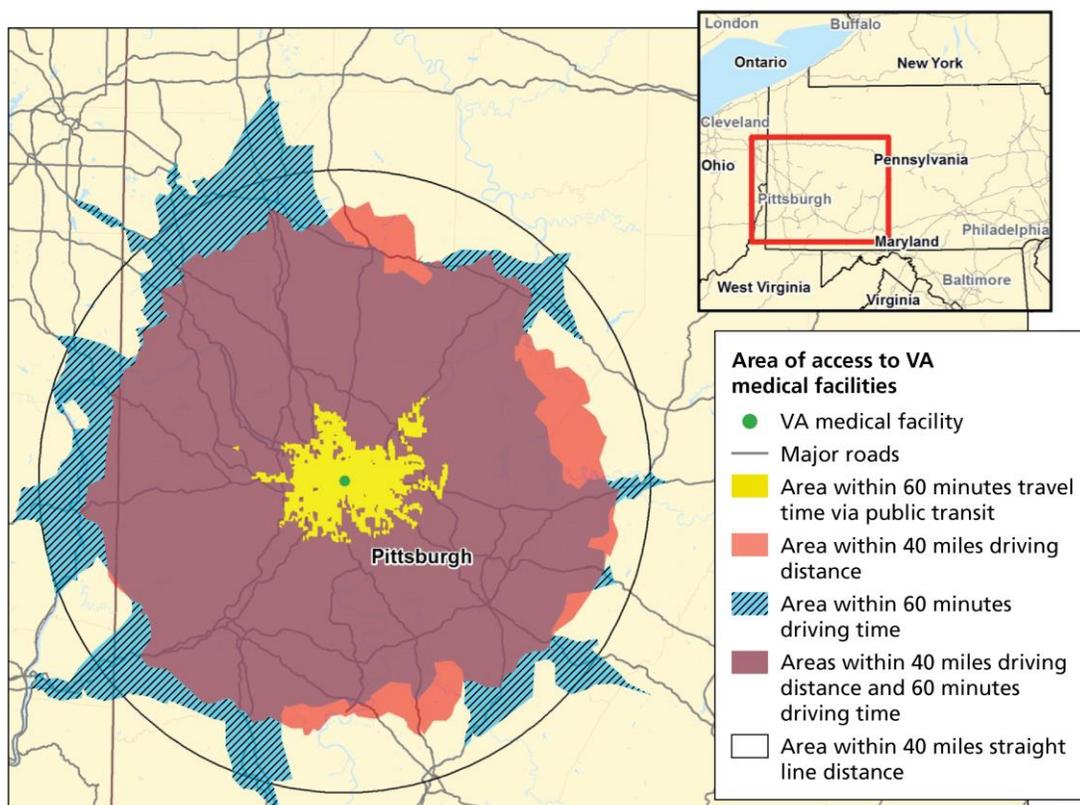
Sources: Authors' analysis of Veterans Affairs Site Tracking System and VA Planning Systems Support Group Enrollee file from second quarter 2015.

Figure 4-3. Four Geographic Access Standards in Southern California
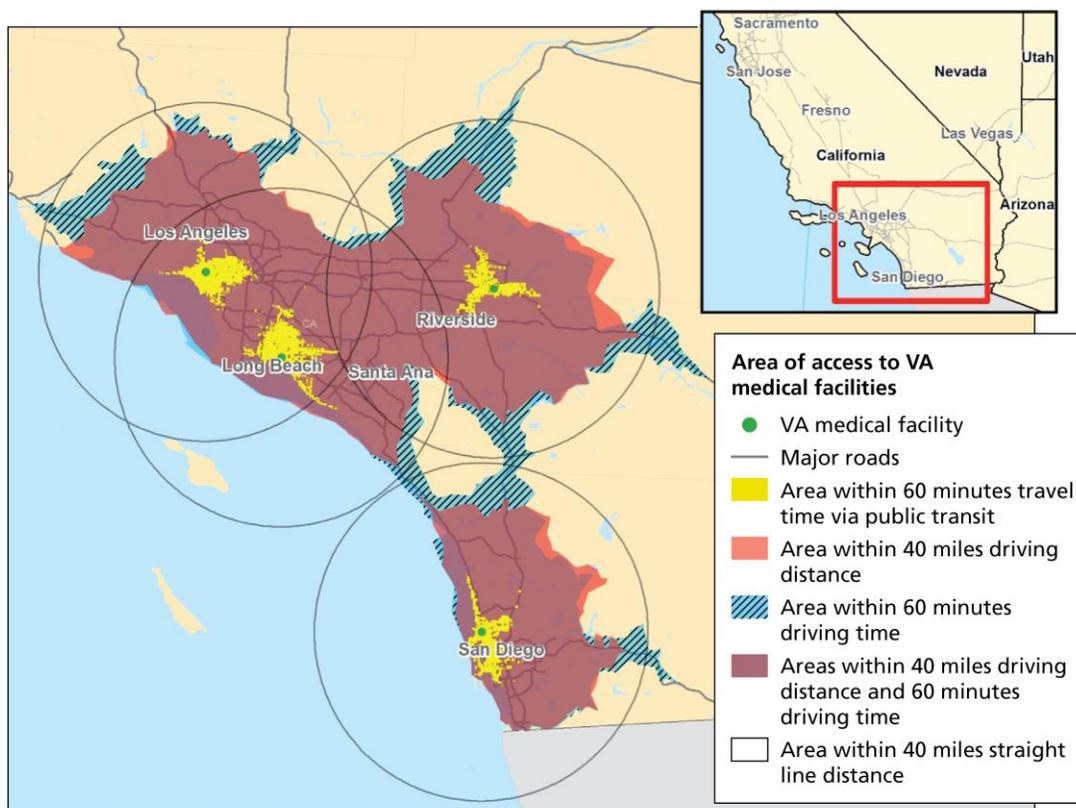
Sources: Authors' analysis of Veterans Affairs Site Tracking System and VA Planning Systems Support Group Enrollee file from second quarter 2015.

These maps show that 40-mile and 60-minute driving areas are comparable in Pittsburgh, while the 60-minute driving time area—without accounting for traffic slowdowns—covers more ground in Southern California. The 60-minute public transportation areas are much smaller, illustrating challenges associated with accessing VA services without a car.

4.1.3   Enrollees' Geographic Access to VA Care

Figure 4-4 shows how the four standards of geographic access would affect the estimated proportion of enrollees who have geographic access to different levels of complexity at VA medical facilities. The standards for geographic access—40-mile straight-line distance, 40-mile driving distance, 60-minute driving time (in free-flow traffic), and 60-minute public transit time—are arrayed in four groups along the x-axis. Within each group, geographic access to VA medical facilities is presented in six bars representing access to facilities with different levels of complexity.

Figure 4-4. Geographic Access to VA Facilities, by Type of Facility and Standard
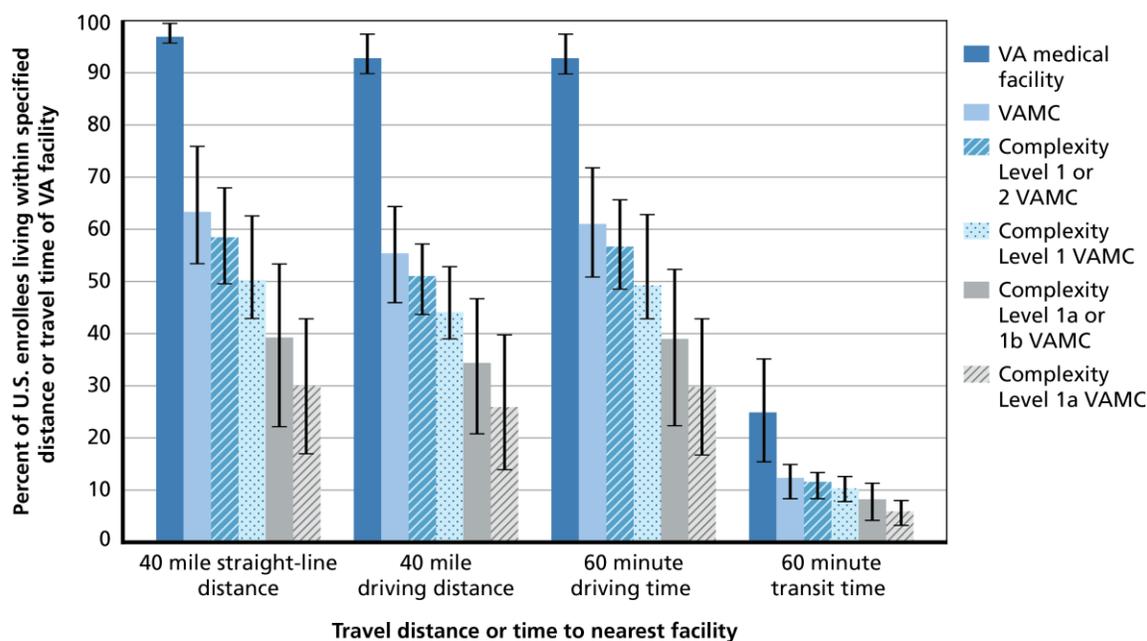
Sources: Authors' analysis of Veterans Affairs Site Tracking System and VA Planning Systems Support Group Enrollee file from second quarter 2015.
Notes: Vertical bars represent national estimates. Black lines on the bars represent the interquartile range of values across 21 VISNs.

4.1.3.1   Enrollees' Geographic Access to Any VA Medical Facility

Overall, the first three standards do not differ a great deal in their summary effects on estimates of geographic access to any VA medical facility (Figure 4-4). The left-most bar in each group presents the proportion of enrollees that have geographic access to any VA medical facility (N = 871). The 40-mile straight-line distance standard results in an estimate of 96.8 percent of enrollees (N = 8,367,877) having access while the 40-mile driving distance results in an estimate of 92.7 percent and a 60-minute driving time standard results in an estimate of 92.8 percent.

By changing the standard from straight line to driving distance, therefore, we estimate that VA more than doubled the number of enrollees meeting geographic access criteria for eligibility for the Veterans Choice Program, from 3.2 percent (N = 289,516) to 7.3 percent (N = 658,890) of enrollees.

If enrollees rely on public transportation, they face a significant barrier to access. Only 24.9 percent of all enrollees live within a 60-minute transit time from any VA medical facility (Figure 4-4). There is substantial variation across VISNs in the percentage of Veterans within 60-minute transit time to a VAMC or CBOC (interquartile range, 15.3 percent to 35.2 percent; range, 9.3 percent to 60.1 percent). The Veterans Transportation Service does not currently collect information on the number of enrollees who use public transportation to get to and from

medical care. This may be useful information to collect in future planning for supplemental transportation services.

4.1.3.2   Enrollees' Geographic Access to Higher-Complexity VA Medical Facilities

Geographic access to higher-complexity VA medical facilities is considerably lower than the estimates of access to any facility. The five right-most bars in each grouping in Figure 4-4 show how geographic access estimates fall with each increasing level of medical facility complexity. For geographic access to care provided at VAMCs, the percentage of enrollees residing less than 40 miles driving distance away drops from 92.7 to 55.3 percent of enrollees. Fewer enrollees have access to higher-complexity facilities: 50.9 percent live within 40 miles of complexity level 1 or 2 facilities, 44.0 percent have access to complexity level 1 facilities, 34.3 percent have access to complexity level 1a or 1b facilities, and 26.0 percent have access to complexity level 1a facilities.

Our estimates of average driving distances to VA medical facilities with different levels of complexity also show that geographic access is more difficult as complexity levels increase (Table 4-1). The average driving distance to any VA medical facility is 15.4 miles for all enrollees (standard deviation = 15.7 miles). This distance increases to 41.4 miles (standard deviation = 39.0 miles) when driving to a VAMC, 44.8 miles (standard deviation = 42.7 miles) to a level 1 or 2 VAMC, 52.9 miles (standard deviation = 50.7 miles) to a level 1 VAMC, and 80.9 miles (standard deviation = 65.1 miles) to a level 1a VAMC.

Table 4-1. Mean (Standard Deviation) Driving Distance to Closest VA Medical Facility (in miles), by Type of Facility

Type of VA Medical Facility	All Enrollees	Enrollees Residing >40 Miles from Nearest VA Medical Facility	Enrollees Residing <40 Miles from Nearest VA Medical Facility
Any VA Medical Facility (N = 871)	15.4 (15.7)	57.9 (21.2)	12.2 (9.3)
Any VAMC (N = 163)	41.4 (39.0)	91.7 (38.6)	16.5 (10.5)
Complexity Level 1 or 2 VAMC (N = 129)	44.8 (42.7)	97.6 (42.2)	16.6 (10.6)
Complexity Level 1 VAMC (N = 97)	52.9 (50.7)	109.3 (46.9)	16.6 (10.5)

Type of VA Medical Facility	All Enrollees	Enrollees Residing >40 Miles from Nearest VA Medical Facility	Enrollees Residing <40 Miles from Nearest VA Medical Facility
Complexity Level 1a or 1b VAMC (N = 64)	66.0 (60.5)	122.2 (50.8)	17.0 (10.4)
Complexity Level 1a VAMC (N = 47)	80.9 (65.1)	128.1 (50.7)	17.4 (10.5)

Sources: Authors' analysis of Veterans Affairs Site Tracking System and VA Planning Systems Support Group Enrollee file from second quarter 2015.

Notes: Facility counts changed over the study period as a result of site reclassifications. The numbers in this report come from an April 2015 extract from Veterans Affairs Site Tracking System that followed a major VA site reclassification in March of 2015.

4.1.3.3   Enrollees' Geographic Access During Rush Hour Traffic

Driving time standards account for geographic features like road networks, elevation, geographic barriers, and area differences in travel speeds. A limitation of these standards, however, is that they typically do not account for traffic slowdowns. We use the 2012 Urban Mobility Report[44] (Schrank, Eisele, & Lomax, 2012) to adjust for slowdowns during typical peak rush hour (6 to 10 AM and 3 to 7 PM) travel. For example, a travel time index of 1.30 indicates a 20-minute trip at free-flow speeds takes 26 minutes (30 percent longer) during rush hour periods.

Figure 4-5 compares driving times to VA medical facilities in normal free-flow traffic and rush hour traffic in the 101 metropolitan areas with travel time index values available. The percentage of enrollees within 60 minutes driving time of any medical facility drops from 93.9 percent in free-flow travel to 82.3 percent in peak traffic.[45] Similarly, the percentage of enrollees with 60-minute driving time access to facilities with different complexity levels declines by four to eight percentage points in rush hour traffic compared with free-flow traffic.

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[44] We obtained the travel time index for 101 metropolitan areas. Travel time indices for other metropolitan regions were not available

[45] Because this analysis was conducted in the subset of 101 metropolitan regions in which the travel time index values were available, this estimate is slightly different than the 60-minute driving time estimate across the United States.

Figure 4-5. Geographic Access to VA Facilities During Rush Hour Traffic, by Standard
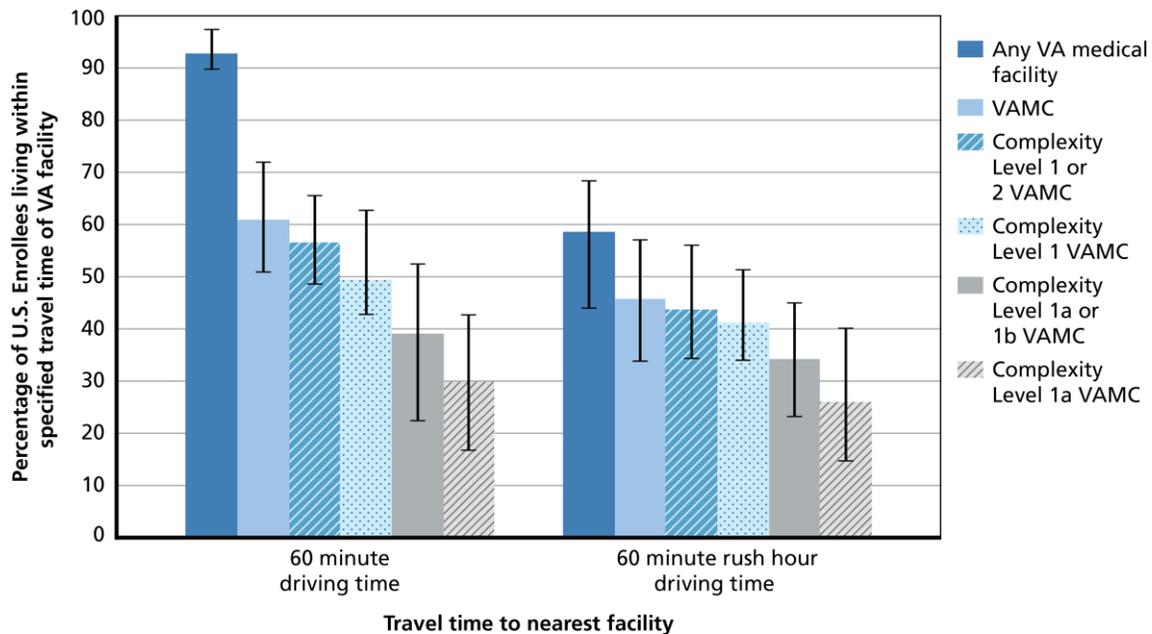
MS4675B-4.5

Sources: Authors' analysis of Veterans Affairs Site Tracking System and VA Planning Systems Support Group Enrollee file from second quarter 2015.

Notes: Vertical bars represent national estimates. Black lines on the bars represent the interquartile range of values across 21 VISNs.

4.1.3.4   Enrollees' Geographic Access to Specific Types of VA Care

The Veterans Choice Program eligibility standards are measures of access to any medical facility; they do not account for whether needed services are available at that facility. We measured geographic access to 27 services (Table 2-7) that may be needed in the care of one or more of seven illustrative clinical populations. We mapped variables from VA's clinical inventory profile and services to these 27 services; the mapping and variables are shown in Appendix Table F-10. To examine how geographic access estimates change when one of these services is needed, we estimated the percentage of enrollees at the VISN and national levels with access to each one of these services (Table 4-2). Estimates of geographic access among Veterans and enrollees using both the 40-mile driving distance and 60-minute driving time standards are presented for all 27 services in Appendix F.

Table 4-2. Enrollees' Geographic Access to VA Clinical Population-Specific Services

Services (by Clinical Population)	Percentage of Enrollees Living within 40 Mile Driving Distance of a VA Facility with the Service	Enrollees' Mean (Standard Deviation) Driving Distance to the Nearest VA Facility with the Service (in miles)
Acute Coronary Syndromes		
Non-invasive cardiology services	58.3	39.3 (37.7)
Emergency department	50.2	45.9 (42.3)
Coronary care unit	50.1	46.0 (42.4)
Interventional cardiology	43.4	53.4 (48.7)
Telemetry (if CCU/ICU is not available)	35.2	63.5 (55.7)
Diagnostic cardiac catheterization	42.0	54.2 (49.9)
Cardiac surgery	39.7	58.3 (51.2)
Colon Cancer		
Primary care clinic	91.8	15.8 (16.1)
Computerized tomography scan	60.0	38.3 (36.6)
Oncology services	55.3	42.1 (41.1)
Colonoscopy	58.0	40.0 (38.8)
Surgical services	54.3	42.4 (39.8)
TBI		
Specialty care	62.0	36.6 (36.8)
Polytrauma support clinic team	36.9	59.7 (50.0)
Polytrauma network site	20.8	86.8 (66.8)
Polytrauma Rehabilitation Center (Program)	4.4	118.2 (70.3)
Type II Diabetes Mellitus		
Primary care clinic	91.8	15.8 (16.1)
Diabetes specialty or endocrinology clinic	72.2	29.8 (32.7)
Podiatry clinic	70.3	30.7 (33.2)
Ophthalmology clinic	53.8	43.9 (41.0)
PTSD		
Mental health services	90.4	16.4 (17.3)

Services (by Clinical Population)	Percentage of Enrollees Living within 40 Mile Driving Distance of a VA Facility with the Service	Enrollees' Mean (Standard Deviation) Driving Distance to the Nearest VA Facility with the Service (in miles)
Psychotherapy	84.7	20.3 (22.2)
Domiciliary Residential Rehabilitative Treatment Program	17.5	88.0 (57.7)
SUD		
Mental health services	90.4	16.4 (17.3)
Outpatient specialty care	81.8	22.5 (23.5)
Methadone	68.9	32.5 (35.3)
Inpatient detoxification	52.4	44.2 (40.7)
Residential treatment	29.2	73.9 (58.7)
Conditions Requiring Gynecological Surgery		
Gynecological surgery services	48.4	46.8 (43.9)

Sources: Authors' analysis of Veterans Affairs Site Tracking System and VA Planning Systems Support Group Enrollee file from second quarter 2015.
Note: The percentage of enrollees with access to telemetry is based on only those facilities without CCU/ICU services.

Almost 92 percent of all enrollees have geographic access to primary care services, critical for screening and diagnosis of populations needing advanced specialty care. However, substantially lower proportions of enrollees have geographic access to advanced and specialized services in VA facilities. Between 35 percent and 58 percent of enrollees have access to specialized services for acute coronary syndromes (Table 4-2). Similar figures for other specialized services are between 54 and 60 percent for specialized colon cancer care, and between 54 and 72 percent for specialized diabetes care.

Though some conditions are found much more commonly in Veterans than in other populations, geographic access to care for these conditions is often at or below 50 percent. Residential services for PTSD and SUD are accessible to 18 percent and 29 percent of enrollees, respectively (Table 4-2). Patients with active SUD have 52.4 percent access to inpatient detoxification services. Only 4.4 percent of enrollees have geographic access to a polytrauma rehabilitation center for TBI under this standard, while 20.8 and 36.9 percent have geographic access to a VA polytrauma network site and a VA polytrauma clinic team, respectively. While the nature of residential services means that the actual distance from home is less important than for outpatient or short inpatient care, it also means that Veterans living at more distant facilities may be far away from family or other support networks.

Specialized services for women's health are a growing need for VA; 48.4 percent of enrollees have geographic access to this type of care.

4.1.3.5   Variation Among VISNs in Enrollees' Geographic Access

The estimates in Figures 4-4 and 4-5 are national estimates of geographic access to VA medical facilities. These estimates vary across VISNs. The black bars in both figures represent the interquartile range[46] of geographic access estimates across VISNs. The percentage of Veterans meeting the 40-mile driving distance and 60-minute driving time standards does not vary widely across VISNs from the 25th to 75th percentile of the distribution.

However, some VISNs are outliers in terms of geographic access. Analysis of geographic access in VISNs below the 25th percentile and above the 75th percentile shows that outlier VISNs have substantially different levels of geographic access. For the five VISNs ranked below the 25th percentile, geographic access using the 40-mile driving standard is between 5 and 26 absolute percentage points below the national average. For the five VISNs ranked above the 75th percentile, estimates are between 5 and 42 absolute percentage points above the national average (data not shown). Those with the lowest rates of geographic access are more likely to be located in rural areas, particularly the Midwest and Northwest regions (data not shown). Those with the highest rates of geographic access are more likely to be located in urban areas, particularly the Mid-Atlantic and Northeast regions.

4.1.3.6   Benchmarks for Geographic Access Standards

Setting a geographic access standard is a *de facto* normative judgment about how far or how long Veterans should be willing or able to travel for medical care. The Veterans Choice Act defines geographic access as care that is available within a 40-mile driving distance of a Veteran's residence. In this subsection, we compare this standard with benchmarks outside and inside the VA system.

We examined two benchmarks for comparison with VA geographic access standards (Figure 4-6). First, we examined actual driving times between home and the hospital for fee-for-service Medicare beneficiaries using inpatient hospital care.[47] Fee-for-service Medicare is an open provider network, with almost all U.S. non-VA health care providers participating in Medicare and accepting Medicare patients. Therefore, the distance traveled to hospitals by Medicare

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[46] The interquartile range is estimated by ordering VISN-level estimates from lowest to highest and reporting estimates at the 25th and 75th percentiles. Because there are 21 VISNs, the interquartile range presents a summary of the 11 VISNs that are inclusive of positions 6 and 16 in this ordering. The five VISNs with the lowest estimates of access fall below the interquartile range and the five VISNs with the highest estimates of access rise above the range.

[47] To compute observed travel distances in the Medicare population, we estimated driving times from all Medicare hospital addresses to the centroids of ZIP codes where beneficiaries were discharged from inpatient care. We then computed an average of driving times for all discharged beneficiaries in a ZIP code and estimated weighted-average driving times for all beneficiaries in a VISN. Weights were constructed as the number of cases in the ZIP code over all cases in the VISN.

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beneficiaries reflects the distance that people travel for care in the absence of provider network constraints. Second, we examined stated willingness to travel among Veterans responding to the 2013 Survey of Enrollees. Both benchmarks are measured in terms of time, not distance.

Observed travel times for Medicare beneficiaries varied significantly across VISNs, signaling that a uniform standard across the U.S. may not reflect local practices and expectations. The average estimated travel time across the U.S. among Medicare fee-for-service beneficiaries was 61 minutes. Estimates ranged from an average of 32 minutes in the VISN with the shortest observed times to 85 minutes in the VISN with the longest observed times (Figure 4-6).

Results from the 2013 Survey of Enrollees show an average willingness to travel of just over 50 minutes for medical care. This is lower than the 60-minute alternative standard. The data also show narrower variation from place to place, from a low of 44 minutes in one VISN to a high of 61 minutes in another (Figure 4-6).

In comparison, VA enrollees live an average of 52 minutes driving time from the nearest VAMC and 23 minutes driving time from the nearest VA medical facility of any type (Figure 4-6). On average and in most VISNs, these driving times are less than enrollees' reported willingness to travel and Medicare beneficiaries' average observed travel times.

Figure 4-6. Driving Time to Hospitals for Medicare Beneficiaries and VA Enrollee Willingness to Travel
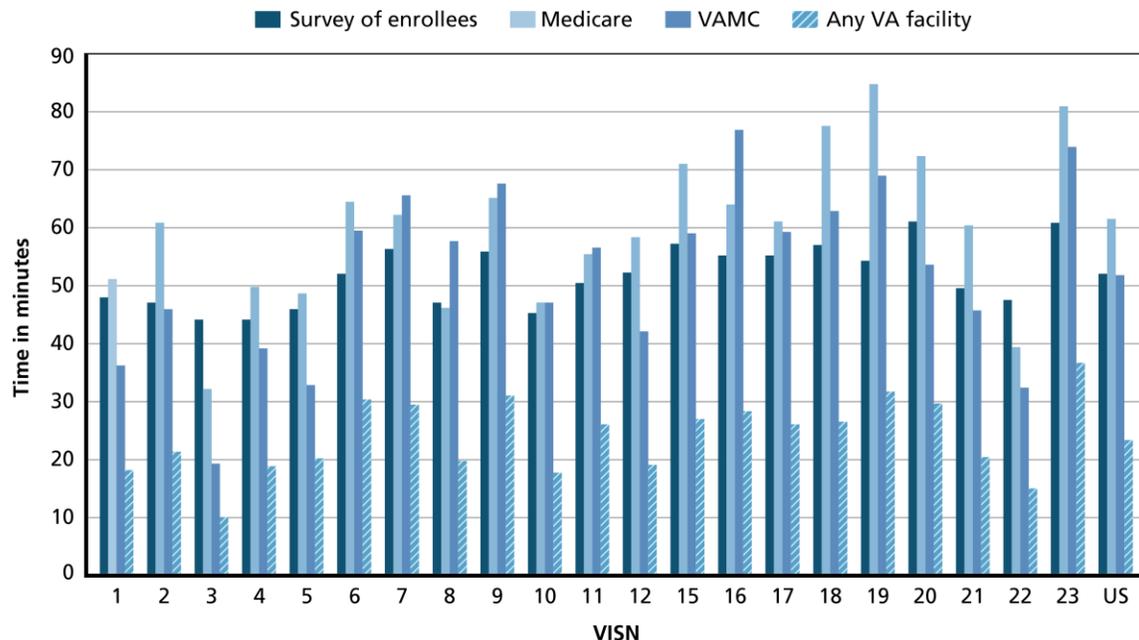
Sources: Authors' analysis of Medicare Hospital Service Area File (2015); VA Survey of Enrollees (2013); and Veterans Affairs Site Tracking System and VA Planning Systems Support Group Enrollee file from second quarter 2015.
Notes: "US" refers to a national estimate for all VISNs. We used travel time from Medicare data

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to have a direct comparison with the measure of willingness to travel in the Survey of Enrollees. We cut off Medicare estimates of travel above 240 minutes by road networks, assuming that longer travel distances were likely to be made by air. City hubs associated with each VISN are listed in Table 3.1-3.

Our analyses of data from VA's Survey of Enrollees suggest that ease of traveling to care at VA facilities and availability of a VA provider in Veterans' areas may be declining over time. In 2010, almost 80 percent of Veterans responding to the survey agreed it was easy to get to their local VA facility; by 2014, 75 percent of Veterans responding to the survey reported the same. Similarly, the proportion of Veterans who agreed that there was a VA provider in their area that offered the health care services that they need declined from 72 percent in 2010 to 66 percent in 2014. A similar decrease over the same period was reported in the proportion of Veterans who reported that it was easy for Veterans like them to get around in a VA facility.

Significant decreases in the Survey of Enrollees' agreement responses over time have occurred each year from 2010 to 2014. Multivariate models controlling for time trends indicate that decreases are partly attributable to the increasing proportion of Veterans who are younger and female, as these Veterans are less likely to agree that it is easy to get to their local VA facility and that there is a VA provider in their area that offers the services they need. Veteran reports that geographic access to VA care is worsening may also reflect migration of Veterans to regions, such as the south, where VA services are less available, and actual increases in distance to VA facilities due to reorganization and closures.

Our analyses suggest that a uniform driving distance standard may inadequately reflect the needs and expectations of Veterans in different regions of the country. Because this may be the case, a single driving distance standard may prove to be overly restrictive in some areas while placing no real restrictions on eligibility for the Veterans Choice Program in others. In contrast, driving time standards can take into account the usual variation in travel speeds by urban versus rural areas, by private versus public transit, and by free-flow versus peak travel periods. Driving time standards have the added benefit of being adjustable for community-specific experiences and expectations about how long an enrollee should be in transit to and from medical appointments.

Further, adjustments in the standard for populations requiring access to specific types of care seem critical. Enrollees needing access to more complex medical facilities and to specialized services may need to travel farther than 40 miles to gain access. The most extreme example of this is for enrollees seeking rehabilitation services for TBI. Only 4.4 percent of all enrollees live within 40 miles of VA's five polytrauma rehabilitation centers. It would make little sense for VA to expand this program to every VA medical facility; Veterans needing this care are more than likely to seek it from VA and travel great distances to get it. Less extreme examples also illustrate this case. For instance, Veterans seeking access to interventional cardiology may be willing to travel greater distances for this service and VA might consider whether longer distances for this service would be reasonable.

4.1.4 Geographic Access to Non-VA Facilities

4.1.4.1 Characteristics of Enrollees Living More Than 40 Miles from a VA Medical Facility

As shown in Subsection 4.1.3, 7.3 percent (N = 658,890) of enrollees live more than 40 miles driving distance from any VA medical facility. In terms of age, gender, priority group, and prevalence of selected conditions, these populations are quite similar to their counterparts who live closer to VA medical facilities (Tables 4-3 and 4-4).[48]

Table 4-3. Demographic and Service Characteristics of Enrollees Living Inside and Outside 40-mile Driving Distances from VA Medical Facilities

	No. (%) Living <40 Miles from a VA Facility (N = 8,367,877)	No. (%) Living >40 Miles from a VA Facility (N = 658,890)
Age and Gender		
Age under 35	858,625 (10)	48,364 (7)
Age 35–44	771,827 (9)	42,931 (7)
Age 45–54	1,094,119 (13)	64,431 (10)
Age 55–64	1,567,668 (19)	122,199 (19)
Age 65 and older	4,079,453 (49)	381,195 (58)
Female	629,593 (8)	33,602 (5)
Service Characteristics		
Priority group 1	1,743,412 (21)	136,748 (21)
Priority group 2	673,452 (8)	48,827 (7)
Priority group 3	1,133,392 (14)	87,508 (13)
Priority group 4	226,290 (3)	16,038 (2)
Priority group 5	1,894,864 (23)	160,762 (24)
Priority group 6	547,878 (7)	43,214 (7)
Priority group 7	402,507 (5)	17,525 (3)
Priority group 8	1,749,963 (21)	148,498 (23)
Service-Connected Disability	3,790,366 (45)	290,003 (44)

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[48] Because this comparison is drawn from complete data on a large population and not from sampling data, significance testing is non-informative and over-powered, and therefore, was not performed.

Any purchased care utilization	1,031,335 (12)	113,249 (17)

Source: Authors' analysis of Planning Systems Support Group Enrollee File.
Note: Total enrollees = 9,026,767.

Table 4-4. Clinical Characteristics of Enrollees Living Inside and Outside 40-mile Driving Distances from VA Medical Facilities

Clinical Conditions	No. (%) <40 Miles from a VA Facility	No. (%) >40 Miles from a VA Facility
Acute coronary syndromes, emergency care	24,253 (0.3)	2,300 (0.4)
Colon cancer, primary care	27,657 (0.3)	2,515 (0.4)
TBI, specialty care	96,044 (1.1)	6,265 (1.0)
Diabetes, primary care	1,012,664 (12.1)	88,925 (13.5)
PTSD, mental health services	532,363 (6.4)	41,409 (6.3)
Substance abuse, outpatient specialty care for SUD	347,987 (4.2)	19,996 (3.0)
Women's health, gynecological surgery services	22,289 (0.3)	1,140 (0.2)

Sources: Authors' analysis of Planning Systems Support Group Enrollee File and VA Encounter data.
Notes: Information on conditions was only available on Enrollees who are users of health care. Number of VA patients = 5,799,131.

Younger and female enrollees are more likely to live within 40 miles from a VA medical facility, while older enrollees are more likely to live beyond 40 miles (Table 4-3). The distribution of enrollees by priority group was similar for enrollees living less than compared with more than 40 miles from a VA medical facility. A higher proportion of enrollees living more than 40 miles from a VA medical facility used purchased care (17 percent compared with 12 percent of enrollees living less than 40 miles from a VA medical facility).

Comparing the percentage of enrollees diagnosed with the clinical conditions, the difference between enrollees living less than 40 miles versus more than 40 miles from a VA medical facility is less than 0.5 percent, except for diabetes, in which a slightly greater proportion of enrollees lives more than 40 miles away (13.5 percent versus 12.1 percent), and substance abuse, in which a slightly lower proportion lives more than 40 miles away (3 percent versus 4.2 percent) (Table 4-4).

4.1.4.2 Enrollees' Geographic Access to Non-VA Hospitals

Many Veterans have other health insurance coverage and use non-VA health care facilities as well as VA health care facilities. The Veterans Choice Program aims to increase access to non-VA facilities for Veterans without geographic or timely access to VA facilities. Figure 4-7 shows

the percentage of Veterans with access to three types of non-VA hospitals: (1) any hospital, (2) teaching hospitals (those with residency programs), and (3) academic hospitals (a subset of teaching hospitals that have a medical school affiliation). Teaching and academic hospitals are shown because they typically have advanced capabilities similar to higher-complexity VA medical facilities.

Most enrollees who live more than 40 miles from VA facilities live within 40 miles of a non-VA hospital (96.2 percent). However, access to non-VA academic and teaching hospitals is much more limited for enrollees who do not have geographic access to VA care (Figure 4-7). Of enrollees living more than 40 miles from VA facilities, 14.9 percent live within 40 miles of a non-VA teaching hospital and 2.8 percent live within 40 miles of a non-VA academic hospital.

Figure 4-7. Geographic Access to Non-VA Hospitals, for All Enrollees, Enrollees <40 Miles from VA Medical Facilities, and Enrollees Residing >40 Miles from VA Medical Facilities
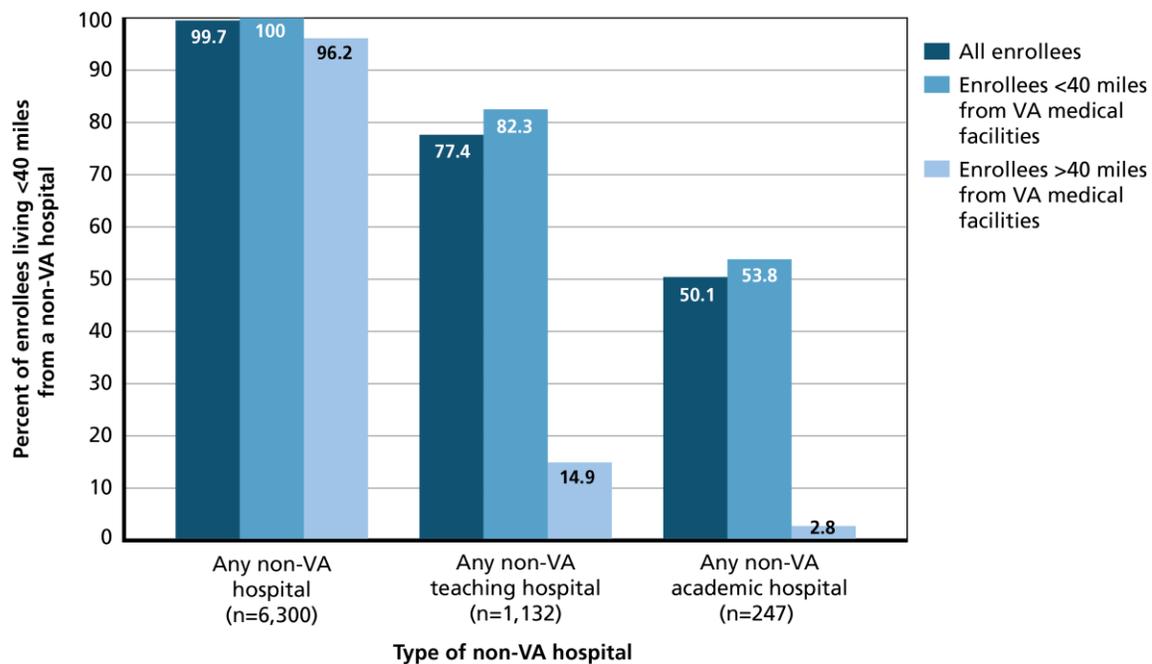
Sources: Authors' analysis of Veterans Affairs Site Tracking System from second quarter 2015 and American Hospital Association Annual Survey of Hospitals; VA Planning Systems Support Group Enrollee file.
Note: Geographic access is defined in this figure as <40 miles driving distance between home and the hospital.

Enrollees living more than 40 miles from VA facilities face an average driving distance of 12.5 miles (standard deviation = 13.0 miles) to the nearest non-VA hospital (Table 4-5). Driving distances to more advanced hospitals are much higher for this population. Enrollees more than 40 miles from VA medical facilities drive 66.4 miles (standard deviation = 34.2 miles), on average, to the nearest teaching hospital and 97.2 miles (standard deviation = 46.5 miles) to the nearest academic hospital.

Table 4-5. Average Driving Distance for Enrollees to Closest Non-VA Hospitals by Hospital Type (in miles; standard deviation shown in parentheses)

Non-VA Hospital Type	All Enrollees	Enrollees Residing >40 Miles from Nearest VA Medical Facility	Enrollees Residing <40 Miles from Nearest VA Medical Facility
All (N = 6,300)	5.8 (6.3)	12.5 (13.0)	5.3 (5.1)
Teaching (N = 1,132)	21.6 (27.5)	66.4 (34.2)	10.8 (10)
Academic (N = 247)	43.5 (46.5)	97.2 (46.5)	14.2 (10.4)

Sources: Authors' analysis of VA Veterans Affairs Site Tracking System from second quarter 2015 and American Hospital Association Annual Survey of Hospitals; VA Planning Systems Support Group Enrollee file.

A similar pattern can be observed when considering access to highly specialized services that can be delivered only in a hospital.[49] Our estimates of geographic access to seven hospital-only services in non-VA hospitals shows that this type of care is widely accessible to enrollees overall (Table 4-6), from a low of 84.1 percent (coronary care unit) to a high of 99.1 percent (emergency departments).

The great majority of VA medical encounters are not time-sensitive on a scale of minutes to hours. Acute coronary syndromes is one possible exception. For some patients with heart attack, delays as short as 15 minutes may have prognostic significance. Patients with ongoing chest pain are recommended to call 911, and emergency responders typically transport patients to the nearest appropriately resourced hospital. Therefore, the differences in drive times between VA and non-VA hospitals are of interest.

We measured the distribution of enrollee-level drive time differences between VA and non-VA hospitals (See Tables F-43 and F-44, Appendix F). Considering any VA or non-VA hospital, we found that the median additional drive time to a VA hospital was 31.0 minutes (inter-quartile range, 11.4–70.2 minutes). The additional drive time to a VA facility was less than 15 minutes for 31.4 percent of all enrollees, and less than 30 minutes for 49.2 percent.

We repeated the analysis considering only VA and non-VA hospitals with interventional cardiology capability. In this case, median additional drive time was 34.2 minutes (inter-quartile

[49] These include seven services for two of the illustrative clinical populations we have been considering throughout this report. These services differ from the other 20 services insofar that they can only be delivered in a hospital setting. While VA has complete inventories of all 27 services in all of its facilities, there is no single, comparable data resource in the private sector.

range 10.9–85.7 minutes). The additional drive time to a VA facility with interventional capability (versus any non-VA hospital with the same) was less than 15 minutes for 31.2 percent of Veterans, and less than 30 minutes for 46.9 percent.

Table 4-6. Geographic Access (within 40 Miles) to Selected Non-VA Hospital Services, Enrollees Residing >40 Miles from VA Medical Facilities Compared with All Enrollees

Services (by Clinical Population)	Enrollees Residing <40 Miles Driving Distance of VA Hospital Services (%)	Enrollees Residing <40 Miles Driving Distance of Non-VA Hospital Services (%)	Mean (Standard Deviation) Driving Distance to the Nearest Non-VA Facility with the Service (in miles)
Acute Coronary Syndromes			
Emergency department			
All enrollees	50.2	99.1	7.3 (8.0)
Enrollees residing >40 miles from nearest VA medical facility	0.0	92.2	16.2 (16.1)
Enrollees residing <40 miles from nearest VA medical facility	54.1	99.7	6.6 (6.3)
Coronary care unit			
All enrollees	50.1	84.1	18.3 (23.7)
Enrollees residing >40 miles from nearest VA medical facility	0.0	26.3	58.8 (34.9)
Enrollees residing <40 miles from nearest VA medical facility	54.0	88.6	10.8 (9.7)
Interventional cardiology			
All enrollees	43.4	90.0	14.0 (19.5)
Enrollees residing >40 miles from nearest VA medical facility	0.0	32.1	52.4 (31.4)
Enrollees residing <40 miles from nearest VA medical facility	46.8	94.6	8.9 (8.8)
Diagnostic cardiac catheterization			
All enrollees	42.0	92.0	12.7 (18)
Enrollees residing >40 miles from nearest VA medical facility	0.0	40.2	48.0 (30.5)
Enrollees residing <40 miles from nearest VA medical facility	45.3	96.0	8.4 (8.4)

Services (by Clinical Population)	Enrollees Residing <40 Miles Driving Distance of VA Hospital Services (%)	Enrollees Residing <40 Miles Driving Distance of Non-VA Hospital Services (%)	Mean (Standard Deviation) Driving Distance to the Nearest Non-VA Facility with the Service (in miles)
Cardiac surgery			
All enrollees	39.7	85.6	16.9 (22.3)
Enrollees residing >40 miles from nearest VA medical facility	0.0	20.7	60.1 (33.1)
Enrollees residing <40 miles from nearest VA medical facility	42.8	90.7	10.1 (9.4)
Colon Cancer			
Oncology services			
All enrollees	55.3	94.8	10.6 (14.2)
Enrollees residing >40 miles from nearest VA medical facility	0.0	59.1	36.2 (28.4)
Enrollees residing <40 miles from nearest VA medical facility	59.7	97.6	7.9 (7.9)
Surgical services			
All enrollees	54.3	99.2	7.3 (8.0)
Enrollees residing >40 miles from nearest VA medical facility	0.0	92.4	16.1 (16)
Enrollees residing <40 miles from nearest VA medical facility	58.6	99.7	6.5 (6.3)

Sources: Authors' analysis of VA Site Tracking System and American Hospital Association Annual Survey of Hospitals; VA Planning Systems Support Group Enrollee file.

Enrollees living more than 40 miles from VA facilities are much less likely to have geographic access to specialized services in non-VA hospitals (Table 4-6). These enrollees are much less likely to live within 40 miles driving distance of coronary care units (26.3 percent), diagnostic cardiac catheterization (40.2 percent), cardiac surgery (20.7 percent), and oncology services (59.1 percent). Non-VA emergency departments provide the one exception: 92.2 percent of enrollees living more than 40 miles from a VA medical facility have geographic access to emergency care at non-VA hospitals.

Our assessment of access to care in non-VA hospitals indicate that nearly all VA enrollees living far from VA medical facilities can drive to community and emergency care within 40 miles, but they are much less likely to have access to academic and teaching hospital care, the sites in

which more complex care is offered. They are also much less likely to have geographic access to a range of highly specialized hospital care, including a range of cardiology, surgery, and oncology services. This finding suggests that expanding access to non-VA hospitals for Veterans living more than 40 miles from a VA facility can help most enrollees seeking routine and emergency care. But far fewer of these same enrollees live within a 40-mile driving distance of complex and specialized hospital care.

4.1.4.3   Enrollees' Geographic Access to Non-VA Providers

In this subsection, we present analyses of VA enrollees' access to non-VA providers in their communities.[50] Many VA enrollees live within 40 miles driving distance of non-VA physicians across multiple specialties. Depending on the specialty, between 68 percent (thoracic surgery) and 96 percent (primary care) of VA enrollees live within 40 miles of a non-VA physician (Figure 4-8). We have no information on wait times at these non-VA providers, but we expect that these wait times are similar to those in the general population. VA enrollees likely face similar levels of geographic access to providers as the general population.

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[50] These analyses are based on analyses of the SK&A office-based physician database. SK&A has a team of more than 100 researchers who contact all physician offices in the United States every six months to update their database of characteristics of these practices (for example, number of physicians, physician specialty, whether they accept new patients, accept Medicare, accept Medicaid) in order to sell the most updated and accurate information to vendors and pharmaceutical companies.

Figure 4-8. Geographic Access to Non-VA Physicians Among VA Enrollees, by Specialty, 2013
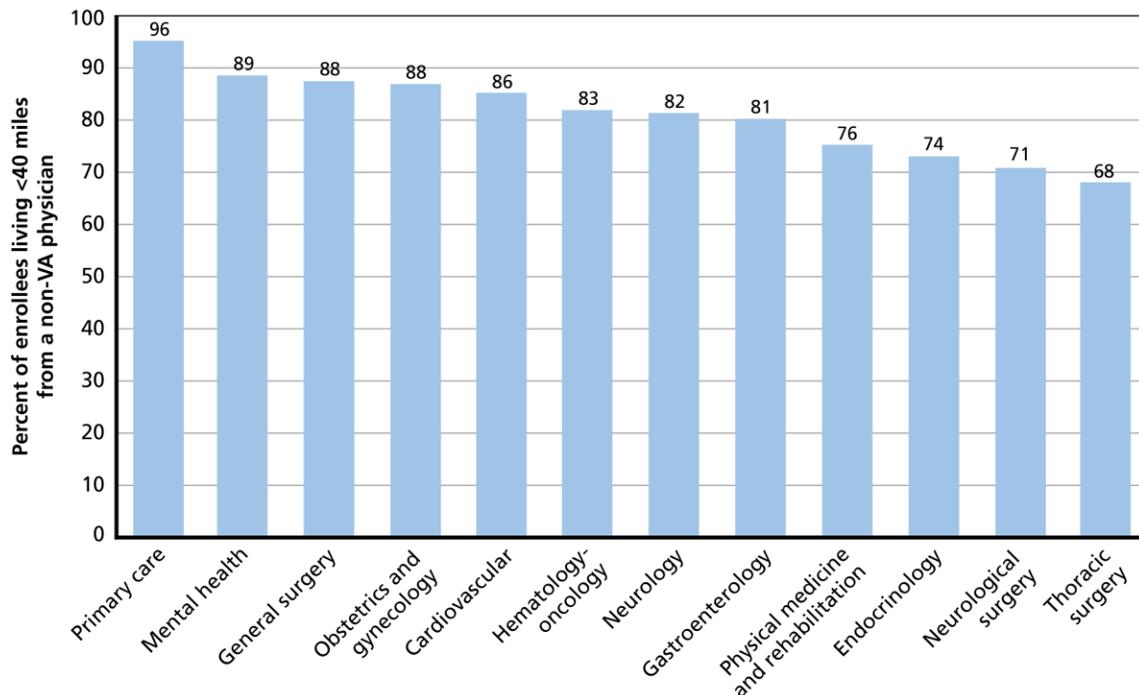
Source: Authors' analysis of SK&A Office-Based Physician Database and VA Planning Systems Support Group Enrollee file.

Geographic access to non-VA physicians varies widely by VISN (Figure 4-9). The smallest variation across VISNs was for primary care physicians, ranging from 89 percent to 100 percent of enrollees living within 40 miles of a primary care physician across the VISNs. We found wide variation, however, across VISNs for a number of specialties. For example, the proportion of enrollees living within 40 miles of an endocrinologist ranges from 40 percent to 99 percent across VISNs.

Figure 4-9. Variation Across VISNs in Geographic Access to Non-VA Physicians Among VA Enrollees, by Specialty, 2013
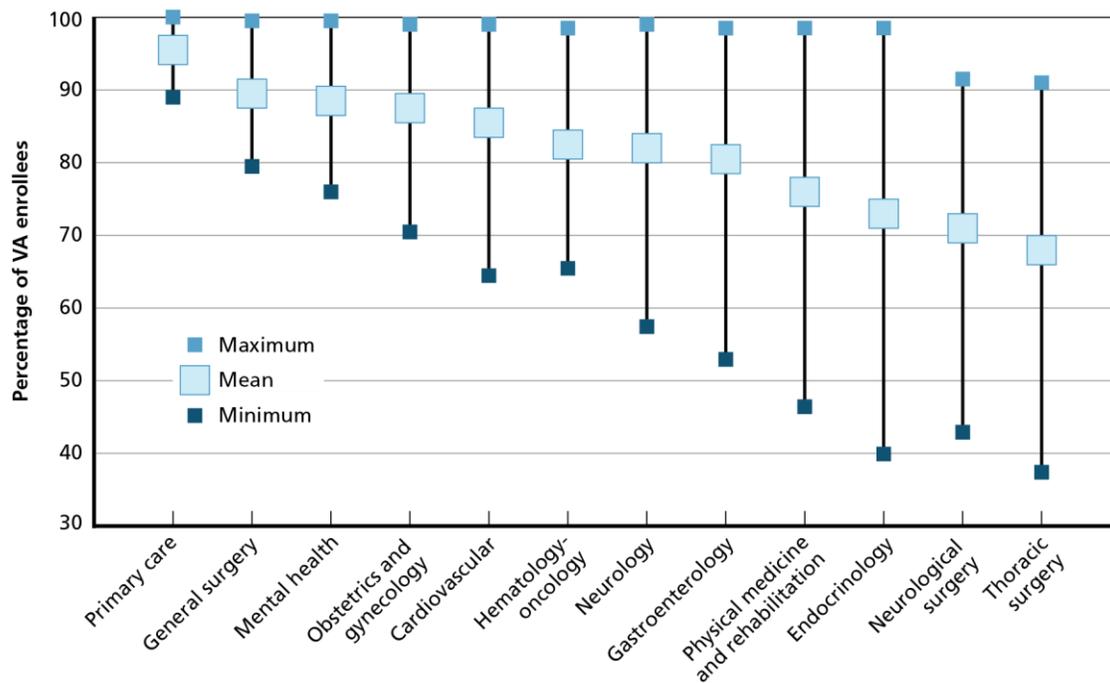
Source: Authors' analysis of SK&A Office-Based Physician Database and VA Planning Systems Support Group Enrollee file.

We also assessed the average number of non-VA physicians to which each enrollee would have access and the number of those physicians who accept Medicare and new patients. We focused on those that accept Medicare because, under new purchased care initiatives, VA is likely to reimburse physicians at or around Medicare reimbursement rates, because roughly half of VA patients are also covered by Medicare, and because providers who accept Medicare are likely to be eligible Choice program providers. On average, VA enrollees have a number of non-VA providers within a 40-mile radius from which to choose (Table 4-7). For example, VA enrollees within 40 miles of a primary care physician are, on average, near to 700 primary care physicians, of which 495 accept Medicare and new patients, whereas they are within 40 miles of approximately 21 thoracic surgeons, of which 19 accept Medicare and new patients. Again, these numbers are similar to those in the general population, given the distribution of Veterans across the country. These estimates do not provide any information about the accessibility of nearby providers; for example, the providers may have large panels and may not be able to provide timely appointments to patients.

Table 4-7. Average Number of Total Physicians and Physicians Accepting Medicare and New Patients Within and Outside of 40 Miles of VA Enrollees with at Least One Provider in Each Category, 2013

Specialty	Within 40 Miles—Avg. No. Physicians	Within 40 Miles—Avg. No. Physicians Accepting Medicare and New Patients	Outside 40 Miles—Avg. No. Physicians	Outside 40 Miles—Avg. No. Physicians Accepting Medicare and New Patients
Primary Care	699.6	494.7	41.1	29.9
Obstetrics and gynecology	145.4	119.5	10.6	9.5
Mental Health	135.5	84	7.7	5.9
Cardiology	126.2	118.8	10.1	9.9
General Surgery	91.1	80.2	6.8	6.5
Gastroenterology	78.9	74.2	7.5	7.2
Hematology-oncology	78.6	71.7	5.8	5.7
Neurology	72.3	64.5	5.6	5.4
Physical and rehabilitation	39.3	33.9	3.9	3.8
Endocrinology	31.8	28.3	3.5	3.4
Neurological surgery	28.7	26.1	4.5	4.4
Thoracic surgery	20.9	19.4	3.9	3.8

Source: Authors' analysis of SK&A Office-Based Physician Database, VA Site Tracking System, and VA Planning Systems Support Group Enrollee file.

In contrast, we found that enrollees who live more than 40 miles from a VA facility have very poor access to non-VA physicians (Figure 4-10). For all but two specialties, the majority of enrollees who live more than 40 miles from a VA facility live more than 40 miles from any provider in that specialty. Many of the specialties that we examined had extremely low levels of geographic accessibility. For example, only 9 percent of all VA enrollees who live more than 40 miles from a VA facility live within 40 miles of a non-VA thoracic surgeon.

Figure 4-10. Geographic Access to Non-VA Physicians Among Enrollees Residing >40 Miles from VA Medical Facilities, by Specialty, 2013
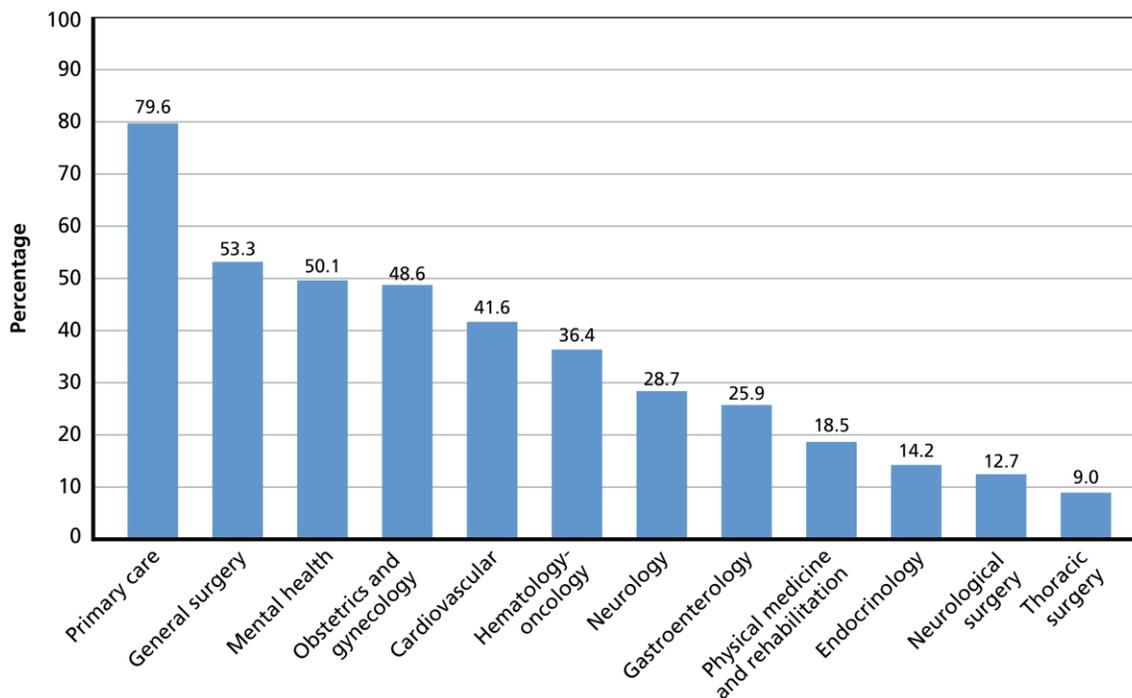
Source: Authors' analysis of SK&A Office-Based Physician Database, VA Site Tracking System, and VA Planning Systems Support Group Enrollee file.

Again, there is significant variation in access to providers across VISNs (Figure 4-11). For example, there is one VISN in which all enrollees more than 40 miles from a facility are also within 40 miles of an endocrinologist, whereas in another VISN only 4 percent of those enrollees are within 40 miles of an endocrinologist. We found similar variation across the majority of the specialties that we investigated.

Figure 4-11. Variation Across VISNs in Geographic Access to Non-VA Physicians Among Enrollees Residing >40 Miles from VA Medical Facilities, by Specialty, 2013
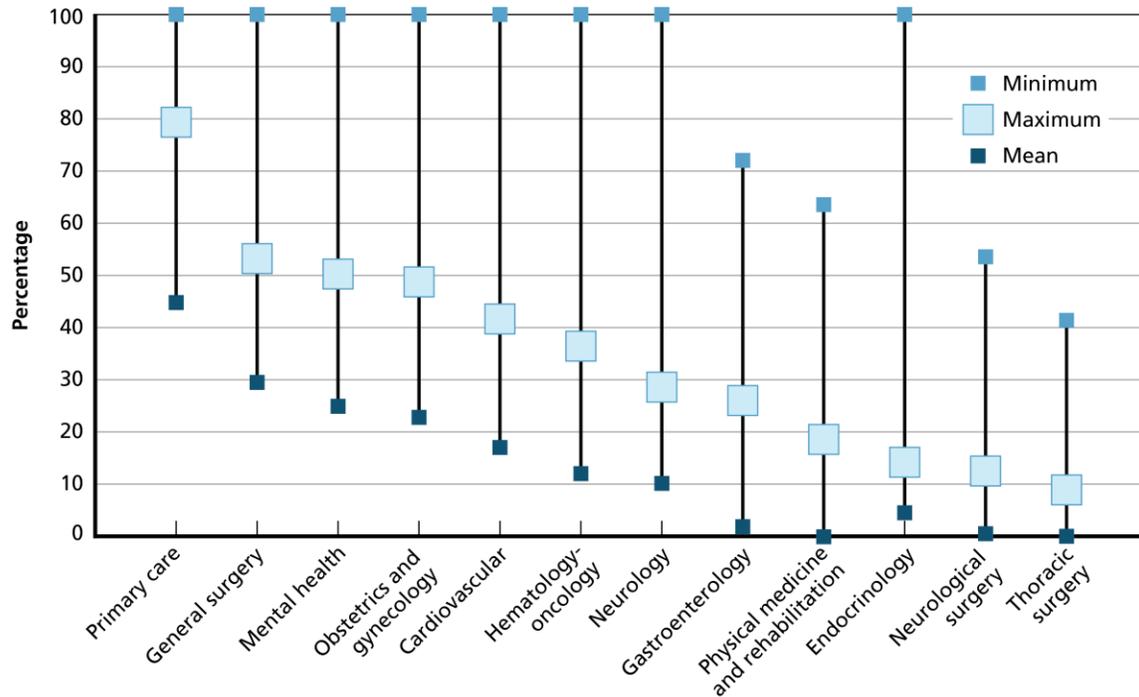
Source: Authors' analysis of SK&A Physician Office-Based Database, VA Site Tracking System, and VA Planning Systems Support Group Enrollee file.

Enrollees who live farther than 40 miles from a VA facility but within 40 miles of at least one non-VA physician in a particular specialty have access to very few physicians within 40 miles of their homes, especially compared with all enrollees (Table 4-7). Enrollees with at least one primary care physician within 40 miles had, on average, 29.9 primary care providers within 40 miles that accepted Medicare and new patients. These enrollees had access to many fewer specialists. For example, enrollees living more than 40 miles from a VA facility had, on average, 3.4 endocrinologists within 40 miles that accepted Medicare and new patients.

Enrollees living within 40 miles of a VA facility have considerably better access to non-VA providers than enrollees living outside of 40 miles (Figure 4-12). The percent of enrollees within 40 miles of a VA facility living within 40 miles of non-VA providers ranges from 96.9 percent for primary care physicians to 73.1 percent for thoracic surgeons.

Figure 4-12. Geographic Access to Non-VA Physicians Among Enrollees Residing <40 Miles from VA Medical Facilities, by Specialty, 2013
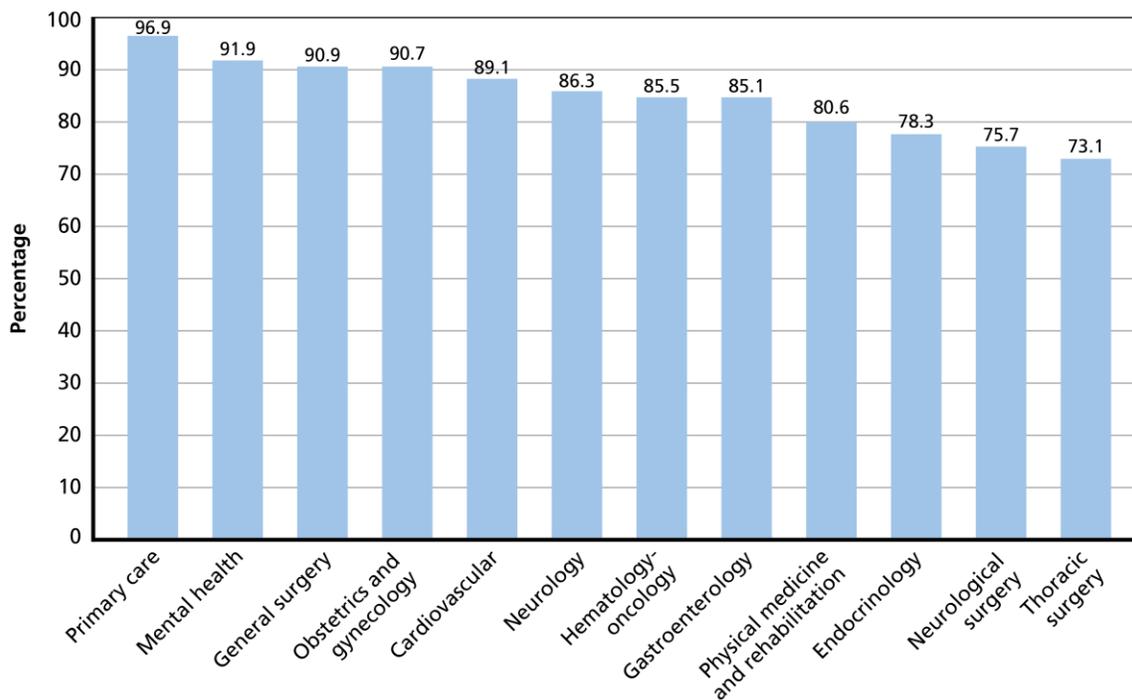
Source: Authors' analysis of SK&A Office-Based Physician Database, VA Site Tracking System, and VA Planning Systems Support Group Enrollee file.

There is considerably less variation across VISNs for enrollees living within 40 miles of a VA facility compared with those living outside of 40 miles (Figure 4-13). Generally, the variation increases as the mean access decreases.

Figure 4-13. Variation Across VISNs in Geographic Access to Non-VA Physicians Among Enrollees Residing <40 Miles from VA Medical Facilities, by Specialty, 2013
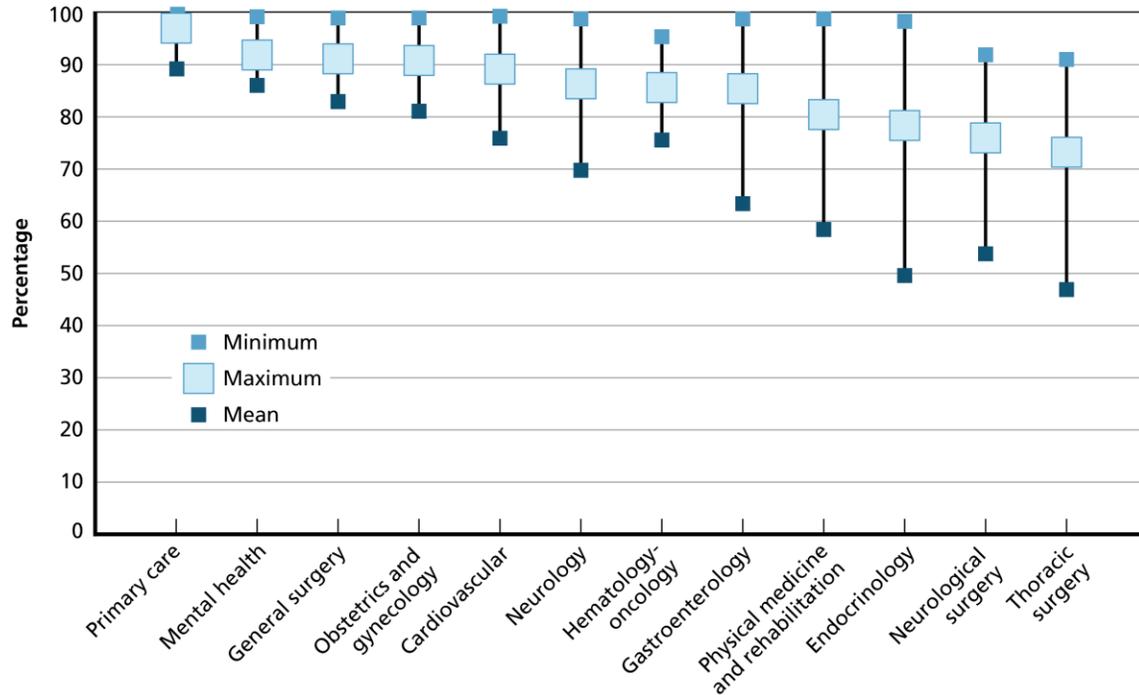
Source: Authors' analysis of SK&A Office-Based Physician Database, VA Site Tracking System, and VA Planning Systems Support Group Enrollee file.

4.1.5 Subsection Summary

Among enrollees, geographic access to VA care varies when using different types of access standards and by region. For example, enrollees' geographic access to VA care varies according to which access standard is applied (that is, 40-mile straight-line distance, 40-mile driving distance, 60-minute driving time in free-flow traffic, 60-minute public transit time). Enrollees who must rely on public transportation, for example, have much less access than other enrollees.

Geographic access to VA care also varies according to the type of service required. Our assessment found that substantially lower proportions of enrollees have geographic access to advanced and specialized services in VA medical facilities. For example, only about 35 percent to 58 percent of enrollees have geographic access to cardiology services. Access was also low for specialized colon cancer care services (between 55 percent and 60 percent of enrollees) and for specialized diabetes care services (between 54 and 72 percent of enrollees).

While nearly all VA enrollees living far from VA medical facilities live within 40 miles of community and emergency care in non-VA hospitals, they are much less likely to have access to academic, teaching, and highly specialized hospital care. The same is true for access to non-VA clinicians in the community. A large share of VA enrollees living far from a VA medical facility

are within 40 miles of primary care providers but far fewer of these enrollees are near providers offering highly specialized care.

Taken together, these findings suggest that the geographic access standard of 40 miles driving distance may not adequately account for the distances that Veterans would need to travel for more specialized care, whether they are seeking this care at VA or non-VA facilities. Furthermore, because VA beneficiaries that live greater than 40 miles from a VA facility have very little access to non-VA specialists, offering them coverage to non-VA providers may not appreciably improve their access to care especially in the most rural VISNs.

4.2   Timeliness

As noted in Section 1, timeliness is a dimension of access focused on how promptly needed care is available to Veterans (Fortney et al., 2011). The promptness with which needed care is available can be assessed from the perspective of a health care system (for example, wait time to the next available appointment) or from the perspective of patients and families (for example, getting an appointment as soon as needed). Timeliness can be assessed based on the type of care (for example, routine care versus urgent care, primary care or specialty care), or according to the type of patient (for example, people with particular health conditions). Several components of timeliness may be important, such as delays in starting care once a patient is at the facility (for example, time spent in the waiting room or time from arrival to start of treatment) and timeliness in moving through care for a specific problem (for example, time between evaluation, diagnosis, and treatment, between parts of the treatment, or between different services at one visit or across separate visits). Several aspects of timeliness have been shown to present a barrier to care for Veterans, including wait time before obtaining a clinic appointment and wait time in the outpatient waiting room (Villa, Harada, & Huynh-Hohnbaum, 2010; Wakefield et al., 2007).

4.2.1   Measurement of Timeliness of Care in VA

VA measures timeliness with two main sets of metrics. The first, assessed from the perspective of the VA health care system, reflects wait times for appointments for primary care, mental health care, and specialty care. Wait times to obtain an appointment reflect access delays in the health care system (Institute of Medicine, 2015). The second set, assessed from the perspective of Veterans, includes Veterans' responses to a survey regarding their experiences of getting timely appointments, care, and information.

4.2.1.1   Measuring Wait Times for Appointments

No single standard or benchmark for wait times has been established on a national basis for the private sector. Experts have noted the importance of incorporating patient and family perspectives in setting standards for and assessing wait times to ensure that any standard imposed is in keeping with patient and family preferences (Brandenburg et al., 2015). The Institute for Healthcare Improvement recommends that the average number of days between the day that a patient tries to schedule an appointment and the third available appointment for a new patient physical, routine exam, or return visit ("third next available appointment") be the

same day for primary care and two days for specialty care (Institute for Healthcare Improvement, 2015).[51] In the Military Health System, access standards for primary care provided directly to military personnel aim for the third next acute appointment within one day and the third next routine appointment within seven days (Defense Health Agency, 2015).

The National Committee for Quality Assurance 2014 recognition program for PCMH suggests the standard of providing same-day appointments for both routine and urgent primary care (National Committee for Quality Assurance, 2014). Private-sector providers are not bound by standards proposed by authorities on health care quality measurement. In contrast, VA sets targets and reports wait times for primary care, mental health care, and specialty care measured as the proportion of appointments that were completed within a certain number of days of a preferred date.[52] Wait times are calculated separately for new patients and established patients. The preferred date refers to "the date that an appointment is deemed clinically appropriate by a VA health care provider, or, if no such clinical determination has been made, the date a Veteran prefers to be seen" (Federal Register, 2014). This metric takes into account appointments that were moved up, cancelled, rebooked, missed, and/or added during the month. VA considers this to represent most accurately the wait times that Veterans actually experience, as the data reflect when appointments actually occurred rather than the planned timing of pending appointments.

Past investigations identified errors in recording of Veterans' desired appointment dates as well as other practices which may have resulted in VA reporting more favorable wait times than Veterans actually experienced (GAO, 2012c). The history of unreliable information regarding the timing of Veteran appointments has generated ongoing concern regarding the accuracy of VA wait-time data, including the data analyzed for this report.

In our analyses, we place particular emphasis on appointments completed within 30 days of the preferred date because Veterans who need to wait more than 30 days from the preferred date are eligible to seek purchased care through the Veterans Choice Program, and because VA's most current data regarding VA wait times use these metrics. However, we recognize that there are important limitations to using VA data to assess timeliness according to a threshold number of days following a preferred date. First, the reliability of VA wait-time data have not been independently audited across VA facilities for the most recent time period that we report. Therefore, it is possible that some facilities have continued to record inaccurate preferred dates in an effort to report more favorable wait times than Veterans actually experienced at their facilities, or that some facilities have improved the accuracy of reported preferred dates recently in response to public scrutiny. Second, the preferred date metric does not indicate the

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[51] The Institute for Healthcare Improvement recommends the "third next available" rather than the next available as it is a more accurate reflection of true appointment availability rather than serendipity (for example, available appointments due to cancellations or other unexpected events) (Institute for Healthcare Improvement, 2015).

[52] VA also reports wait times for "other" appointments. The "other" category includes a broad range of different services, including home-based care, laboratory tests, and emergency room care. Wait times averaged across this heterogeneous set of health care services are difficult to interpret. We therefore do not present them in this report.

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absolute number of days that a Veteran actually waits, but instead measures wait times according to number of days *following* the preferred date, which might be any number of days in the future. VA does not systematically collect and report data on the time intervals *prior* to the preferred date, however. Third, the approach does not distinguish between visits for urgent care (which ideally should occur very shortly after the onset of illness or injury, not 30 days following the clinically indicated date) and visits for routine care (which may be scheduled well in advance). The second two of these limitations are likely a greater problem for assessing wait times for established patients, because for new patients, it is more reasonable to assume that the preferred date is as soon as possible (that is, the next available appointment) for either urgent or routine care.

We asked a range of VA health care administrators and health care workers about VA's measures of access. Respondents repeatedly indicated that it would be preferable to define appropriate wait times for a given condition or population of patients according to clinical indications or evidence, rather than establishing and imposing a blanket 30-day threshold. In addition, some respondents noted that VA facilities' performance on completed appointment measures is a function of many factors, including some factors that may not be in VA's control, such as Veterans not showing up for scheduled appointments. To address this concern, respondents suggested alternative or additional measures that reflect staff efforts to provide access (for example, calls to follow up with Veterans) or availability of appointments. Many further noted the importance of gaining Veterans' perspectives on access to care. The smaller subset of health care workers we interviewed referenced availability of appointments and staffing as challenges to providing timely care; efforts to extend clinic hours and schedule subsequent appointments on the day of the initial appointment were suggested as helpful steps forward.

4.2.1.2   Measuring Veterans' Perspectives on Timeliness of Care

VA collects information on Veterans' experiences of care, including timeliness of care, via the SHEP PCMH (for outpatient care) and inpatient SHEP. Like the CAHPS Clinician and Group Survey and CAHPS Hospital Survey from which they are derived, the SHEP PCMH and inpatient SHEP measure aspects of care that are important to patients, and focus on questions for which the patient is the best or only source of information.

The SHEP PCMH asks Veterans to report on specific experiences of timely access to care, including whether they got urgent care appointments as soon as needed, got routine care appointments as soon as needed, and saw their health care provider within 15 minutes of their appointment time. These measures serve as important complements to measures of VA facility wait times because they assess access to care from the Veteran's perspective. In addition, because the survey questions, data collection procedures, and analyses are implemented in a systematic and standardized manner, SHEP survey results may be used to make fair comparisons between VA facilities, and with some caveats, to compare VA facility performance to CAHPS survey results from non-VA settings.

4.2.2 Average Wait Times for Appointments in VA

In the first half of FY 2015 (October 2014 through March 2015), the most recent period for which wait-time data were available for this report, VA data show that, across facilities, the average number of days that Veterans waited for new patient appointments was approximately six and a half days from the preferred date for primary care, six and a half days from the preferred date for specialty care, and three and a half days from the preferred date for mental health care. The corresponding days waited following preferred date for established patient appointments were four for primary care, four and a half for specialty care, and three for mental health care (data not shown in figure).

During the same time frame, national VA data show that more than 95 percent of VA appointments were completed within 30 days of the preferred date for established patients in primary care and specialty care, and both new and established patients in mental health care (Figure 4-14). Slightly lower percentages (93 and 94 percent) of VA appointments were completed within 30 days of the preferred date for new patients in primary care and specialty care, respectively. The vast majority of these appointments were completed within 14 days of the preferred date.

Figure 4-14. Percentage of VA Appointments Completed Within 0–14, 15–30, 31–60, and 61+ Days of Preferred Date, First Half of FY 2015
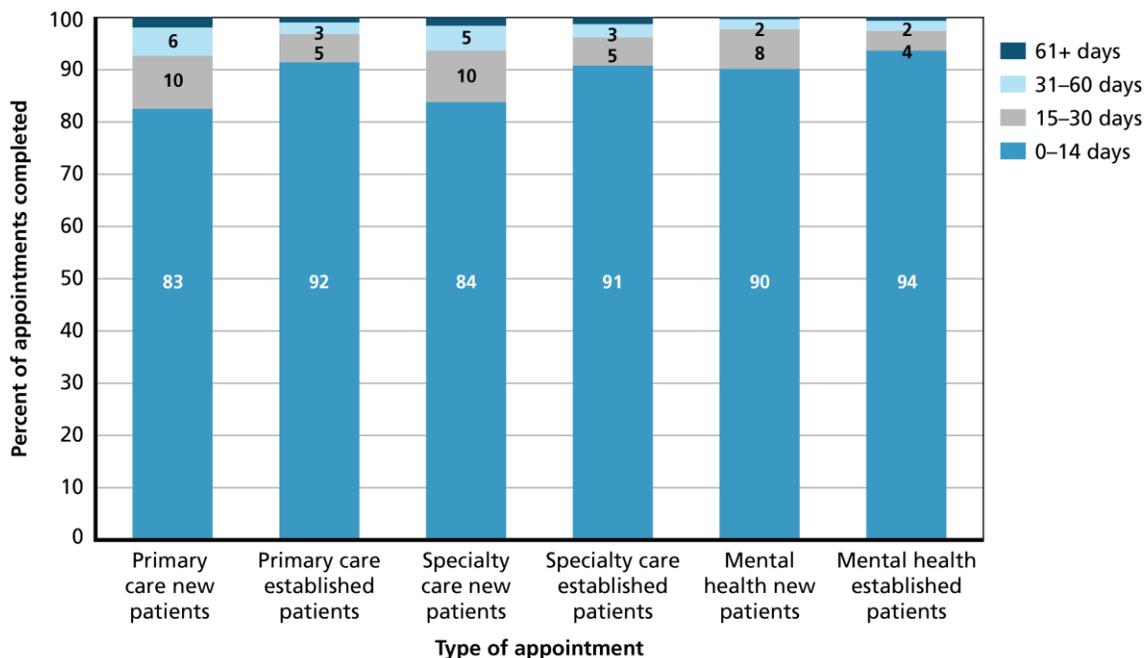
Source: Authors' analysis of VA wait-time data for the first half of FY 2015 obtained from the VSSC by The MITRE Corporation.

In the first half of FY 2015, across primary, specialty, and mental health care, VA data indicate that 156,576 new patient appointments (6.2 percent) and 581,562 established patient

appointments (3.5 percent) were not completed within 30 days. If some VA facilities are continuing to tamper with Veterans' preferred dates, the actual number of appointments not completed within 30 days of the preferred date may be even greater. Thus, although VA reports that most appointments meet VA's timeliness standards, some Veterans may still miss needed care or be at risk for poor health outcomes due to long waits for appointments. At VA facilities with average wait times of 30 days or more for the next available primary care appointment, Veterans may be less likely to use health care (Prentice et al., 2012), have less control over chronic conditions such as diabetes (Prentice et al., 2011), and have higher odds of mortality within six months (Pizer & Prentice, 2011) (although worse health outcomes due to longer wait times have not been confirmed by all studies [(Prentice et al., 2012)].

Even when appointments are completed within VA wait-time standards, Veterans may face adverse health outcomes due to delays in care. To assess the clinical meaningfulness of delays, we asked VA facility Chiefs of Staff responding to the 2015 Survey of VA Resources and Capabilities to estimate the proportion of patients who experienced a clinically meaningful delay in care services for each of seven medical conditions. (A list of conditions and rationale for their inclusion is provided in Section 2.) Clinically meaningful delays were defined as those that might put a patient at risk for adverse outcomes, slow resolution of symptoms, or that are not compliant with VA or DoD guidelines. Responses were consistent across conditions: While nearly half of respondents (45 percent) reported that no patients experienced clinically meaningful delays, 42 percent of respondents reported that up to one in four patients experienced a clinically meaningful delay, and an additional 14 percent reported that more than one in four patients experienced a clinically meaningful delay. (More detailed results are described in Appendix B.)

4.2.3 Recent Changes in Wait Times for Appointments in VA

To determine how wait times have changed over time, we assessed changes in the facility-level wait-time measures between the first half of FY 2014 and the first half of FY 2015. To identify meaningful changes over time in a standard way across appointment types, we calculated a standardized effect size using the commonly used Cohen's d formula, and interpreted the size of changes based whether their effect size values met Cohen's thresholds for "small," "medium," or "large" effects. (Details regarding the calculation of trends over time are described in Section 2.)

For all six appointment types, the percentage of appointments completed within 30 days was lower in the first half of FY 2015 than in the first half of FY 2014 (Figure 4-15). Decreases were very small for new patient appointments for primary care, small for new patient appointments for specialty care, medium for established patient appointments for primary care, and large for new and established patient appointments for mental health care and established patient appointments for specialty care. It is unclear whether reported declines in appointments completed within 30 days of preferred date over this period indicate actual lengthening of wait times – as might be expected, given the increased demand for VA services predicted by EHCPM — or reflect improvements in the accuracy of the wait-time data. Since the spring of 2014, hundreds of media stories have described VA wait times. This public scrutiny, in combination with announcements of disciplinary action against employees involved with gaming of reported

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wait times, and extending of wait-time targets from 14 days to 30 days following preferred date, may have reduced the likelihood of VA employees tampering with VA's systems for recording of preferred dates.

Figure 4-15. Percentage of VA Appointments Completed Within 30 Days of Preferred Date, First Half of FY 2014 and First Half of FY 2015
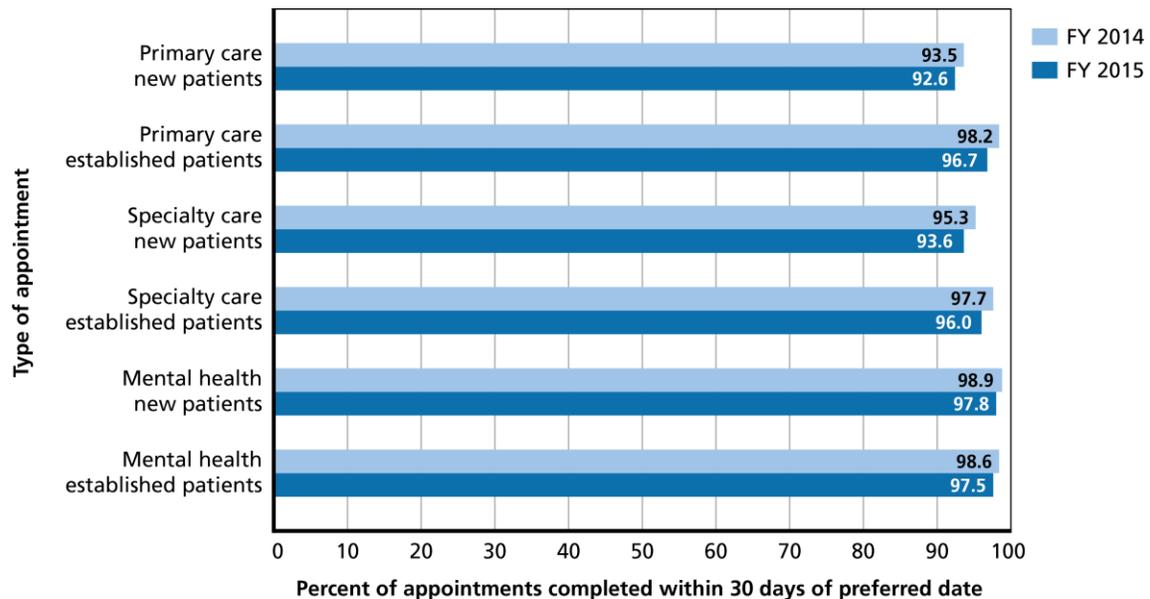
Source: Authors' analysis of VA wait-time data for first half of FY 2014 and the first half of FY 2015 obtained from the VSSC by The MITRE Corporation.

4.2.4 Variation in Wait Times Across VA Facilities

Wait times vary tremendously across VA facilities. For example, during the first half of FY 2015, the average number of days waited from preferred date ranged from less than one day (at the best-performing VA facility) to 41 days (at the worst-performing VA facility) for new primary care appointments, and from less than one day to 22 days from the preferred date for new specialty care appointments (Figure 4-16).

Figure 4-16. Variation Across VA Facilities in Number of Days Waited for an Appointment Following Preferred Date, First Half of FY 2015
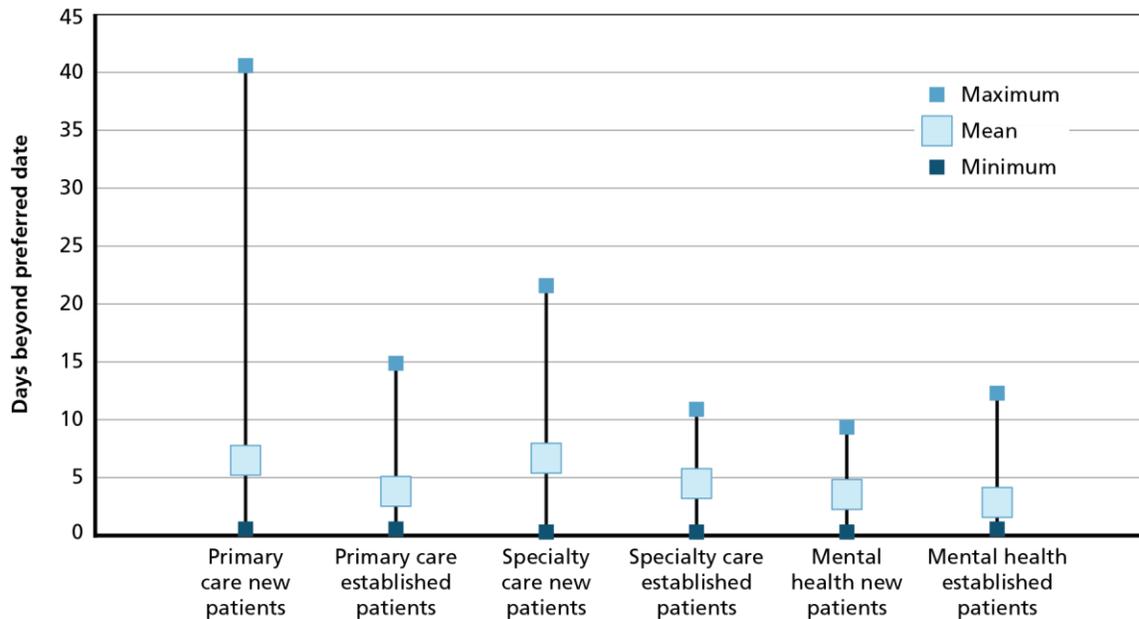
Source: Authors' analysis of VA wait-time data for the first half of FY 2015 obtained from the VSSC by The MITRE Corporation.

To compare across facilities, we estimated a benchmark for wait times for each appointment type. Although VA aims to complete 100 percent of appointments within the 30 days from preferred date threshold, no facilities achieved wait times of less than 30 days for 100 percent of Veterans for all types of appointments. Therefore, we set performance benchmarks to reflect wait times that VA facilities have demonstrated are achievable: the average wait time at the top-performing VA facilities, defined as the top 10 percent of facilities with regard to wait time for each appointment type. We then classified the performance of each facility into one of three categories relative to the benchmark: "near the benchmark" (within 0.5 standard deviation above or below the benchmark), "below the benchmark" (>0.5 to 2.0 standard deviations below the benchmark), or "far below the benchmark" (>2.0 standard deviations below the benchmark).[53]

Top-performing VA facilities achieve completed appointments within 30 days for virtually all of their new and established primary care, mental health care, and specialty care patients. The benchmarks for wait times for each appointment type (defined as the mean of the top 10 percent of facilities) were very high, ranging from 98.97 percent for established specialty care patients to 99.96 percent for new mental health care patients.

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[53] Thresholds for achieving each of these benchmark categories for each appointment type are described in the notes for Figure 4-17.

More facilities fall far below the benchmark for specialty care than for primary care or mental health care appointments (Figure 4-17). Twenty-nine facilities were far below benchmark for specialty care appointments for new patients, 22 far below the benchmark for specialty care appointments for established patients, and 19 facilities far below the benchmark for mental health care appointments for new patients. In contrast, between 14 and 16 facilities were far below the benchmark for primary care appointments for new or established patients and mental health care appointments for established patients.

Figure 4-17. Number of VA Facilities with Wait Times Near, Below or Far Below Benchmarks, First Half of FY 2015, by Appointment Type
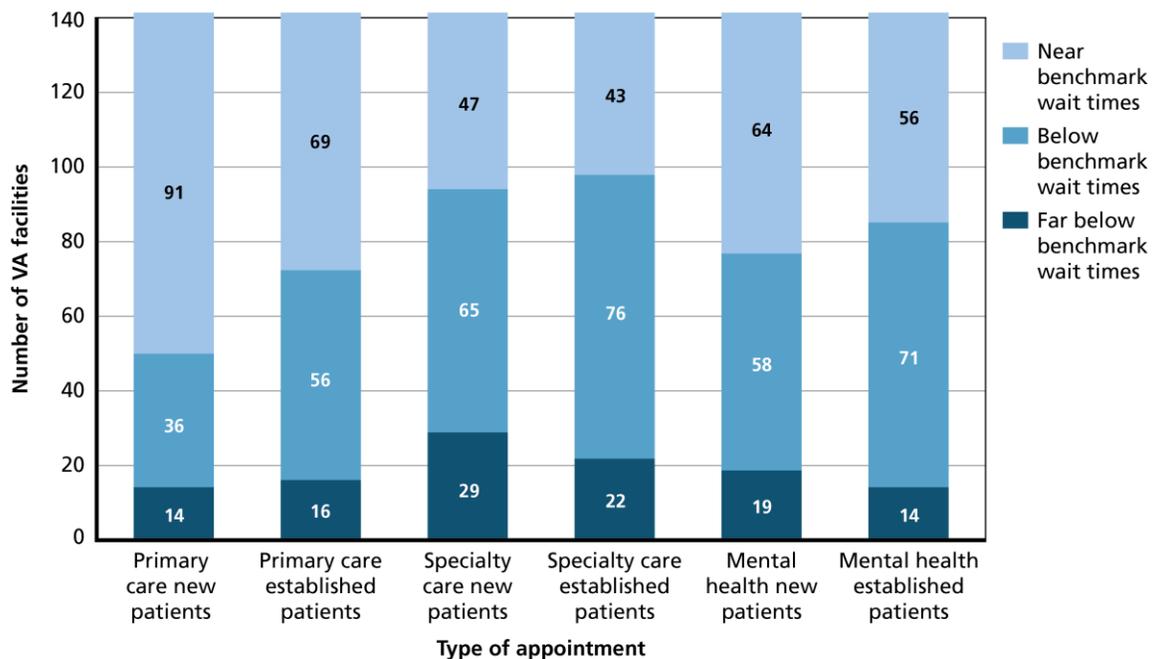
Source: Authors' analysis of VA wait-time data for the first half of FY 2015 obtained from the VSSC by The MITRE Corporation.
Notes: During the first half of FY 2015, for primary care appointments for new (established) patients, the benchmark was 99.95 percent (99.74 percent), and facilities were categorized as near benchmark if the percentage of appointments completed within 30 days of preferred date was above 95.98 percent (98.22 percent); below benchmark if between 84.05 percent and 95.98 percent (93.68 percent and 98.22 percent); and far below benchmark if below 84.05 percent (93.68 percent). The corresponding benchmark was 99.16 percent (98.97 percent) for specialty care appointments for new (established) patients, and thresholds were above 96.90 percent (97.73 percent) for near benchmark, between 90.13 percent and 96.90 percent (94.00 percent and 97.73 percent) for below benchmark, and less than 90.13 percent (94.00 percent) for far below benchmark. The corresponding benchmark was 99.96 percent (99.62 percent), and thresholds for mental health appointments for new (established) patients were above 99.02 percent (98.51 percent) for near benchmark, between 96.21 percent and 99.02 percent (95.19 percent and 98.51 percent) for below benchmark, and less than 96.21 percent (95.19

percent) for far below benchmark.

Appendix F includes maps displaying the performance of each VA facility in March 2014 through October 2015 (first half of FY 2015) with reference to the benchmark.

4.2.5 VA Wait Times Compared with the Private Sector

There is no national data source for wait times in non-VA settings with which to compare VA wait times. In addition, the limited wait-time data available in the private sector use a measure that is not directly comparable to VA's: total number of days between trying to schedule an appointment and the appointment date rather than VA's number of days *following the preferred date*. We therefore cannot make any conclusive statements about whether wait times in VA are better or worse than they are in the private sector overall. However, if we make the assumptions that (a) the preferred date for new VA patients is set by patient preference (rather than by clinical determination), (b) new VA patients typically want an appointment as soon as possible (that is, a preferred date of the same day), and (c) Veterans' preferred dates are entered accurately, VA's reported wait times for new patient primary and specialty care are shorter than wait times reported in focused studies of the private sector.

A 2013 study of private-sector health care wait times in 15 major metropolitan markets assessed the average number of days between an initial call to make a new patient appointment and the appointment date. Across these markets, the average wait time for an appointment with a family physician was 19.5 days, ranging from a low of five days in Dallas to a high of 66 days in Boston; average waits for specialty care appointments for new patients ranged from 10 days for orthopedic surgery to 29 days for dermatology (Merritt Hawkins, 2014). A similar 2013 study in Massachusetts reported average waits of 39 days between an initial call to make a new patient appointment and the appointment date for family medicine, 50 days for internal medicine, and between 22 and 37 days for specialty appointments, with shortest specialty care waits for orthopedic surgery and longest for obstetrics and gynecology (Massachusetts Medical Society, 2013).

By comparison, for the first half of FY 2015, VA reports that across facilities, the average number of days that Veterans waited for new patient appointments was approximately six and a half days from the preferred date for both primary care and specialty care, ranging from less than one day (at the best-performing VA facilities) to 41 days for primary care and 22 days for specialty care (at the worst-performing VA facilities).

Private-sector wait times are calculated only for those physicians or facilities accepting new patients (for example, 51 percent of family medicine physicians and 45 percent of internal medicine physicians in the Massachusetts study). VA facilities do not have the option of turning away new patients, and so might be reasonably expected to have longer wait times. However, the most recent wait-time data reported by VA suggest that VA wait times may be shorter than the wait times reported in the limited literature we found for the private sector.

4.2.6 Veterans' Perspectives on Timeliness of VA Care

Veterans responding to the FY 2014 SHEP PCMH reported that they had better access to routine care than to urgent care from VA facilities. Most Veterans responding to the survey reported that they were not always able to get the care or information they need after hours.

Across VA facilities, the average proportion of Veterans responding to the SHEP PCMH who reported that they always got a routine care appointment as soon as needed was 55 percent (Figure 4-18); the corresponding proportion for urgent care appointments was 46 percent. At the top-performing VA facilities (defined as the top 10 percent of facilities for each question), the average proportions for routine and urgent care were 69 percent and 61 percent, respectively, suggesting considerable room for improvement for even the top-performing VA facilities.

The average proportion of Veterans reporting that they were always able to get the care they needed from the provider's office during evenings, weekends or holidays was 22 percent across VA facilities. Even at the top-performing VA facilities, only 36 percent of Veterans reported that they were able to do so.

Across facilities, an average of 45 percent of Veterans reported always getting an answer to a medical question the same day when they called their provider during regular office hours. The proportion reporting that they always got an answer to a medical question as soon as needed when calling the provider's office *after* regular office hours was 37 percent.

As shown in Figure 4-18, the difference in performance between the best and worst-performing VA facilities on each of the SHEP PCMH questions related to timely care, appointments, and information is very large, ranging from 36 percentage points between the best and worst facilities for seeing a provider within 15 minutes of the appointment time to 54 percentage points for getting an answer to a medical question the same day. For context, differences of as few as three to six percentage points on access-related questions on a CAHPS health plan survey have been associated with substantial differences in rates of voluntary disenrollment from Medicare plans (Lied et al., 2003).

Figure 4-18. VA Facility Average of Percent of Veterans Responding "Always" to Access Questions on the SHEP PCMH, FY 2014
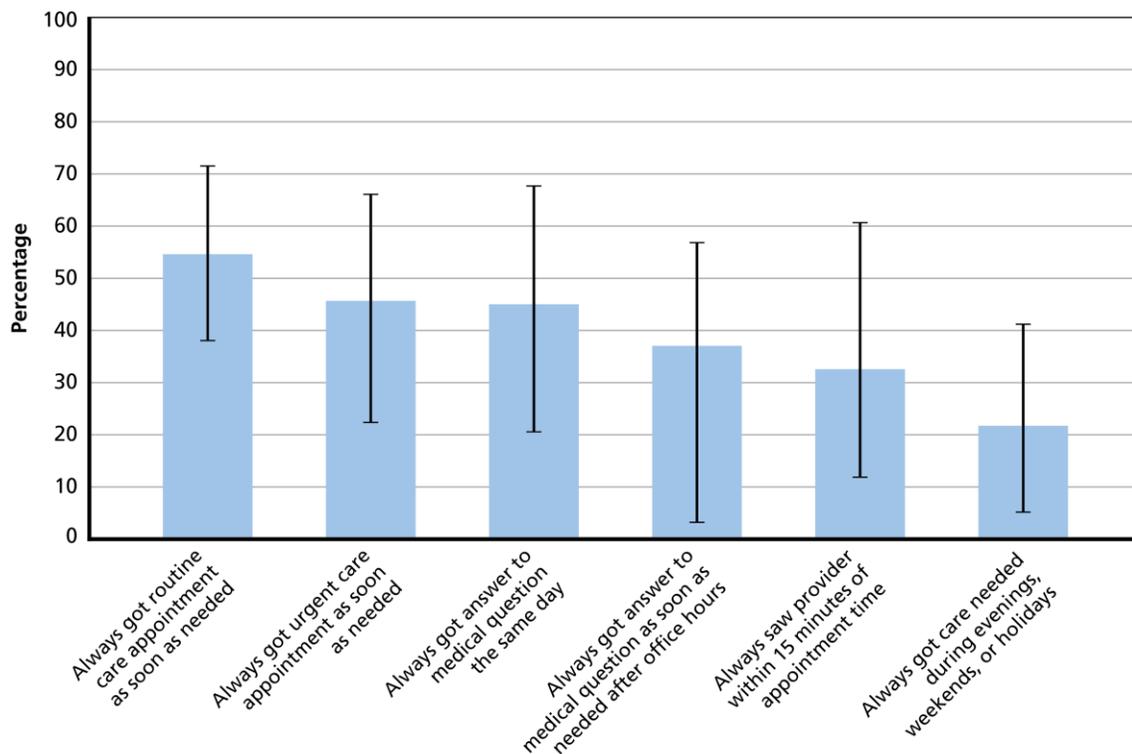
Source: Facility-level patient experience data for VA patients from the SHEP PCMH in FY 2014 obtained from the VA Office of Performance Measurement.

Notes: The height of the bar is equal to the mean percentage of patients who responded "always" to each question. The line extending from the top of the bar represents the range of values at the VA facility level, from the minimum (worst-performing facility) to the maximum (best-performing facility).

As noted above, VA wait-time metrics do not allow for precise tracking of the absolute number of days that Veterans wait for appointments. However, our analysis of Veterans' SHEP reports suggests that VA-reported wait times are an accurate indicator of the *relative* timeliness of appointments across VA facilities. Veterans who receive care from VA facilities with longer wait times report worse experiences of access than those who receive care from facilities with shorter wait times (Figure 4-19). For example, the average proportion of Veterans who reported that they "always" got an appointment as soon as needed for routine care was statistically significantly higher for facilities with the shortest wait times for new primary care patients (near benchmark) than for facilities below the benchmark; the same pattern is true between facilities below the benchmark and those far below the benchmark. The pattern of results was similar for all SHEP questions regarding timely care, appointments and information and for wait times for all types of appointments.

Even at the facilities with the shortest wait times, fewer than three in five Veterans report that they "always" get an appointment as soon as needed, suggesting that even facilities that achieve VA's wait-time standards do not meet many Veterans' expectations for timely appointments.

Figure 4-19. Percentage of Veterans in VA Facilities Responding That They "Always" Got Appointment for Routine Care as Soon as Needed, by Performance on Primary Care Wait Times
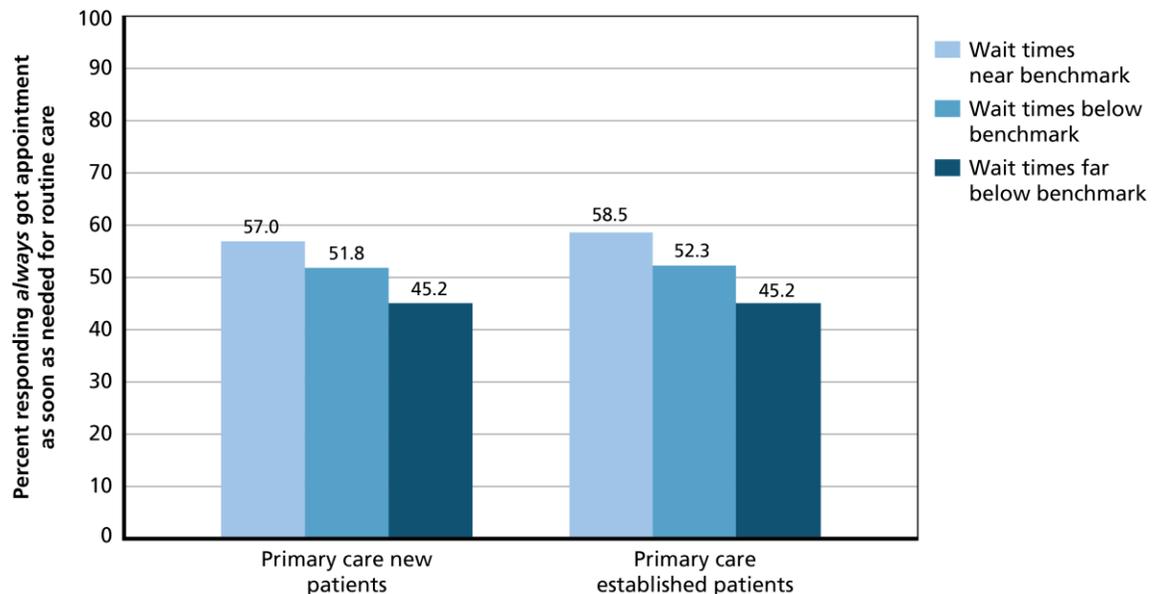
Sources: Benchmark categories were established by authors' analysis of VA wait-time data for the first half of FY 2015 obtained from the VSSC by The MITRE Corporation. Facility-level patient experience data for VA patients from the SHEP PCMH in FY 2014 were obtained from the VA Office of Performance Measurement.
Note: Statistical significance was determined based on t-tests for pairwise differences with Bonferroni adjustment for multiple comparisons.

Once Veterans are in a VA facility to attend scheduled appointments, most wait longer than 15 minutes. Across facilities, the average proportion of Veterans responding to the SHEP PCMH in FY 2014 who reported always seeing a health care provider within 15 minutes of their appointment time was 33 percent; the average proportion at the highest-performing VA facilities was 46 percent. Since 2010, the proportion of Veterans responding to the Survey of Enrollees who either completely agreed or agreed that Veterans like them can get in and out of a VA appointment in a reasonable time has declined substantially (from 73 percent in 2010 to 65 percent in 2014), suggesting that Veterans perceive that in-facility waits for appointments have worsened over time. In-facility wait times are important to Veterans: in online Yelp reviews of VA facilities, 6 percent of reviewer comments were regarding long wait times within VA facilities once Veterans arrived for scheduled appointments, making such complaints among

the top 10 most common types of comments about VA facilities. An additional 3 percent of comments complimented the VA facility for a short wait for an appointment once at the facility.

4.2.7 Veteran Reports Regarding Timeliness of Care Compared with the Private Sector

There are no nationally representative data with which to compare SHEP PCMH results.[54] However, VA's SHEP PCMH survey contains the same measures as the CAHPS Clinician & Group PCMH Survey that is used widely throughout the United States to collect information on patients' experiences with care. The CAHPS Database hosted by the AHRQ contains comparative data for this survey from medical practices that volunteer to submit their survey responses (AHRQ, n.d.). The most recent year of the CAHPS Database available at the time of this report, 2013, includes results from 833 participating practice sites administering the CAHPS Clinician & Group PCMH Survey (AHRQ, 2014). These practices do not constitute a representative sample of all medical practices in the United States, and given their willingness to voluntarily submit their scores, high-performing practices are likely over-represented. The practices differ from the complete set of VA facilities for which we report performance. Therefore, we compare the performance of the *top-performing VA facilities* in FY 2014 with the *average performance of the Database practices* in 2013 to examine the relative strengths and weakness of top-performing VA and non-VA facilities. Since some CAHPS Database practices may not be high performers, we also compare the performance of the *75th percentile of VA facilities* for each measure with the *average performance of the Database practices*.

We were not able to adjust the CAHPS Database survey scores to account for factors such as respondents' age, sex, self-reported health and mental status, or education, which have been shown to be associated with reporting systematically higher or lower responses on patient experience surveys (Zaslavsky et al., 2001; Hargraves et al., 2001; Elliott et al., 2009). Our analyses of inpatient SHEP data, described in Section 5, suggest that adjusting for these factors may account for differences of up to three percentage points in either direction between reports of patient experience from SHEP and those from a comparable CAHPS survey.[55] Thus, if differences between VA SHEP scores and CAHPS Database scores are greater than three percentage points, they are unlikely to be explained by patient mix alone. Here, we consider differences of up to three percent between scores of high-performing VA facilities and average CAHPS Database practices as comparable performance, and differences greater than three percent to indicate truly higher or lower performance.

Taking into account this three percent margin, *top-performing VA facilities* were comparable to *average practices* in the CAHPS Database, but the 75th percentile of VA facilities performed substantially worse than average CAHPS Database practices, with regard to the proportion of patients reporting that they always got a routine care appointment as soon as needed (69

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[54] National scores are available for the CAHPS Health Plan Survey and Medicare CAHPS surveys; however, the measures on these surveys are not the same as those on the SHEP PCMH.

[55] As reported in Section 5, the adjustment may account for an average of 4 points for overall ratings of care.

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percent for top-performing VA facilities and 61 percent for the 75th percentile of VA facilities versus 72 percent for CAHPS Database practices) and saw their provider within 15 minutes of their appointment time (46 percent and 39 percent versus 49 percent, respectively).

Across VA facilities, Veterans responding to the SHEP PCMH at *top-performing VA facilities* and t*he 75th percentile of VA facilities* were substantially less likely than surveyed patients in CAHPS Database practices to report that they always got an appointment for urgent care as soon as needed (61 percent at top-performing VA facilities and 52 percent at the 75th percentile of VA facilities versus 67 percent for CAHPS Database practices), got an answer to a medical question the same day when they phoned their provider's office during regular office hours (59 percent and 51 percent versus 64 percent, respectively), and got an answer to a medical question the same day when they phoned their provider's office *after* regular office hours (55 percent and 44 percent versus 64 percent, respectively).

4.2.8   Subsection Summary

The average number of days that Veterans wait for appointments varies tremendously across VA facilities, indicating substantial opportunities for improvement in some facilities. Most Veterans complete their appointments within VA timeliness standards of within 30 days of the preferred date. However, Veterans who do not receive care within 30 days may be at risk of poor health outcomes. Further, VA's timeliness standard is much less demanding than alternative standards that have been proposed in the private sector. The standard is also sensitive to the definition of the "preferred date," which has been subject to gaming. For example, the VA Inspector General found that VA staff regularly entered false information regarding preferred dates of care. Alternative standards, such as those that assess availability rather than completion of appointments, may be less subject to gaming and more comparable to private-sector standards.

Even at the facilities with the shortest wait times, many Veterans report that they do not always get an appointment as soon as needed, suggesting that even these top-performing facilities do not meet many Veterans' expectations for timely appointments. Veterans are substantially less likely than patients in private-sector practices to report that they got appointments, care, and information as soon as they needed.

4.3   Financial Access

4.3.1   Veterans' Out-of-Pocket Costs for VA Care

Although Veterans do not pay premiums to enroll in VA care, some of them do face out-of-pocket costs. Copayments for VA health care services vary by the priority group of the Veteran (VA, 2015h; VA, 2015i) though even within priority groups, Veterans can face differing copayment levels for a variety of reasons, including reason for enrollment, severity of disability,

and income.[56] In 2015, those in priority group 1 have no copays. For reference, Assessment A reports that as of 2013, Veterans in priority group 1 made up more than a quarter (27 percent) of all users of VA health care. Copayments for non-service connected care for primary care visits ($15 per visit), specialty care visits ($50 per visit), care from a Community Living Center (up to $97 per day), adult day health care (up to $15 per day), or domiciliary care ($5 per day) are the same for those in priority groups 2 through 8 for those Veterans who have to pay them. Veterans in groups 2 through 6 have increased financial protection for medications, facing copays of $8 for each 30-day or less supply of medications and a $960 annual out-of-pocket maximum. Veterans in groups 7 and 8 pay copays of $9 for these medications and face no annual out-of-pocket maximum. While inpatient care is free to those in groups 2 through 6, out-of-pocket payments for inpatient stays are required from Veterans in groups 7 and 8. For reference, Assessment A reports that as of 2013, Veterans in priority groups 7 and 8 made up 22 percent of all users of VA health care.

By comparison, in 2014, individuals with employer-sponsored health insurance paid copays of $24 for primary care and $36 for specialty care visits with in-network providers and between $11 and $83 for each 30-day supply of medication, depending on drug type (Kaiser Family Foundation & Health Research & Educational Trust, 2014).[57]

Figure 4-20 displays data from the 2012 Medical Expenditure Panel Survey on annual out of pocket payments for Veterans who use VA care. Out-of-pocket costs were lowest for those with both VA and Medicaid coverage ($285) or VA and other public insurance, such as Tricare ($818). Higher out-of-pocket payments among those with VA and Medicare ($1,282), VA and other private health insurance ($1,646), and VA and more than one other type of coverage, such as both Medicare and employer-sponsored insurance ($1,714), likely indicate that these Veterans rely less on the VA system and are therefore paying the Medicare or private health insurance cost sharing. By comparison, in 2012, individuals with employer-sponsored health insurance paid an average of $951 toward their premiums for individual coverage (Kaiser Family Foundation & Health Research & Educational Trust, 2014) plus additional out-of-pocket costs for copays and coinsurance. In 2012, average outlays for copays and coinsurance for non-Veterans ranged from $742 for those with private insurance only to $1,049 for those with more than one other type of coverage, such as both Medicare and employer-sponsored insurance

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[56] This report offers a high-level summary of copayments. Copayments for individual Veterans may vary for a number of reasons. For example, there are a variety of exemptions to copayment requirements for non-service connected care. Veterans can exempted from copayments if their incomes are below specified thresholds depending on location. More information on geographic means tests can be found here: http://www.va.gov/healthbenefits/resources/publications/IB10-497_means_test_gmt_and_pension_threshold_nov14.pdf. Copayments also vary on whether the service is related to a clinical trial and the Veterans' eligibility reason for VHA services, even within priority group, particularly for services such as medications. For more detailed information on copayments for medications for specific groups, please see: http://www.va.gov/healthbenefits/resources/publications/IB10-336_medication_copay_brochure_apr2014.pdf.

[57] Some individuals with employer-sponsored health insurance face coinsurance instead of copays for prescription drugs, often depending on drug type.

(authors' analysis of 2012 Medical Expenditure Panel Survey data). Comparisons between Veteran and non-Veteran total out-of-pocket costs should be made with caution given differential patterns of service use between the two groups.

Figure 4-20. Annual Out-of-Pocket Payments Reported by VA Users in 2012, by Insurance Type
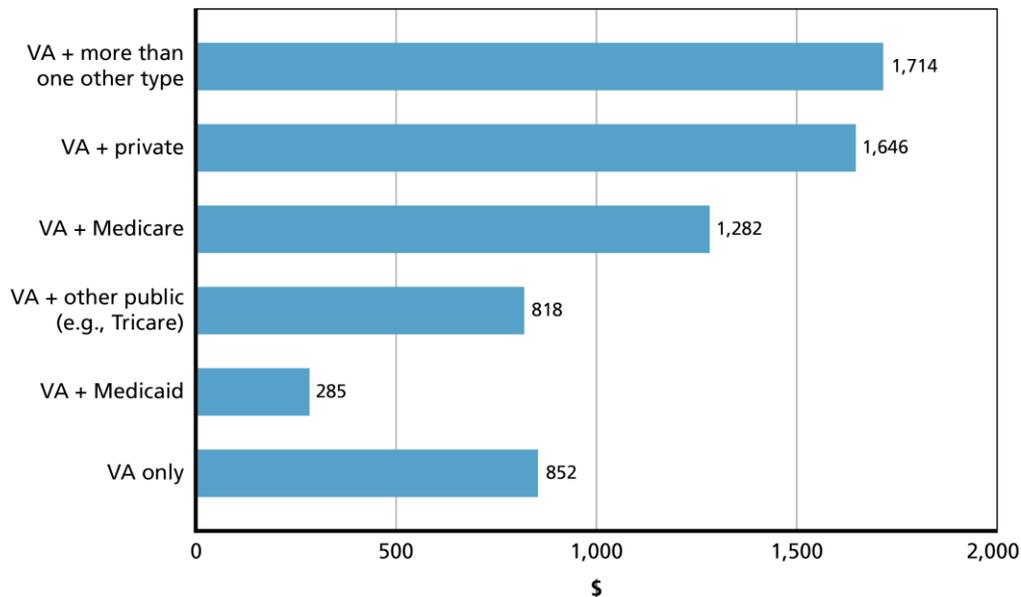
Source: Authors' analysis of 2012 Medical Expenditure Panel Survey data.

4.3.2   Cost Factors Related to Enrollment and Reliance on VA

Most Veterans—particularly unemployed Veterans, those with low incomes, and those without other health insurance—believe that VA health care is their most cost-effective option. In 2014, approximately two-thirds of Veterans responding to the Survey of Enrollees indicated that they completely agreed or agreed that if the cost of health care increases, they would use VA more, that VA offers Veterans like them the best value for their health care dollar, and that VA is the most cost-effective provider for Veterans like them. Low-income Veterans (those with incomes under $36,000 per year) and those who were unemployed were significantly more likely than Veterans with higher incomes or employment to report that their use of VA would decrease if their financial resources improved. Twenty-eight percent of Veterans indicated that their use of VA would decrease if their financial resources improved. This suggests that for a substantial minority of Veterans, non-VA care is preferred if available. In interviews, VA administrators and representatives of Veteran Service Organizations noted that Veterans generally like to get their care from VA, but that some Veterans with affordable non-VA care options seek care elsewhere rather than dealing with challenges associated with determining their eligibility for services and seeking reimbursement, facing real or perceived long VA wait times, undergoing the inconvenience of making appointments with automated telephone systems or call centers, and

receiving care in VA settings that are less likely to have the amenities and state-of-the art equipment of the private sector.

VA health care workers interviewed by RAND noted that lack of an affordable private insurance option is a key reason why Veterans enroll in VA. This finding is in keeping with prior studies, which have reported that Veterans seek VA care due to its low cost relative to their other coverage alternatives (Jonk et al., 2005; Washington, Yano, Simon & Sun, 2006; Nelson et al., 2007; Petersen et al., 2010; Nayar et al., 2013).

Veterans with access to both VA services and other sources of health care, such as Medicare display a mixed pattern of utilization, relying on VA for some types of care and on additional sources of insurance for other care (West & Weeks, 2007; Liu et al., 2010). Some of this mixed utilization is likely due to the relative cost of care between VA and the Veteran's alternative source of health care coverage.

Unemployment and lower income status are both independently associated with an increased reliance on VA services (Jonk et al., 2005; Washington, Yano, Simon, & Sun, 2006; Fillenbaum et al., 2007; Nelson et al., 2007; Petersen et al., 2010), likely due in part to the demand for lower cost health care services among unemployed and lower income Veterans.

Potential impacts of the Affordable Care Act on reliance on VA are described in Assessment A.

4.3.3   Subsection Summary

VA is often Veterans' most affordable option for health care coverage. Veterans typically face lower out-of-pocket costs for care in VA than they would if they were privately insured. Lack of an affordable private insurance option is a key reason why Veterans enroll in VA.

4.4   Digital Access

As described in Section 1, digital access refers to connectivity that enables Veterans to engage in digital communications with providers, caregivers, peers, and computerized health applications. Section 3 described the range of digital services available within VA and rates of use of those services. Here, we describe the degree to which Veterans have access to digital channels of communication which enable them to access these services.

Thirty percent of Veterans responding to the 2013 Survey of Enrollees reported that they do not access the Internet. Of those Veterans who did report access, nearly 9 of 10 access the Internet from home, while the remainder accesses it from a variety of locations, including public libraries (2 percent). Interviews with VA health care providers and RAND analyses of Survey of Enrollees data suggest that older Veterans are significantly less likely to have Internet access. VA health care providers also note that older Veterans may lack knowledge required to access VA's digital services, such as VA's personal health record, MyHealtheVet, or telehealth. In the coming decades, Internet access and technological skill are likely to grow more common among Veterans, thereby increasing the acceptability and accessibility of digital health care services.

4.5   Cultural Access

As noted in Section 1, cultural access refers to the acceptability of health services to the patient. Acceptability may be driven by factors that are similar for all Veterans, such as military culture, or may vary by Veteran characteristics, including sex, race, ethnicity, sexual orientation, gender identity, and medical diagnosis. Cultural acceptability of VA care varies by Veteran characteristics.

Some Veterans prefer to seek VA care because it provides them an opportunity to spend time with other Veterans. The sense of camaraderie that Veterans feel among other Veterans at VA facilities was one of the top 20 themes the RAND identified in analysis of online Yelp reviews of those facilities. Additionally, in interviews, administrators and health care workers emphasized the importance of Veterans receiving care from providers who understood their experience, and of VA's provision of services that provide a sense of a community for Veterans, such as events to welcome home returning service members. As of 2014, over half (55 percent) of Veterans responding to the Survey of Enrollees reported that they either completely agreed or agreed that Veterans like them like to go to VA because they like to talk to other Veterans. From 2010 to 2014, the percentage of Veteran enrollees who either completely agreed or agreed that VA health care providers treat them with respect declined from 88 to 81 percent. Some VA health care providers we interviewed noted that while efforts are being made to ensure that providers as sensitized to the unique experience of Veterans, more could be done to increase awareness of military-specific language and slang, as well as the changing demographics among Veterans.

Subgroups of Veterans that may face particular cultural barriers to access include racial and ethnic minorities, and groups that have traditionally been underrepresented in VA, such as women.

Experts have suggested that gender-sensitive comprehensive care for female Veterans includes provision of gender-specific care, such as female reproductive health services, awareness of best practices for management of women's health, and gender sensitivity, including attention to female Veterans' care preferences (deKleijn et al., 2015). With regard to provision of gender-specific care, increased attention to the needs of female Veterans has led to broad access to basic reproductive health services; however, access to more advanced services, such as gynecologic surgery and placement of contraceptives, is more variable by location (Washington, Yano, Goldzweig, & Simon, 2006; Yano et al., 2006; Seelig et al., 2008; Cordasco et al., 2013; Katon et al., 2013). With regard to gender sensitivity, VA health care workers indicated in interviews that additional steps could be taken by providers to ensure that female Veterans feel respected while receiving care in VA facilities. In keeping with these interview findings, female Veterans responding to the Survey of Enrollees are significantly less likely than male Veterans to agree that VA health care providers treat patients with respect.

Approximately 3–5 percent of Veterans report racial discrimination by health care providers; the proportion reporting perceived discrimination is similar among Veterans who use VA care and Veterans who use non-VA care (Hausmann et al., 2009). However, evidence regarding access to VA care for Veterans in various racial and ethnic groups is mixed. For example, studies

have reported that black Veterans were less likely than white Veterans to receive an effective treatment for severe depression (Pfeiffer et al., 2011) or heart drugs and procedures (Mehta et al., 2010) at VA facilities, while other studies have found comparable care for black and white Veterans at VA facilities with regard to timely colon cancer surgery (Robinson & Petzel, 2010) and total joint replacement (Hausmann et al., 2010). Earlier studies have found that Native American and Alaska Native Veterans report significantly more unmet health care needs than white Veterans (Kramer, 2009), and face unique challenges to access within VA, including assistance in coordinating care between VA and the Indian Health Service (Villa, Harada, & Huynh-Hohnbaum, 2010).

Observed racial and ethnic disparities in VA health care may be due, in part, to differences with regard to knowledge of medical information, trust in medical interventions and health care providers, participation in shared decision-making, level of social support, clinicians' judgment, and the quality of VA facilities attended (Health Services Research & Development Service, 2007).

Homeless Veterans treated at VA-staffed transitional residential treatment programs had similar patient satisfaction scores and outcomes at 12 months as Veterans treated at two community-based programs (McGuire, Rosenheck, & Kasprow, 2010), suggesting that VA care may be as acceptable to homeless Veterans as other alternative care settings.

Finally, with respect to sexual orientation and gender identity, one study found that lesbian, gay, and bisexual Veterans avoid seeking VA care due to concerns that they would be stigmatized for their sexual orientation (Simpson et al., 2013). In contrast, another study found a sharp increase in the number of transgender Veterans using VA care over the past several years, suggesting a response to a 2011 VA national directive to standardize treatment services for transgender Veterans (Kauth et al., 2014).

4.6   Section Conclusion

Although we did not find evidence of a system-wide crisis in access to VA care, our assessment found considerable variability across the different dimensions of access, including important barriers to be addressed.

Geographic access. Veterans are highly dispersed geographically throughout the United States, and ensuring nearby access to needed services for this population is difficult. Many Veterans have geographic access to VA care by a general standard of less than 40 miles distance from any facility, not considering the services available at that facility. However, geographic access is worse when using different types of access standards, such as reliance on public transportation. Geographic access to specialized facilities and providers is also lower. Ensuring geographic access to purchased care is also a challenge.

Timeliness. The average number of days that Veterans wait for appointments varies tremendously across VA facilities. Most Veterans complete their appointments within VA timeliness standards of within 30 days of the preferred date. However, Veterans who do not receive care within 30 days may be at risk of poor health outcomes. Further, VA's timeliness

standard is much less demanding than alternative standards that have been proposed in the private sector.

Financial access. VA is often Veterans' most affordable option for health care coverage. Veterans typically face lower out-of-pocket costs for care in VA than they would if they were privately insured. Lack of an affordable private insurance option is a key reason why Veterans enroll in VA.

Digital access. Many Veterans, especially older Veterans, do not have access to the Internet, and therefore cannot access VA's digital services. As younger Veterans age, Internet access and technological skill are likely to grow more common among Veterans, thereby increasing the acceptability of digital health care services.

Cultural access. Cultural acceptability of VA care varies by Veteran characteristics, including sex, race, ethnicity, sexual orientation, gender identity, and medical diagnosis. Some VA health care providers noted that, while efforts are being made to ensure that providers as sensitized to the unique experience of Veterans, more could be done to increase awareness of military-specific language and slang, as well as the changing demographics among Veterans.

When Veterans do access VA care, it is important that the care be of high quality. In the next section, we turn the focus to the quality of VA care.

5   Assessment of Quality of VA Care

Assessing the quality of VA care is an integral part of assessing Veterans' access to care. In a memorandum to VA leadership, the Interim Under Secretary for Health for VA described the purpose of the independent assessments of the Veterans Affairs Health Care Delivery systems and Management Processes collectively as a comprehensive evaluation of "VA's ability to deliver high-quality health care to Veterans" (Clancy, 2014). As a result of this emphasis on high-quality care for the assessments, RAND designed Assessment B to characterize current VA quality of care by conducting a systematic review of previous studies of VA quality compared with non-VA providers and comparing VA and non-VA performance on quality measures.

In this section, we present the findings from our assessment of the quality of health care provided by VA to Veterans. We organize results according to the domains of quality outlined by the Institute of Medicine (safety, timeliness, equity, effectiveness, efficiency, and patient-centeredness) and described in Subsection 1.4.2 of this report. These domains are defined as follows (Institute of Medicine, 2001):

- Safety: Avoiding injury to patients from the care intended to help them
- Timeliness: Reducing wait times for both providers and patients
- Equity: Providing care that does not vary in quality because of personal characteristics such as gender, race/ethnicity, and socioeconomic status
- Effectiveness: Providing evidence-based services to those who could benefit, and not giving services to those unlikely to benefit
- Efficiency: Avoiding waste, including waste of equipment, supplies, ideas and energy
- Patient-centeredness: Providing care that is responsive to individual patient preferences, needs and values.

For each domain, we summarize the results of published studies that compare the quality of care provided by VA and non-VA health care systems, and present the results of our analyses of the latest data on VA performance on quality measures. We show how VA is performing at the national level and how performance varies at the facility level and, whenever possible, indicate how VA performance compares to non-VA care.

A summary of the methods used in these analyses is shown in the box.

The views, opinions, and/or findings contained in this report are those of RAND Corporation and should not be construed as an official government position, policy, or decision.

Overview of Methods and Data for Assessment of Quality of VA Care

- We conducted a systematic literature review to examine how the quality of VA care compares to non-VA care.
- Safety of care focused on adverse events in the inpatient setting and was measured using AHRQ Patient Safety Indicator data from VA and CMS Hospital Compare.
- Effectiveness of outpatient care focused on screening, prevention, and wellness; chronic condition management; comprehensive diabetes care; cholesterol management for patients with cardiovascular conditions; and antidepressant medication management; and was measured using HEDIS quality measure data from VA and NCQA. We compared VA performance rates with those for commercial, Medicaid, and Medicare health plans, as reported by the NCQA State of Health Care Quality Report.
- Effectiveness of inpatient care focused on care processes for selected conditions (for example, ORYX measures for acute myocardial infarction, pneumonia, heart failure) and was measured using data from CMS Hospital Compare for VA and non-VA facilities.
- Patient-centeredness of care focused on Veterans' reports of outpatient and inpatient care experiences (for example, communication with health care providers and staff, self-management support) and was measured using data from VA SHEP PCMH, VA inpatient SHEP, and CMS Hospital Compare.
- We compared mean performance and analyzed variation in quality measures across VA facilities and non-VA facilities.
- For complete details of the methods used to assess quality of VA care, please refer to Section 2 and Appendix A, Subsection A.5.

5.1 Evidence from Previous Studies of Quality of VA Care

Below, we present results from 34 studies on safety, one on timeliness, four on equity, 24 on effectiveness, nine on efficiency, and five on patient-centeredness. We organize the results in this subsection by these dimensions, with findings from some articles appearing in multiple subsections (if the article covers multiple quality dimensions). All of the results summarized below are adjusted for some combination of risk, comorbidities, demographics, or other variables when appropriate, unless otherwise specified. This systematic review updates a previous systematic review that compares the quality of care delivered in VA versus non-VA performed on this topic (Asch et al., 2010). Therefore, we chose to build on this work using consistent methods, including the same search terms (see Appendix A for detailed methods). All studies included in the previous review published after 2005 are also included in the current review.

We classified each study in the review according to the statistically significant differences in performance on quality of care measures for VA care relative to a non-VA comparison group (Figure 5-1). If VA quality of care was shown to be better than quality for non-VA care, the study

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was classified as "VA better." If multiple results were reported for a study and VA quality of care was better in some instances and the same in other instances compared with non-VA care, the study was also classified as "VA better." If multiple quality measures were reported in the study and VA care was better than non-VA on some and worse on others, the study was classified as "mixed." If the quality of care in VA and non-VA did not differ, the study was classified as "same." If VA quality of care was shown to be worse than non-VA, the study was classified as "VA worse" (as were studies with multiple results reported where the quality of care was worse in some instances and the same in other instances).

VA facilities performed inconsistently in studies related to safety, with 11 studies showing better performance, 11 showing same performance, three showing mixed performance, and nine showing worse performance (Figure 5-1). Only one study assessed timeliness of care in VA facilities, showing worse performance than the non-VA facilities. In terms of equity, VA settings demonstrated better performance in one article, same performance in two articles, and worse performance in one article compared with non-VA settings. VA facilities performed well in studies of effectiveness, with 17 studies showing better performance, three showing same, one mixed, and three worse. The articles (nine) that evaluated measures of efficiency, such as hospital length of stay, demonstrated better (two), mixed (one), or worse (six) performance in VA facilities compared with non-VA facilities. Only five articles looked at patient-centeredness quality measures, but all demonstrated better (three) or same (two) VA care quality compared with care in non-VA settings.

In the following subsections, more information is provided about these studies. Almost all the studies compare Veterans receiving VA care with individuals who are not identified as Veterans in the studies (referred to as "non-Veterans") and who received care outside of the VA system (referred to as "non-VA care"). However, a few studies are included that compare Veterans receiving VA care with Veterans receiving non-VA care. These two types of studies differ in terms of the similarity of the characteristics of the comparison populations. The first group of studies compares Veterans and non-Veterans, so the patients may differ in ways related to the Veteran experience. The second group of studies compares Veterans receiving two types of care, so they may be similar in ways related to the Veteran experience. Therefore, we labeled these clearly to alert the reader to the difference.

Figure 5-1. Number of Studies in Systematic Review, by Quality Dimension and VA Performance, Compared with Non-VA
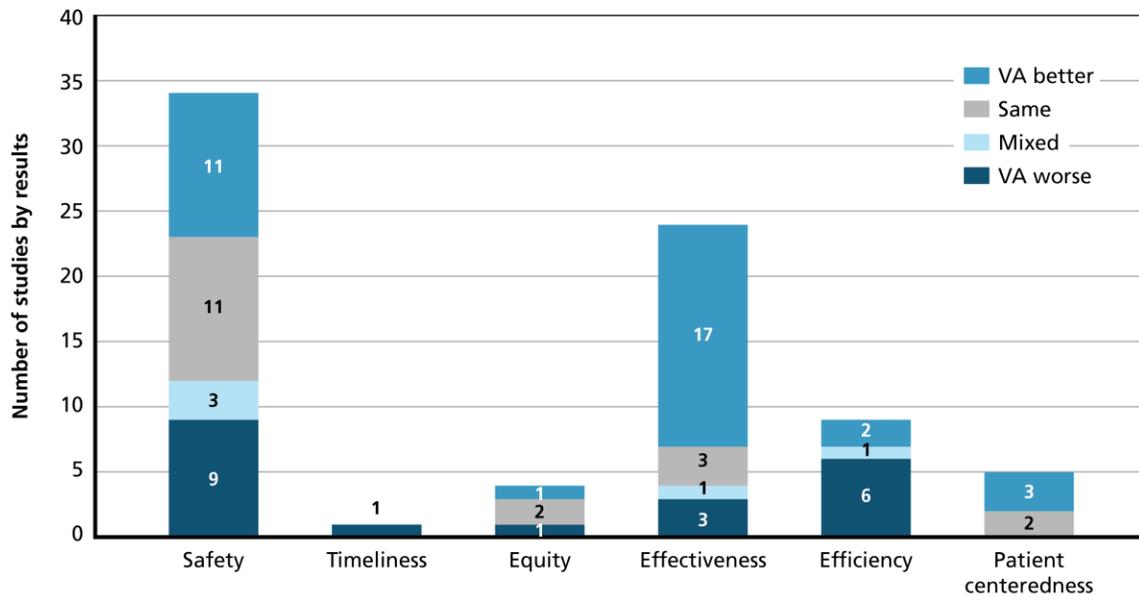
Source: RAND systematic review of studies on quality of care in VA compared with non-VA settings.

Notes: Categories are defined as follows: VA better = VA quality of care shown to be better than non-VA, or a mix of same and better; mixed = for studies with multiple quality measures, VA care was better than non-VA on some and worse on others; same = quality of care in VA and non-VA did not differ; VA worse = VA quality of care was shown to be worse than non-VA, or a mix of worse and same.

5.1.1 Safety of Care in VA Compared with Non-VA

Safety measures focus on topics related to avoiding injuries to patients from the care that is intended to help them, such as complications following surgical procedures. Also included in this category are mortality rates among those receiving care in VA or non-VA settings. In 22 of 34 comparisons, VA generally performed as well as or better than other settings in terms of complications, morbidity, and mortality. VA patients fared worse in nine studies and had mixed experience (some better and some worse) in three studies.

Surgical complication rates were similar among Veterans at VA and non-Veterans receiving non-VA care following several types of surgery (Boitano, Wang, & Kibbe, 2012; Henderson et al., 2007; Weiss et al., 2006). Lower mortality and higher complication rates were observed for cataract surgeries for Veterans who are VA patients compared with Veterans who are Medicare fee-for-service beneficiaries (French & Margo, 2012; French et al., 2012b). Postoperative morbidity was lower for VA patients compared with non-Veterans receiving non-VA care (Fink et al., 2007; Hutter et al., 2007; Johnson et al., 2007). In several studies, morbidity after several types of surgery did not differ between VA patients and non-Veterans receiving non-VA care (Hall et al., 2007; Lancaster et al., 2007; Lautz et al., 2007; Neumayer et al., 2007; Turrentine et al., 2007), but was worse for VA patients overall (Glasgow et al., 2007) and male VA patients (Lautz et al., 2007). In studies comparing quality of care for Veterans receiving VA care and non-VA care, Veterans residing in VA nursing homes were less likely to develop a pressure ulcer than Veterans in community nursing homes (Berlowitz et al., 2005). VA hospitals were more likely to follow best practices in the use of central venous catheter bloodstream infection prevention compared with non-VA hospitals (Krein et al., 2007). Performance on AHRQ's patient safety indicators was found to be a mix of higher, lower, and similar rates at VA hospitals compared with non-VA hospitals (Rosen et al., 2005; Weeks et al., 2008b; Rivard et al., 2010). Among all kidney transplant recipients, VA patients had a higher risk for graft failure than non-Veterans receiving non-VA care (Chakkera et al., 2004).

Mortality rates associated with specific conditions (Fihn et al., 2009; Landrum et al., 2012; Tarlov et al., 2012) or following surgical procedures (Bilimoria et al., 2007; Boitano, Wang, & Kibbe, 2012; Choi et al., 2009; Fink et al., 2007; Hutter et al., 2007; Weiss et al., 2006) were similar for Veterans receiving VA care compared with non-Veterans receiving non-VA care. Rates of mortality declined more quickly in VA over time than in non-VA settings (Borzecki et al., 2010). Veterans treated in VA and non-VA settings also experienced similar mortality rates (Wang et al., 2013a; Berlowitz et al., 2005). Adjusted mortality was lower among Veterans who used VA care compared with male Medicare Advantage beneficiaries over 65 years of age (Selim et al., 2010; Selim et al., 2009; Selim et al., 2006; Selim et al., 2007). Mortality after some surgeries was higher among VA patients compared with non-Veterans receiving non-VA care (Campling et al., 2005; Chakkera et al., 2004; Glasgow et al., 2007; Henderson et al., 2007; Vaughan-Sarrazin, Wakefield, & Rosenthal, 2007) and after other surgeries, similar (Vaughan-Sarrazin, Wakefield, & Rosenthal, 2007). Mortality within one year of admission after hip fracture was 21 percent lower among Veterans admitted to non-VA hospitals compared with Veterans admitted to VA hospitals (Richardson et al., 2013).

5.1.2   Timeliness of Care in VA Compared with Non-VA

Only one study addressed timeliness of care in VA facilities relative to non-VA facilities. This study observed a significantly shorter time between hospital admission for hip fracture and surgical repair of hip fracture for Veterans admitted to non-VA hospitals compared with VA hospitals (Richardson et al., 2013); the shorter time interval indicates the care was better in non-VA hospitals.

5.1.3   Equity of Care in VA Compared with Non-VA

Equity measures focus on comparing quality between patients with different personal characteristics, such as females compared with males. VA performance on equity measures was better than or the same as non-VA care, in three studies comparing disparities within VA patients and non-VA patients; one study showed worse performance. In the largest study, Trivedi et al. (2011) observed significantly narrower income and educational disparities for nine of 12 quality measures assessing diabetes, cardiovascular, and cancer screening care in VA patients compared with Medicare Advantage enrollees. Polsky et al. (2007) found the patterns of racial differences in 30-day mortality rates after hospital admission for several conditions were similar for Veterans in VA hospitals and non-Veterans in non-VA hospitals, with African Americans age 65 years and older having significantly reduced odds of 30-day mortality for almost all conditions. (Chakkera et al., 2004) showed that African-American race was associated with an increased risk of graft failure, a pattern observed among both Veterans receiving VA care and all patients receiving non-VA care. One study had worse results. In a study of end-of-life care for older cancer patients, Keating et al. (2010) found no significant differences between African-American and white patients in chemotherapy use and ICU admissions for either VA or Medicare patients, but African Americans were more likely than whites to have more than one emergency room visit in the last month of life in the VA cohort than in the Medicare cohort.

5.1.4   Effectiveness of Care in VA Compared with Non-VA

Most studies demonstrated better effectiveness of care (provision of recommended care) for VA compared with non-VA care, particularly for outpatient care. VA care outperformed non-VA care for non-Veterans on effectiveness of care measures for chronic conditions (Trivedi et al., 2011; Weeks et al., 2009b). Receipt of diabetes education (Nelson et al., 2005) was higher among VA patients compared with Veterans in non-VA care. VA patients were more likely than Veterans not receiving any care at VA to receive recommended care (Lynch, Strom, & Egede, 2010; Ross et al., 2008),[58] a routine checkup within the past two years (West et al., 2006), and influenza and pneumonia vaccinations (Chi, Reiber, & Neuzil, 2006; Jha, Wright, & Perlin, 2007; Keyhani et al., 2007)[59], but the two groups had similar rates of serum cholesterol screening

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[58] Ross (2008) did not specify whether the non-VA comparison group was composed of non-Veterans, Veterans, or a combination of the two.

[59] Jha (2007) did not specify whether the non-VA comparison group was composed of non-Veterans, Veterans, or a combination of the two.

(Keyhani et al., 2007). Obese VA patients were more likely to have received advice to lose weight than Veterans and non-Veterans receiving non-VA care and equally likely to have received professional advice to maintain weight (Wang et al., 2005). Blood pressure control was higher among African-American patients receiving VA care than non-VA care (Rehman et al., 2005). The structure of women's health care differed at VA women's health centers and non-VA care sites: Preventive cancer screening and general reproductive services were available at all centers, while VA centers were less likely to offer extensive reproductive services on-site but more likely to offer on-site mental health care (Bean-Mayberry et al., 2007). Liu et al. (2008b) compared Veterans receiving primary care at VA-staffed versus contract community clinics and found that diabetic patients at VA-staffed clinics were less likely to receive a retinal exam and chronic obstructive pulmonary disease patients at VA-staffed clinics were less likely to receive a flu shot.

Elderly VA patients were less likely to receive inappropriate medication than were patients in Medicare HMOs (Barnett et al., 2006a), and VA patients with acute myocardial infarction were more likely to receive appropriate medications than were non-VA patients (Bansal et al., 2005). Observed compliance by providers with erythropoietin administration guidelines was higher at VA than in the private sector (Hynes et al., 2007). Antibiotic prescribing practices were generally similar between VA and non-VA emergency departments, but a few VA sites had much higher rates of antibiotic prescriptions (Gonzales et al., 2006).

In non-ambulatory settings, VA care was generally more effective than or the same as care provided by non-VA providers in most studies. Compared with non-VA patients from the Medicare cancer patient database, VA patients had earlier diagnosis of colon and rectal cancers, higher rates for three quality measures, similar rates for nine, and lower rates for one (Keating et al., 2011). Male VA patients and Medicare patients with lung and colorectal cancer were compared, and VA patients were less likely to receive chemotherapy within 14 days of death or to be admitted to an ICU within 30 days of death, and were similarly likely to have more than one emergency room visit within 30 days of death (Keating et al., 2010). Comparison of an academic practice and a VA hospital found that appropriate use of stress/rest myocardial perfusion imaging studies did not differ between settings (Nelson, Willens, & Hendel, 2011). Rates of hemodialysis via arteriovenous fistulas (which are preferred by guidelines over other methods) among VA patients and Medicare patients were not different when pre-end-stage renal disease care was accounted for (Parikh et al., 2011). Among Veterans who died in VA facilities, palliative care consults and death in a dedicated palliative care, hospice unit, or intensive care unit were more common, and death in a nursing home was less common than among Veterans who died in non-VA facilities (all unadjusted results) (Lu et al., 2010). VA-insured and Medicare/Medicaid-insured patients were less likely to receive kidney transplants than were patients with private insurance (Gill et al., 2007). Eight of 15 clinical pharmacy services were more commonly provided in VA hospitals than non-VA hospitals (Bond & Raehl, 2007).

Although not part of the systematic review because it was not published in the peer-reviewed literature, an Altarum/RAND study of VA quality of care for mental health conditions (Sorbero et al., 2010; Watkins et al., 2011) showed that VA care performed significantly better than the private plans on assessment measures and medication-management measures. The private

plans exhibited significantly higher rates of engagement for two measures related to treatment for substance use disorders.

5.1.5 Efficiency of Care in VA Compared with Non-VA

Studies of VA compared with non-VA care found VA to be less efficient. Nine articles compared utilization, all of which adjusted for differences in patient characteristics. Inpatient length of stay was generally longer in VA facilities, and the risk of hospitalizations and emergency visits was also generally higher. Mean length of stay among female Veterans was significantly longer for VA hospitals than private-sector hospitals even after adjustment for patient differences (Mooney & Weeks, 2007). Weeks et al. (2008a) identified Veteran stays in VA and non-VA hospitals and found longer length of stay for VA hospitalization even after adjusting for patient characteristics. Berke et al. (2009) found that Veterans admitted to VA hospitals had longer length of stay than expected after adjustment, compared with Veterans in non-VA hospitals.

In terms of other types of utilization, Wang et al. (2013b) found that Veteran patients who exclusively received dialysis at VA-outsourced settings were less likely than Veteran patients exclusively receiving VA dialysis to be hospitalized within a year, and had shorter length of stay than VA users. Hynes et al. (2011) compared VA hemodialysis patients with private-sector hemodialysis patients and found that VA patients had more non-dialysis outpatient visits, emergency room visits, 30-day supplies of prescriptions, inpatient admissions for acute medical or surgical care, and hospital days, but no difference in non-acute admissions and days of care. Liu et al. (2009) found that depressed Veterans who were dual VA/non-VA patients had a significantly higher chance of having an emergency visit and any inpatient admission than those exclusively receiving VA care. Liu et al. (2008) found that Veterans who received primary care at non-VA contract community clinics compared with Veterans at VA-staffed community clinics had fewer primary care and laboratory visits, but no significant differences in numbers of visits for specialty care, mental health care, radiology, or inpatient admission. Borzecki et al. (2010) found appendectomy utilization rates declined more rapidly, laparoscopic cholecystectomy rates rose more steeply, and bilateral catheterization rates decreased more slowly over time for VA patients compared with a national sample of hospitalized patients. (Gellad et al., 2013) found that VA patients used fewer brand-name drugs than Medicare patients, and that per capita volume of prescriptions filled was slightly lower among Medicare patients than VA patients.

As noted in the Methods Overview in Section 2, comparisons of costs in VA compared with non-VA settings are subject to a number of limitations; therefore, results related to cost of care are not presented.

5.1.6 Patient-Centeredness of Care in VA Compared with Non-VA

Based on studies published in the peer-reviewed literature, performance, on patient experience measures was comparable or better for patients receiving care at VA facilities compared with non-VA providers. Only five studies examined this dimension. Belote, Fulton, and Brooks (2012) found that Veteran patients rated outpatient care received at VA-staffed CBOCs more highly based on measures of continuity of care, education and information, emotional support, overall

coordination, and patient preferences compared with outpatient care provided at contractor-staffed CBOCs. Lu et al. (2010) observed that families of Veterans who died in a VA facility rated care and services during the patient's last month of life more highly than families of Veterans who died in non-VA settings. Another study (Cox, Alexander, & Gray, 2005) found greater satisfaction with hearing aid fittings and perceived benefit from hearing aid placement among Veterans in a VA facility than from non-Veteran patients. As noted in Section 4, Hausmann et al. (2009) concluded that perceptions of racial discrimination when seeking health care were similar between Veterans who were users of VA care and Veterans who were users of non-VA care, and McGuire, Rosenheck, and Kasprow (2010) found that homeless Veterans treated at VA-staffed transitional residential treatment programs had similar outcomes and patient satisfaction scores at 12 months compared with Veterans treated at two community-based programs.

Although not part of the systematic review because it was not published in the peer-reviewed literature, a report of results from the 2013 American Customer Satisfaction Index suggests that satisfaction with VA facilities is better than satisfaction with hospitals in the private sector, although results are not adjusted for patient characteristics that may differ between VA and non-VA facilities (American Customer Satisfaction Index, 2014).

5.1.7 Subsection Summary

The findings of previous studies comparing quality of care provided in VA settings compared with non-VA settings varied by quality domain. Studies of safety and effectiveness indicated mixed performance, with 22 of 34 studies of safety and 20 of 24 studies of effectiveness showing quality of care was the same or better in VA facilities. Only five articles assessed patient-centeredness but all demonstrated better or same VA care quality compared with care in non-VA settings. Four studies focused on equity, with one showing better performance, two same, and one worse performance compared with non-VA settings. The nine articles evaluating measures of efficiency such as hospital length of stay demonstrated more mixed or worse performance in VA facilities compared with non-VA facilities, with only two showing better performance. Only one study assessed timeliness of care in VA facilities, showing worse performance than the non-VA facilities.

5.2 VA Measurement of Quality of Care

As one of the largest health care providers in the United States, VA has assumed a national leadership role in the quality measurement arena. VA's efforts to measure the quality of care provided to Veterans began before those of many other health care organizations, and VA sets high standards for both measuring and improving quality (Jha et al., 2003; Kizer & Dudley, 2009).

VA currently uses multiple quality monitoring systems—tailored for different care settings and audiences—to collect and report information about the health of Veterans and the care provided to them. Among these systems is ASPIRE, which is considered by the Institute of Medicine to be one of several sentinel quality measurement initiatives that "identified a limited set of measures from a larger pool" (Institute of Medicine, 2015). ASPIRE is part of the VA

Transparency Program, which offers publicly available information on the VA Hospital Compare website about how VA is performing relative to other health care organizations across the country. ASPIRE presents information about all aspects of quality, including preventive care, care recommended for acute and chronic conditions, complications and outcomes of care, and patient-reported measures of health care experiences at the national, regional, and local levels of the VA system. VA's ASPIRE is working to develop a quality measurement and reporting model that is more streamlined and focused on what VA considers to be the most important aspects of quality.

In addition to the measures provided by ASPIRE, VA has more than 500 other quality measures that can be used by VISN and facility administrators and providers to monitor quality of care regionally and locally and to inform quality improvement projects. In addition, the VA Office of Mental Health Operations has developed more than 240 measures focused on conditions related to mental health, including post-traumatic stress disorder and depression. These measures are part of an extensive infrastructure within VA for performing quality improvement and research on quality of care. VA offers unique research opportunities, with clinical data available on 6 million enrollees through its electronic health record system, CPRS/VistA (Fihn et al., 2014), including developing and testing new quality measures and examining the relationship between evidence-based care and clinical outcomes.

By all accounts, VA has an extensive set of measures for most conditions and purposes. Across the U.S. health care system, quality reporting requirements have expanded and measurement has become more complicated, resulting in a huge commitment of staff time and funds to comply (Institute of Medicine, 2015). Some have argued that a proliferation of performance measures within VA has led to a lack of focus on what is truly important (Kizer & Jha, 2014).

In interviews, VA administrators and several health care workers noted that attention to quality measurement has led to positive changes in care delivery, particularly by directing attention to conditions for which there are quality measures. For example, one facility uses quality measurement data to identify high-risk patients for more-intensive case management. Another facility initiated patient education in response to high readmission rates and was successful at lowering readmissions. Furthermore, attention to measuring access and quality also appeared to improve coding and documentation. However, several respondents interviewed felt that measuring quality did not always have a positive effect on how facilities deliver care. For example, one respondent said that everyone is "so focused on the numbers that we lose sight sometimes of the process that we're trying to deliver." Others explained that the current list of access and quality measures is "just too long" and the measurement process is a burden for VA providers and other staff members. In addition, one respondent reported that some individual program offices generate their own sets of measures independently, ultimately adding to the already large number of measures.

In the subsections below, we report how VA has performed on commonly used, accepted measures developed by leading health care organizations. We analyzed quality measures for VA care and compared them to the same quality measures for comparable non-VA providers. The measures are described in Subsection 2.6.3, Methods Overview. The measures are a subset of publicly reported VA quality measures, selected because of the availability of non-VA

comparisons. We describe the non-VA comparisons used below in the discussion of each subset of quality measures.

5.2.1 VA Performance on Quality Measures Compared with Non-VA

Our analysis of quality measure performance indicated that, on most publicly reported measures, on average, the quality of VA outpatient care was better than the quality of non-VA outpatient care, and, on average, the quality of VA inpatient care was the same as or better than the quality of non-VA inpatient care. Some measures of patient experience and three measures of readmission indicated lower quality, on average, at VA hospitals than non-VA hospitals. These findings are based on our analysis of quality of care for many types of care provided in the inpatient and outpatient settings.

We analyzed a total of six quality measures on inpatient safety, six on inpatient safety outcomes, 30 on effectiveness (14 inpatient and 16 outpatient), and 11 on patient-centeredness for the inpatient setting. Measures of efficiency, equity, and timeliness were not analyzed because similar measures were not available for non-VA providers. For each quality measure, we conducted descriptive analyses of the performance rates available at the facility level, noting the variation in performance across facilities nationwide. We summarized the distribution of each measure using the mean, minimum, and maximum. The performance rates for the quality measures reported in Section 5 and in the Appendix G tables were each calculated as an unweighted mean of the facility-level means.[60] We classified the results of the analysis according to statistically significant differences in quality of care measures for VA care relative to the non-VA comparison group. We used the same dimensions of quality to classify the results that we used in the systematic review (see introduction to Subsection 5.1).

The average performance of VA facilities was the same or significantly better than the average performance of non-VA care on the majority of quality measures analyzed for inpatient and outpatient settings (Figure 5-2). On average, VA hospitals performed the same as or significantly better than non-VA hospitals on 12 inpatient effectiveness measures, all six measures of inpatient safety, and all three inpatient mortality measures, but significantly worse than non-VA hospitals on two effectiveness measures and three readmission measures. VA performed significantly better, on average, on all 16 outpatient measures of effectiveness compared with commercial HMOs, on 14 of 16 outpatient effectiveness measures compared with Medicare HMOs, and on all 15 outpatient measures of effectiveness compared with Medicaid HMOs. Veteran-reported experiences of care in VA hospitals were worse than patient-reported experiences in non-VA hospitals on most measures. Average VA facility-level performance was significantly worse than non-VA facilities for six out of 10 patient experience measures, including communication with nurses and doctors. Although these results indicate

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[60] The value of mean measure rates calculated for this report may differ slightly from means reported in VA publications for the same time period, due to differences in methods used to calculate the means. For this report, we calculated an unweighted mean of facility-level means, whereas VA calculates a national mean value for each performance measure based on patient-level data.

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strong performance by VA facilities, considerable variability across facilities was observed in all quality measures, indicating substantial room for improvement in the performance on quality measures and inpatient experience measures for many VA facilities. In the following subsections, more information is provided about the analyses underlying these findings.

Figure 5-2. VA versus Non-VA Quality of Care, by Type of Quality Measure
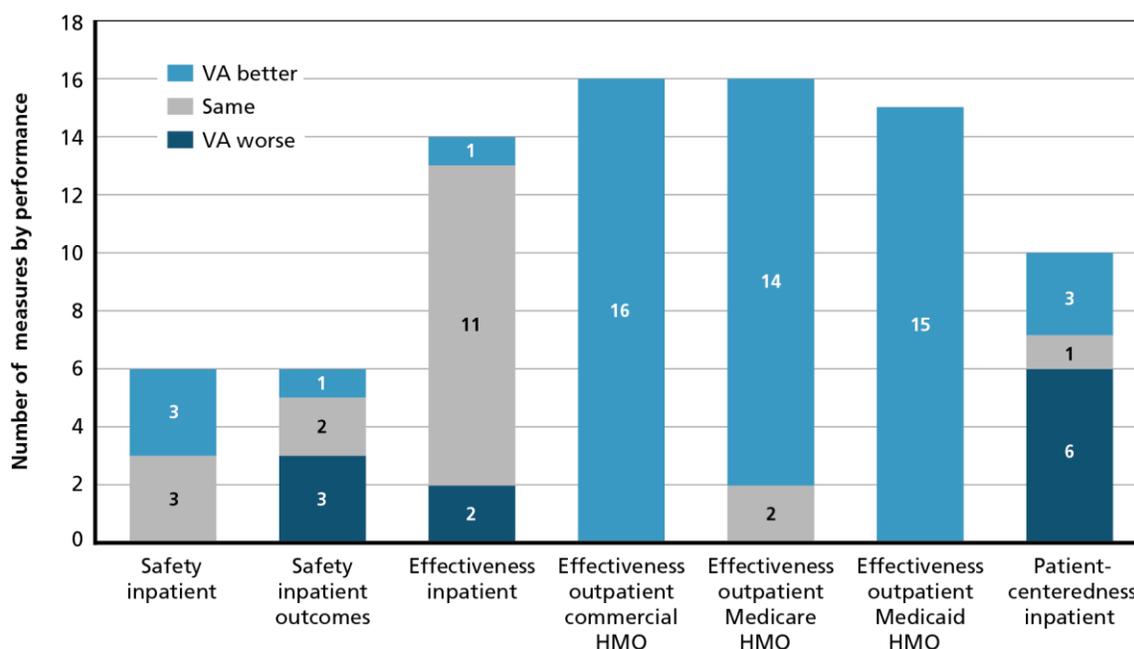
Source: RAND summary of results of VA to non-VA comparisons. Data sources for analyses conducted by RAND are provided in figure notes throughout this section.
Notes: Categories are defined on the basis of statistical tests for difference in means with *P*<0.05 or less: VA better = VA quality of care shown to be better than non-VA; same = quality of care in VA and non-VA did not differ; VA worse = VA quality of care was shown to be worse than non-VA. Non-VA comparison data were not available for outpatient measures of patient-centeredness.

5.2.1.1 VA Compared with Non-VA Performance on Patient Safety Measures for Inpatient Setting

For inpatient quality measures, we compared performance rates for VA hospitals and non-VA hospitals. To ensure optimum comparability between VA and non-VA facilities in our analysis, we matched three non-VA facilities to each VA facility based on four facility characteristics: bed size, Census division, urban/rural location, and teaching hospital status.[61] We present measure

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[61] A description of how we identified a matched set of non-VA comparator hospitals is provided in Section 2. Teaching facilities are defined to include all major and minor teaching hospitals, with a major teaching hospital

rates for VA and non-VA facilities side-by-side with a line indicating the minimum and maximum measure rate for each subgroup. In this subsection, results are presented for comparisons of VA facilities and matched non-VA hospitals for patient safety indicators. We used data on a standard set of AHRQ measures to assess how often adverse outcomes of care occur in the inpatient hospital setting. This included data on patient safety indicators obtained from the VA Inpatient Evaluation Center (VA facilities) and CMS Hospital Compare (non-VA facilities) and data on risk-standardized readmission and mortality rates obtained from CMS Hospital Compare (all facilities). For this set of measures, a lower rate indicates better performance. The number of VA and non-VA hospitals in the figures varies from measure to measure, due to the reporting criteria used by CMS Hospital Compare (see Appendix A for more detail).

The patient safety measures (Figure 5-3) are rates of complications or adverse events per 1,000 patients undergoing specific treatment or procedures. These complications occur infrequently, with the mean facility-level rates ranging from a minimum of 0.4 per 1,000 in both VA facilities and matched non-VA facilities for iatrogenic pneumothorax, to a maximum of 3.3 per 1,000 in VA facilities, and 4.6 per 1,000 in matched non-VA facilities for postoperative pulmonary embolism or deep vein thrombosis. Three measures were significantly lower (that is, performance was better) in VA facilities than in matched non-VA facilities: death following surgical complications (data not shown in Figure 5-3), postoperative pulmonary embolism or deep vein thrombosis rate, and accidental puncture or laceration rate. A substantial number of VA facilities reported no adverse events on these measures. For example, 12 of 101 hospitals reported no deaths among surgical inpatients with serious treatable complications, and 60 of 113 hospitals reported no patients with postoperative wound dehiscence (per 1,000). One patient safety measure not shown in Figure 5-3 is a composite measure that combines information from 11 patient safety indicator measures. The mean performance of this measure by facility for VA and non-VA inpatient care in FY 2014 was 0.9, indicating the rates of patient safety outcomes observed in these two subgroups of hospitals were less than expected, which is based on the rates for all hospitals in Hospital Compare (Figure 5-3). Rates varied widely across VA and non-VA facilities, as indicated by the lines extending from each bar representing the minimum and maximum values for each measure rate. Rates of postoperative pulmonary embolism or deep vein thrombosis exhibited the widest range for the 111 VA facilities (mean of 3.3 per 1,000, ranging from 0 to 14.6) and non-VA facilities (mean of 4.6 per 1,000, ranging from 1.4 to 15.1).

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having a Council of Teaching Hospitals designation and a minor teaching hospital having another teaching hospital designation. Facilities without a teaching hospital designation are classified as non-teaching facilities.

Figure 5-3. VA and Non-VA Performance on Patient Safety Indicator Measures for Inpatient Setting, FY 2014
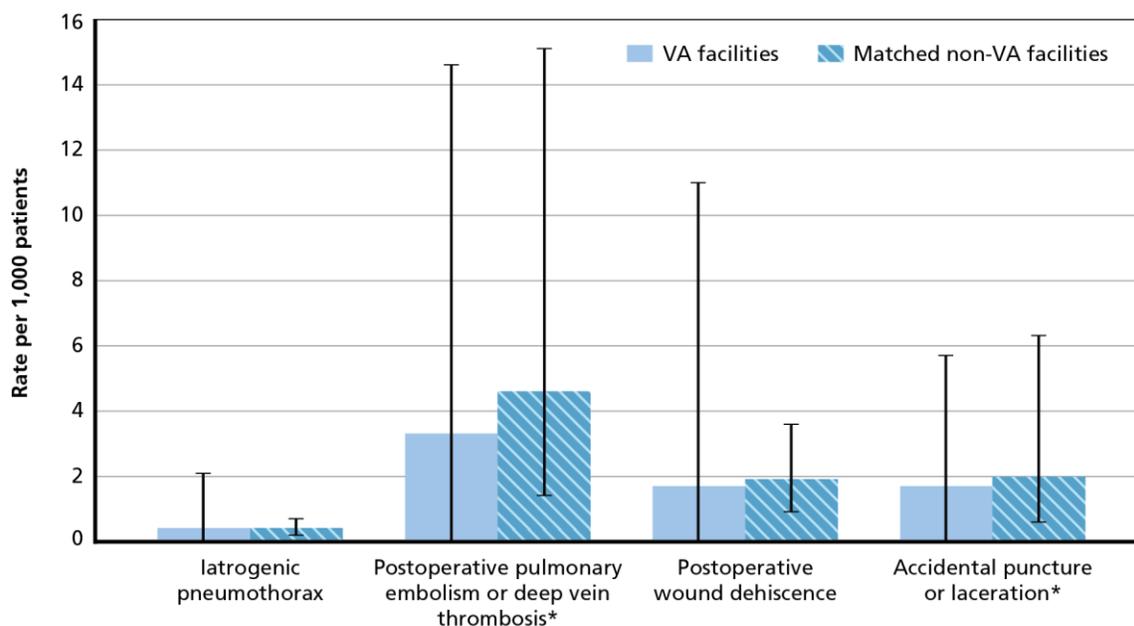
Sources: VA facility-level data for patient safety indicators were obtained from the VA Inpatient Evaluation Center for 2014. Non-VA facility-level data for patient safety indicator measures for Quarter 4 of FY 2014 were obtained from the CMS Hospital Compare website.
Notes: Minimum and maximum values for the reporting facilities in each subgroup are represented by the line extending from each bar. An asterisk (*) next to the measure name indicates a statistically significant difference between VA and non-VA performance. A lower rate on these measures indicates better performance. These national means based on VA facility-level data may differ from national measure rates in VA publications, which are based on patient-level data.

We compared mortality and readmission rates for VA facilities and matched non-VA facilities that are reported on the CMS Hospital Compare website (CMS, 2015) (Figure 5-4). The all-cause risk-standardized readmission and mortality rates for heart attack, heart failure, and pneumonia are adjusted for demographic characteristics and other medical conditions. The average all-cause risk-standardized rates of readmission within 30 days of discharge following heart attack, heart failure, and pneumonia were significantly higher (that is, significantly worse) than those in matched non-VA facilities (18.6, 23.4, and 18.1 per 1,000 in VA facilities versus 17.8, 22.6, and 17.5 per 1,000 in non-VA facilities, respectively). The facility-level mean all-cause risk-standardized mortality rate for heart failure within 30 days of admission was significantly lower (that is, significantly better) for VA facilities than for matched non-VA facilities. These all-cause risk-standardized rates varied widely for VA facilities, ranging from 15 to 29 percent for 30-day readmission rates and from 7 to 18 percent for 30-day mortality rates (Figure 5-4). Variability across the non-VA facilities was even higher.

Figure 5-4. VA and Non-VA Performance on Readmission and Mortality Measures for Inpatient Setting, FY 2014
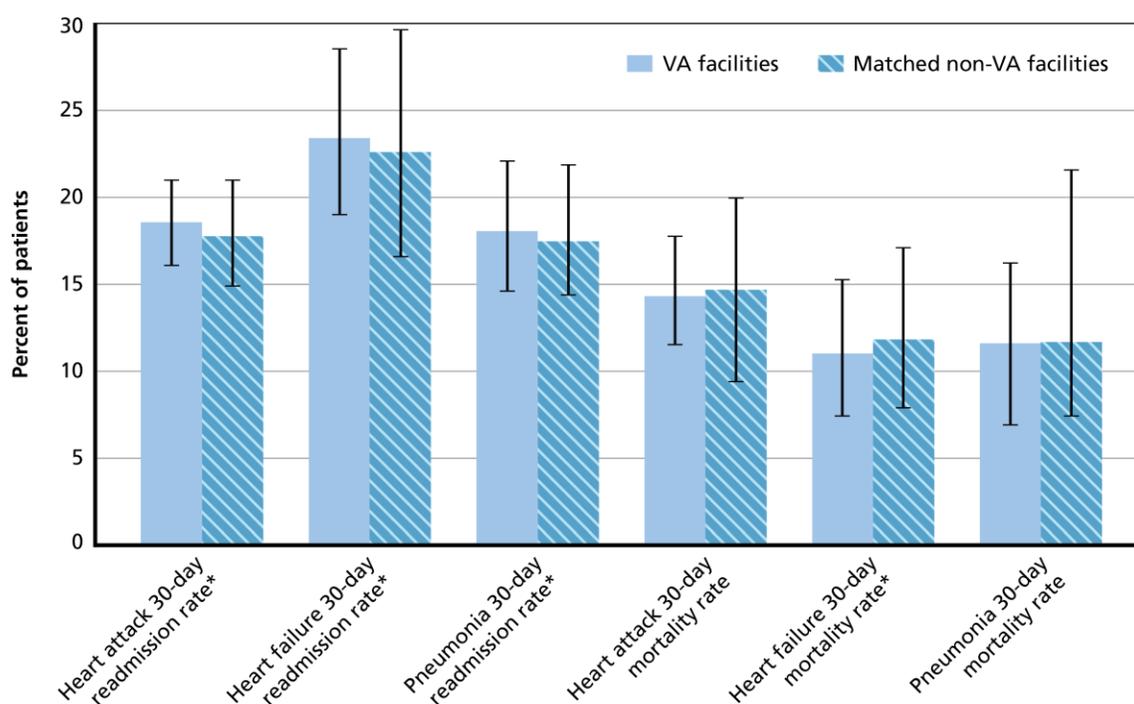
Source: VA and non-VA facility-level data for readmission and mortality measures for Quarter 4 of FY 2014 that were obtained from the CMS Hospital Compare website.

Notes: Minimum and maximum values for the reporting facilities in each subgroup are represented by the line extending from each bar. An asterisk (*) next to the measure name indicates a statistically significant difference between VA and non-VA performance. A lower rate on these measures indicates better performance. These national means based on VA facility-level data may differ from national measure rates in VA publications, which are based on patient-level data.

5.2.2 Current VA Performance on Effectiveness Measures

5.2.2.1 VA Performance on Effectiveness Measures for Inpatient Setting

The ORYX process measures and Surgical Care Improvement Project measures assess how often recommended care is provided in the inpatient hospital setting of VA and non-VA facilities. These measures are used by the Joint Commission for hospital quality improvement and in their hospital accreditation process (The Joint Commission, 2015). The measures included in this report relate to heart attack, heart failure, pneumonia, and surgical care. The ORYX measure data were obtained from CMS Hospital Compare website (CMS, 2015). Individual measures

were reported to CMS Hospital Compare by different numbers of VA hospitals, ranging from eight to 118. Measures with data for fewer than 10 VA hospitals in FY 2014 were excluded from the analysis.[62]

For the six ORYX process measures for heart attack, heart failure, and pneumonia (Figure 5-5), inpatient care recommended by clinical practice guidelines was provided 95 percent of the time or more, on average, by VA and matched non-VA facilities. For five of six measures, VA and non-VA mean facility rates did not differ, but the rate of evaluation of left ventricular systolic function was significantly better in VA facilities. Many VA and non-VA facilities achieved a perfect score of 100 percent on these measures for providing appropriate care to hospitalized patients. Three of six of these measures had a wide range of values across VA facilities, from a 19- to 35-percentage-point difference between the lowest and highest facility, and for the other three measures a difference of 3 to 7 percentage points (see data in Appendix G for details). The measure rates for the matched non-VA facilities ranged even more widely with all six measures having at least a 26-percentage-point difference between the high and low value (Figure 5-5).

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[62] For one effectiveness measure for the inpatient setting, timing of receipt of primary percutaneous coronary intervention, VA facilities had a significantly lower (worse) rate. However, we did not include this in Figure 5-5 because we excluded results based on fewer than 10 VA facilities.

Figure 5-5. VA and Non-VA Performance on ORYX Process Measures for Inpatient Setting, FY 2014
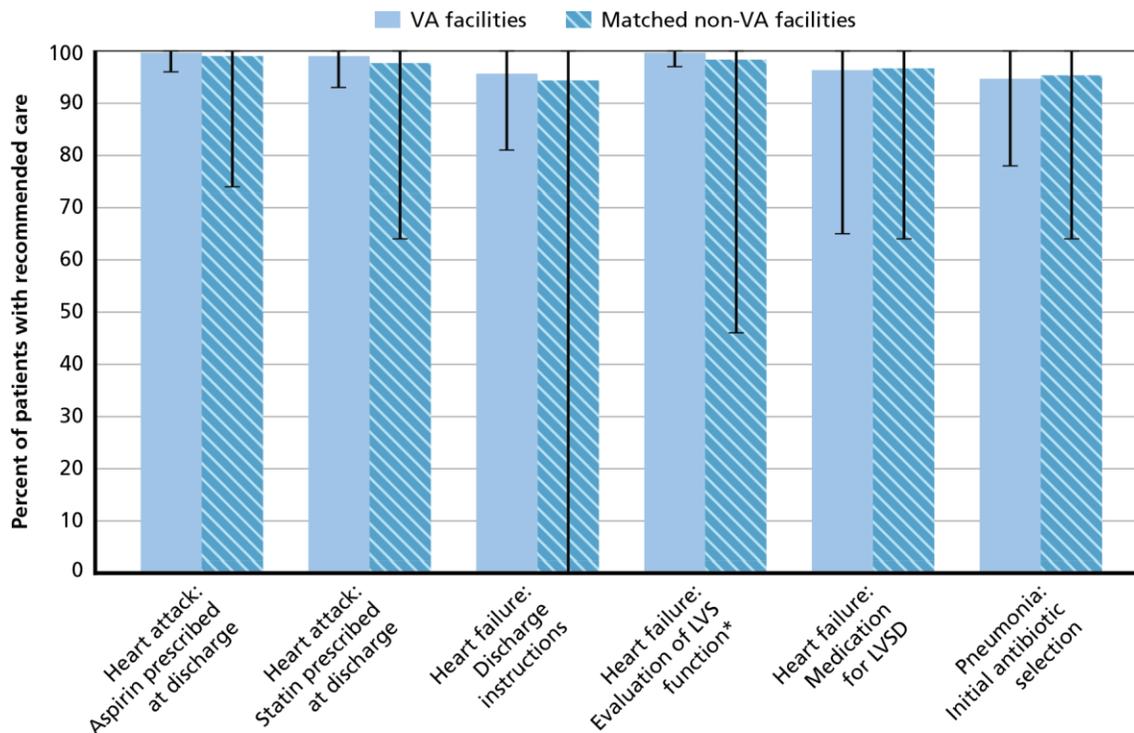
Source: VA and non-VA facility-level data for ORYX process measures for Quarter 4 of FY 2014 that were obtained from the CMS Hospital Compare website.

Notes: Minimum and maximum values for the reporting facilities in each subgroup are represented by the line extending from each bar. An asterisk (*) next to the measure name indicates a statistically significant difference. LVS = left ventricular systolic. LVSD = left ventricular systolic dysfunction. These national means based on VA facility-level data may differ from national measure rates in VA publications, which are based on patient-level data.

For the eight surgical care measures (Figure 5-6), recommended care was provided, on average, from 93 to 99 percent of the time by VA facilities and from 92 to 100 percent of the time in matched non-VA facilities. For two of eight measures (antibiotic within one hour before surgery, and surgery patients with perioperative temperature management), VA had significantly lower (worse) rates, and the other six rates did not differ. As with the ORYX measures, performance on these measures varied widely across VA facilities, with minimum rates of 62 to 93 percent and a maximum for all of these measures of 100 percent (see data in Appendix G for details). The range of values for the matched non-VA facilities was wider for all but one measure (Figure 5-6).

Figure 5-6. VA and Non-VA Performance on Surgical Care Improvement Project Measures for Inpatient Setting, FY 2014
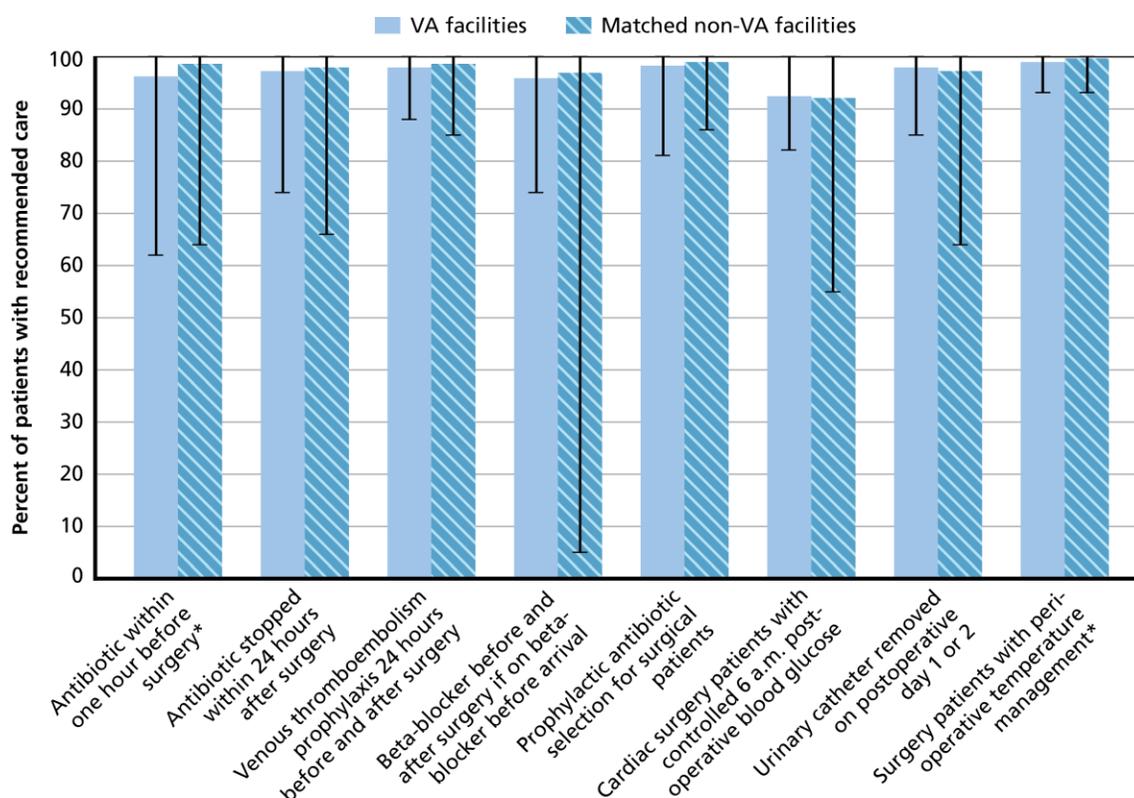
Source: VA and non-VA facility-level data for Surgical Care Improvement Project measures for Quarter 4 of FY 2014 obtained from the CMS Hospital Compare website.

Notes: Minimum and maximum values for the reporting facilities in each subgroup are represented by the line extending from each bar. An asterisk (*) next to the measure name indicates a statistically significant difference. These national means based on VA facility-level data may differ from national measure rates in VA publications, which are based on patient-level data.

5.2.2.2   VA Performance on Effectiveness Measures for Outpatient Setting

We analyzed the quality of care for outpatient settings in VA facilities to observe variation across VA and non-VA facilities and to compare to performance in non-Veteran populations. We used a set of standard HEDIS outpatient measures to show how often evidence-based health care practices are followed and clinical outcomes of care occur. HEDIS measures are employed by many health care organizations in the United States to monitor performance on important aspects of health care as well as provider and plan service in the outpatient setting. HEDIS measures included in this report relate to screening, prevention, and wellness; and

management of chronic medical conditions, such as diabetes, hypertension, cardiovascular disease, and depression. The target rate for HEDIS measures is 100 percent.[63]

Based on the latest available rates (FY 2014) from VA facilities, we estimated the mean performance and how much VA performance varies by facility (Table G-1 in Appendix G). These measures are constructed so as not to require adjustment for patient risk or other characteristics. For measures related to screening, prevention, and wellness, the mean percentage of users of care at VA facilities who received recommended services ranged from 58 percent (influenza immunization 18–64 years) to 95 percent (advising smokers and tobacco users to quit) (Table G-1 in Appendix G). Under measures related to chronic condition management, 90 to 99 percent of patients with diabetes and cardiovascular disease received recommended care (Table G-1 in Appendix G). Measurement of the extent to which risk factors are controlled in VA patients indicated 67 percent (low density lipoprotein-cholesterol, or LDL-C), 78 percent (blood pressure), and 81 percent (HbA1c)[64] of those with diabetes, 75 percent (blood pressure) of those with hypertension, and 70 percent (LDL-C) of those with cardiovascular disease have achieved clinical targets (Table G-1 in Appendix G). The variation in performance across VA facilities differed dramatically by measure, with the difference between the highest- and lowest-performing VA facilities ranging from 5 percent (hemoglobin A1c test for diabetes) to 38 percent (use of antidepressants during the continuation phase for patients with newly diagnosed depression) (Table G-1 in Appendix G).

We also report performance on outpatient measures of the quality of care for VA compared with three external benchmarks from the National Committee for Quality Assurance: commercial HMOs, Medicare HMOs, and Medicaid HMOs. We present these because VA has used them as comparison groups in VA annual reports (VA, 2013d). However, the characteristics of patients in these populations may differ from Veterans' characteristics in important ways. In addition, the data sources and methodology used to collect the data differ between VA and National Committee for Quality Assurance for some measures (see notes on Figures 5-7, 5-8, and 5-9). For this analysis, we used FY 2013 data for VA patients to align with the latest available data for the non-VA comparison groups (calendar year 2013).

We found that VA patients with diabetes were significantly more likely to receive recommended care or achieve clinical targets in the outpatient setting from VA providers than patients in commercial HMOs, Medicare HMOs, and Medicaid HMOs (Figure 5-7). VA performance on the seven measures of diabetes care in Figure 5-7 exceeded the non-VA comparison groups by a wide margin. There is substantial variability in performance across VA facilities for some of the measures, based on difference of 3 to 14 percentage points between the 10th and 90th percentiles (see lines on the bars in Figure 5-7). However, the commercial

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[63] For a few HEDIS measures, a lower rate indicates better performance. For these, the target rate is 0 percent rather than 100 percent.

[64] The HEDIS measure in Table G-1 is reported as "poor control." Here we convert it to adequate control as (100-N) where N is the measure rate in Table G-1.

HMOs, Medicare HMOs, and Medicaid HMOs all exhibited much more variability than VA facilities.

Figure 5-7. Performance on Outpatient Measures of Diabetes Care Quality, VA FY 2013 Compared with Non-VA CY 2013
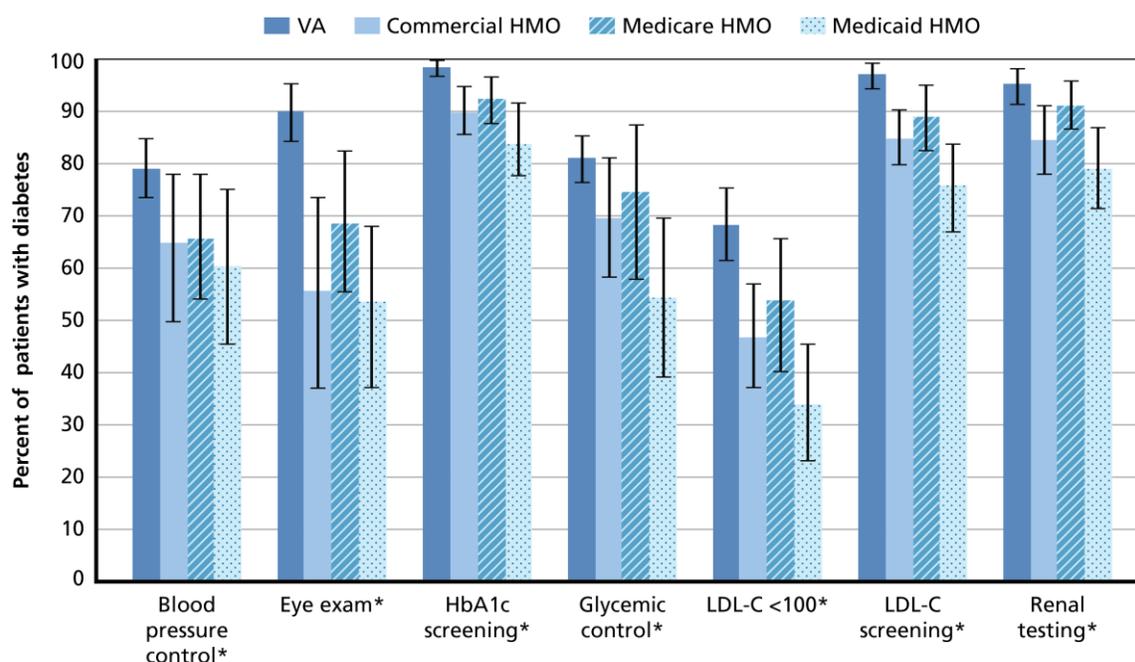
Notes: The 10th and 90th percentiles for the reporting facilities in each subgroup are represented by the line extending from each bar. An asterisk (*) next to the measure name indicates a statistically significant difference between VA and one or more of the non-VA comparison groups. HbA1c = hemoglobin A1c. These national means based on VA facility-level data may differ from national measure rates in VA publications, which are based on patient-level data.

Sources: Facility-level data for VA patients for FY 2013 were obtained from the VA Office of Performance Measurement. National means, and 10th and 90th percentiles for CY 2013 for non-VA subgroups of patients (commercial HMO, Medicare HMO, and Medicaid HMO) were obtained from the following report: National Committee for Quality Assurance. 2014. *The State of Health Care Quality 2014.* Available March 20, 2015, at www.ncqa.org. VA data were collected by abstracting medical record data similar to HEDIS methodology. VA data were based on a fiscal year. Non-VA data were based on a calendar year.

Similarly, VA patients were significantly more likely than patients in commercial HMOs, Medicare HMOs, and Medicaid HMOs to have preventive care (advice about smoking cessation and breast cancer screening) or controlled risk factors (blood pressure control for hypertension, and LDL-C less than 100 mg/dL for cardiovascular disease) in the outpatient setting (Figure 5-8). VA performance on the five measures in Figure 5-8 was closer to the non-VA comparison groups than the diabetes measures in Figure 5-7, but still significantly higher. There is

substantial variability in performance across VA facilities for these measures, based on differences of 6 to 13 percentage points between the 10th and 90th percentiles (shown on the bars in Figure 5-8). The commercial HMOs, Medicare HMOs, and Medicaid HMOs all exhibited considerably more variability than VA facilities.

Figure 5-8. Performance on Other Outpatient Quality Measures, VA FY 2013 Compared with Non-VA CY 2013
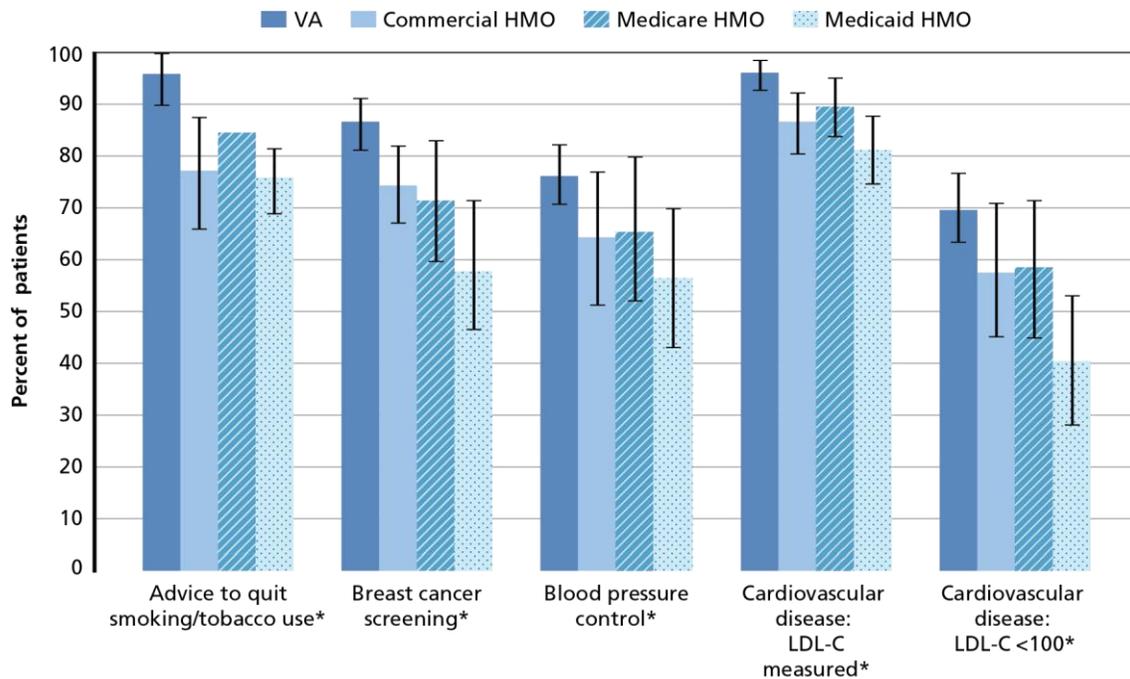
Notes: The 10th and 90th percentiles for the reporting facilities in each subgroup are represented by the line extending from each bar. These percentiles are not available for Medicare HMOs for "Advice to Quit Smoking/Tobacco Use." An asterisk (*) next to the measure name indicates a statistically significant difference between VA and one or more of the non-VA comparison groups. These national means based on VA facility-level data may differ from national measure rates in VA publications, which are based on patient-level data.
Sources: Facility-level data for VA patients for FY 2013 were obtained from the VA Office of Performance Measurement. National means, and 10th and 90th percentiles for CY 2013 for non-VA subgroups of patients (commercial HMO, Medicare HMO, and Medicaid HMO) were obtained from the following report: National Committee for Quality Assurance. 2014. *The State of Health Care Quality 2014.* Available as of March 20, 2015, at www.ncqa.org. VA data for all measures were collected by abstracting medical record data. HEDIS data were collected by medical record abstraction for all measures except "Advice to Quit Smoking/Tobacco Use" which is survey data. VA data were based on a fiscal year. Non-VA data were based on a calendar year.

Another four outpatient measures are compared between VA patients and commercial HMOs, Medicare HMOs, and Medicaid HMOs in Figure 5-9. These focus on preventive care (colorectal

cancer screening) and medication use (beta-blocker after heart attack and antidepressants for depression). VA performance on the four measures in Figure 5-9 exceeded most of the non-VA comparison groups, but the differences were smaller. Differences between VA and Medicare HMO rates were not significant for two measures (beta-blocker after heart attack and antidepressants during continuation phase). There is much more variation in performance across VA facilities for these measures, based on difference of 11 to 24 percentage points between the 10th and 90th percentiles (shown by lines on the bars in Figure 5-9). For the two measures with non-VA variability estimates, commercial HMOs, Medicare HMOs, and Medicaid HMOs all exhibited somewhat more variability than VA facilities.

Figure 5-9. Performance on Other Outpatient Quality Measures, VA FY 2013 Compared with Non-VA CY 2013
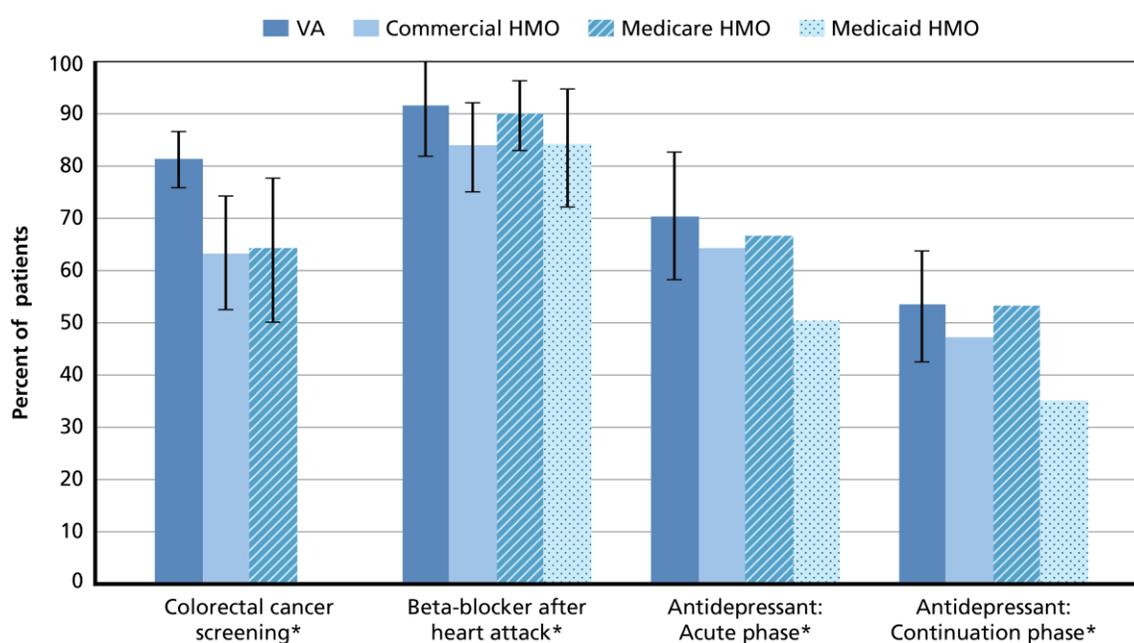
Notes: The 10th and 90th percentiles for the reporting facilities in each subgroup are represented by the line extending from each bar; these are not available for the non-VA comparison groups for the two antidepressant measures. An asterisk (*) next to the measure name indicates a statistically significant difference between VA and one or more of the non-VA comparison groups. The Colorectal Cancer Screening rate for Medicaid HMOs is not available. These national means based on VA facility-level data may differ from national measure rates in VA publications, which are based on patient-level data.

Sources: Facility-level data for VA patients for FY 2013 were obtained from the VA Office of Performance Measurement. National means, and 10th and 90th percentiles for CY 2013 for non-VA subgroups of patients (commercial HMO, Medicare HMO, and Medicaid HMO) were obtained from the following report: National Committee for Quality Assurance, 2014. *The State of Health Care Quality 2014.* Available as of March 20, 2015 at www.ncqa.org. VA data for the Colorectal Cancer Screening and Beta-Blocker after Heart Attack measures were collected by

abstracting medical record data. VA data for the Antidepressant Medication Management (Acute Phase and Continuation Phase) measures and all of the HEDIS measures were based on administrative data. VA data were based on a fiscal year. Non-VA data were based on a calendar year.

5.2.3   Current VA Performance on Patient-Centeredness Measures

5.2.3.1   VA Performance on Patient-Centeredness Measures for Inpatient Setting

To assess their experience with inpatient services provided by VA, patients in VA and non-VA facilities are asked to report on their experiences of care on the Inpatient SHEP. This survey parallels the HCAHPS Survey administered by non-VA hospitals across the country. For matched non-VA hospitals, we used HCAHPS data that were reported on the CMS Hospital Compare website (CMS, 2015). Figure 5-10 presents the average percentage of patients who responded "always" to individual questions or to sets of questions (composites) that measure related concepts. To allow for fair comparisons between VA and non-VA facilities, results for both VA and non-VA facilities are adjusted for patient characteristics, mode of survey administration, and national mean hospital performance using guidance provided by CMS.

The facility-level mean of patient experience scores ranged from a low of 51 and 43 percent for care transition for, respectively, VA and matched non-VA facilities, to a high of 84 and 86 percent for discharge information, respectively, for VA and matched non-VA facilities (Figure 5-10). Observed differences between VA and non-VA facility performance were statistically significant for all inpatient patient experience measures except discharge information. We classified the magnitude of the difference as small, medium, or large, using a Cohen's d statistic. Compared with non-VA facilities, VA facilities performed better by a large amount for the measure of care transition, and better by a small amount with regard to communication about medicine and the cleanliness of the hospital (Figure 5-10). VA facilities performed worse than non-VA facilities by a small amount for measures responsiveness of hospital staff, quietness of the hospital environment, and overall rating of the hospital (data not shown).[65] VA facilities performed worse than non-VA facilities by a medium amount for the measures of communication with doctors and communication with nurses, and by a large amount for pain management.

Variation in inpatient patient experience measures across VA facilities was very high, with a 17- to 42-percentage-point difference between the lowest and highest ratings by facility (Figure 5-10).[66] Even more variation in measure rates was observed for the matched non-VA facilities. As

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[65] We did not compare VA to non-VA facility performance on the "Willingness to Recommend Hospital" measure, as the likelihood of Veterans' recommending a VA facility to friends and family members may be affected by their eligibility for care at VA facilities.

[66] To assess variation in inpatient SHEP scores across facilities within VA, we used inpatient SHEP scores that VA adjusted using its internal patient mix adjustment model, which includes the following variables: age, sex, priority group, urban/rural residence, hospital service line (surgical/medical), self-reported health status, self-reported mental health status, education, and race/ethnicity.

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described in Section 4, differences of as few as three to six percentage points on questions on a CAHPS health plan survey have been associated with substantial differences in rates of voluntary disenrollment from Medicare plans (Lied et al., 2003), suggesting that the large variation in inpatient SHEP scores across VA facilities is reflective of large and meaningful differences in patients' experiences of care at these facilities.

Figure 5-10. VA and Non-VA Performance on Patient Experience Measures for Inpatient Setting, FY 2014
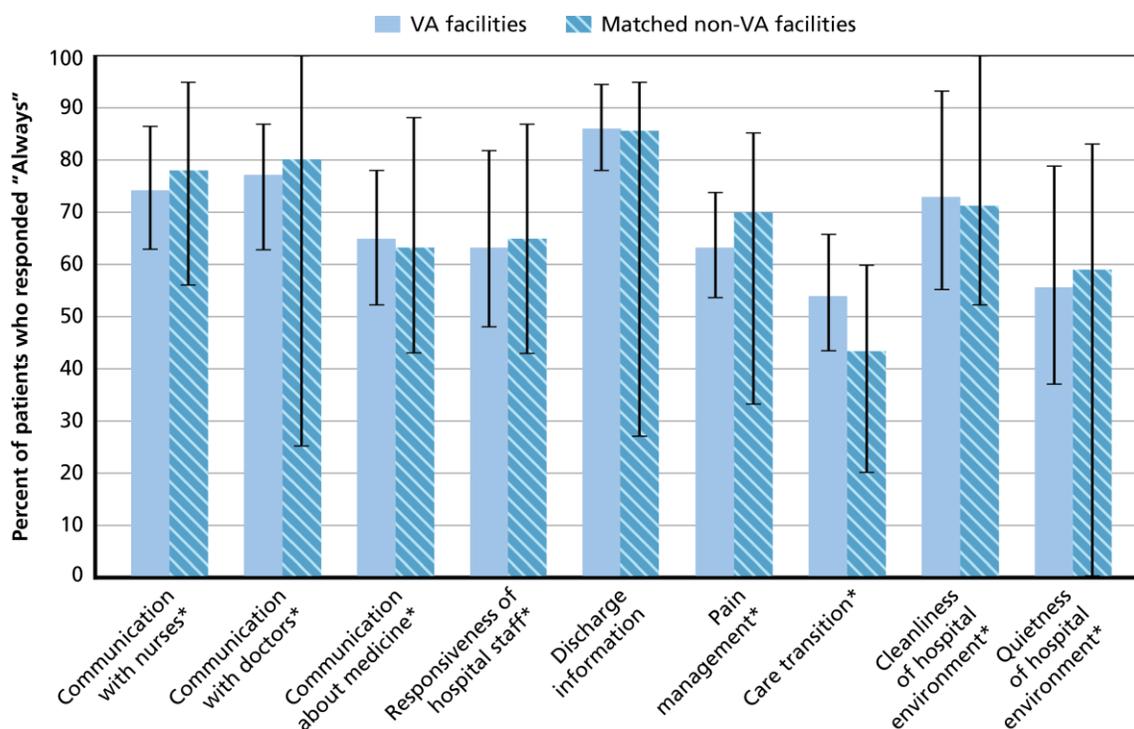
Sources: VA facility-level data for patient experience measures for FY 2014 were obtained from the VA Office of Performance Measurement. Non-VA facility-level data for patient experience measures for Quarter 4 of FY 2014 were obtained from the CMS Hospital Compare website. Notes: Minimum and maximum values for the reporting facilities in each subgroup are represented by the line extending from each bar. An asterisk (*) next to the measure name indicates a statistically significant difference at $p < 0.05$ or less between VA and non-VA hospitals. These national means based on VA facility-level data may differ from national measure rates in VA publications, which are based on patient-level data.

5.2.3.2 VA Performance on Patient-Centeredness Measures for Outpatient Setting

To assess patient experience with outpatient services provided by VA, a sample of patients receiving VA outpatient care at each VA facility is asked to report on their experience with their health care provider over the past 12 months on the SHEP PCMH. Figure 5-11 presents the VA facility average percentage of patients who responded "always" to individual questions or to sets of questions (composites) that measure related concepts. Results are adjusted for patient

characteristics to allow for fair comparisons across VA facilities.[67] The mean reports of Veterans' experiences ranged from a low of 56 percent for self-management support to a high of 84 percent for talking about prescription medicines at each visit. Variation across facilities was very high, with more than a 20-percentage-point difference between the lowest and highest ratings by facility for most measures, and a 40-percentage-point difference for the measure on follow-up on test results.

As noted in Section 4, there are no nationally representative data with which to compare SHEP PCMH results.[68] However, the SHEP PCMH contains the same measures as the CAHPS Clinician & Group PCMH Survey that is used widely throughout the United States to collect information on patients' experiences with care. The CAHPS Database hosted by the AHRQ contains comparative data for this survey from medical practices that volunteer to submit their survey responses. The most recent year of the Database available at the time of this report, 2013, includes results from 833 participating practice sites administering the CAHPS Clinician & Group PCMH Survey (Agency for Healthcare Research and Quality (AHRQ), 2015). These practices do not constitute a representative sample of all medical practices in the United States, and, given practices' willingness to voluntarily submit their scores, high-performing practices are likely over-represented. The practices differ from the complete set of VA facilities for which we report performance. Therefore, we compare the performance of the *top-performing VA facilities* in FY 2014 with the *average performance of the Database practices* in 2013 to examine the relative strengths and weakness of top-performing VA and non-VA facilities. Since some CAHPS Database practices may not be high performers, we also compare the performance of the *75th percentile of VA facilities* for each measure with the *average performance of the Database practices*.

We were not able to adjust the Database survey scores to account for factors such as respondents' age, sex, self-reported health and mental status, or education, which have been shown to be associated with reporting systematically higher or lower responses on patient experience surveys (Zaslavsky et al., 2001; Hargraves et al., 2001; Elliott et al., 2009). Our analyses of inpatient SHEP data, described above, suggest that adjusting for these factors may account for differences of up to three percentage points in either direction between reports of patient experience from SHEP and those from a comparable CAHPS survey, and an average of four points for overall ratings of care.[69] Thus, if differences between VA SHEP top-performing

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[67] VA's internal patient mix adjustment model for the outpatient SHEP includes the following variables: age, sex, priority group, urban/rural residence, self-reported health status, self-reported mental health status, education, and race/ethnicity.

[68] National scores are available for the CAHPS Health Plan Survey and Medicare CAHPS surveys; however, the measures on these surveys are not the same as those on the SHEP PCMH.

[69] We calculated average VA facility Inpatient SHEP measure scores in two ways: (1) using VA's internal patient mix adjustment model and (2) using CMS HCAHPS adjustments. The difference between the two sets of adjusted scores for experience measures, such as communication with doctors and nurses, care transition, and cleanliness and quietness of the hospital environment, ranged from –3.1 to +2.7. The average difference between the two sets of adjusted scores for overall ratings of care was 3.9.

scores and average CAHPS Database scores on reports of care experiences are greater than three percentage points (or differences for overall ratings are greater than four percentage points), they are unlikely to be explained by patient mix alone. Here we consider differences of up to three percentage points between scores of high-performing VA facilities and average CAHPS Database practices as comparable performance, and differences greater than three percentage points to indicate truly higher or lower performance for reports of care experiences; we apply a margin of 4 percent for the overall rating of care.

Taking into account these margins, top-performing VA facilities were comparable to average practices in the CAHPS Database with regard to the proportion of Veterans responding 9 or 10 out of 10 for the overall rating of their health care provider (78 percent for top-performing VA facilities versus 82 percent for CAHPS Database practices), but the 75th percentile of VA facilities performed substantially worse than average CAHPS Database practices on this measure (74 percent versus 82 percent).

Across VA facilities, Veterans responding to the SHEP PCMH at top-performing VA facilities and the 75th percentile of VA facilities were less likely than surveyed patients in CAHPS Database practices to report that their providers always communicated well with them (83 percent for top-performing VA facilities and 80 percent at 75th percentile of VA facilities compared with 92 percent at CAHPS Database practices), that office staff were always helpful, courteous, and respectful (80 percent and 76 percent versus 92 percent), or always followed up on test results (75 percent and 68 percent versus 87 percent).

Figure 5-11. VA Performance on SHEP Patient Experience Measures for Outpatient Setting, FY 2014
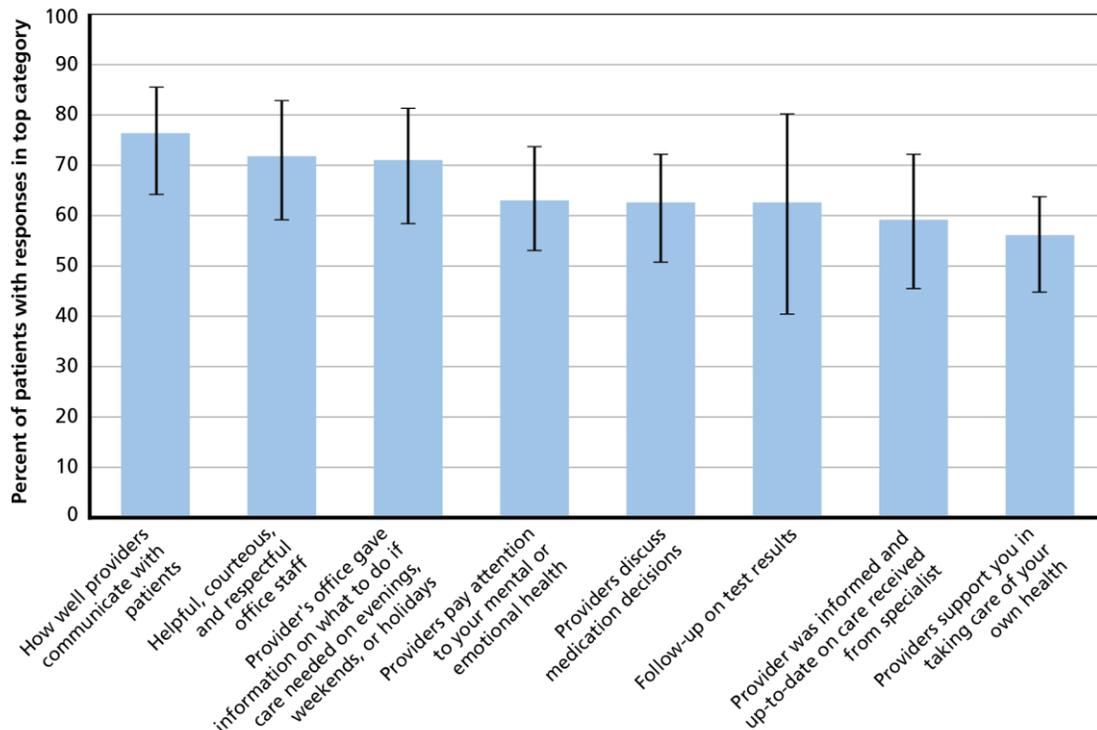
Source: Facility-level outpatient patient experience data for VA patients (SHEP PCMH) in FY 2014 obtained from the VA Office of Performance Measurement.

Notes: How Well Providers Communicate with Patients, Helpful, Courteous and Respectful Office Staff, Providers Pay Attention to Your Mental or Emotional Health, and Providers Support You in Taking Care of Your Own Health are composites that combine more than one survey question. The height of the bar is equal to the mean percentage of patients with responses that fall in the top category. Minimum and maximum values for the reporting facilities for each measure are represented by the line extending from each bar. These national means based on VA facility-level data may differ from national measure rates in VA publications, which are based on patient-level data.

5.2.4 Variation in Current VA Performance

As noted throughout this section, we observed wide variation in performance across VA facilities on many quality measures for the inpatient and outpatient settings. In this subsection, we present four examples, including one related to follow-up on test results with a 40-percentage-point difference between the lowest and highest measure score for VA facilities (Figure 5-12) and another patient experience measure related to care coordination between the providers in the outpatient setting, with a 27-percentage-point difference between the lowest and highest measure score for VA facilities (Figure 5-13). Similar variation was observed for a patient experience measure related to pain management in the inpatient setting (Figure 5-

14), with a 20-percentage-point difference between the lowest and highest measure rate for VA facilities. Another example of a measure exhibiting wide variation across VA facilities is eye exams in the outpatient setting for patients with diabetes (Figure 5-15), exhibiting a 21-percentage-point difference in performance between the lowest and highest measure rates for VA facilities.

Figure 5-12. Patient Experience with Follow-Up on Test Results in Outpatient Setting: Number of VA Facilities by Measure Rate, FY 2014
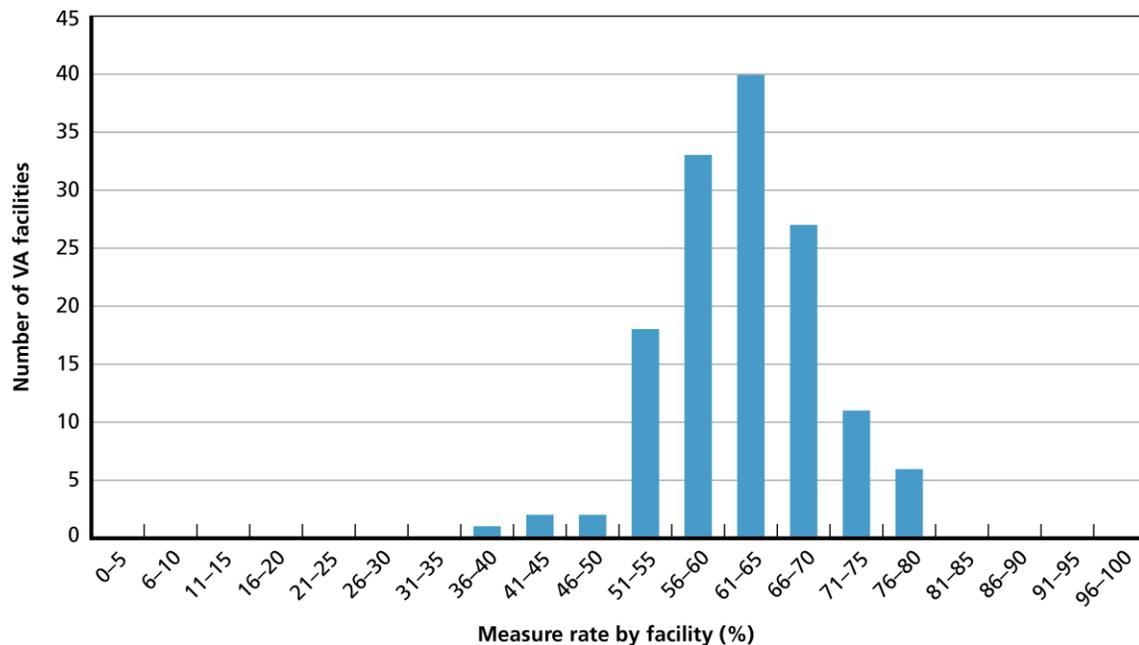
Source: Facility-level outpatient patient experience data for VA patients (SHEP PCMH) in FY 2014 obtained from the VA Office of Performance Measurement.

Notes: The "Measure Rate by Facility" represented on the X-axis is equal to the mean percentage of patients by facility who responded "Always" based on the following responses: "never," "sometimes," "usually," and "always" to the statement: "In the last 12 months, when this provider ordered a blood test, X-ray, or other test for you, how often did someone from this provider's office follow up to give you those results?"

Figure 5-13. Patient Experience with Care Coordination Between Providers in Outpatient Setting: Number of VA Facilities by Measure Rate, FY 2014
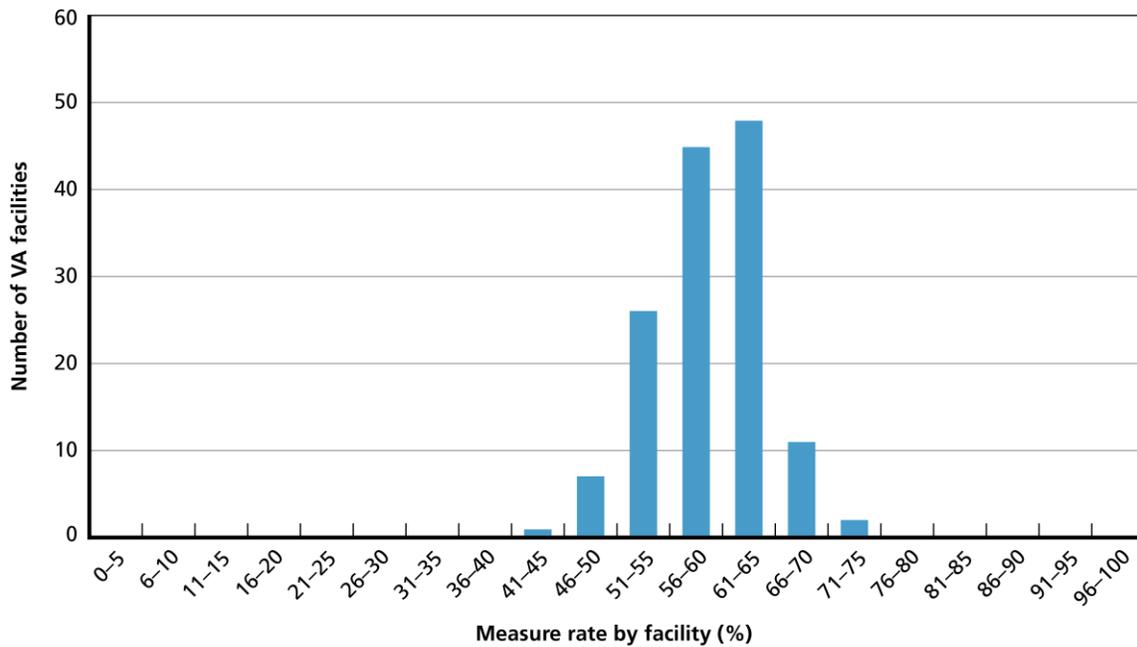
Source: Facility-level outpatient patient experience data for VA patients (SHEP-PCMH) in FY 2014 obtained from the VA Office of Performance Measurement.

Notes: The "Measure Rate by Facility" represented on the X-axis is equal to the mean percentage of patients by facility who responded "always" based on the following responses: "never," "sometimes," "usually," and "always" to the statement: "In the last 12 months, how often did the provider named in Question 1 seem informed and up-to-date about the care you got from specialists?"

Figure 5-14. Patient Experience with Pain Management in Inpatient Setting: Number of VA Facilities by Measure Rate, FY 2014
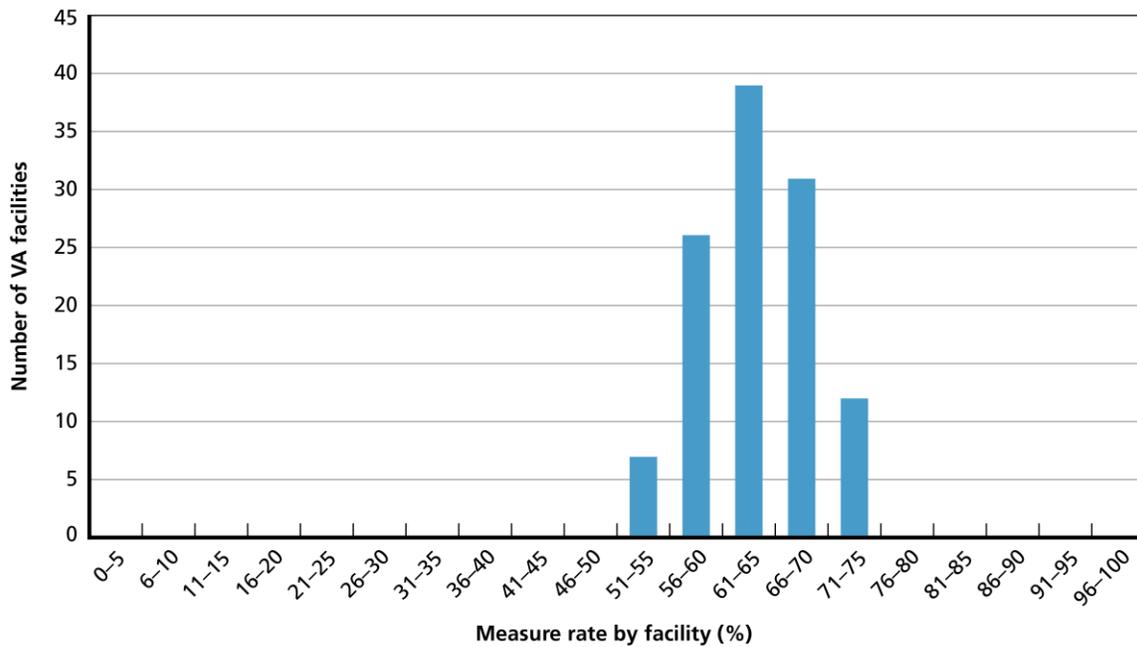
Source: VA facility-level inpatient data for patient experience measures (SHEP) for FY 2014 obtained from the VA Office of Performance Measurement.
Notes: The "Measure Rate by Facility" represented on the X-axis is equal to the mean percentage of patients by facility who responded "Always" based on the following responses: "never," "sometimes," "usually," and "always" to two statements: "During this hospital stay, how often did the hospital staff do everything they could to help you with your pain?" and "During this hospital stay, how often was your pain well controlled?" The measure is calculated as the average of the facility's scores on these two items.

Figure 5-15. Eye Exams in Patients with Diabetes in Outpatient Setting: Number of VA Facilities by Measure Rate, FY 2014
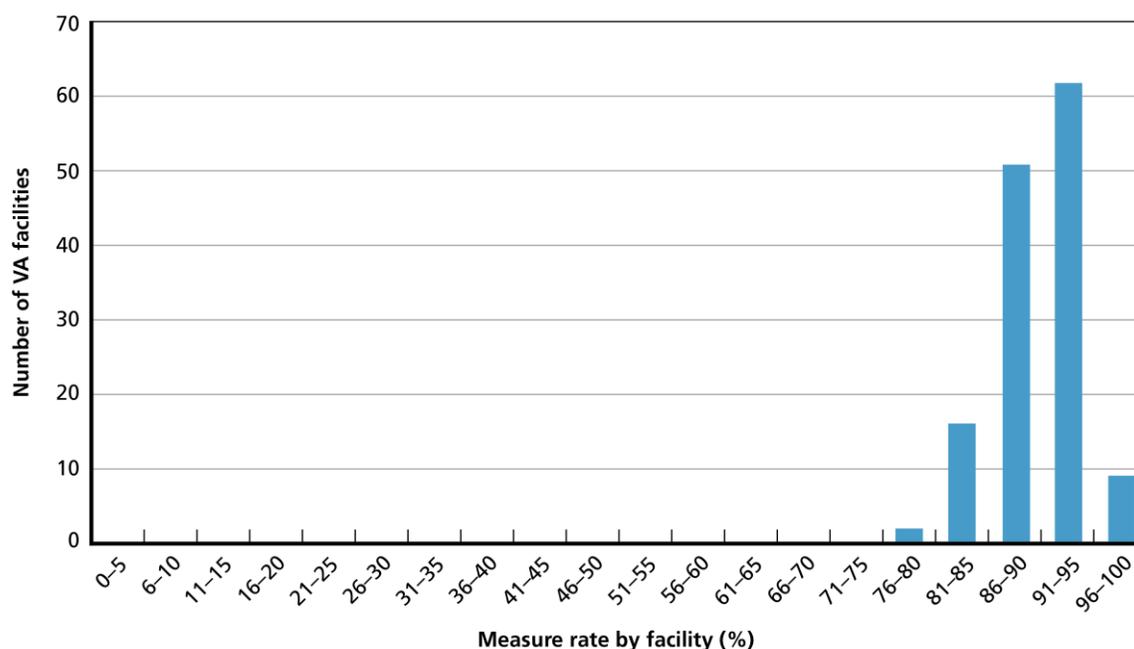
Source: Facility-level outpatient quality measure data for VA patients for FY 2014 obtained from the VA Office of Performance Measurement.

Notes: The "Measure Rate by Facility" represented on the X-axis is equal to the mean value of "Percentage of patients with diabetes who had eye exam (retinal) performed" by facility.

5.2.5   Subsection Summary

We conclude that in many areas of quality of care, the average performance of VA facilities compares favorably with non-VA performance, based on an analysis of measures of quality commonly used by health care organizations for monitoring and quality improvement in inpatient and outpatient settings. However, for some types of measures, our analyses indicated that average VA performance at the facility level is significantly worse than non-VA performance, notably on many of the patient experience measures for care in the inpatient setting and the 30-day all-cause risk-standardized readmission measures for heart attack, heart failure, and pneumonia. Patient experience measures directly evaluate the degree to which care is patient-centered. VA's weaker scores on patient experience measures are indicative of a need for VA to be more responsive to Veterans' preferences, needs, and values.

We also observed substantial variation in quality measure performance across VA facilities, indicating that Veterans in some areas are not receiving the same high-quality care that other VA facilities are able to provide. A high-priority goal for VA leadership should be narrowing these gaps to ensure that quality of care is more uniform across VA facilities so that Veterans can count on high-quality care no matter which facility they access.

5.3   Section Conclusion

Our assessment found that VA health care quality was better on many measures and domains compared with non-VA comparators, while similar or worse on other measures. However, as with access to care, quality performance was uneven across some VA facilities and Veteran subgroups, with many opportunities for improvement.

VA outpatient care outperformed non-VA outpatient care on almost all quality measures. VA hospitals performed the same as or better than non-VA hospitals on most inpatient quality measures, but worse on others. VA performed significantly better, on average, on almost all 16 outpatient measures when compared with commercial, Medicare, and Medicaid HMOs. On average, VA hospitals performed the same or significantly better than non-VA hospitals on 12 inpatient effectiveness measures, all six measures of inpatient safety, and all three inpatient mortality measures, but significantly worse than non-VA hospitals on two effectiveness measures and three readmission measures.

On most measures, Veteran-reported experiences of care in VA hospitals were worse than patient-reported experiences in non-VA hospitals. Average VA facility-level performance was significantly worse than non-VA facilities for six of 10 patient experience measures, including communication with nurses and doctors.

There were mixed opinions on the impact of VA's many quality measures. VA administrators and several health care workers noted that attention to quality measurement has led to improvements in care delivery; however, several respondents felt that measuring quality did not always have a positive effect on how facilities deliver care, and some noted that the current measurement process is a burden for VA providers and other staff members.

The variation in performance across VA facilities suggests that significant opportunities exist to improve access to high-quality care in VA through systematic performance improvement. In the next section, we examine some policy options for improving access to care for Veterans in the future.

6 Improving Access for Veterans

The prior sections focused on VA's current resources and capabilities for providing timely and accessible care. Looking to the future, the size, demographics, and health needs of the Veteran population will change, as described by Assessment A. VA will need to adjust its resources and capabilities to meet the changing demand for services, and this section considers VA's potential response.

VA combines its resources and capabilities to generate the supply of health care services available to enrollees. Access to care, particularly the timeliness of care, is determined in large part by whether the overall level and geographic distribution of supply is well aligned with the demand for VA care. In this section, we compare projected supply to projected demand in FY 2019 under several scenarios and provide insights into potential challenges to ensuring timely access overall and within VISNs. We then assess specific policy options designed to improve access, providing information on the expected impact on access, fiscal considerations, operational feasibility, stakeholder acceptability, and the tradeoffs among them.

6.1 Approaches to Improving Access

VA provides care through two avenues: its own internal resources and capabilities as well as external or private-sector resources and capabilities. Approaches to improving access could focus on either of these two broad categories. Within each category, approaches could focus on modifying the number and/or type of resources available or improving the productivity of existing resources.

Modifying the number and/or type of resources could be accomplished in a number of ways, including expanding treatment space in VA facilities, increasing the number of VA providers, increasing the number of VA support staff (clinical and/or administrative), implementing new IT systems, or making greater use of purchased care. Increasing the productivity of existing resources could also be accomplished in various ways, such as expanding the scope of practice for associate providers, improving coordination of care, and ensuring that physicians can focus on clinical tasks rather than administrative ones. The line between increasing resources and increasing the productivity of existing resources is not a stark one. In fact, many policies include some combination of both. For example, expanding the available treatment space or investing in new IT systems increases VA resources but could also increase the productivity of physicians.

A summary of methods used in these analyses is shown in the box.

Overview of Methods and Data for Analysis of Approaches to Improving Access for Veterans

- To analyze the impact of different approaches on access for Veterans, we projected the amount of health care services supplied under several scenarios and compared these figures to projected demand from VA's EHCPM.
- Under supply scenario one, we forecasted the number of provider FTEs, given historical trends, for each specialty and administrative parent combination. We estimated a time series regression model using FTE data from the VA Productivity Cube for FY 2008 through FY 2014. We then compared the percentage growth in FTEs between FY 2014 and FY 2019 to the percentage growth in projected demand from the EHCPM over the same time period.
- For supply scenarios two and three, we estimated how much additional supply can be created through improved productivity. For supply scenario two, we estimated how much additional supply can be achieved in FY 2019 over realized supply in FY 2014 if low-productivity providers increase their productivity (holding the number of FTEs constant). We created benchmarks that represent realistic productivity levels that could be achieved in the VA system (based on FY 2014 variation in services provided at each administrative parent in each specialty, measured as RVUs per provider FTE). In scenario three, we projected the effect on supply of an increase in the productivity of low-productivity providers in combination with the forecasted change in FTEs.
- For complete details of the methods used to analyze the effect of selected policy options on access, please refer to Section 2 of this report and Appendix A-7.

6.2   Projections of the Impact of Different Approaches to Improving Access

To explore the impact of different approaches to improving timely access to care, we project the supply of VA health care under several scenarios and compare it to projected demand. The supply scenarios reflect the two broad approaches that VA can take.

- **Supply scenario one:** This scenario represents the first approach, which is to increase the number of resources available. The projection accounts for changes in the number of VA physicians (physician clinical FTEs) based on historical trends but assumes no changes in productivity (RVUs per FTE) from FY 2014 to FY 2019. This projection indicates how growth in the supply of VA physicians would need to differ from historical growth rates to meet the demand that EHCPM projects if no other changes affect productivity.

- **Supply scenario two:** This scenario represents the second approach, which is to increase the productivity of existing resources. This projection estimates the effect of productivity changes (increased RVUs per FTE) between FY 2014 and FY 2019 with no changes in the number of resources (physician clinical FTEs).

- **Supply scenario three:** This scenario represents a combination of the two approaches. This projection accounts for changes in both resources (physician clinical FTEs) and productivity (RVUs per FTE).

The demand estimates are measured in RVUs and taken from VA's Enrollee Health Care Projection Model (EHCPM).

As described in Subsection 3.1.1.1, the EHCPM consists of three submodels: the Enrollment Projection Model, the Utilization Projection Model, and the Unit Cost Projection Model (GAO, 2011b; Milliman, Inc., 2014). The demand estimates used in the projection analyses are generated from the enrollment and utilization projection submodels. VA projects total enrollment and then applies VHA-specific utilization rates by service. The utilization rates are created by compiling utilization data from a variety of sources, including VA, Medicare, and commercial claims databases. The utilization rates are then mapped onto physician specialties using RVUs as the measure. We use the demand projections measured in RVUs for our analysis because they provide information at the specialty level, allowing us to compare the supply in a particular specialty to the appropriate expected demand.

The model has some limitations but provides the best available estimates of future demand for VA health care services. Assessment A projects how factors affecting demand, such as the size and composition of the Veteran population and their unique health care needs, will change over time but does not estimate demand itself. Still, the estimates from Assessment A provide useful context for interpreting and assessing the EHCPM demand estimates.

The EHCPM forecasts a 19-percent increase in demand for VA health care services nationally from FY 2014 to FY 2019 (Figure 6-1) due to a projected 5.1-percent increase in enrollment and the aging of enrollees. Although the EHCPM forecast assumes that the number of Veterans will decrease (based on the VetPop model), it projects that a growing proportion of Veterans are enrolling in VA health care (Milliman Inc., 2014) and that the trend is expected to continue through FY 2019. Due to shifts in the demographic composition of the enrollee population, the EHCPM forecasts a 7.6-percent increase in enrollees younger than 45, a 1.2-percent decrease in those 45–65, a 9.0-percent increase in those 65–85, and a 5.8-percent increase in those 85 or older.

However, the EHCPM estimates of projected demand for VA health care services may be inaccurate. The EHCPM RVU projections for FY 2014 were 5 to 15 percent greater than the actual observed FY 2014 RVUs for most specialties. Moreover, changes in health care options available to Veterans outside VA (through the Affordable Care Act, for example) could reduce enrollment and reliance on VA. Estimates from Assessment A indicate that the number of patients using VA health care services is expected to increase slowly until FY 2019 and then decline. As a result, our analyses of the difference between projected supply and demand could overstate the potential gaps.

Our analysis of projected supply under different scenarios compared with projected demand for VA health care provides a high-level assessment of the likely impact of the two broad approaches to improving access for Veterans. They provide some information about where policy efforts should be targeted (either geographically or in particular physician specialties),

but do not identify which specific policies within these broad categories would be best. We discuss several specific policy options relevant to each approach in Subsections 6.4 and 6.5, incorporating information gleaned from the projections to help refine and target the policy options.

6.2.1 Projected Changes in Supply and Demand Under Supply Scenario One: Increasing the Number of Resources

In this subsection, we compare projected demand and projected supply under scenario one— the effect of changes in the number of resources, as measured by the supply of physicians (physician clinical FTEs). We focus on physician supply because it is a key driver of supply and the only one for which we had access to historical data. We projected physician supply in each specialty through FY 2019 based on trends from FY 2009 to FY 2014. In the model used to make these projections, we limited the change in FTEs to plus or minus 30 percent of the FY 2014 value to prevent the projections from unreasonably exceeding present conditions. The model projects forward the historical trends in FTE growth (see Figure 6-1), though it is important to note that these trends may not persist, as policies and funding change. The median increase from FY 2009 to FY 2014 in FTEs across all specialties and administrative parents was 17 percent. These changes in FTE counts, however, varied by specialty, with thoracic surgery experiencing a median decrease (−1.4 percent) across all administrative parents, and specialties like internal medicine and psychiatry growing substantially (22 percent and 27 percent, respectively). If these historical trends persist, we estimate the national supply of physicians will increase by 15 percent from FY 2014 to FY 2019 (Figure 6-2).

Figure 6-1. Actual Supply FY 2009 to FY 2014 and Projected Supply FY 2015 to FY 2019 of VA Physician Clinical FTEs
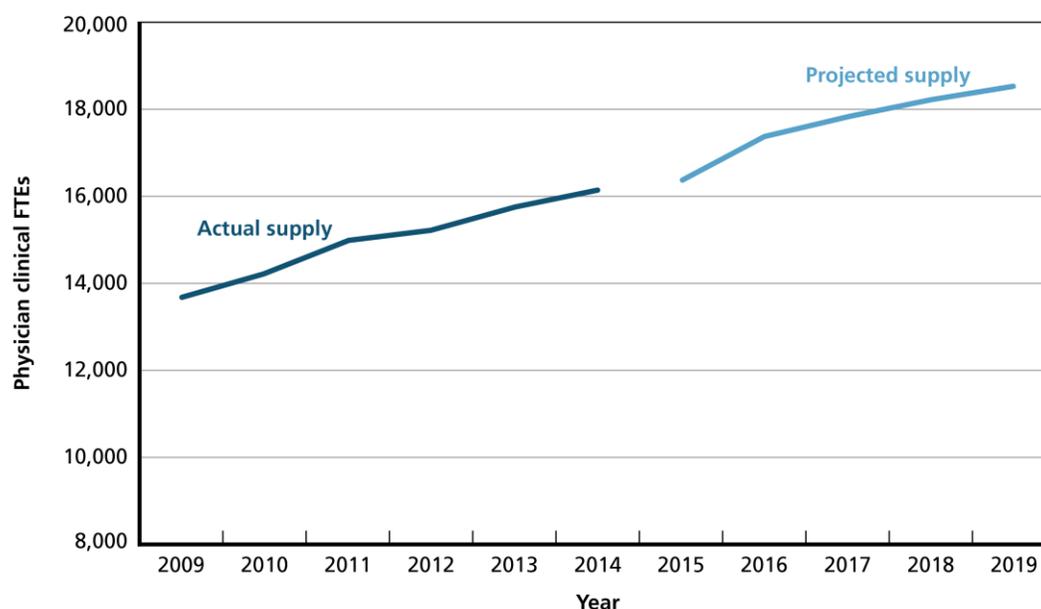
Source: RAND analyses of VA provider supply (VA Productivity Cube).

In this scenario, we assume that the quantity of services provided will increase in proportion to the number of physician FTEs. To accomplish this, additional providers would need the same space, equipment, administrative support, and other resources as current VA providers. It also assumes that changes in VA care delivery will not alter productivity. While these assumptions are likely not realistic, together they form a baseline, or status quo, projection.

Under this scenario, the projected increase in demand for services from FY 2014 to FY 2019 (19 percent) is larger than the projected supply of services that VA would produce (15 percent; Figure 6-2) if hiring trends continue. Projected demand exceeds supply for 17 of 21 VISNs, with the difference being much larger for some VISNs than others (Figure 6-3). At one end of the spectrum, the projected difference for four VISNs (VISNs 3, 10, 17, and 18) is more than 10 percentage points. At the other end of the spectrum are seven VISNs (VISNs 2, 8, 12, 15, 19, 21, and 22) with almost no difference (positive or negative difference of 2 or less). This suggests that Veterans' access to timely care will differ depending on where they live and that some will face challenges in getting timely care. However, the difference overall and at the VISN level may be smaller than projected if the EHCPM estimates for the coming years exceed reality, as they did in FY 2014.

Figure 6-2. Projected Growth in Demand and Supply for VA Health Care Services, from FY 2015 to FY 2015-FY 2019
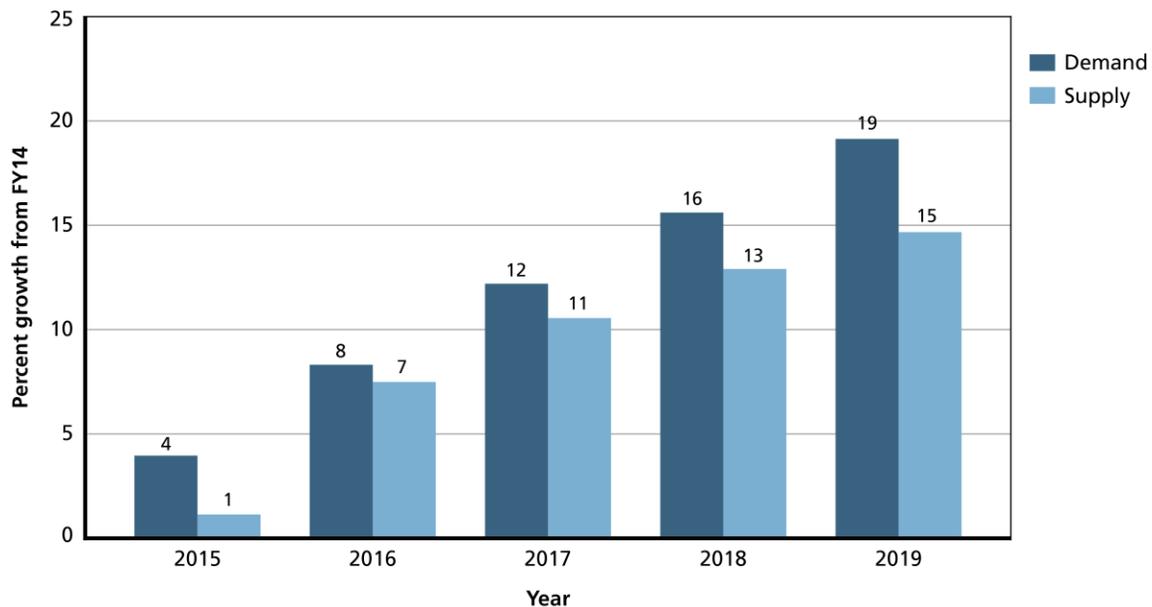
Sources: EHCPM and RAND analyses of VA provider supply.

Figure 6-3. Projected Growth in Demand and Supply for VA Health Care Services from FY 2014 to FY 2019, by VISN
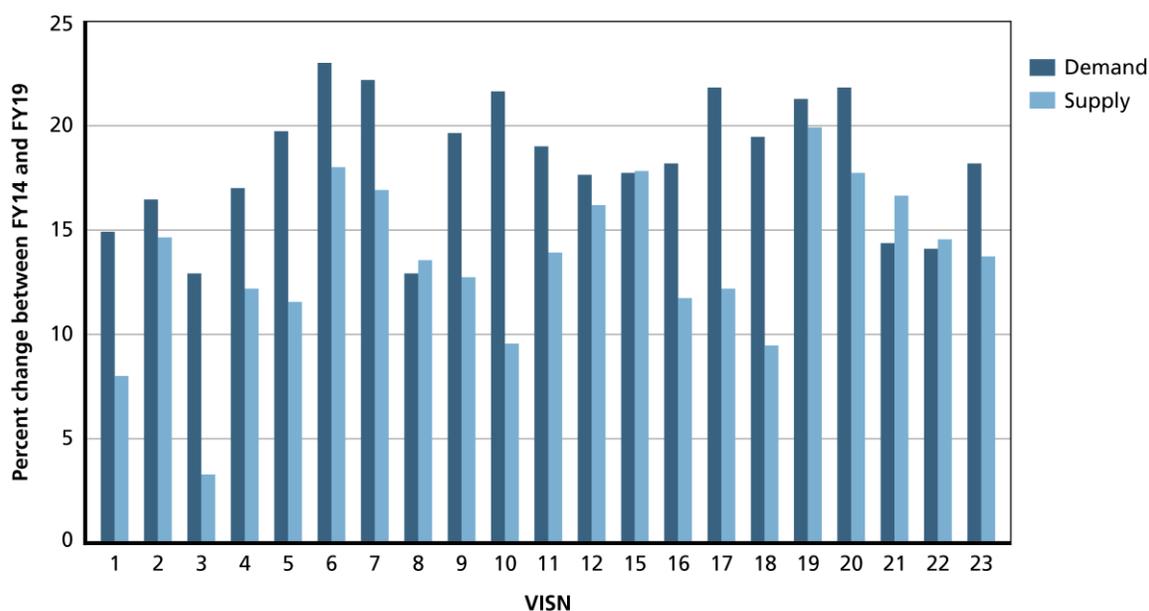
Sources: EHCPM and RAND analyses of VA provider supply.
Note: City hubs associated with each VISN are listed in Table 3.1-3.

Differences between projected growth in demand and supply also vary widely by medical specialty, as shown in Table 6-1. The differences range from positive 6 percentage points (indicating supply growth exceeds demand growth) for infectious disease to negative 36 percentage points for obstetrics and gynecology (indicating demand growth far exceeds supply growth). Most specialties will experience a greater growth in demand than supply if historical hiring trends persist. The exceptions are infectious disease and internal medicine, where the growth in supply is projected to exceed the growth in demand.

Table 6-1. Projected Growth in Demand and Supply for VA Health Care Services, by Specialty, FY 2014 to FY 2019

Specialty	Projected Increase in Demand From FY 2014 to FY 2019 (%)	Projected Increase in Supply From FY 2014 to FY 2019 (%)	Percentage Point Difference Between Projected Growth in Demand and Supply (Supply – Demand)*
Obstetrics and Gynecology	43	8	−36
Plastic Surgery	27	2	−24

Specialty	Projected Increase in Demand From FY 2014 to FY 2019 (%)	Projected Increase in Supply From FY 2014 to FY 2019 (%)	Percentage Point Difference Between Projected Growth in Demand and Supply (Supply – Demand)*
Rheumatology	26	6	−19
Pain Medicine	26	9	−18
Endocrinology	21	3	−18
Otolaryngology	24	8	−16
Dermatology	29	14	−15
Neurology	23	8	−15
Nephrology	21	7	−14
Urology	21	7	−14
Hematology Oncology	19	7	−12
Critical Care and Pulmonary Disease	21	8	−12
Ophthalmology	24	13	−11
Physical Medicine and Rehabilitation	24	13	−11
Neurological Surgery	12	2	−10
Gastroenterology	25	16	−8
Thoracic Surgery	5	−3	−8
Surgery	17	11	−6
Orthopedic Surgery	20	14	−6
Vascular Surgery	9	7	−3
Allergy and Immunology	17	15	−2
Psychiatry	20	18	−2
Cardiology	16	15	−1
Internal Medicine	12	15	3
Infectious Disease	3	9	6

Sources: EHCPM and RAND analyses of VA provider supply.
*Negative value indicates demand is projected to grow more quickly than supply.

Projected differences between the growth in demand and supply also vary widely across VA administrative parents. For example, although the gaps for psychiatry and internal medicine services are small for VA system-wide (−2 and 3 percentage points, respectively), this is not the

case for all administrative parents (Figure 6-4). In both specialties there are many administrative parents in which demand exceeds supply by more than 15 percentage points (the red dots in Figure 6-4). Similarly, we see variation between administrative parents within the specialties where there is a large gap system-wide. For example, system-wide demand growth is projected to exceed supply growth by 18 percentage points for endocrinology, but there are some administrative parents in which supply growth exceeds demand.

This variation indicates that the distribution of projected supply may not match the distribution of increased demand for services in all areas. We note that this observed mismatch may not be entirely VA-specific, but instead may be consistent with broader trends in the health care marketplace (for example, difficulty in recruiting specialists in some geographic areas). Still, the mismatch presages potential access problems for Veterans in some geographic areas.

Figure 6-4. Projected Changes in Demand and Supply for VA Health Care Services, by Administrative Parent and Selected Specialties, FY 2014 to FY 2019

Projected percent growth in supply vs. demand

- ● Supply growth greater by over 15 points
- ● Supply growth greater by 5 to 15 points
- ● Supply and demand growth within 5 points
- ● Demand growth greater by 5 to 15 points
- ● Demand growth greater by over 15 points
- ⊘ Insufficient data
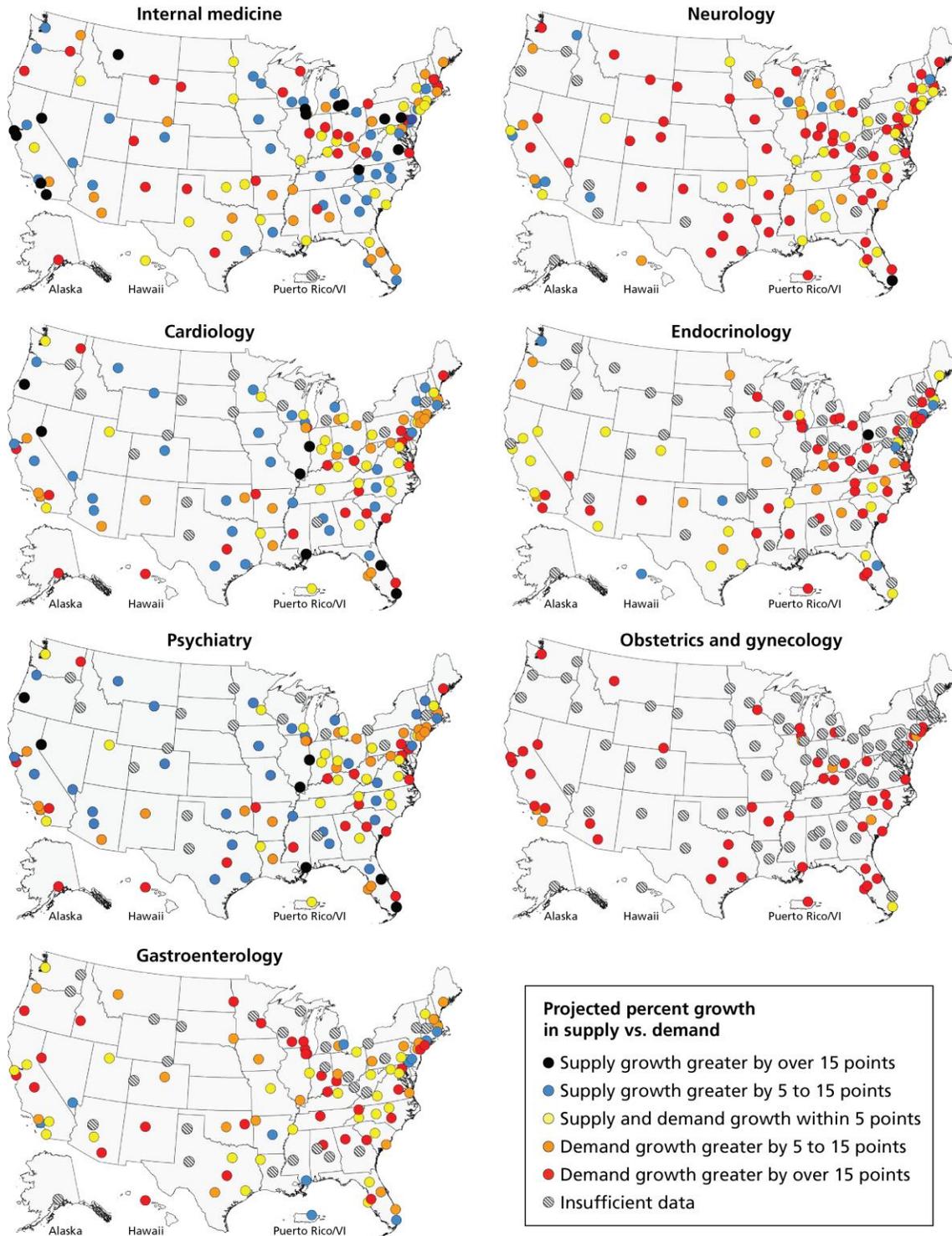
MS4675B-6.4

Sources: EHCPM and RAND analyses of VA provider supply.

These projections indicate that if the supply of VA providers continues to increase at historical growth rates, and other resources grow in proportion so that providers continue to deliver a similar amount of health care, it will be more difficult for VA to meet the demand for services and provide adequate access. These challenges will be more acute in some regions and at some VA facilities than others, so consideration of distribution will be as important as consideration of overall levels of supply and demand.

6.2.2 Projected Changes in Supply and Demand Under Supply Scenario Two: Increasing Productivity of Existing Resources

For the projection under supply scenario two, we examine the impact of increasing the productivity of existing resources. To do this, we created benchmarks that represent realistic productivity levels that could be achieved in VA's system by analyzing the FY 2014 variation in services at each administrative parent in each specialty (measured as RVUs per provider FTE). We identified the 25th, 50th, and 75th percentiles of the distributions of productivity for each specialty. We then projected FY 2019 supply using the current number of providers (that is, holding physician numbers constant at FY 2014 levels) and increasing productivity of those providers at all administrative parents to at least the level of the 25th, 50th, and 75th percentiles of the FY 2014 distribution:

- **Productivity Level 1**: All administrative parents operate at least at the FY 2014 25th productivity percentile within each specialty nationally.

- **Productivity Level 2:** All administrative parents operate at least at the FY 2014 50th productivity percentile within each specialty nationally.

- **Productivity Level 3:** All administrative parents operate at least at the FY 2014 75th productivity percentile within each specialty nationally.

For example, if an administrative parent is operating at the 16th percentile of the productivity distribution nationally within cardiology, the level 1 projection would raise Parent A's productivity to the 25th percentile nationally within cardiology. The productivity of administrative parents that operate above the specified level is left unchanged. This would increase the number of RVUs per provider FTE and generate more RVUs for VA as a whole. This projection provides information on the impact of the productivity changes but not about how those changes are achieved or what resources it would take. Specific policy options for increasing the productivity of resources are described in Subsection 6.4.2.

Figure 6-5 shows how VA's production of health care services would be expected to change under this scenario. In FY 2019, EHCPM projects that VA will need to produce 62 million RVUs of health care services. If the number of physicians did not change but productivity per FTE increased, VA in FY 2019 would produce 54 million RVUs of health care services at Productivity Level 1; 57 million at Productivity Level 2; and 77 million at Productivity Level 3. This indicates that, with substantial increases in productivity (every administrative parent operating at least at the 75th percentile of FY 2014 productivity), VA would be able to produce enough health care services to meet projected demand. However, it would likely be quite difficult to raise productivity to the 75th percentile for each specialty in each administrative parent.

Figure 6-5. Projected Demand and Supply for VA Health Care Services Under Scenario Two, Increasing Productivity
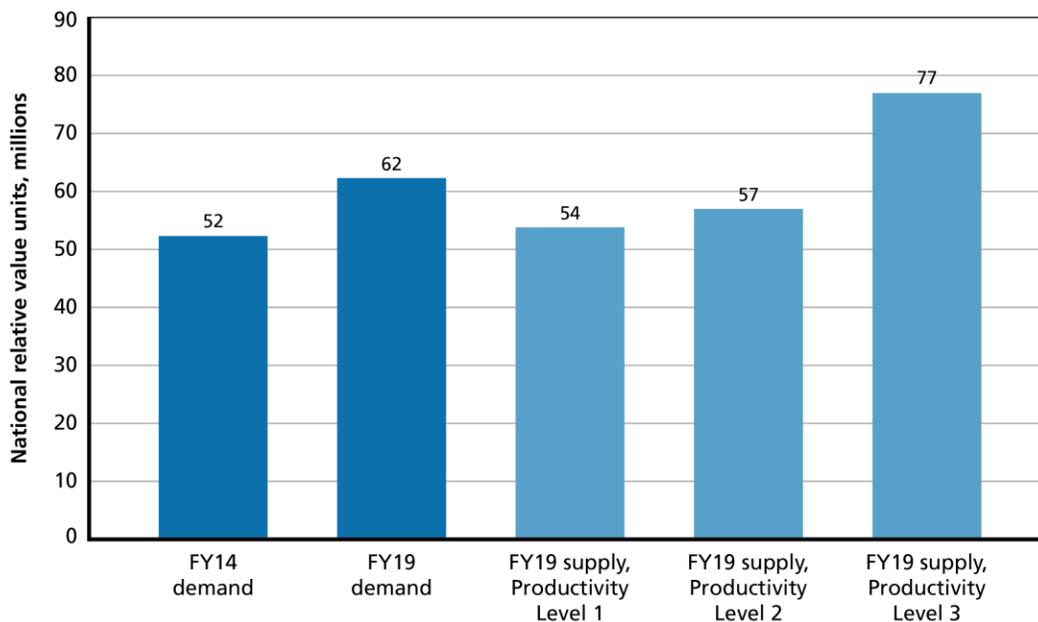
Sources: EHCPM and RAND analyses of VA provider supply.

Notes: FY 2019 supply estimates assume that resource levels remain constant at FY 2014 levels. Productivity Level 1 indicates all administrative parent-specialty combinations are at least at the 25th percentile of the FY 2014 productivity distribution. It is 50th percentile and 75th percentile for productivity levels 2 and 3, respectively.

Figure 6-6 shows that raising the productivity of all administrative parents to the 75th percentile of the VA distribution (Productivity Level 3) would generate enough supply in all VISNs to meet projected demand. There is variation in the size of the excess supply, ranging from a low of seven percent in VISN 17 to a high of 48 percent in VISN 21.

Figure 6-6. Projected Demand and Supply for VA Health Care Services by VISN Under Scenario Two, Productivity Level 3
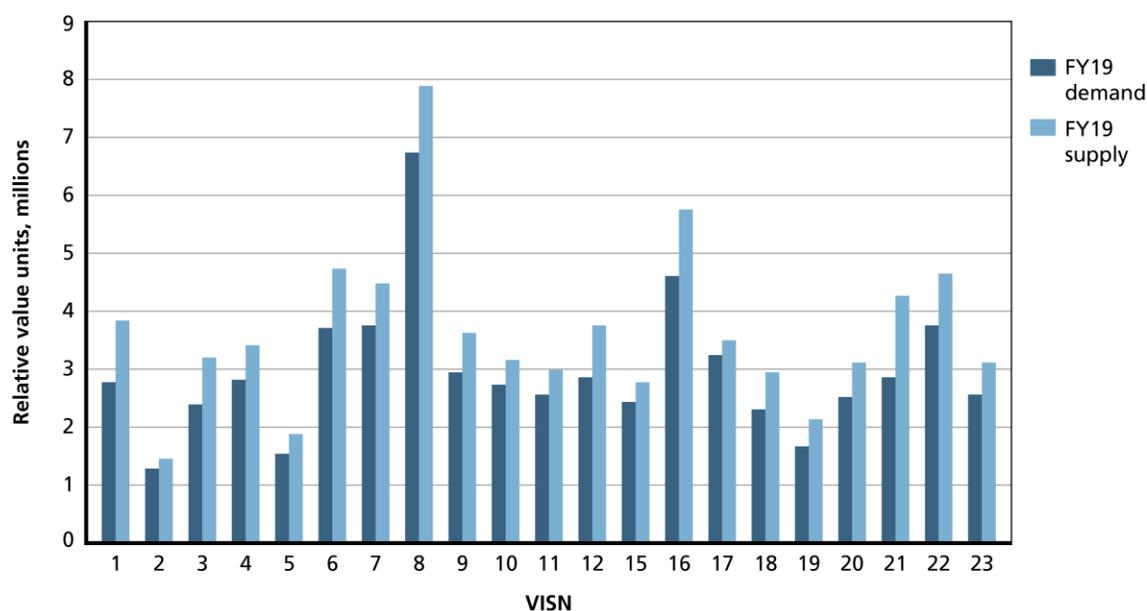
Source: Authors' analysis of VA productivity data and EHCPM demand projections.

Notes: FY 2019 supply estimates assume that physician clinical FTEs remain constant at FY 2014 levels. City hubs associated with each VISN are listed in Table 3.1-3. Productivity Level 3 indicates all administrative parent-specialty combinations are at least at the 75th percentile of the FY 2014 productivity distribution.

There are also some important differences across specialties (Table 6-2). When compared with FY 2019 projected demand, most specialties would not provide enough health care services at Productivity Level 1, would be close to the production needed at Level 2, and would have enough production at Level 3. Demand for health care services is projected to increase relatively slowly for infectious disease, internal medicine, neurological surgery, pain medicine, thoracic surgery, and vascular surgery. In these specialties, improving productivity to Level 1 would bring health care service production to within 10 percent of projected FY 2019 demand.

Table 6-2. Projected Percentage Difference Between VA FY 2019 Demand and Supply, by Productivity Level and Specialty, Under Scenario Two

Specialty	Productivity Level 1	Productivity Level 2	Productivity Level 3
Allergy & immunology	−11	−1	97
Cardiology	−11	−7	21
Chiropracty	−13	−6	44
Critical Care & Pulmonary Disease	−13	−4	46

Specialty	Productivity Level 1	Productivity Level 2	Productivity Level 3
Dermatology	−19	−9	47
Endocrinology	−12	−5	40
Gastroenterology	−17	−6	49
Hematology Oncology	−13	−4	37
Infectious Disease	3	18	89
Internal Medicine	−9	−6	11
Nephrology	−16	−8	67
Neurological Surgery	−7	0	181
Neurology	−14	−5	42
Obstetrics & Gynecology	−29	−21	23
Ophthalmology	−17	−10	42
Optometry	−15	−12	19
Orthopedic Surgery	−13	−7	50
Otolaryngology	−16	−10	37
Pain Medicine	−6	1	48
Physical Medicine & Rehabilitation	−18	−9	20
Plastic Surgery	−16	−8	21
Podiatry	−19	−13	37
Psychiatry	−14	−10	11
Psychology	−18	−16	−3
Rheumatology	−16	−6	39
Surgery	−11	−4	18
Thoracic Surgery	−2	5	74
Urology	−14	−5	45
Vascular Surgery	−5	3	59

Source: Authors' analysis of VA productivity data and EHCPM demand projections.
Notes: Negative values indicate that projected supply is less than projected demand in FY 2019. Productivity Level 1 indicates all administrative parent-specialty combinations are at least at the 25th percentile of the FY 2014 productivity distribution. It is 50th percentile and 75th percentile for productivity levels 2 and 3, respectively.

6.2.3 Projected Changes in Supply and Demand Under Supply Scenario Three: Increasing Number and Productivity of Resources

In the third projection scenario, we allow both the number of resources (physician clinical FTEs) and their productivity (RVUs per FTE) to grow, combining the two broad approaches. We project physician clinical FTEs based on historical trends and use the projections for FY 2019 as the base for raising productivity per FTE. In this case, we found that the projected FY 2019 supply at Productivity Level 1 will be somewhat higher than the projected demand (Figure 6-7) indicating that if historical hiring trends persist relatively small increases in productivity would be needed to meet projected demand for VA health care. We should note that the specialty-administrative parent population used in this analysis is a subset of the population used to generate projections under supply scenario two, so the total RVU counts are lower in the analysis for supply scenario three than for scenario two. We use a subset of the population for the scenario three analysis because it uses the FY 2019 FTE forecasts, and missing data precluded generating a FY 2019 FTE forecast for several specialty-administrative parent combinations.[70]

Figure 6-7. Projected Demand and Supply for VA Health Care Services Under Scenario Three, Increasing the Number and Productivity of Resources
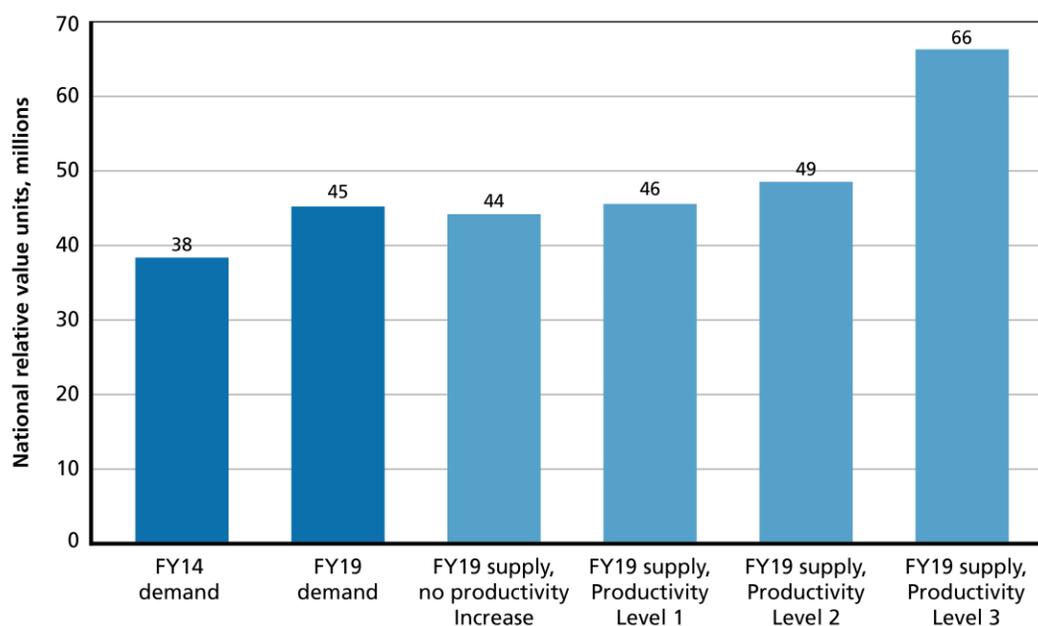
Source: Authors' analysis of VA FTE and productivity data and EHCPM demand projections.
Notes: Productivity Level 1 indicates all administrative parent-specialty combinations are at

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[70] We excluded specialty-administrative parent combinations where we had less than six years of historical FTE data; we deemed that less than six years of data was inadequate to build a regression model to use for forecasting.

least at the 25th percentile of the FY 2014 productivity distribution. It is 50th percentile and 75th percentile for productivity levels 2 and 3, respectively.

Even though supply exceeds demand at Productivity Level 1 system-wide, there is geographic variation across VISNs in the size of the difference between projected supply and projected demand and whether the difference is positive or negative. At Productivity Level 1, there are seven VISNs (2, 5, 9, 10, 17, 18, and 23) where projected supply is less than projected demand in FY 2019 (Figure 6-8), with differences ranging from 1 to 6 percent. Among the other VISNs, where projected supply exceeds projected demand, the size of the difference ranges from low of less than 1 percent in VISNs 3, 15, and 16 to a high of 11 percent in VISN 21. So, increases in provider FTEs similar to historical trends coupled with modest productivity increases (that is, Productivity Level 1) would be sufficient to meet projected demand in many, but not all, VISNs.

Figure 6-8. Projected Demand and Supply for VA Health Care Services by VISN, Under Scenario Three, Productivity Level 1
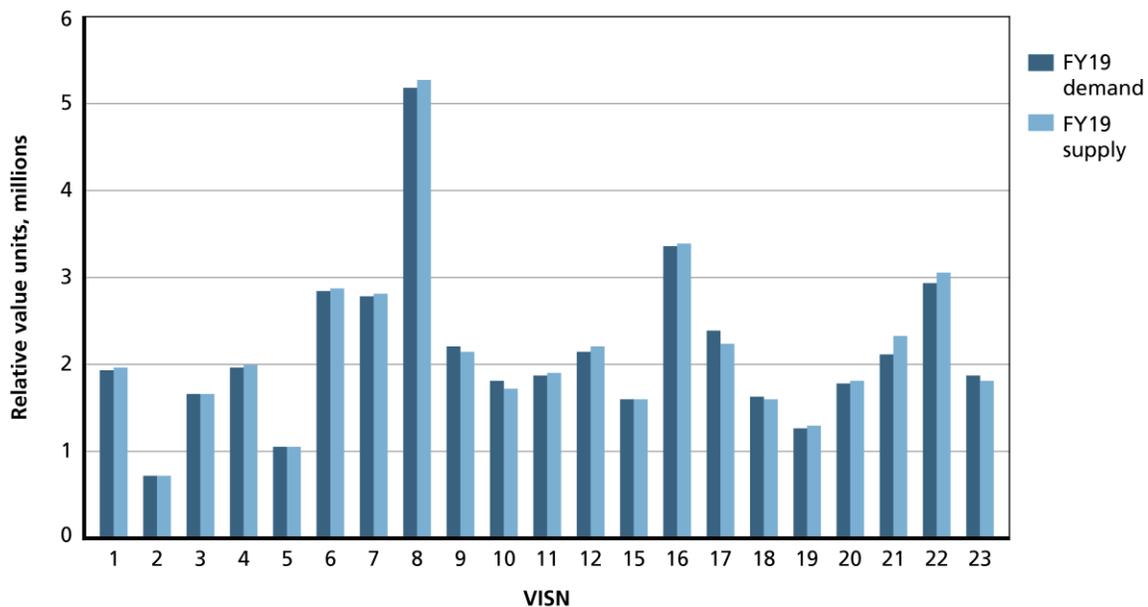
Source: Authors' analysis of VA FTE and productivity data and EHCPM demand projections. Notes: City hubs associated with each VISN are listed in Table 3.1-3. Productivity Level 1 indicates all administrative parent-specialty combinations are at least at the 25th percentile of the FY 2014 productivity distribution.

Looking across specialties, we see that at Productivity Level 1, demand would exceed supply for 16 of the 25 specialties considered but by less than 10 percent in most cases (Table 6-3). At Productivity Level 2, obstetrics and gynecology, otolaryngology, and pain medicine are the only specialties for which a gap remains, and the gap is large only for obstetrics and gynecology.

Some specialties considered in the prior analysis are omitted entirely (for example, chiropracty, optometry) from this analysis because we did not have comparable historical FTE data for specialties that do not require a doctor of medicine degree.

Table 6-3. Projected Percentage Difference Between VA FY 2019 Demand and Supply, by Productivity Level and Specialty, Under Scenario Three

Specialty	Productivity Level 1	Productivity Level 2	Productivity Level 3
Allergy & Immunology	53	65	198
Cardiology	2	8	39
Critical Care & Pulmonary Disease	−2	9	66
Dermatology	−8	4	73
Endocrinology	−2	6	53
Gastroenterology	−2	11	77
Hematology Oncology	−5	7	54
Infectious Disease	16	35	122
Internal Medicine	5	8	28
Nephrology	−4	5	90
Neurological Surgery	5	15	250
Neurology	−4	6	60
Obstetrics & Gynecology	−21	−12	38
Ophthalmology	−6	2	61
Orthopedic Surgery	1	8	76
Otolaryngology	−9	−2	51
Pain Medicine	−8	−2	52
Physical Medicine & Rehabilitation	−6	4	38
Plastic Surgery	−5	4	37
Psychiatry	2	7	32
Rheumatology	−3	9	61
Surgery	−1	8	33
Thoracic Surgery	24	34	123
Urology	−3	7	68
Vascular Surgery	10	20	84

Source: Authors' analysis of VA FTE and productivity data and EHCPM demand projections.
Notes: Negative values indicate that projected supply is less than projected demand in FY 2019.

Productivity Level 1 indicates all administrative parent-specialty combinations are at least at the 25th percentile of the FY 2014 productivity distribution. It is 50th percentile and 75th percentile for productivity levels 2 and 3, respectively.

6.2.4 Limitations of Projections

These projections have several important limitations. The projections focus on a comparison of demand and supply changes from FY 2014 to FY 2019 but do not account for whether FY 2014 services provided were optimal or sufficient. Similarly, the projections assume that the historical trends that are incorporated will continue into the future and do not consider whether the trends are appropriate from the perspective of optimal patient outcomes.

The projections are based on provider and productivity data (that is, FTEs and RVUs). The projections do not directly include changes in other key resources, such as physical space, equipment, and IT. They do include these resources indirectly through the productivity measure, as increased productivity could come through improved use of these resources. A projection model that included all resources and the interactions between them (for example, system dynamics) would be useful but was beyond the scope of this assessment.

Moreover, the projections analysis is static in that it does not account for changes in demand that might occur if supply, and thus access, were increased. For example, if VA increased productivity of its resources and improved access, current users might increase their reliance on VA and more Veterans might choose to use the VA system. The demand projections we rely on do not account for this demand response, so the comparisons between projected supply and demand may understate a future gap.

Although there is a great deal of uncertainty around these predictions, they provide some evidence that policy changes of some type—increasing either resources or the productivity of resources—will likely be needed to improve access to care for Veterans.

6.2.5 Subsection Summary

VA's EHCPM forecasts a 19-percent increase in demand for VA health care services nationally from FY 2014 to FY 2019. Given the caveats noted above, our projections of supply under three scenarios (increase resources, increase productivity of existing resources, and increase both resources and productivity) indicate that it will be difficult for VA to meet the demand for services and provide adequate access unless they increase both the number and productivity of resources. The challenge of meeting Veteran demand will be more acute in some regions and at some VA facilities than others, so considerations of distribution will be as important as consideration of the overall levels of supply and demand.

6.3 Overview of Selected Policy Options to Improve Access for Veterans

Improvements in timely and accessible care could be accomplished through various policy changes. In the following subsections, we present several policy options to improve VA's ability to provide timely and accessible care to Veterans. These options emerged from an iterative

analytic process involving a review of the published and gray literature, key informant interviews, and ongoing guidance from a panel of in-house advisors. They were further refined based on findings from our quantitative analyses and projections regarding workforce, IT, physical infrastructure, and interorganizational relationships.

A summary of the methods used in these analyses is shown in the box.

Overview of Methods and Data for Developing Policy Options

- We established a framework for identifying potential policy options in consultation with our in-house advisory panel.
- To establish evaluation criteria for assessing policy options, we began with a standard set of evaluation criteria, and then employed an iterative process using data from key informant interviews and a systematic literature review as well as input from our advisory panel.
- To identify a set of potential policy options, we used the options identified through the literature review as a starting point for developing the final list of policy options, and iteratively added, removed, and modified identified options as further information was collected through interviews and advisory panel guidance.
- In finalizing the list of options, we excluded those that (1) were infrequently raised during interviews, or (2) were expected to face significant challenges with respect to at least two of the evaluation criteria.
- For complete details of the methods used to develop policy options, please refer to Section 2 of the report and Appendix A-6.

As described in Subsection 6.1, policy options are characterized according to a two-by-two framework: first, by their primary objective to enhance timely access to care either within VA or outside VA; and second, by the approach to achieving the stated objective, either by modifying the amount and/or type of resources utilized or by increasing the productivity of existing resources (Table 6-4).

Table 6-4. Framework for Selected Policy Options

Policy Objective	Modify Amount and/or Type of Resources	Increase Productivity of Existing Resources
Enhance timely access to care within VA	▪ Increase physician staffing (Subsection 6.4.1.1) ▪ Increase virtual access to care (Subsection 6.4.1.2) ▪ *Increase the number of support staff (Subsection 6.4.1.3)* ▪ *Increase physical space for health care delivery (Subsection 6.4.1.3)* ▪ *Integrate with Department of Defense Military Health System (Subsection 6.4.1.3)*	▪ Formalize full nursing practice authority throughout VA (Subsection 6.4.2.1) ▪ Formalize task assignment in outpatient clinics (Subsection 6.4.2.2) ▪ Standardize return visit intervals for common conditions (Subsection 6.4.2.3) ▪ *Eliminate inappropriate care (Subsection 6.4.2.4)* ▪ *Expand care management programs for complex chronic conditions (Subsection 6.4.2.4)* ▪ *Expand working hours (Subsection 6.4.2.4)*
Enhance timely access to care outside VA	▪ Expand purchased care (Subsection 6.5.1.1) ▪ Shift VA role from provider toward purchaser of health care services (Subsection 6.5.1.2)	▪ Consolidate existing purchased care programs (Subsection 6.5.2.1)

Note: Italicized options were not included for full evaluation.

For each of the identified options, we provide an overview of current practices and issues, rationale for adopting the proposed option, and necessary steps for implementing the option, including any dependencies or requirements salient to its success. We use a traditional policy analysis framework to evaluate selected options against criteria (Patton & Sawicki, 1993):

- Impact on access: Extent to which the policy option is likely to achieve improvements in timely and accessible care
- Fiscal impact: Direct costs and potential savings associated with implementing the policy option
- Stakeholder acceptability: Likelihood of the policy option having sufficient stakeholder support to be politically feasible to legislate or to implement by VA under its existing authority
- Operational feasibility: Ease of putting the policy option into practice.

When possible, we incorporate analytic findings from our assessments of current VA resources and capabilities (presented in Sections 3 through 5) as well as projections to inform our evaluation of the options.

We also provide a brief description of excluded options (italicized in Table 6-4). As described in Section 2 (Subsection 2.8.1), we excluded policy options that were infrequently identified in our

literature review or key informant interviews, or policy options that were anticipated to face significant challenges with respect to multiple evaluative criteria. In addition, some initially identified options were excluded on the basis that they were out of the scope of Assessment B's aim to describe current and projected resources and capabilities of VA. As an example, we did not include or evaluate options that would modify VA's current eligibility structure because they center on modifying demand for health care rather than on modifying existing resources and capabilities to provide care. One such option might be to restrict eligibility for VA health care to only some priority groups, or increase cost-sharing requirements for lower priority groups to incentivize Veterans to seek other health care coverage if available to them.

The options discussed represent a prominent, but not exhaustive, set of options for improving VA's ability to provide timely and accessible care. We acknowledge that there are many alternative approaches. Some of these are addressed by the other assessments, such as reducing inappropriate or unnecessary utilization (Assessment F), optimizing scheduling processes (Assessment E), and improving management and planning for capital assets (Assessment K). In addition, prior evaluations of different aspects of VA care have been conducted and suggest various approaches to improving VA processes pertaining to timely and accessible care. We identified and reviewed these evaluations as part of our literature review, and their findings are reflected in our discussion of the policy options below.

6.4 Selected Policy Options to Enhance Access Within VA

6.4.1 Policy Options to Modify the Amount and/or Type of Resources

As described in Section 3, VA has a range of resources at its disposal to provide access to care but faces certain shortages, sometimes because its resources are not optimally distributed. Below, we describe and evaluate two options that were frequently raised in our interviews and literature review for modifying the amount of key resources in VA to provide timely and accessible care: (1) increase the number of physicians in VA and (2) increase virtual access to care through telehealth expansion. Other options that we considered but did not select for evaluation include increasing the number of support staff, increasing physical space for health care delivery, and integrating with the DoD military health system.

6.4.1.1 Increase Physician Staffing

6.4.1.1.1 Overview

This option would increase the number of VA physicians to expand the number of patients who can be seen in a timely manner. We focus on physicians rather than nurse practitioners, physician assistants, or other prescribing providers because physicians are currently the only providers able to practice with full and unambiguous independent authority consistently throughout VA. Other providers are more likely to serve in supplementary roles that have the potential to augment physician productivity. (In Subsection 6.4.2, we discuss two options for augmenting physician productivity through the use of existing staff and providers: formalizing task assignment in outpatient clinics and formalizing full nursing practice authority.)

6.4.1.1.2   Rationale

Data from multiple sources suggest that VA will need to increase its specialty physician workforce in the next five years (see Subsection 6.1, Figure 6-1) to meet growing demand. Using historical trends, our forecasts predict that by FY 2019, RVUs will exceed FTEs by at least 15 percent for obstetrics and gynecology, plastic surgery, rheumatology, pain medicine, endocrinology, otolaryngology, dermatology, and neurology (Table 6-1). In addition, the workforce analyses described in Subsection 3.2.3 identified several subspecialties that currently have longer appointment wait times than others, potentially indicating insufficient capabilities. These subspecialties include neurological surgery, neurology, gastroenterology, and physical medicine and rehabilitation.

VA primary care also faces potential workforce shortages. Primary care is one of five challenging areas for retaining and recruiting physicians and for which demand is growing, according to the 2014 VA Interim Workforce and Succession Strategic Plan. (The other challenging areas are gastroenterology, psychiatry, cardiology, and orthopedic surgery). In VA primary care, appointments have increased by 50 percent over the past three years while VA's primary care physician workforce has increased by just 9 percent (Oppel Jr. & Goodnough, 2014).

Physician workforce shortages were consistently identified in key informant interviews as an important constraint on access, and these interview data echoed some of our analytic findings. For example, interviewees cited neurology, which had substantial wait times in our analysis (Subsection 3.2.3), as a specialty with current or expected workforce shortages. Responses to our 2015 Survey of VA Resources and Capabilities supported our interview findings and the results from our wait-time analysis, with neurology, gastroenterology, and physical medicine and rehabilitation as key specialties survey respondents identified as having current or expected workforce shortages.

Interviewees highlighted several challenges pertaining to physician workforce shortages, including the organization's ability to attract competitive candidates, especially for specialty positions where VA salaries are not on par with the market and a slow and burdensome hiring process. Results from the Chief of Staff module of our 2015 Survey of VA Resources and Capabilities show that 98 percent of administrative parents reported difficulty recruiting or hiring inpatient physicians such as hospitalists and intensivists, and 62 percent reported difficulty recruiting or hiring subspecialists such as dermatologists, with noncompetitive wages being the primary reason (geographic location and sluggish HR processes were also reported as contributing to recruiting and hiring challenges). Dissatisfaction with pay was also reported as a key reason for problems with retaining specialist physicians.

Increasing the number of physicians and other licensed independent practitioners was viewed as a critical or very important way to reduce clinically meaningful delays in patient care by approximately 94 percent of sites (46 of 51 sites) reporting patient delays in obtaining a new primary care appointment on the 2015 Survey of VA Resources and Capabilities.

Assessment G explores the various gaps and challenges in VA workforce staffing as well as approaches to addressing these challenges in further detail.

6.4.1.1.3 Implementing Steps

Increasing the number of physicians in VA might involve several strategies. The first is simply increasing funding so facilities can hire more physicians. This might focus on the service lines with the greatest hiring needs as identified by our wait-time analysis and interviews.

Targeted physician hiring focused on specialties with the largest staffing shortages can be a sustainable approach to implementing this option, and Section 301 of the Veterans Choice Act mandates that the VA Inspector General annually identify the five occupations with the largest staffing shortages over the prior five years. However, it should be noted that although the Veterans Choice Act provides $5 billion in additional funding to hire new clinicians (in addition to improving physical infrastructure), hiring has been challenging. While VA has set an interim goal of hiring 10,682 clinicians by September 30, 2016, using $2.2 billion in Veterans Choice Act funding, recent reports (Robeznieks, 2015) suggest that VA had hired just 2,600 new clinicians as of May 2015, or 25 percent of the interim goal. This suggests that funding for new positions addresses only part of VA's challenge. Another strategy could be adjusting physician salaries (for example, based on productivity) to support retention or raising salaries of VA physicians to market rates to attract new hires. The latter might entail raising current salary limits for specialty physicians in geographic areas where recruitment is a particular challenge (for example, rural areas or areas with strong market competition). Data described in Section 3 (Table 3.2-13) show that VA salaries for many specialty services are well below private practice averages and generally lower than academic medical center practice as well.

VA could also increase its use of incentives such as relocation bonuses in rural areas, loan forgiveness, affiliate faculty appointments, and protected research time. Interviewees commonly cited the inability of facilities to offer benefits such as debt reduction plans as a challenge to physician retention in areas where salaries differed significantly between proximate geographic regions. Some interviewees identified the lag time in calculating VERA funding allocations to VISNs described in Subsection 3.1.2.3 as a challenge in determining the appropriate funding allocation for recruiting and retaining new providers that may need to be addressed in future efforts to improve VA's hiring process.

Another strategy might be to streamline the hiring and credentialing process so new physicians can start work sooner. Many interviewees noted it can take upward of six months to recruit and hire a provider, and a lengthy credentialing process might further delay the physician's start date. Facilities report losing interested and qualified applicants—and even accepted candidates—to private-sector jobs with more timely hiring processes and start dates. Indeed, testimony from VA physician and nursing association representatives to the House Veterans Affairs Committee's Health Subcommittee indicated that, despite the Veterans Choice Act's cash infusion, the "slow and bureaucratic" hiring process has hindered the organization from reaching its hiring goals. Interviewees identified the need for standardized credentialing processes as well as faster processing of paperwork and other requirements such as fingerprinting and physical exams that are not usually required for private-sector positions. Streamlining the hiring process by waiving requirements where possible, processing paperwork faster, or standardizing training and credentialing within a single system will likely allow VA to attract and retain more physicians. Assessment G characterizes this issue in detail.

Critical to the success of this option will be the availability of additional office space, exam rooms, and equipment for any newly hired providers to actually practice and see patients. Interviewees remarked that even if a department were able to retain a new hire, no office or other suitable workspace was available once the provider's state date arrived. In addition, clinical and administrative support staff will be needed to support the workflow and clinical processes associated with the increase in licensed independent providers.

Finally, this option should be targeted toward geographic areas and specialties with demonstrated physician shortages (primary or specialist); otherwise, existing workforce inequities might worsen. Resources could be targeted toward VISNs (for example, VISNs 3, 5, 10, and 17) where the projected growth in demand for health care outstrips the projected growth in supply, as described in Figure 6-2. Similarly, increased hiring might be particularly salient for specialties such as obstetrics and gynecology, rheumatology, and endocrinology, as shown in Table 6-1.

6.4.1.1.4 Evaluation

Impact on access. Increasing the number of physicians in VA may improve VA's ability to provide timely and accessible care by increasing the availability of clinicians to see patients, but it is highly dependent on having adequate administrative and clinic space for new providers to work in, and adequate administrative and clinical support staff to manage the workflow processes associated with additional clinic appointments (for example, checking patients in, turning over exam rooms between patients, collecting basic patient information in preparation of the visit, etc.). Both factors—space and support staffing—are already critical challenges for VA, limiting the potential impact of this option on access. Interviewees frequently cited a lack of space to house new staff and to manage the additional capacity created by increased hiring as a major frustration and a limitation to the potential of increased hiring. In addition, the impact will be constrained by local market characteristics and the employment availability of potential workers in a given geographic area, with rural areas being the most acutely impacted. These areas may not benefit from increased hiring alone. It is possible that increasing hiring of physicians across the board may adversely impact rural areas where recruitment and retention is particularly difficult by exacerbating existing inequities.

Costs. This is likely to be an expensive option to implement, as it requires funding more open positions for physicians, increasing salaries, providing other financial incentives, or some combination of these. In addition, applying funds to the hiring process in a timely manner will likely be challenging; VA interviewees often remarked on how difficult it has been to actually use the funds allocated by the Veterans Choice Act to hire new providers. Furthermore, this option would require costly expansions to physical infrastructure to support the additional clinical activities associated with more providers.

Stakeholder acceptability. Prospects regarding stakeholder acceptability are uncertain. Hiring more physicians may be an attractive strategy to the public and Veterans, given recent attention to provider shortages both within and outside VA. Interviews with Veterans Service Organizations suggest that improving access to VA physicians simply by increasing their numbers is a popular alternative to outsourcing care to private-sector physicians. However, the

costs associated with this option as well as the funding already put toward increased hiring through the Veterans Choice Act may detract from its political feasibility at both organizational and legislative levels. In addition, there may be concerns regarding the impact this option might have on private-sector capacity if it draws physicians away from the civilian health system and into VA. As with the impact on access, this is particularly salient in underserved or rural areas where physicians are often in short supply.

Operational feasibility. There are significant administrative barriers to increasing the number of VA physicians. Hiring within VA is complex, requiring a mix of administrative tasks (for example, creating and approving the position description, opening the position to all applicants on USAJobs, ensuring an equitable evaluation process, conducting background checks and fingerprinting) and clinical tasks (for example, verifying clinical credentials, licenses, certifications). Reducing the time to start date in VA poses an additional administrative challenge. Streamlining these tasks and consolidating the number of departments involved in the process is likely to prove challenging and time-consuming. In addition, VA may ultimately be limited by Office of Personnel Management rules guiding the organization's hiring processes and practices.

Summary statement. Adding more physicians to VA's workforce is a potentially impactful approach to improving VA's ability to deliver timely and accessible care, but its short-term impact on access is significantly constrained by the high costs of hiring more physicians, the lack of infrastructure to support an expanded workforce, and the bureaucratic challenges related to hiring in VA.

6.4.1.2   Expand Virtual Access

6.4.1.2.1   Overview

This option would expand VA's use of clinical video telehealth to increase access to clinical care when distance separates the patient and provider. As described in Section 3, VA might consider developing standardized protocols for telehealth workload capture and attribution, medical record documentation by remote providers, and provider credentialing for telehealth. It might also consider implementing a single system-wide memorandum of understanding allowing service delivery between sites.

6.4.1.2.2   Rationale

As discussed in Section 3, VA is the largest provider of telehealth services in the United States and has been a trailblazer in implementing clinical video telehealth and related telehealth technologies (Mazmanian, 2014). Data suggest that there is room for VA to build on its leadership role and further leverage clinical video telehealth to increase Veterans' access to care. For example, in FY 2014 more than 3.5 million encounters occurred in VA with a psychiatrist (authors' analysis of VISTA New Person File, VISTA Patient Care file, and Monthly Program Cost Reports provided by Assessment G), but just 104,632 mental health encounters (including but not limited to psychiatrist encounters) were conducted via clinical video telehealth (Table 3.5-1). This suggests an opportunity to expand clinical video telehealth use for

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mental health care—an approach mentioned by many VA interviewees. Moreover, interviews revealed that clinical video telehealth mostly involves just a few types of encounters (for example, mental health, weight management, clinical pharmacy, and primary care), indicating considerable room for expansion and diversification. Some interviewees stated that, given the foundation and infrastructure that VA has already established, telehealth use could potentially expand to almost all services lines and almost all types of care.

6.4.1.2.3   Implementing Steps

Despite VA's established telehealth infrastructure, access to care via telehealth has been limited due to several issues highlighted by our interviewees and echoed in the literature. These barriers, described in detail in Section 3, include poor recruitment and retention of telehealth staff, few available providers willing to use telehealth technologies, insufficient space for telehealth (Alverson et al., 2004), absence of standardized protocols for credentialing clinicians across facilities and capturing and attributing workload, inadequate technical support, and complex and burdensome security requirements (Adle et al., 2001; Darkins et al., 2008). Implementing this policy option will primarily require additional staff, equipment, and network capacity (Alverson et al., 2004) to support telehealth expansion and address the challenges described.

To address some of these issues, VA could establish standardized protocols for telehealth workload capture and attribution, medical record documentation by remote providers, and provider credentialing for telehealth. Implementing a single system-wide memorandum of understanding allowing service delivery between sites might also be a consideration. In addition, it will be critical for Central Office, VISN, and facility leadership to support telehealth expansion by encouraging its integration into routine service provision, providing time and training opportunities for providers, and allocating more resources. Some of those goals might be achieved through the use of targets and incentives. For example, target utilization rates could be set for different modalities, or providers could receive financial inducements, similar to VA's new "workload credits" that credit providers for the time they spend exchanging messages with patients or performing electronic consults.

6.4.1.2.4   Evaluation

Impact on access. Expansion of telehealth in VA is likely to enable timely access to care (Agha et al., 2009; Wakefield et al., 2004; Whited et al., 2002; Whited et al., 2004; Wilkins, Lowery, & Goldfarb, 2007) in several different ways. Clinical video telehealth can facilitate contact between distant patients and providers and is particularly useful for patients in rural or otherwise underserved areas who face transportation barriers, poverty, and limited access to specialty care (Luptak et al., 2010). For example, one study conducted at five VAMCs and their associated CBOCs across eight states examined the use of clinical video telehealth to increase access to psychotherapy for Veterans with PTSD by connecting patients at the CBOCs to a dedicated mental health clinician at the associated VAMC. Study investigators found that the five participating sites averaged a threefold increase in unique patients seen and a 6.5-fold increase in psychotherapy sessions via video telehealth over a 21-month period compared with

the baseline; meanwhile, nonparticipating sites across the same region averaged increases of just 1.4-fold and 1.7-fold, respectively (Lindsay et al., 2015).

As discussed earlier, for some specialties VA could meet the projected demand without additional hiring if the demand could be better distributed within the existing workforce. Clinical video telehealth may be a promising mechanism for achieving this redistribution for some specialties. Psychiatry, psychology, and dermatology are particularly good candidates for clinical video telehealth from a technical standpoint, given that many visits that do not require physical touch or procedures.

CVT could also be leveraged to address inequities in access across geographical regions. For example, in VISNs such as VISN 3, 5, 10, and 17, where projected growth in demand is expected to be greater than the growth in supply (that is, workforce), telehealth might be used to redistribute that demand to other VISNs where supply might less of an access constraint, such as VISNs 8, 21, and 22. However, currently, 96 percent of all clinical video telehealth encounters occur within the same VISN (VA, 2015e). Increased use of CVT might be further targeted toward certain specialties within those VISNs that face significant capacity issues and are suitable for telehealth care, such as rheumatology, otolaryngology, and dermatology.

Clinical video telehealth might also indirectly improve access to care over the long term: As new users who previously lacked access to care realize better health outcomes and require fewer services over the long term, resources could then be reallocated to other parts of the system with greater needs. In previous studies of VA comparing telehealth to routine care, telehealth has been shown to reduce hospital, nursing home, and emergency/urgent care utilization (Begg et al., 1998), as well as primary care and outpatient need-based visits (Barnett et al., 2006b; Chumbler et al., 2005).

Fiscal impact. The costs of securing additional exam space, hiring staff, and purchasing the necessary equipment to expand telehealth in VA are likely to be significant. VA might be able to repurpose existing clinic and administrative spaces for telehealth but may still be constrained by the overall lack of space and persistent difficulties in hiring and training providers. However, if the capital investment were made, it is possible that cost savings would be realized over time (LeRouge & Garfield, 2013). A growing body of evidence highlights the cost-effectiveness of telehealth interventions related to decreased utilization of in-person care, including inpatient and outpatient care, pharmacy, and diagnostic tests (Baker et al., 2011; Cryer et al., 2012; Rojas & Gagnon, 2008; Rosenberg et al., 2012). In addition, telehealth has the potential to significantly reduce Veterans' costs pertaining to travel time, waiting time, and time off work (Field, 1996); telehealth initiatives from VA Office of Rural Health saved Veterans almost 8 million miles in travel in FY 2014, or approximately 38 miles per telehealth encounter.

Stakeholder acceptability. Patients and providers have been generally supportive of telemedicine as a cost-effective approach to increasing access to care. Patient satisfaction has consistently been high (Abrams & Geier, 2006; Allen & Hayes, 1995; Gustke et al., 2000; Hunkeler et al., 2000; Janca, 2000), indicating that public support of this relatively new technology is likely growing. Although further research is needed, some studies have also described provider satisfaction with health care delivery through telemedicine modalities (Kavanaugh, 1995; Weinstock, Nguyen, & Risica, 2002; Richards, 2005; Guillen, 2002; Larcher,

2002). This level of support suggests that the option to expand virtual access via telehealth would be politically feasible.

Operational feasibility. Expanding clinical video telehealth will likely involve several challenges, which Assessment H addresses. Expansion would likely require hiring additional staff, including clinicians who are trained in providing telehealth care, clinical support staff to collect medical data or administer certain procedures, and trained technicians to help set up the appointment and equipment (for example, an EKG for TeleCardiology) and provide technical support. Concrete steps are needed to address the problems with the transmission and assimilation of information (discussed in Subsection 3.5.4.2), as well as the exchange of data among providers, settings, and facilities (discussed in Subsection 3.5.5). Each telehealth site will need the necessary space in an environment where securing adequate exam and office space is already a significant challenge. Moreover, those spaces require audiovisual equipment, secure wireless Internet capabilities, and related diagnostic equipment. Finally, the administrative feasibility of this option is limited by the ability of VA's data network to respond to increased demands (Darkins et al., 2008). The organization will likely need to allocate dedicated network capacity to its telehealth program going forward and to be responsive to issues as they arise to ensure efficient workflow and provider productivity. In one study, clinicians reported spending considerable time responding to technical and connectivity problems instead of providing care (Hopp et al., 2006). In addition, interviewees noted that telehealth expansion requires new and additional scheduling processes that can put a strain on the host facility, and that, taken together with the need to operate new technology and manage technical issues, can consume more time than a traditional face-to-face visit. Consistent use of telehealth and the implementation of relevant protocols may minimize such administrative challenges over the longer term.

Summary statement. Expanding VA's telehealth program will require an upfront financial and administrative investment. However, the impact of telehealth on access through workload and workforce redistribution, the potential for cost savings, and strong stakeholder support suggest that expanding virtual access to care via clinical video telehealth is a highly promising avenue for improving VA's ability to provide timely and accessible care.

6.4.1.3   Other Options to Modify the Amount and/or Type of Resources

Other options that we considered but did not select for evaluation include increasing the number of support staff, increasing physical space for health care delivery, and integrating with the DoD military health system.

Increase the number of support staff. This option would focus on hiring more support staff to increase the productivity of health care providers including nurses, health technicians, medical assistants, clerks, schedulers, and administrative assistants. Although 22 percent of respondents (11 of 51 sites reporting delays in patients obtaining a new primary care appointment) on our Survey of VA Resources and Capabilities identified increasing other personnel as critically important to reducing delays in care, our key informants infrequently raised this option as a way to improve timely access to care. Instead, they more frequently advocated for more licensed independent practitioners (also reported by 43 percent of survey

respondents as critically important to reducing delays in care) to provide direct care. The impact of this policy option on access is highly dependent on (1) the extent to which support staff time is maximized for facilitating clinic workflow and (2) the availability of independent practitioners whose productivity might be improved through increases in support staffing.

Increase physical space for health care delivery. This option would entail purchasing or leasing new physical infrastructure, or repurposing existing physical spaces to be used for providing health care (for example, exam rooms, office space, medical equipment space). This option would face significant constraints in its implementation as well as its expected impact on access. First, the purchase or leasing of new space (assuming it is available in areas where it was needed) would require significant additional funding and would entail burdensome and lengthy procurement or contracting processes; the process would consume enough time that the initial need would likely far surpass actual capacity by the time the space is secured. Second, the impact on access would be wholly dependent on both the availability of physical space for purchase or lease in areas where it is needed as well as the availability of health care providers and support staff to utilize the additional space. The latter requirement underscores the need to ensure adequate health care workforce within VA as an antecedent to any consideration of acquiring new space for health care delivery. The likely fiscal impact and administrative complexity of this option, together with an impact on access that is highly dependent on other major variables, makes this option a less feasible approach to improving timely and accessible care in VA than others.

Integrate with DoD military health system. This option, in its most fully realized form, would entail integrating VA and DoD workforce and physical infrastructure to provide joint health care to Veterans and active-duty personnel and their families. It would likely require both a single governance structure to oversee joint operations as well as a single electronic health record system. Improvements in access to care under this option are highly dependent on the capacity that is created through such a merger. It is possible that additional capacity constraints might be created, particularly given the administrative hurdles and related "growing pains" of a newly created organization of this size. The financial and administrative complexity of integrating the two systems will be significant, likely detracting from any long-term potential cost savings, efficiency gains, or access improvements. Moreover, this option may not have strong stakeholder support as it could result in lost jobs, culture clashes, and the loss of a "Veteran-only" health care system. In a less ambitious form, this option might involve developing an interoperable electronic health record system so Veterans could access care at military treatment facilities if needed; however, VA's history of unsuccessful attempts to build an interoperable electronic health record system point to a low likelihood of success in the near term.

6.4.2   Policy Options to Increase Productivity of Existing Resources

There are numerous options for improving the use of existing resources and making them more productive. Below, we describe and evaluate three options that were frequently raised in our interviews and in the published literature: (1) formalize full nursing practice authority throughout VA, (2) formalize task assignment in outpatient clinics, and (3) standardize return visit intervals for common conditions. Other options that we considered but did not select for

evaluation include eliminating inappropriate care, expanding care management programs for complex chronic conditions, and expanding working hours.

6.4.2.1 Formalize Full Nursing Practice Authority throughout VA

6.4.2.1.1 Overview

This option would formally grant full practice authority for all advanced practice nurses (APNs) (that is, nurse practitioners, clinical nurse specialists, nurse anesthetists, and nurse midwives) across VA, superseding individual state laws governing scope of practice where applicable. This would include authority to, for example, evaluate and diagnose conditions, order and interpret tests, and admit patients without physician oversight. VA is currently considering changes to a VA Nursing Handbook that would expand the breadth of VA nurses' authority. In addition, H.R. 1247, the "Improving Veterans Access to Care Act of 2015," currently under consideration in the House Committee on Veterans Affairs, would give APNs in VA full practice authority.

6.4.2.1.2 Rationale

Allowing full nursing practice authority is often raised as a key approach to addressing physician workforce shortages and access problems in non-VA contexts, particularly in primary care (Carrier, Yee, & Stark, 2011; Wilson, 2008). A 2011 Institute of Medicine report, "The Future of Nursing: Leading Change, Advancing Health," suggests that removing scope of practice barriers and allowing APNs to practice independently could increase clinical productivity; substituting APNs for physicians across a wider range of health care services frees up physician time to handle more complex cases (Institute of Medicine, 2011). Results from the Chief of Staff module of our 2015 Survey of VA Resources and Capabilities show that 68 percent of respondents (76 out of 111 sites) identified providers performing clinical activities that could be performed by individuals with less training as a key issue negatively impacting provider and system efficiency.

VA is the largest employer of APNs in the nation (VA, 2010a; Domine et al., 1998; Faris et al., 2010). Data from our workforce analyses show that in FY 2014, VA utilized 3,626 nurse practitioners, 396 clinical nurse specialists, and 598 certified registered nurse anesthetists. Currently, the ability of APNs to practice independently varies widely across VA, with nursing scope of practice established at the facility level (VA Directive 2008-049: Establishing medication prescribing authority for APNs). To our knowledge, there is no systematic analysis of VA compared with non-VA use of APNs and scope of practice.

Interviewees noted that although some VA facilities formally grant full practice authority to APNs, many facilities implicitly defer to state laws (despite VA federal supremacy) that require nurses to collaborate with physicians or may even require formal physician supervision (Cassidy, 2012; Institute of Medicine, 2011; Pearson, 2012). Interviewees also revealed that full nursing practice authority can vary within facilities even at the department or team level, whereby APNs with more experience or established relationships with their physician partners are granted more leeway. Although some observers have described VA as being at the vanguard in the use of APNs with respect to both numbers employed and relative autonomy in

clinical care (Huang et al., 2004; Robinson & Petzel, 2010), the variation in how they are utilized and the extent to which they are allowed to practice independently has been highlighted as a critical barrier to achieving optimal use of VA resources and capabilities (Kizer & Norby, 1998).

6.4.2.1.3 Implementing Steps

The cornerstone of this option is standardizing full practice authority for APNs across the VA system. A first step to implementing this option could be to endorse and implement proposed changes to VA's nursing handbook that would recognize APNs as independent practitioners authorized to provide patient care without physician supervision. The revised handbook would standardize processes and formally recognize the expanded scope of practice throughout the system (VA, 2011b). Subsequently, new scope of practice protocols would be required to clearly specify the expanded scope of nursing practice (Mohler et al., 1998), similar to the national templates previously proposed by former Undersecretary of Health Kenneth Kizer (Kizer & Norby, 1998). This might require forming an expert consensus panel to determine relevant qualifications and minimum standards for allowing expanded scope of practice. For example, recent legislation in New York State enacted in January 2015 allows nurse practitioners with over 3,600 hours (approximately two years) of clinical practice to practice independently (that is, without a written collaborative agreement with a physician) but does not change scope of practice rules for nurse practitioners with under 3,600 hours of practice (New York State Assembly, 2013). Nurse providers would have to engage in additional training and certification to meet standards for full practice authority, and undergo routine performance evaluations according to a prespecified schedule. Continuing medical education programs would have to be developed to sustain nursing skills relevant to full practice authority. Existing nursing oversight bodies may need to be restructured to address new regulations under an expanded scope of practice; Dr. Kizer had previously recommended funding an Advanced Practice Nursing Council to be responsible for licensure, role, and scope of practice protocols, as well as education and training opportunities (VHA, 1997). In addition, the establishment of professional standards boards for APNs at the local or network level to provide consistency in the development and interpretation of relevant rules and regulations will be needed.

6.4.2.1.4 Evaluation

Impact on access. An option to formalize full practice authority might impact access in two ways: (1) It could allow APNs to spend less time on tasks such as reviewing clinical decisions with a supervising physician and more time providing direct patient care, and (2) it could allow physicians to spend less time supervising APNs and more time caring for patients. Quantitative data on the effect of full practice authority on access as a result of additional time for patient care are limited and mixed. Although it is clear that following scope of practice regulations is time-consuming for both the nurse and the physician, it is unclear how much of that time could and would be redirected to patient care. One study found that APNs in states allowing full practice authority worked 11 percent more hours per year than APNs in states with scope of practice restrictions—but that physicians worked 6 percent fewer hours, presumably because independently practicing APNs were picking up the patient care duties (Kleiner et al., 2014). In contrast, another study found that physicians increased their direct patient care hours by 8

percent, given that they spent less time supervising APNs (Traczynski & Udalova, 2013). There are some data to suggest that granting full nursing practice authority could increase the supply of APNs due to either more entrants to nursing programs or nurses relocating to states with expanded scope of practice laws (Kalist & Spurr, 2004). Under an expanded scope of nursing practice, VA may be able to attract more APNs from the private sector in states that have scope of practice restrictions, which is particularly salient for states with large rural areas where VA might be struggling to ensure an adequate provider workforce.

Finally, some data suggest that the total amount of care provided to patients might increase with full nursing practice authority. One study found a 2-percent increase in number of office visits when state scope of practice was expanded, and the percentage of patients receiving preventive care and reporting timely and accessible care increased by as much as 10 percent on some measures (Traczynski & Udalova, 2013).

Indirect evidence also supports the positive potential impact on access that formalizing independent nursing might have, particularly through better use of APNs in clinical practice. For example, APNs in the private sector see twice as many patients per day as a VA APN, suggesting considerable room for improvement in VA's use of APNs as clinical providers (Mohler et al., 1998), which might be achieved via relaxed scope of practice regulations. Data also suggest that APNs can function effectively as physician substitutes in VA primary care given similarities in the patterns of patient encounter characteristics across provider types (Morgan et al., 2012). In addition, a substantial body of literature shows that important health outcomes—including disease-specific physiologic measures, reduction of symptomatology, mortality, hospitalization and other utilization measures, and patient satisfaction—are comparable between patients served by APNs and those served by physicians (Grumbach et al., 2003; Horrocks, Anderson, & Salisbury, 2002; Laurant et al., 2009; Laurant et al., 2005; Mundinger et al., 2000; Naylor & Kurtzman, 2010; Wilson et al., 2005).

This option could impact access in both primary and specialty care settings. Nurse practitioners are a core member of VA's primary care Patient Aligned Care Team model and are widely used in chronic conditions management, which can involve specialty services (for example, endocrinology for diabetes management, cardiology for heart failure management) (Newhouse et al., 2011). APNs have also been increasingly used in geriatrics, with the launching of an adult-gerontology clinical nurse specialist board certification in 2013. Finally, under this option clinical nurse anesthetists might be more widely used in inpatient and surgical settings.

Fiscal impact. Evidence regarding the possible fiscal impact of this option is also mixed but suggests the potential for cost savings. APNs are a less expensive alternative to physicians for providing direct patient care. Prior research in non-VA settings demonstrates that substituting some APNs for physicians (for example, five APNs and three physicians versus eight physicians) in a collaborative practice model results in significant cost savings over time (Bosque, 2015) given salary differences. More efficient use of APN time in clinical practice might also decrease costs; one study found that when APNs in retail clinics were allowed to practice independently, the clinics' cost savings were greater than when they could not practice independently because of state scope of practice regulations (Spetz et al., 2013). Although cost calculations may be

different between VA and non-VA—particularly in fee-for-service settings—these findings point to the potential savings that might be realized through more efficient use of APNs in practice.

On the other hand, if granting full practice authority increases access to care, the total amount of services provided might escalate, increasing overall costs. One study found that total spending on office visits (that is, all office-based settings for physician and APN care) was 4.3 percent higher in states with full practice authority than in states with scope of practice restrictions (Stange, 2014). However, increases in spending related to greater access to primary and preventive care could be offset by savings from reduced utilization in more intensive settings; for example, one study found reductions in ambulatory-sensitive emergency department visits (Traczynski & Udalova, 2013). Some have argued that APNs might contribute to costs because they tend to order more diagnostic tests than physicians do (Jauhar, 2014; Medical Society of the State of New York, 2015), presumably to compensate for differences in training and knowledge; however, this assertion is often based on a study published in 1999 that did not directly estimate the effect of expanding nursing practice authority on costs but simply compared nursing to physician practices.

The estimated implementation costs of this option are relatively low, and the option may reduce costs over time. There will likely be costs associated with developing new and expanded scopes of practice and standardizing them across VA, communicating and educating providers and staff about the expanded nursing authorities, and training and credentialing to appropriately reflect the expanded scope. These costs may be at the individual facility level or structured through VA Nursing Academy Partnership, which provides training at 18 academic nursing partnership sites across VA.

Stakeholder acceptability. This option could face strong political opposition from physician advocates within and outside VA. Allowing full nursing practice authority has historically been a controversial topic, and physician reluctance to accept the expanding role of nonphysician practitioners remains a persistent cultural barrier that will require sustained and intensive attention by VA leadership and beyond to overcome (Kizer & Norby, 1998). Physician organizations including the American Medical Association have been vocal in their ongoing opposition to allowing full nursing practice authority particularly in response to the recently proposed scope of practice changes to VA's nursing handbook (Beck, 2014). A recent JAMA commentary by three VA physicians (Bakaeen, Blaustein, & Kibbe, 2014) recommended that VA hire more physicians, nurses, and support staff to care for the increased number of VA enrollees, but warned against hiring nurse practitioners and physician assistants to replace primary care physicians, stating that "This is not the time to test unproven and controversial solutions" (p. 481). Physician organizations often state that substituting APNs for physicians may put patients at risk for poorer outcomes despite a lack of evidence to support this claim. Stakeholder acceptability might be fostered by emphasizing evidence supporting the ability of APNs to provide care that is as safe as the care provided by physicians (Fairman, 2008; Groth, Norsen, & Kitzman, 2010; Hatem et al., 2008; Hogan, 2010; Horrocks et al., 2002; Hughes, 2010; Laurant et al., 2004; Dulisse & Cromwell, 2010; Newhouse et al., 2011; Laurant et al., 2009; Jackson et al., 2011; Ohman-Strickland et al., 2008; Lenz et al., 2004). Establishing a consensus-based minimum standard for clinical experience before an APN is granted full practice

authority, as New York State has done, will likely be critical to facilitating stakeholder acceptability.

Strong physician opposition may also stoke patient and Veteran reluctance to support this policy option, although evidence regarding patient preferences for physicians versus APNs remains mixed. As an example, one survey commissioned by the American Academy of Family Physicians found that patients preferred and trusted physicians over nurse practitioners (Porter, 2013), while another study using survey data from the AHRQ found that patients reported better experiences with care from APNs compared with physicians (Creech, 2011).

Due to persistent physician workforce shortages and concerns related to health insurance expansion, state legislatures are increasingly receptive to expanding scopes of practice for nurses, which could contribute to this option's successful implementation in VA. To date, 20 states and the District of Columbia have given APNs practice autonomy, and several other states are considering it (Phillips, 2014). The Institute of Medicine's first recommendation in its *Future of Nursing* report was to "remove scope of practice barriers." This growing political support for full nursing practice authority in the broader context of access delays, increasing demand for primary care, and workforce shortages may soon offset the political challenges historically raised by physician advocacy groups.

Operational feasibility. Once endorsed, this option would likely require time to fully implement as new scopes of practice are drafted and care protocols developed. It would require coordination and partnership among several different VA offices, including but not limited to the Office of Nursing Service, Office of Patient Care Services, several Clinical Operations offices (for example, Primary Care Operations, Mental Health Operations, Geriatrics and Extended Care Operations), and network and facility directorship, to ensure that APNs begin to practice independently in a consistent and guideline-concordant manner. The Central Office-level policy change would have to be appropriately communicated through the regions down to the facility level, and monitored and evaluated for an initial implementation period, with feedback processes built in. Nursing leadership—both at VA Central Office and the facility level—may need to provide additional oversight and develop evaluation processes to incorporate expanded scopes. Additionally, new training and continuing education protocols would have to be developed and implemented to support expanded nursing scope of practice.

Summary statement. Formalizing full practice authority for APNs would likely be a cost-effective approach to increasing the productivity of VA's existing workforce. However, entrenched political barriers to enactment may limit uptake and challenge full implementation in practice, making this a longer-term solution rather than an immediate fix.

6.4.2.2 Formalize Task Assignment in Outpatient Clinics

6.4.2.2.1 Overview

This option would formally assign clinic tasks according to job function, with a focus on maximizing the use of clerical and clinical support staff to make physicians more productive and optimize clinic workflow. Our interviews revealed a prevailing perception that staff performs clinic tasks on an "as available" basis rather than being assigned tasks that match their skills and

training. Interviewees noted that this was in large part due to available clerical and clinical support staff not taking on relevant tasks or not completing them in a timely manner, and in smaller part due to inadequate staffing. They also cited confusion about which tasks could be assigned to clerical and clinical support staff rather than providers. Explicitly assigning tasks based on skill level and training could ensure that specialized personnel such as physicians spend their time on direct patient care activities rather than paperwork.

6.4.2.2.2   Rationale

Interviewees at VA medical centers and CBOCs regularly raised the concern that clinic workflow was inefficient due to lack of clear expectations regarding task responsibilities as well as a lack of accountability among administrative and clerical staff for task completion. Physicians we interviewed reported spending a significant amount of time completing what were described as "below-license" tasks such as bringing patients from the waiting room to the exam room, collecting vital signs, and completing pre-visit paperwork. In addition, they often noted that they were increasingly tasked with addressing pre-visit screening and prevention protocols that are often performed by lower-level staff in the private sector. Sometimes these challenges were ascribed to "cultural issues" among VA support staff (for example, a reluctance to take on more work), and other times they were attributed to restrictive VA policies and protocols. These are described in greater detail as capacity constraints in Subsection 3.2.4. These issues are not limited to physicians; VA nurse practitioners have reported spending an increasing amount of time on administrative tasks over clinical tasks and not fully utilizing their training and expertise (Fletcher et al., 2007). Results from the Chief of Staff module of our 2015 Survey of VA Resources and Capabilities show that 84 percent of respondents (94 out of 111 sites) identified providers performing administrative activities that could be performed by others as a key issue negatively impacting provider and system efficiency. This issue ranked second among factors impacting provider and system efficiency. ("Too many administrative requirements" was first with 96 out of 110 sites reporting it as an issue.)

Research evidence echoes our interview findings regarding how tasks are currently performed. A functional job analysis conducted in VA primary care found that staff at all job titles (clerks, health technicians, licensed vocational nurses, registered nurses, APNs, and physicians) were performing tasks of all kinds, rather than only those related directly to their job function (for example, all clerical tasks to clerical personnel and all clinical duties to clinical personnel). This included clerks performing service delivery tasks such as patient education and coordination, and physicians performing administrative tasks such as completing paperwork or maintaining patient records (Hysong, Best, & Moore, 2007). The most consequential implication for efficiency is that higher-trained VA personnel are performing tasks that do not require their level of training. A related VA study identified significant task overlap among occupational groups; for example, physicians reported performing 69 percent of the tasks also being performed by health technicians, 45 percent of the tasks also being performed by clerks, and 64 percent of tasks also being performed by licensed vocational nurses (Best et al., 2006). Clerks reported the lowest percentage of task overlap with other occupational groups, executing 13–14 percent of tasks also performed by physicians and nurse practitioners, 24 percent of tasks also performed by registered nurses, 26 percent of tasks also performed by licensed vocational

nurses, and 50 percent of tasks also performed by health technicians. This indicates that it would be possible to reallocate certain tasks across occupational groups to increase productivity, particularly shifting low-complexity tasks from advanced practitioners to clerks and health technicians.

6.4.2.2.3   Implementing Steps

Implementing this policy option would require the systematic identification of all clinic-related tasks in VA through a functional job analysis (Fine & Cronshaw, 1999), building on previous research done in VA (Best et al., 2006; Hysong, Best, & Moore, 2007; Pugh, 2001) and in other settings (Burgel et al., 1997; Mbambo, 2003; Salazar et al., 2002; Soh, 1998). Developing a task database is likely to be useful for cataloging identified tasks according to job function, skill level, and training (Best et al., 2006). After clinic tasks are identified and catalogued, expert input and consensus on the assignment (or reassignment) of these tasks by job title and function would be necessary. Prior work has shown that using standardized guidelines, protocols, or checklists can aid the transfer and assignment of clinical tasks between physicians and nurses, for example (Macdonald et al., 2013; Thomas et al., 1999); a similar approach might be useful in assigning tasks across all clinic staff. Task assignment might be a function of who is best suited to do the work based on skills and training as well as the impact of task assignment on patient safety (that is, the most consequential tasks would be assigned to workers with the greatest skill and training). Ideally, a template for the formal assignment of tasks could be created, with built-in flexibility for making actual assignment decisions at the facility level that consider contextual factors such as staffing levels, clinic layout, and primary care team relationships.

6.4.2.2.4   Evaluation

Impact on access. There is no direct evidence of the impact of formal task assignment on access to care, but it has been suggested that task assignment is critical because it minimizes constraints in clinic flow and improves patient throughput (Best et al., 2006). For example, a health care provider who spends time checking a patient into a room and completing paperwork instead of delivering hands-on care has less time to spend with subsequent patients, resulting in a backlog that impacts future appointment availability. Relieving higher-trained personnel of responsibility for low-complexity tasks would allow more time for patient care and make better use of their skills and training. Assuming that improvements in task assignment contribute to provider productivity and thus greater access to care, implementing this option system-wide could help to address inequities in access across facilities and regions. Facilities where providers are performing clerical tasks and clerical staff are not optimally utilized would likely see significant improvements in productivity and access on par with access at higher-performing facilities where clinic tasks are already assigned and completed efficiently.

Fiscal impact. There is a lack of economic data available to estimate the fiscal consequences of task assignment, although a systematic collection of relevant economic measures has been proposed (Dierick-van Daele et al., 2008) and may contribute to future estimations. To the extent that task assignment leads to task shifting from more expensive personnel, this option is likely to realize some savings over time. For example, in a VA study of primary care task overlap, the authors found that registered nurses performed 97 percent of the same tasks that licensed

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vocational nurses performed. Implementing this option may require funding to ensure that clinics have the right mix of personnel for the optimal assignment of tasks. While our interviewees underscored gaps in the productivity of existing support staff, they also highlighted workforce shortages. Understaffed clinics may not have enough staff to perform all clinic-related tasks efficiently regardless of how they are assigned, and it may be the case that higher-trained personnel have no choice but to perform lower-complexity tasks. However, this option, if fully implemented, is likely to realize cost savings over time, given the costs associated with using highly trained providers to perform low-complexity tasks. Our interviewees frequently commented that using physician time to perform clerical tasks in the absence of any guidelines regarding task mapping or assignment was a particularly expensive solution.

Stakeholder acceptability. Staff members' resistance to additional tasks or reassignment of tasks could be a barrier to successfully implementing this option. While some staff will face additional workload, others may be reluctant to relinquish certain responsibilities. Unions may or may not support this option based on how the shifting workload is perceived. Physicians' concerns about scope of practice may make them reluctant to cede clinical tasks to lower-level providers. There may be concerns about lack of customization in clinic workflow, so flexibility in task assignments should be clearly delineated to allow tailoring of work assignments as clinic needs dictate. Staff buy-in and, where relevant, union support, will be critical through the task identification and assignment phases.

Operational feasibility. Ensuring that assigned tasks are completed will be a critical component of this policy option. This may require changes in contracts and union involvement in drafting these changes. In addition, establishing standardized protocols describing task assignments, guidelines, and checklists to ensure adherence to assignments creates an additional layer of bureaucracy that will require systems and processes for oversight and enforcement. With the proposed option, section heads and service chiefs will need greater authority to enforce and evaluate task assignment, including the ability to penalize underperformance. This option will take time to fully implement, particularly as new processes are formalized and staff is trained in these processes.

Summary statement. Formalizing task assignment is one approach to improving health care providers' productivity by ensuring task completion according to skills and job function, with an indirect impact on access. This option would require implementation of new administrative processes and changes to existing reporting and accountability structures that may prove challenging to enact over the short term.

6.4.2.3 Standardize Evidence-Based Follow-up Visit Intervals for Common Chronic Conditions

6.4.2.3.1 Overview

This option would standardize times for VA follow-up visits for common chronic conditions based on scientific evidence. A substantial portion of outpatient clinic visits are follow-up visits: 56 percent of the 1 billion office visits nationally in 2009 (including but not limited to VA) were follow-up or preventive care visits, while 42 percent were evaluations of a new problem or the

exacerbation of a chronic condition (Centers for Disease Control, 2010). In both VA and non-VA health care, follow-up visit intervals vary widely, with little evidence-based guidance for determining optimal intervals. Setting intervals based on scientific evidence may allow certain follow-up times to be extended, which would reduce the overall number of clinic visits per capita in a given time period and increase appointment availability for other patients or for emergent issues. As an example, if two providers with the same number of appointment slots each week have different follow-up visit intervals, on average—for example, the first mean interval is four weeks and the second is eight weeks—the second provider could see twice as many patients as the first provider in a defined time period. In some cases, shortening follow-up visit intervals (where supported by evidence) might initially increase the number of face-to-face visits and create additional access challenges, but may lead to lower utilization overall as patients are managed more appropriately.

6.4.2.3.2   Rationale

Current VA practices for determining follow-up intervals vary widely across providers (Welch et al., 1999), from as short as one week to as long as 12 months (Schwartz et al., 1999). This variation is explained only in part by the actual medical needs of the patient (DeSalvo et al., 2000; Kravitz et al., 1992; Welch et al., 1999); other important factors include whether the initial visit occurred on a "hectic" day (Schwartz et al., 1999) and how far the patient would have to travel to the clinic (Welch et al., 1999), with distant patients assigned longer intervals for follow-up visits. Follow-up intervals also vary with individual physician characteristics such as gender; one study found that female providers assign shorter intervals than male providers, independent of other factors such as patient stability (DeSalvo et al., 2000).[71] Provider training is an important factor as well. Providers are often taught to routinely schedule their patients with chronic conditions every three or four months regardless of disease severity (Schectman et al., 2005). Follow-up intervals are therefore likely influenced by the styles and preferences of individual clinicians and the educators to whom they are exposed.

In some cases, providers may assign follow-up times based on a perception that frequent contact is necessary to achieve therapeutic goals (Schectman et al., 2005), despite evidence to the contrary. For example, patients who are being managed for hypertension are typically seen every six months, although data from a randomized clinical trial demonstrated that a six-month interval was too short to accurately measure clinically significant changes in hypertension due to treatment (Keenan et al., 2009). In some cases, more frequent contact may even result in negative consequences, although this needs further investigation. In a randomized study of an intervention to increase contact with primary care providers following hospitalization among Veterans with diabetes, chronic obstructive pulmonary disease, or congestive heart failure, the

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[71] More recent data on follow-up interval practices were not identified through our literature review. The growing use of electronic medical record platforms for managing patient information over the last decade may have facilitated interval assignment based on clinical need or other relevant patient factors, and additional research to evaluate this is warranted.

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increased contact was actually associated with increased readmission rates and more days of rehospitalizations compared with usual care, with no difference in patient-reported quality of life (Weinberger, Oddone, & Henderson, 1996).

As part of our wait-time analysis (Subsection 4.2), interviewees routinely indicated that they preferred to define appropriate times between visits for a given condition or population of patients (and consequently appropriate wait times for appointments) based on clinical and scientific evidence. However, there is little scientific evidence regarding the optimal follow-up interval for conditions commonly seen and managed in primary care. A few older studies (Gordon & Webb, 1984; Dittus & Tierney 1987; Stern et al., 1991; Tobacman, Zeitler, Cilursu, & Mori, 1992) have focused on identifying factors and variability associated with follow-up visit intervals rather than on modeling optimal intervals. The wide variation in follow-up visit intervals in VA and the fact that intervals are predominantly determined by factors other than scientific evidence or clinical need underscores the salience of evaluating and standardizing optimal timing of follow-up visits.

6.4.2.3.3 Implementing Steps

Determining the appropriate intervals based on their impact on patient outcomes is critical. Implementing this policy option depends on building the evidence base regarding follow-up intervals for conditions common in VA's patient population. VA's well-established research and development infrastructure might lead such an effort. Initial work could focus on chronic conditions that require regular follow-up for primary care management and on those that account for the greatest number of outpatient visits such as hypertension, arthritis, chronic obstructive pulmonary disease, back problems, and mental disorders (Agency for Healthcare Research and Quality, 2012). In addition, provider retraining will be critical to assuring that follow-up visit intervals are appropriately modified. Provider retraining is an important change concept already recommended to increase access (Kilo et al., 1999; Murray & Berwick, 2003; Murray et al., 2003), and at least one study suggests that provider decision-making regarding the follow-up visit interval can be significantly modified by education and feedback to extend intervals without compromising patient outcomes (Schectman et al., 2005). VA's IT infrastructure could help support these shifts by building evidence-based follow-up appointment timing into scheduling systems that a provider could override if appropriate.

6.4.2.3.4 Evaluation

Impact on access. The impact of standardizing follow-up visit intervals is highly dependent on the number of appointment slots that could be created, which depends on whether existing intervals are extended or shortened. There is little evidence to indicate what direction the effects might take or what their magnitude might be, but one study at a large VAMC found that extending follow-up intervals in primary care reduced primary care visits by 27 percent and specialty care visits by 14 percent with no adverse impact on patient outcomes (Schectman et al., 2005).

Fiscal impact. The main direct fiscal impact would be funding to examine return visit intervals and retrain providers, which might be achieved through VA's current research budget. This

option could also lead to changes in utilization, although the direction and magnitude of this effect are difficult to predict. One study found that extending follow-up visits for hypertension by one month could lead to a 15 percent decrease in the number of visits in one year and savings of approximately $682 million annually. Extending the interval by three months could lead to an estimated 34 percent decrease in the number of visits in a year and a potential cost savings of $1.5 billion (Javorsky, Robinson, & Boer, 2014).

Stakeholder acceptability. Some patient and Veteran advocacy groups may misperceive extending return visit intervals as delaying or withholding care and thus potentially harming patients. Establishing and communicating evidence will be critical to assuaging any concerns and supporting evidence-based service delivery. Staged implementation to match and advance the evidence-building process (for example, extending intervals for a single condition at a time) could also help address any unintended consequences of implementing this option.

Operational feasibility. A primary barrier is the time required to build an adequate evidence base around return visit intervals to guide standardization of follow-up times, as well as the time it could take to train providers, collect data on implementation progress, monitor implementation and impact, and provide feedback to providers to support ongoing training. Designing and implementing studies that identify optimal follow-up visit intervals is technically challenging. In addition, clinic support staff may need to be trained to manage an increased volume of telephone contact, triage patient complaints, and address minor issues to the extent that these activities replace face-to-face visits. Expanding the registered nurse role might be a cost-effective approach for between-visit monitoring and might include nurse-run disease management programs (Herbert et al., 2008), which could be telephone-based (Dunagan et al., 2005), or nurse triage and consultation by phone (Campbell et al., 2015). Use of a patient portal (for example, MyHealtheVet) for secure messaging with providers might also be utilized to support extended follow-up visit intervals.

Summary statement. Standardizing return visit intervals based on scientific evidence would help to optimize the use of VA health care resources. It could improve access through gains in capacity achieved by prolonging visit intervals or by improving patient outcomes through better disease management over shortened visit intervals. This option depends on gathering adequate evidence on optimal intervals.

6.4.2.4 Other Options to Increase Productivity of Existing Resources

Other options that we considered but did not select for evaluation include eliminating inappropriate care, expanding care management programs for complex chronic conditions, and expanding working hours.

Eliminate inappropriate care. This option would use performance improvement strategies to eliminate services where the potential health benefit to the patient is less than the potential harm. Although this would improve the quality of patient care and some evidence suggests that reducing inappropriate care could result in cost savings over time, the impact of this option on access is highly uncertain and at best, indirect and long-term. For example, it is possible that over the long-term, any cost savings realized by the elimination of inappropriate care could be reallocated toward increased delivery of appropriate and necessary care, but this is highly

speculative. In addition, this option would require significant administrative oversight and enforcement to implement, including processes for identifying and quantifying inappropriate care, and approaches for communicating improvement strategies to Veterans and their family members. Any option aimed at reducing the overall care provided to Veterans is likely to be met with significant opposition, greatly diminishing stakeholder support. The highly uncertain impact on access of this option, as well as the significant operational and political barriers to adoption and implementation indicate that this is likely to be an infeasible approach to improving timely and accessible care in VA.

Expand care management programs for complex chronic conditions. This option would provide additional resources for care management programs focused on high-need, high-cost patients (that is, those with complex chronic conditions and/or multimorbidity) to support improvements in care coordination across settings, overall quality of care provided, and patient outcomes. Implementation might include a range of strategies such as greater use of group appointments to address self-management and collect basic clinical measurements, increased hiring of nurse care managers, increased use of telephonic support services to address minor concerns between appointments, informatics-based disease monitoring programs or remote monitoring, nurse home visits, and care transitions support. VA has an established foundation in this area, including the Patient Aligned Care Team primary care medical home model, as well as a growing use of group visits and nurse care managers. This option would simply dedicate additional resources to expanding current efforts. The impact on access would be highly indirect and grounded in the assumption that improved management would lead to better patient outcomes, which would consequently translate into decreased utilization, at least of resource-intensive care. This freed-up capacity could then be reallocated to other patients; however, this potential pathway toward increased access has yet to be conclusively demonstrated. In addition, this option requires considerable fiscal investment and could be an administrative burden depending on the strategies chosen for implementation. Despite potential stakeholder acceptability, these considerations suggest this option is likely not the most direct or feasible approach to improving VA's ability to provide timely and accessible care.

Expand working hours. This option would expand normal clinic operating hours at VAMCs to evenings (for example, 4:30 pm to 6:30 pm) and weekends (for example, Saturday 8:00 am to 1:00 pm) to increase access to care in a manner that is responsive to Veteran needs. For example, Veterans who hold traditional, full-time jobs or who are primary caregivers for a dependent child or parent may benefit from such an option to expand access to care. However, the impact on access of this option is uncertain and highly dependent on the availability of providers and support staff to work extended hours, which may detract from stakeholder support of this option. Unions in particular may be reluctant to support extending working hours without adequate compensation—including overtime—and protection. There may be significant costs associated with this option, in terms of both compensating personnel for working extended hours and keeping facilities and equipment operating over longer periods.

6.4.3 Subsection Summary

Policy options to modify the amount and/or type of resources available for VA care. Adding more physicians to VA's workforce is a potentially effective approach to improving access, but

its short-term impact is significantly constrained by the high cost of hiring more physicians, the lack of infrastructure to support an expanded workforce, and the bureaucratic challenges related to hiring in VA. Expanding VA's telehealth program will also require a financial and administrative investment. However, its potential impact on workload and workforce redistribution, the potential for cost savings, and strong stakeholder support suggest that this is a highly promising avenue for improving VA's ability to provide timely and accessible care.

Policy options to increase productivity of existing resources. Formalizing full practice authority for APNs would likely be a cost-effective approach to increasing the productivity of VA's existing workforce. However, political barriers to enactment may limit uptake and challenge full implementation in practice, making this a longer-term solution rather than an immediate fix. Formalizing task assignment can improve providers' productivity by ensuring task completion according to skills and job function, with an indirect impact on access. This option would require new administrative processes and changes to existing reporting and accountability structures that may prove challenging over the short term. Standardizing return visit intervals based on scientific evidence would help to optimize the use of VA health care resources by prolonging visit intervals or by improving patient outcomes through better disease management over shortened visit intervals, but more evidence is needed on potential impact.

6.5 Selected Policy Options to Enhance Access Outside VA

VA has the authority to purchase care from the private sector when needed. This has usually been exercised in cases where necessary care is geographically or temporally distant, and determined through a combination of physician evaluation of clinical necessity and patient preference. In this section, we evaluate options for (1) improving the productivity of existing resources by consolidating existing purchased care programs and (2) increasing the amount of resources for enhancing timely access to care outside VA.

6.5.1 Policy Options to Modify the Amount and/or Type of Resources

This group of policy options would modify the type and quantity of external resources that are purchased by VA. These options are qualitatively different from the other options discussed in this report because they would represent a significant strategic shift for VA. There are options along the continuum from the status quo (contract out some services for enrollees with limited access) to purchasing all Veterans' health care from non-VA providers. Selecting which services should be delivered by non-VA providers involves both strategic and technical questions, and is beyond the scope of this assessment. In this subsection, we describe several examples only to illustrate the option, and we discuss considerations in developing this type of policy option. The examples we discuss represent two distinct points along the continuum of possibilities for significantly increasing the use of purchased care: (1) outsourcing certain services and (2) outsourcing all Veteran care so that VA functions as a payer rather than provider of health care services.

6.5.1.1 Increase Purchased Care Use by Outsourcing Certain Services

VA could identify certain services that would no longer be provided within VA and instead be purchased from non-VA providers based on issues of scale, resources available, cost, and patient outcomes. This would have the dual objective of reserving available resources within VA for the organization's "core business" and facilitating timely access to other care for Veterans via non-VA providers. In contrast to VA's current approach to outsourcing, which is based on individual patient need and access, this option would seek to strategically identify and outsource entire service lines based on an overarching strategy or guiding principle, which could include timely access, patient outcomes, and/or costs expected to be favorable in non-VA settings. This decision might vary across geographic regions depending on supply and demand within VA and the private sector.

As a hypothetical example, VA might identify some surgical services that are provided at low volumes at VA facilities and high volumes at nearby non-VA facilities. Evidence from health services research has indicated a relationship between higher procedure volume and better outcomes (Bach et al., 2001; Begg et al., 1998; Birkmeyer et al., 2002; Birkmeyer et al., 2003; Carey et al., 2005; Ho et al., 2006; Luft, Bunker, & Enthoven, 1979; Wen et al., 2006), and conversely between low-volume care and poor outcomes, including higher mortality rates (Sternberg & Dougherty, 2015). This option could also potentially allow VA to reduce the fixed cost of maintaining capabilities for selected surgical services, such as specially trained support staff and high-tech equipment. VA might leverage its existing partnerships with academic medical centers that have higher demonstrated procedure volume, although even academic centers have been recently challenged to identify and limit many lower-volume surgeries (Sternberg, 2015).

A more extreme approach would be for VA to focus its direct care delivery on certain core services. The definition of core services would need to be developed, but one possibility would be to identify the services for which VA has the greatest advantages as an integrated delivery system and direct provider of care—for example, services for which care coordination is critical or in which VA holds specialized expertise. Candidates for core services include primary care, mental health care, and care pertaining to certain service-related disabilities and illness (for example, spinal cord injury, TBI, vision loss, and prosthetics and rehabilitation).

6.5.1.1.1 Evaluation

Impact on access. The impact of this option is highly uncertain. It would depend on the volume of services provided by non-VA providers and the relative accessibility of non-VA and VA provision of those services. The volume and accessibility of services would depend on VA strategic decisions as well as the capacity of non-VA providers.

Fiscal impact. The fiscal impact of outsourcing low-volume surgical services is uncertain and dependent on both the amount of services shifting from VA to non-VA providers and the relative cost of VA versus non-VA services. As discussed in Subsection 3.1, existing data do not allow for comparisons of VA versus non-VA costs of health services. If large amounts of care are outsourced, some Veterans may shift from using private insurance to using VA purchased services, increasing total VA costs.

Stakeholder acceptability. Several important stakeholder groups, including Veterans and VA providers, could be opposed to shifting care from VA to non-VA providers. As identified in our interviews, many Veterans prefer to receive their care from VA and are concerned that outsourcing care is a "slippery slope" that will lead to reduced health care coverage over the long term. VA providers are likely to be concerned about potential job loss if large portions of care are outsourced. In addition, there may be concerns about how decisions are made for outsourcing certain services over others. A clear rationale for outsourcing care (beyond the current wait-time and 40-mile criteria) would need to be established and agreed upon. A recent move by VA to outsource Hepatitis C care to non-VA providers due to a depletion of internal funds for antiviral treatment has been met with strong stakeholder criticism in large part because it appears that a priority system based on patient characteristics (for example, limited life expectancy or vegetative state) is being used to make the outsourcing determination, raising questions about the ethics of the process (Wagner, 2015). Stakeholder buy-in will be critical to the success of any option aimed at increasing VA's use of purchased care. Importantly, purchasing selected services could allow VA to continue to directly provide most care to Veterans and minimize these impacts.

Operational feasibility. Administration of this option would face significant barriers. At a minimum, the option would require new contracts or other partnership agreements, which would be challenging given the significant administrative burdens associated with VA contracting as reported by many of our interviewees. Another barrier is the logistical task of coordinating care between VA and non-VA providers. VA has considerable experience with care coordination within its system. Eliminating large portions of its current care delivery would detract from advantages VA's system derives from its integration. If acute and specialty care were provided in the private sector, VA primary care would need to serve as a coordinating point, but medical information would need to be shared across multiple providers and organizations.

Summary statement. The effect of increasing purchased care use by outsourcing certain services is highly uncertain and would depend on the volume of services provided by non-VA providers and the relative accessibility of non-VA and VA provision of those services as well as VA strategic decisions. This option might face opposition from important stakeholder groups, including Veterans and VA providers, as well as administrative barriers, including the need for new contracts or other partnership agreements, which would pose a significant administrative burden.

6.5.1.2   Redefine the Role of VA as Payer Versus Provider

This option would entail a radical shift in VA's mission and structure. It would outsource all Veteran care to the private sector, making VA a payer instead of direct provider of health care services. Some observers have questioned whether a separate health care delivery system is a necessary and efficient approach to caring for the nation's Veterans (Concerned Veterans For America, 2014). This option represents a major and complex reform that requires evaluation beyond the scope of this assessment; here we present a few key elements of such an option.

The general approach of this option would be to provide Veterans with health insurance coverage rather than eligibility for VA care. For example, VA could offer premium (and other cost-sharing) support for Veterans to purchase private insurance coverage. Another approach might be modeled after certain elements of the Federal Employees Health Benefits Program; this would also be similar to a drastically expanded PC3 program. VA would provide health insurance benefits for Veterans to access purchased care.

Regardless of which approach is undertaken, certain considerations must be noted in this option's implementation. VA's physical infrastructure would have to be drastically reduced or even eliminated altogether. This would likely entail complex sales to private-sector health care organizations; for example, hospital buildings might be sold to hospital ownership entities, clinics sold to medical groups, and, in some cases, entire medical centers (that is, hospital and clinics) might be sold to integrated health care delivery systems. It could also entail sales to non–health care organizations and demolishing buildings that are unusable or otherwise unable to be sold. Similarly, health care equipment (for example, beds, X-ray machines) might be sold to other health care entities.

In addition, VA's workforce would change significantly, shifting from providers to administrative personnel who oversee the program. While some of the workforce might be redirected to the private sector (for example, a health care delivery organization purchasing VA resources in a given area might choose to hire VA staff), the loss of thousands of federal jobs would be a drastic and unattractive measure to many communities and individuals. Incorporating a systematic plan for job repatriation would protect VA's workforce and potentially increase political viability of this option. As an example, part of this policy option might require VA Centers of Excellence providing specialized services to be purchased by private-sector organizations without changes in space, equipment, or staffing, so as to retain expertise and capabilities in those areas that may be lacking in the private sector. However, this is highly dependent on the willingness of the private sector in a given area to absorb these resources.

VA's current medical education and research programs would also need to be significantly reduced or dismantled and transferred to the private sector. VA manages the largest medical education and health professional training program in the United States; approximately 81,000 health professionals are trained annually in VAMCs across the nation, and roughly 60 percent of all medical residents obtain a portion of their training at VA hospitals. VA is also a research leader, playing a critical function in understanding the needs of Veterans and developing innovative approaches to meet them through established programs in health services, biomedical, and clinical research. Both these functions would be significantly compromised under this option.

This option would require that the Veteran health benefit be defined similarly to Medicare or TRICARE. In addition, current eligibility rules for accessing VA care may need to be modified to implement this option to limit increases in outlays. Currently, many Veterans eligible for VA benefits do not enroll, and many enrollees have other sources of insurance coverage. If VA provided insurance coverage, Veterans currently using private insurance or Medicare might instead switch to VA coverage under this option to receive the same private-sector care, particularly if VA offered relatively favorable benefits and cost-sharing requirements.

6.5.1.2.1 Evaluation

Impact on access. This option would entail a drastic shift in VA health care, with a highly uncertain impact on access. The impact would depend on design and implementation of features, including insurance benefits, provider network adequacy, and beneficiary cost sharing. Broadly speaking, the impact on access would be defined in part by the private sector's ability to provide timely and accessible care. Some data suggest that private-sector wait times could be worse than VA wait times. For example, VA reports that, on average, Veterans seeking new patient appointments wait approximately eight days from their preferred date for primary care and seven days from their preferred date for specialty care. Meanwhile, prior studies of private-sector wait times reported average wait times of 19.5 days between an initial call and the appointment date for new primary care appointments (Merritt Hawkins, 2014) and 22–37 days for specialty appointments (Massachusetts Medical Society, 2013). In addition, our geographic analyses indicates that the majority of enrollees who live more than 40 miles from a VA facility live more than 40 miles from any provider in that specialty and are much less likely to have access to academic and teaching hospitals, or to specialized services such as oncology, cardiac surgery, and cardiac catheterization. This suggests that directing Veterans to the private sector may not necessarily improve timely access to care.

Fiscal impact. This option would likely generate substantial implementation costs associated with the transition from provider to purchaser. The long-run costs would depend on enrollment in VA health insurance, the generosity of coverage, and the prices of purchased care. Critical components would be defining the benefit and reconsidering Veteran eligibility for health care. Many Veterans do not use VA for health care, opting for other sources of insurance coverage for private-sector care instead. If the benefit were based on the current promise of a comprehensive benefit with limited out-of-pocket costs, many of these Veterans might find VA insurance more attractive than their current coverage, leading to increased federal outlays.

Stakeholder acceptability. This option has been previously suggested by some observers but has generated significant controversy. Although the success of TRICARE suggests the potential acceptability of an option to similarly restructure VHA as a purchaser of health care, the option calls into question the very nature of VA's mission to care for Veterans.

Operational feasibility. There are significant administrative challenges to implementing this option. Implementation would be a lengthy process with changes gradually phased in. Changes would also have to be clearly communicated to Veterans; experience with disseminating information regarding the Veterans Choice Program to Veterans suggests that this is likely to be a challenging task with successful implementation highly uncertain. Starting with pilot programs to test various elements of such a program would be critical to its successful implementation.

VA would also need to create and oversee processes for administrative and payer functions such as monitoring the quality of care provided in the private sector, measuring Veteran satisfaction with private-sector care and contractor services, measuring access to care, and handling claims appeals. VA might consider adapting or piggybacking onto existing approaches utilized by Medicare and some larger employers, or outsourcing this function. Regardless of the selected approach, this option would likely require implementation of new processes as well as additional staff training.

Finally, attention to dually eligible Veterans would be warranted, and coordination between programs such as Medicare and Medicaid required. For example, it might be that VA would serve as the secondary payer to Medicare, perhaps providing supplemental benefits or cost-sharing reductions for those dually eligible.

Summary statement. Redefining the role of VA as payer rather than provider would entail a radical shift in VA's mission and structure, with a highly uncertain impact on access. This option has been previously suggested by some observers but has generated significant controversy. If deemed feasible, there would be significant administrative challenges to implementing this option.

6.5.2 Policy Options to Improve Productivity of Existing Resources

Veterans currently face many barriers in accessing care from non-VA providers; minimizing these barriers could allow Veterans to better access private-sector providers. Below, we describe the single option that was consistently raised in our interviews: Consolidate existing purchased care programs.

6.5.2.1 Consolidate Existing Purchased Care Programs

This option would consolidate salient features of VA's existing purchased care programs—the traditional program, the PC3 program, the Access Received Closer to Home (Project ARCH) pilot, and the newly created Veterans Choice Program—into a single system-wide program that replaces all other approaches to purchasing care in VA, including local facility contracts and individual provider authorizations. Assessment C reviews the possible approaches to consolidation and the implications for VA's authorities to purchase care. Accordingly, we do not describe the details of how this option would be implemented. We focus on the implications of the option for access to care.

Several general approaches could be followed. A simple approach might be to combine programmatic oversight of the programs under a single administrative umbrella. A mid-range approach might be to standardize key elements of existing programs (for example, reimbursement rates, medical record return and documentation rules). A more ambitious approach would be to create a single program that facilities would be mandated to use for all purchased care.

Our interviews indicated that considerable duplication and variation exist in VA processes for authorizing and purchasing care, which results in confusion among VA and non-VA providers regarding contractual requirements (for example, medical record return and documentation, provider credentialing), reimbursement rates, authorization processes, and patient eligibility. This can contribute to delays in care. Recent congressional testimony before the Senate Committee on Veterans Affairs indicates that many VA facilities continue to use the traditional program to purchase care directly from non-VA providers instead of using one of the contracting vehicles such as PC3 or the Veterans Choice Program, despite the money and time put into those programs (McIntyre, 2015). Moreover, many of these non-VA providers are also network providers under PC3 and the Veterans Choice Program, exacerbating confusion by non-VA providers about which program (and therefore which rules and rates) applies to a

Veteran's care. Non-VA provider confusion regarding how, what, and when they might be reimbursed as a result of multiple programs surfaced consistently in stakeholder interviews. Some non-VA providers may decline participation altogether because of the administrative burden and complexity of navigating the VA purchased care system. Assessment C explores these issues in more detail.

Consolidating existing purchased care programs could potentially mitigate these challenges. VA has already begun an effort to standardize its approach to purchasing care, largely by focusing on replacing local facility contracts (contracts that individual facilities set up with local providers) and individual provider authorizations with the PC3 or Veterans Choice Program (Robinson, 2014). In addition, Section 106 of the Veterans Choice Act consolidates and centralizes the back-end processes (for example, claims processing) for purchased care under VA's Central Business Office. Implementation of the proposed option would involve additional steps to advance this consolidation and standardization process.

6.5.2.1.1 Evaluation

Impact on access. No direct evidence exists to support an estimate of this option's impact on access. However, to the extent the option addresses barriers to the use of current purchased care programs, it could potentially increase the ease and timeliness with which Veterans can access care, enable VA to develop a larger network of non-VA providers, and create administrative efficiencies. Reducing confusion regarding VA's purchased care programs, particularly around reimbursement rates and contractual requirements such as credentialing or medical record documentation, might make it more attractive to non-VA providers who might previously have been reluctant to engage. It should be noted that increasing access to purchased care may not ultimately increase access to care overall, particularly if the availability of purchased care is constrained in the same regions where demand relative to supply in VA is imbalanced. In addition, to the extent that this option increases access either by streamlining processes and/or facilitating expansions to non-VA provider networks, it may engender new access constraints over the long term as more Veterans are encouraged to enroll.

Reducing confusion regarding VA's purchased care initiatives by creating a single program might improve VA provider knowledge of how to access purchased care and induce providers to refer patients to purchased care more often, although there is no direct evidence available to estimate this impact. Minimizing Veteran confusion regarding eligibility rules might also help Veterans to seek out purchased care. Interviewees reported that many Veterans are relatively unfamiliar with PC3 and even more confused about their eligibility for the Veterans Choice Act.

The impact of a single purchased care program on access is highly dependent on several factors, the most important of which is the ability of private-sector providers to provide additional care to Veterans. This is constrained by market forces, which affect the ability for VA to offer payment rates that are attractive enough to induce provider participation. Our interviews revealed that many VAMCs rely on local contracts because they reimburse at higher rates than PC3. The impact is also dependent on non-VA providers' willingness to engage in a contractual relationship.

Fiscal impact. This option may require additional investment to further support streamlining and consolidating current purchased care programs, but any administrative efficiency achieved could reduce costs over time.

Stakeholder acceptability. This option is not expected to face significant stakeholder opposition because it does not significantly change the structure or delivery of services. This option continues to provide a private-sector avenue for timely and accessible care, but maintains VA's role as a provider of health care services.

Operational feasibility. Although many of the structures and processes necessary for implementing this option are in place in VA, the operational feasibility of this option will depend on the organization's ability to streamline and consolidate its existing processes. This will entail identifying all processes related to purchased care, identifying opportunities and methods for consolidation, and then implementing those methods in a systematic and consistent manner. Currently, several offices within VA hold some responsibility for the different existing purchased care programs; this option would require coordination among offices and potentially downsizing through the consolidation process. There is likely to be some confusion on the part of Veterans and both VA and non-VA providers as processes are communicated and implemented, and a potentially extended ramp-up period is possible as provider networks are built and policies and procedures established.

Summary statement. This option could potentially increase the ease and timeliness with which Veterans can access purchased care, enable VA to develop a larger network of non-VA providers, and create administrative efficiencies but may require additional investment in the near term. Administrative efficiencies achieved could reduce costs over time, while the operational feasibility of this option will depend on the organization's ability to streamline and consolidate its existing processes.

6.5.3 Subsection Summary

Policy options to modify the amount and/or type of resources. The effect of increasing purchased care use by outsourcing certain services is highly uncertain and would depend on the volume of services provided by non-VA providers and the relative accessibility of non-VA and VA provision of those services as well as VA strategic decisions. This option might face opposition from important stakeholder groups, including Veterans and VA providers, as well as administrative barriers, including the need for new contracts or other partnership agreements. On the one hand, increased collaboration and reliance on academic medical centers and other private-sector health care organizations could enhance VA capacity to provide timely access to care to Veterans. On the other hand, these organizations could face the same capacity constraints in providing timely access to care as VA, particularly with increased demand from a new population with unique needs. Redefining the role of VA as payer rather than provider would entail a radical shift in VA's mission and structure with a highly uncertain impact on access. This option has been suggested previously but has generated significant controversy, and implementation would require significant administrative challenges to be addressed.

Policy options to improve productivity of existing resources. Consolidation of existing purchased care programs could potentially increase Veteran access to purchased care, enable

VA to develop a larger network of non-VA providers, and create administrative efficiencies. This option may require additional investment to support streamlining and consolidation of current purchased care programs, but any administrative efficiency achieved could reduce costs over time. Operational feasibility would depend on the organization's ability to streamline and consolidate its existing processes.

6.6   Comparison of Policy Options

In this subsection, we briefly summarize and compare the policy options and discuss tradeoffs between options.

Based on the projections presented in Subsection 6.1, unless VA demand projections are inaccurate or other changes occur, it will not likely get easier for VA to provide adequate access to care. In the status quo scenario, demand for VA health care services will increase more rapidly than VA capabilities to provide those services. However, policy options that would substantially increase the productivity of VA health care resources, increase the amount of those resources, or both would allow VA production of health care services to keep up with or even exceed demand. While this would not guarantee access to care, it would make accessible care more feasible.

None of the policy options we considered dominates the others on all criteria. Similarly, no option can be eliminated because it is inferior on all criteria. However, comparing the options through the policy lens of increasing access within the VA system, the three options with the highest estimated impact on access are formalizing full nursing practice authority, increasing the number of VA physicians, and expanding virtual access to care. None of these options is mutually exclusive; they could be combined in a number of different ways. Each option has different potential barriers that present tradeoffs. The primary barrier to formalizing full nursing practice authority is political (key stakeholder opposition); the barriers to hiring physicians are related to cost and administrative challenges associated with the hiring process; and the primary barrier to expanding virtual access to care is cost.

Policy options for increasing access outside VA's system have considerable uncertain impacts on access. One option, consolidating existing purchased care programs, has the most certain impact. The current system of overlapping programs was widely cited as problematic and lacks any clear benefits. This option is discussed in greater detail in Assessment C.

There is greater uncertainty around the potential impact of policy options aimed at increasing non-VA resources available for Veterans' health care. The impact and feasibility would be highly dependent on the scope of the change. Shifting certain types of services from VA to purchased care could potentially improve both access and quality of care, though this could increase challenges in care coordination. Shifting a greater share of services from VA to purchased care would require more fundamental changes to VA. Our analyses indicate that many Veterans without access to VA health care also face obstacles to accessing purchased care, including distance and cultural barriers. Thus, transforming VA from a provider to a purchaser of health care would not necessarily have a significant positive impact on access.

These policy options are summarized in Table 6-5.

Table 6-5. Summary Evaluation of Selected Policy Options

Option	Summary
Improve productivity of existing resources internal to VA	
Formalize full nursing practice authority throughout VA	Allowing full nursing practice authority would be a cost-effective approach to increasing the productivity of VA's existing physician workforce, thereby increasing access to care. However, stakeholder opposition may challenge adoption and uptake of this option, and full implementation may take considerable time and coordination.
Formalize task assignment in outpatient clinics	Formalizing task assignments in outpatient clinics could improve clinic workflow and provider efficiencies at low cost with a modest impact on access. This option will likely require many new administrative processes and changes to existing reporting and accountability structures. There may be some stakeholder resistance based on perceptions of new workload.
Standardize return visit intervals for common conditions	Standardizing return visit intervals could increase access over time by freeing up appointment slots as a result of either extending intervals or improved patient outcomes from shortened intervals. The feasibility and impact of this option is highly dependent on developing a solid evidence base to set optimal intervals, which will take time and research funding. There may be some challenges to stakeholder acceptability that could be mitigated by a transparent communication plan.
Modify amount of resources internal to VA	
Increase the number of physicians	Increasing the number of physicians in VA will require significant financial resources and the ability to overcome pervasive administrative barriers within the organization. The impact of this option on access is highly dependent on the availability of other, potentially costly resources such as space, equipment, and support staff.
Expand virtual access to care through use of telehealth	Expanding the use of telehealth could significantly improve access through workload and workforce redistribution across the system but will require significant up-front fiscal investment and attention to various administrative issues. This option is likely to have strong stakeholder support and may realize cost savings over time.

Option	Summary
Improve productivity of existing resources external to VA	
Consolidate existing purchased care programs	The impact of this option on access is highly dependent on private-sector capacity and the development of an adequate provider network. It may be difficult to implement this option as it requires VA to streamline many of its existing administrative processes; however, there may be some administrative efficiency to be achieved over time through the use of a single purchased care program. Stakeholder acceptability is expected to be high.
Modify amount of resources external to VA	
Expand purchased care use	The impact of expanding purchased care on access is uncertain and highly dependent on private-sector capacity. The cost is also uncertain and dependent on the balance between VA and non-VA provision of services. Implementation would be challenging, and the option may face some opposition from stakeholder groups reluctant to shift care away from VA.
Shift VA role from provider to purchaser of health care services	This is likely to be a controversial and costly option with a highly uncertain impact on access and significant administrative challenges.

Source: Authors' analysis of interview and literature review data.

6.7   Section Conclusion

We compared a number of policy options for increasing access for Veterans within the VA system, finding that, of the options considered, the three with highest estimated impact on access are formalizing full nursing practice authority, increasing the number of VA physicians, and expanding virtual access to care. None of these options is mutually exclusive; they could be combined in a number of different ways. However, each of the options has different potential barriers that present tradeoffs. The primary barrier to formalizing full nursing practice authority is political (key stakeholder opposition); the barriers to hiring physicians are related to cost and administrative and administrative challenges associated with the hiring process; and the primary barrier to expanding virtual access to care is cost.

The impact and feasibility of increasing non-VA resources available for Veterans' health care would be highly dependent on the scope of the change. Shifting a greater share of services from VA to purchased care would require more fundamental changes to VA. We did not find evidence of a current system-wide crisis in access to VA care that would indicate that such a change is necessary, but it is possible that such a reorientation would improve access. Coordination of care is challenging even within the VA system, but is more challenging when

coordination includes non-VA providers with separate information systems. Our assessment found that many Veterans without access to VA health care also face obstacles to accessing purchased care, including distance and cultural barriers. While non-VA providers may provide superior levels of access for certain Veterans and certain conditions, this will not be true for all Veterans and all conditions.

7 Conclusions and Recommendations

7.1 Summary of Assessment Findings

Access to timely and high-quality health care is a central part of our nation's commitment to Veterans, but concerns have been raised about how effectively this commitment is being fulfilled. In this report, we assessed VA's current and projected resources and capabilities, the level and nature of access to VA care, and barriers and facilitators to access. We then explored how selected policies could affect Veterans' access to high-quality care and considered how various policy options might enhance VA's resources and capabilities for treating Veterans in the future. Our assessment is based on a broad range of evidence from qualitative and quantitative analyses.

The assessment highlights many opportunities to improve VA capabilities to provide timely and accessible care. We identified a large number of barriers to effective use of VA resources. We also found widespread variation in performance across VA facilities. We did not find evidence of a system-wide crisis in current access to VA care. However, our projections indicate that, without changes, it will be increasingly difficult for VA to provide good access to care for our nation's Veterans.

We found that VA operates a unique health care system with broad and deep resources and capabilities. This system often, but not always, provides timely and accessible care to Veterans. For example, the vast majority of appointments were completed within 14 days of the provider-recommended or Veteran's preferred date for the appointment, as recorded by VA. At top-performing facilities, nearly all appointments meet VA's wait-time standards. At the same time, across the VA system, there were some facilities with much higher rates of long waits for appointments than others. Though small as a percentage of all appointments, there is still a large absolute number of Veterans' appointments that do not meet VA's own wait-time standard of within 30 days of the preferred date. Furthermore, even VA facilities performing well on the VA wait-time standard have opportunities for improvement: At facilities with the shortest wait times, many Veterans report that they do not always get an appointment as soon as needed. This suggests that even facilities that achieve VA's wait-time standards do not meet many Veterans' expectations for timely appointments.

VA's wait-time standards are based on the notion of a preferred date and do not reflect the absolute time between appointments. The preferred date has also been found to be subject to manipulation by VA employees in some well-publicized cases. Therefore, many have questioned whether the VA data and standard provide a valid reference for timeliness of appointments. While it was outside the scope of this assessment to validate these data, we examined whether alternative standards for timeliness could be applied. Alternative standards, such as those that assess availability rather than completion of appointments, may be less subject to gaming and more comparable to private-sector standards. It is unclear how many VA facilities or non-VA providers meet these alternative standards. We found limited data available with which to compare VA and non-VA waits for care, but VA wait times do not seem to be substantially worse than non-VA waits, based on the limited available evidence.

Geographic access is another challenge for VA. Veterans are highly dispersed geographically throughout the United States, and ensuring nearby access to needed services for this population is difficult. Overall, we found that many Veterans have geographic access to VA care by a general standard of less than 40 miles distance from any facility, not considering the services available at that facility; this is true regardless of whether distance is measured using a straight line or using driving distance. VA enrollees live an average of 52 minutes driving time from the nearest VAMC and 23 minutes driving time from the nearest VA medical facility of any type. On average and in most VISNs, these driving times are less than enrollees' reported willingness to travel and Medicare beneficiaries' average observed travel times. Geographic access is worse when using different types of access standards. Veterans who must rely on public transportation, for example, have much lower levels of access than other Veterans. Geographic access to specialized facilities and providers is also lower. Veterans often live far from a VA facility offering the services they need. This is also true of purchased care, however: Veterans who live far from VA medical facilities typically have access to non-VA community hospitals and primary care physicians, but are also likely to live farther than 40 miles from the nearest non-VA specialist and academic medical center.

When Veterans do access VA care, it is important that the care be of high quality. The assessment showed that VA health care quality was better on many measures and domains compared with non-VA comparators, while similar or worse on other measures. However, as with access to care, quality performance was uneven across facilities, with many opportunities for improvement.

Based on these observations and the data available to us, we conclude that VA does not currently face an overall crisis in access to care. However, there is variation in access and quality across the VA system, with poor performance for some VA facilities and Veteran subgroups. Examples of substantial variation in performance across VA facilities include:

- At the best-performing VA facilities,[72] the average wait time for new primary care patients was less than one day from the preferred date. At the worst-performing facility, the average wait time for these patients was more than 40 days from the preferred date.
- At the best-performing VA facilities, 61 percent of Veterans reported that they "always got urgent care appointments as soon as needed" in FY 2014. At the worst-performing VA facility, this rate was 21 percent.
- At the best-performing VA facilities, 68 percent of Veterans reported that their primary care providers always seem up to date about care received from specialists in FY 2014. At the worst-performing facility, this rate was 46 percent.
- At the best-performing VA facilities, 80 percent of patients with cardiovascular conditions had LDL-C levels below recommended thresholds in FY 2014. At the worst-performing facility, this rate was 50 percent.

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[72] The "best-performing VA facilities" are defined as the top 10 percent of VA facilities.

This level of variation in performance across VA facilities suggests that significant opportunities exist to improve access to care in VA through systematic performance improvement. Some variation in performance across regions and VA facilities may be inevitable because of differences in patient characteristics. In addition, some localized strategies for improvement may not scale up well because of contextual factors. However, the assessment suggests that there are significant opportunities to improve performance by identifying and scaling up proven best practices within VA that could increase access to care for Veterans.

7.1.1   Barriers to Effective Use of Resources and Capabilities

VA faces many barriers to using resources in the most effective way to support Veterans; these barriers will need to be addressed to improve performance. These barriers present a formidable, but not insurmountable, problem regarding the level of VA resources and capabilities. Some of these barriers are specific to VA, while some affect the U.S. health care system more broadly. Below, we summarize the main barriers we found related to each type of resource examined. Other assessments also analyzed barriers in some of these areas in more detail.

Fiscal resources. We identified concerns about the data used for VA's budget planning and inflexibility in budgeting stemming from the congressional appropriation processes. The appropriation for VHA is divided into accounts for medical care, medical support and compliance, and some nonrecurring maintenance. The money is not fungible across categories because of appropriations law. The inability to shift money between the major allocation line items, such as maintenance and medical services, makes it difficult to adequately manage the budget over the course of the year. Congressional priorities can affect VA's appropriation, and the impact of increases in purchased care on the budget in future years is currently unknown. The process used to allocate funds to VISNs for medical services is equitable, though the process is based on data that are several years behind the current allocation year. This can leave facilities that are experiencing change in patient volume or case mix over- or underfunded in the current year, and creates incentives for facilities to treat more of certain types of patients in order to increase funding in future years.

Workforce and human resources. VA faces shortages of physicians in some geographic areas and of certain physician specialists more generally. VA's ability to hire and retain new physicians is influenced by a number of key factors, including relatively low salaries, a slow credentialing process, and infrastructure constraints. We identified several challenges associated with the VA workforce planning and assessment processes. These include a lack of guidance about what methods should be used for these processes, a lack of external productivity benchmarks, inaccurate or incomplete data inputs, and the inability of the productivity benchmarking data system to adequately account for certain types of providers and patient visits.

Physical infrastructure. VA is also constrained by its physical space. Interviewees reported that it was difficult to update the physical space in older buildings to accommodate new medical technology and equipment. They also noted that the need for additional space or more

effective use of existing space was often a key limiting factor in improving access to care for Veterans.

Interorganizational relationships. VA provides access to purchased care through several programs and various types of payment or contractual arrangements, but managing these overlapping programs has been a challenge. For example, as VA was attempting to address some of the administrative challenges associated with arranging, coordinating, and reimbursing purchased care through the implementation of the PC3 program, the addition of the Veterans Choice Program further complicated these challenges and resulted in confusion among Veterans, VA employees, and non-VA providers. VA and members of Congress have expressed a desire to more effectively utilize interorganizational relationships.

Informational resources. VA's role as an innovator and leader in health IT has been challenged by issues related to the management and planning of its IT systems. Among every IT capability we studied, we found clear barriers to further taking advantage of what IT can offer, including inadequate infrastructure, lack of facility leadership and provider buy-in, and administrative burden. Our findings also confirm the results of previous studies concerning strengths and weaknesses in VA's current electronic health record (VistA/CPRS) technology, which suffers from an aging architecture and 10 years of limited development. However, interviews across the spectrum of VA personnel—from management and IT thought-leaders to end-users— suggest strong support for renewed investment in a modern, home-grown product rather than transitioning to a commercial off-the-shelf alternative. The tradeoffs of homegrown versus commercial electronic health records software are discussed in Assessment H.

Addressing these barriers will require a mix of short- and long-term initiatives. Our projections indicate that, if no substantial changes are made, it could be more difficult in 2019 for VA to provide accessible and timely care for Veterans than it was in 2014. However, available policy options could likely ensure that there are sufficient resources and capabilities to provide access without a fundamental change in the objective and orientation of VA. Among the options we considered, which comprise a prominent but not exhaustive set of options, no single policy option for increasing resources and capabilities was clearly superior to the others on all the criteria we considered.

7.1.2   Moving Forward

VA has the potential to be a national leader in health care innovation that improves access, quality, and the value of care. In certain areas, such as health IT and quality improvement, VA has historically been a leader and innovator. However, in some cases, such as IT, that position has eroded over time. There is widespread innovation and experimentation in new models of health care delivery that are occurring in federal and private-sector programs. VA should be at the forefront of these efforts.

Options with a policy objective of increasing Veterans' access to care outside the VA system have considerable uncertainty related to their potential impact on overall access. Purchased care provided to Veterans through relations with non-VA entities already represents a substantial and growing resource for VA. Care is provided to VA enrollees by non-VA entities through several programs and various types of payment or contractual arrangements that VA

has negotiated with its partners. The assessment highlighted several important barriers to increasing access through these programs. First, as described above, the existence of multiple programs has led to confusion and administrative complexity. Second, the geographic access standards used to identify Veterans eligible for purchased care are not very sensitive to differences in access experienced by subgroups of Veterans. In particular, the standards do not consider the availability of specific types of services, or regional differences such as traffic patterns. Third, VA's effort to increase Veterans Choice Program utilization could be better targeted at areas with lower rates of geographic access to needed care; such an assessment would consider area population totals and urbanicity, as well as VA facility complexity and service offerings.

VA could more fundamentally change its approach to providing access to non-VA providers in order to increase access for Veterans. There is a wide range of possible approaches, from providing Veterans access to certain defined services from non-VA providers to changing VA's role to that of a payer like TRICARE or Medicare.

There are several important areas of uncertainty that make it difficult to assess the projected impact of such changes. First, it is unclear to what extent non-VA providers would provide a superior level of access to care for Veterans. Our assessment found that many Veterans without access to VA health care also face obstacles in accessing purchased care, including long travel distances in the same rural areas where VA care is less available, and cultural barriers, particularly for complex and specialized services. Second, increased use of non-VA providers would increase challenges related to VA care coordination. Coordination of care is challenging in any single system, but is more challenging when coordination includes providers working across distinct systems of care with separate information systems and cultures. Third, fundamental changes in VA's role would have an uncertain effect on enrollment and use of care by Veterans. Many Veterans eligible for VA care are not currently enrolled, and many current enrollees do not use VA for all of their care. If VA were to transform to the TRICARE or Medicare model, for example, it is possible that demand for care would increase substantially, creating new challenges for VA capabilities to provide timely access. Thus, transforming VA from a provider to a purchaser of health care would not necessarily have a significant positive impact on access.

7.2   Limitations of the Assessment

This assessment has several important limitations, a number of which stem from the fact that the assessment was conducted over a very short time frame. This limited the scope of what could be included and to some extent the depth of analysis, particularly in cases where the process for obtaining VA data was protracted relative to the project timeline.

The lack of direct input from Veterans is a key limitation of this assessment. Veteran input would have provided valuable information about how Veterans perceive VA resources and capabilities and the barriers they face in accessing VA care. We were unable to conduct

interviews or focus groups with Veterans because doing so would require U.S. Office of Management and Budget approval under the Paperwork Reduction Act.[73] The application and approval process can take many months and was not feasible within the assessment time frame. To address this limitation, we conducted several analyses of secondary data sources that included Veterans' perspectives. For example, we analyzed VA patient experience measures and Yelp reviews of VA facilities and conducted interviews with representatives of Veterans Service Organizations.

Another limitation is that the projections of future resources are based solely on provider and productivity data (that is, FTEs and RVUs). The projections do not directly include changes in other key resources, such as physical space, equipment, and IT. They do include these resources indirectly through the productivity measure, since increased productivity could come through improved use of these resources. A projection model that included all resources and the interactions between them (for example, system dynamics) would be useful, but was beyond the scope of this assessment.

Moreover, the projections analysis is static in that it does not account for changes in demand that might occur if supply, and thus access, were increased. For example, if VA increased the productivity of its resources and improved access, current users might increase their reliance on VA, and more Veterans might choose to use the VA system. The VA demand projections we rely on do not account for this demand response, and thus the comparisons between projected supply and demand may understate a future gap if VA takes actions to improve access.

To put VA measures in context and assess adequacy, it would be useful to compare VA with non-VA health care organizations on measures of resources and capabilities. This would provide an objective benchmark against which we could assess VA measures. Differences between VA and other health care organizations, in terms of the organization of the delivery system and the patient population, however, limit the value of such comparisons. Therefore, in most cases, we use qualitative data from interviews and literature reviews to assess the adequacy of VA's resources and capabilities. Only for selected analyses did we identify and include useful non-VA comparators.

Several of our data sources and methods used have limitations that could have biased our analyses. Data from interviews may not be widely generalizable because our interviewees may not have been representative of all possible respondents, and the results may have been subject to biases in interviews and interpretation of results. Many data analyses relied on VA data sources, and we were not able to assess the validity of the source data. Survey results may have been subject to nonresponse bias.

Despite these limitations, this assessment provides valuable information about VA resources and capabilities to provide timely, accessible care.

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[73] In accordance with the Paperwork Reduction Act, an approval from OMB must be obtained prior to collecting federally sponsored data from 10 or more respondents within a 12-month period using standardized questions.

7.3 Recommendations

Based on the findings of Assessment B, we make several recommendations to improve access to care for Veterans.

VA should use a systematic, continuous performance improvement process to improve access to care. Many VA facilities achieve very high levels of performance on key access and quality measures. At the same time, there is a great deal of variation across the system, and some Veterans are not receiving timely access to care. A systematic effort is needed to identify unwarranted variation, identify and develop best practices to improve performance, and embed these practices into use across the VA system at other sites where they could be successful. However, attempts to standardize high-quality performance should also be sensitive to the need for some solutions designed to support local needs and contexts. Solutions should be designed to be responsive to Veterans' preferences, needs, and values.

VA should consider alternative standards of timely access to care. Although VA provides timely and accessible care to most Veterans, there are still many Veterans who do not get an appointment as soon as needed. Timeliness standards should be reexamined and should consider use of metrics that reflect the *availability* of appointments, rather than when they are completed. VA should examine the utility of existing alternative benchmarks such as same-day availability of the third next available appointment. Access standards for other dimensions, such as cultural access, should also be developed and used in performance monitoring and improvement. VA should develop methods to routinely compare timeliness of VA care with non-VA benchmarks and publish these comparisons to give Veterans a better understanding of facility performance. Currently, good non-VA benchmarks do not exist. The evidence base for appropriate visit intervals is also very underdeveloped. VA has an opportunity to be a leader in the U.S. health care system in developing evidence-based methods for measuring and improving the timeliness of care.

VA and Congress should develop and implement more sensitive standards of geographic access to care. Although most Veterans have geographic access to VA care by a general standard of less than 40 miles distance from any facility, geographic access is worse when using different types of access standards. VA should compare the "one-size-fits-all" approach of driving distance with alternative standards that are more sensitive to differences between Veteran subgroups, clinical populations, geographic regions, and individual facilities. This assessment highlighted the importance of time spent driving, mode of transportation, traffic, and availability of needed services as key considerations in assessing whether Veterans have geographic access to care.

VA should focus efforts to increase Veterans Choice Program utilization in areas with the lowest rates of geographic access to VA facilities. These areas can be identified in geographic assessments that consider locations of facilities relative to enrollee populations, along with estimates of access to more complex and specialized service offerings in VA facilities.

VA should continue moving toward using a smaller number of quality metrics in quality measurement and improvement activities. VA has historically been on the forefront of quality measurement and improvement in the United States. As a result, VA currently maintains an

extensive set of quality measures. Although use of these measures has led to improvements in care, the proliferation of measures creates burdens on staff and resources and can lead to an emphasis on the measures rather than improvement in areas of care that are more likely to improve outcomes for Veterans. VA has already moved toward reporting systems that rely on a smaller number of measures, such as Strategic Analytics for Improvement and Learning (SAIL)[74], and should continue to advance in this direction.

VA should take significant steps to improve access to VA care. Our projections indicate that increases in resources and the productivity of resources will be necessary to meet increases in Veterans' demand for health care over the next five years. The options we considered that have the highest estimated potential impact are formalizing full nursing practice authority, increasing physician hiring, and increasing the use of virtual care. These are commonly proposed options for improving VA care. In addition, new models of health care delivery are emerging rapidly in the U.S. health care system that could improve access to care. VA should seek to be an early adopter of these new models and should build a strategy that enables and supports such innovation.

VA should establish itself as a leader and innovator in health care redesign. Our assessment found that VA has historically been on the leading edge in several important areas, such as development and use of health IT. It is also on the forefront of many other innovative delivery methods, such as team-based primary care. As a large integrated delivery system, VA has some favorable conditions in which to innovate compared with many other U.S. health care delivery systems. However, VA also faces certain constraints (hiring processes, salaries, budgeting, etc.) that private-sector entities do not. VA should endeavor to maximize its opportunities to innovate, and should also endeavor to learn from current leaders in areas where its leadership position has eroded, particularly in health IT, and seek to reestablish its leading position.

VA should streamline its programs for providing access to purchased care and use them strategically to maximize access. Currently available programs are overlapping and confusing to Veterans, VA employees, and non-VA providers. VA should clearly identify the objectives of purchased care access and streamline programs to meet those objectives.

VA should systematically identify opportunities to improve access to high-quality care through use of purchased care. Some types of care may be more effectively and efficiently delivered by non-VA providers. Identification of these types of care and the impact of shifting Veteran's care to non-VA providers requires an in-depth systematic analysis that was beyond the scope of this assessment.

7.4   Conclusions

These recommendations would help VA improve access to care for Veterans across the VA system and ensure that future demands for VA care can be met. Although this assessment did

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[74] Although SAIL uses fewer measures to simplify reporting, they are composite measures which still incorporate numerous individual performance measures.

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not find a system-wide crisis in access to VA care, it did identify a high degree of variability in performance across VA facilities, a number of barriers to effective use of VA resources and capabilities, and likely future challenges. These recommendations should be implemented and progress regularly evaluated to ensure continuous improvement in performance. Such improvement in performance will be needed to ensure that we meet our nation's commitment to care for Veterans.

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Appendix A   Methods

This appendix provides additional information on the methodologies used in Assessment B. It is intended to supplement Section 2, Methods Overview. The appendix contains material related to the following subsections in Section 2:

A.1: Illustrative Clinical Populations
A.2: Interviews
A.3: VA Resources and Capabilities
A.4: Access to VA Care
A.5: Quality of VA Care
A.6: Developing Policy Options
A.7: Projecting Future VA Resources and Capabilities

Appendix A.1 Illustrative Clinical Populations

As described in Section 2, we selected seven illustrative clinical populations that were used to provide a more detailed understanding of VA capabilities, resources, and accessibility in selected subpopulations of Veterans. We defined a clinical population as a group of individuals with a need for specific health care resources.

We selected clinical populations by applying "screening criteria" that were applied to each candidate population (importance, measurability) as well as "breadth criteria" that were applied to a subset of populations that met the screening criteria (type of care, acuity, care setting, workforce, population diversity). The breadth criteria were applied as a group to ensure that the portfolio was diverse on important characteristics. While each individual clinical population cannot meet all the breadth criteria, the group of clinical populations as a whole was required to cover the range of options specified by these criteria.

We applied the screening criteria using a two-step process. First, to identify "important" and "measureable" clinical populations, we selected the 37 conditions identified by the VA-DoD Reporting & Analysis Datamart Technical Advisory Group as a "High Interest Group." We used prevalence data provided by the VA Healthcare Analysis and Information Group to select the 10 most prevalent medical high interest groups, the five most prevalent behavioral health high interest groups, and all conditions that were primarily attributable to military service. The result was the 20 populations listed in Table A-1. This list was subsequently revised, using the method described in Subsection 2.2.

Table A-1. Breadth Criteria Characteristics of the 20 Candidate Clinical Populations Meeting the Screening Criteria

	No. Unique Patients at VHA Facilities with Primary Diagnosis, FY 2014	Population Diversity	Acuity	Care Setting	Workforce
Medical					
Circulatory System	2,046,220	Older	Broad category which ranges from chronic (for example, asymptomatic coronary disease to acute (acute coronary syndromes)	Inpatient hospital with coronary care capability; cardiac catheterization laboratory; interventional radiology; emergency department; outpatient primary care and specialty clinics	Primary care, emergency medicine, cardiology, cardiothoracic surgery, vascular surgery; interventional radiology; rehabilitation
Pain	1,594,560	All ages	Chronic more common than acute	Primarily outpatient	Primary care, pain management
Vision Loss, Visual	1,177,707	Older	Chronic	Outpatient	Primary care, optometry
Diabetes	1,115,700	Middle age, older	Chronic; can be acutely exacerbated	Primarily outpatient. Occasionally inpatient hospital for uncontrolled diabetes	Primary care, endocrinology; ancillary services like nutrition counseling, podiatry, ophthalmology; team-based care
Hearing Loss	694,409	All ages	Chronic	Outpatient	Primary care, audiology
Hyperlipidemia	630,265	All ages	Chronic	Outpatient	Primary care

	No. Unique Patients at VHA Facilities with Primary Diagnosis, FY 2014	Population Diversity	Acuity	Care Setting	Workforce
Chronic Obstructive Pulmonary Disease	369,050	Older	Chronic with acute exacerbations	Outpatient primary care clinics, outpatient specialty clinics, inpatient hospital for acute exacerbations	Primary care, pulmonology, respiratory therapy
Arthritis & Arthropathy	367,151	Older	Chronic with acute exacerbations	Primarily outpatient. Rarely inpatient hospital	Primary care, rheumatology
Malignancy	203,096	All ages	Sub-acute; the course of the illness generally occurs over a discrete time interval (with exceptions). Timeliness of care is particularly important	Outpatient primary care, outpatient specialty care such as advanced imaging, chemotherapy and radiation therapy	Primary care for screening and diagnosis; Specialty care (for example, oncology, surgery, radiation treatment) is typically most important for treatment
Obesity	183,972	All ages	Chronic	Outpatient	Primary Care
TBI	59,394	Younger	Chronic	Outpatient specialty clinics, rehab	Primary Care, neurology, psychiatry, rehab med
Spinal Cord Injury	24,634	Younger	Chronic	Outpatient specialty clinics, rehab	Primary care, rehab med
Burns	5,595	Younger	Chronic in the context of the VA	Outpatient, surgical suites (if acute burn care not provided)	Primary care, plastic surgery

	No. Unique Patients at VHA Facilities with Primary Diagnosis, FY 2014	Population Diversity	Acuity	Care Setting	Workforce
Behavioral Health					
Depression	646,640	All ages	Chronic with acute exacerbations	Outpatient, inpatient for severe exacerbations	Psychiatry, primary care, psychology, social work
PTSD	582,565	All ages	Chronic, with acute exacerbations	Outpatient primary care and specialty mental health; some specialized PTSD residential programs	Psychiatry, primary care, psychology, social work, peer counselors
Anxiety	313,792	All ages	Chronic, acute	Outpatient primary care and specialty mental health;	Primary care, psychiatry, psychology
Substance Abuse	245,312	All ages	Chronic with acute exacerbations	Outpatient primary care, specialty mental health and specialty substance abuse clinics, emergency department, residential rehabilitation centers, outpatient rehabilitation centers; domiciliary	Primary care, emergency medicine, substance abuse specialists, psychiatry, psychology, social work, peer counselors
Other Mental Health	196,537	Unknown	Chronic, acute	Outpatient, inpatient for severe exacerbations	Primary care, psychiatry

	No. Unique Patients at VHA Facilities with Primary Diagnosis, FY 2014	Population Diversity	Acuity	Care Setting	Workforce
Adjustment Reaction	155,203	Unknown	Chronic, acute	Outpatient, primarily primary care	Primary care, psychiatry
Brain Injury Mental Disorder	2,745	Younger	Chronic	Outpatient	Primary care, psychiatry, neurology, rehab

Sources: VA Healthcare Analysis and Information Group provided a list of 37 "High Interest Group" conditions, along with associated prevalence data. Population Diversity, Acuity, Care Setting, and Workforce columns are based upon clinical expertise. For Population Diversity, "Older" is indicated when the condition is more common among Veterans age 50 or older; "Younger" is indicated when the condition is more common among Veterans age 40 or younger.

Appendix A.2 Interviews

As part of our methodology for identifying personnel to interview (see Subsection 2.4), we drew a purposive sample of VAMCs. The sample of facilities was selected to include a variety of facilities that, while not technically representative of the universe of VAMCs, would provide variation on key characteristics. As explained in Section 2, we created six VAMC groups based on three characteristics: capacity, complexity, and metropolitan context.

We provide additional information about how we defined these characteristics here:

Capacity: Capacity refers to the size of the facility, which was measured in terms of the number of patients served. At the time that facilities needed to be selected (in order to begin interviews in a timely fashion), the best machine-readable measure of capacity to which we had access was the 2012 Hospital Quality Report Card (VA, undated). Data tables were publicly available. While this report contains several measures of capacity, we reviewed three: number of Acute Inpatient (Medical/Surgical) Facility Unique Patients, Number of Primary Care Outpatient Visits, and Number of Specialty Care Outpatient Visits. Dividing the VAMCs into groups using each of these metrics resulted in fairly similar results, so we ultimately used the inpatient numbers to assign each VAMC a size category of small (under 40,000 visits), medium (40,000 to 60,000 visits), and large (over 60,000 visits).

Complexity: Complexity refers to the level of the VAMC's ability to treat a large number of conditions (as opposed to offering a limited suite of services). Complexity was drawn from the Veterans Affairs Site Tracking System dataset (extract from September 30, 2014). Each VAMC is assigned a complexity score of 1 through 3 (1a, 1b, and 1c—High Complexity; 2—Medium Complexity, 3—Low Complexity). VAMCs were classified as complex (1) or less complex (2 and 3). The VHA's 2011 Facility Complexity Model classification is based on seven standardized criteria: volume and patient case mix, clinical services provided, patient risk calculated from VA patient diagnosis, total resident slots, an index of multiple residency programs at a single facility, total amount of research dollars, and the number of specialized clinical services.

Metropolitan context: Metropolitan context is the size of the urban area served. In Veterans Affairs Site Tracking data, all VAMCs are designated as Urban, Rural, or Highly Rural based on the Rural-Urban Commuting Areas system, which is based on the Census Bureau's urbanized areas and the percentage of the rural population commuting to urbanized clusters. We created three categories of VAMCs: Rural, Small/Medium Metro, and Large Metro. The "Rural" category included one VAMC that was classified as "Highly Rural" by the VA and 19 that were classified as "Rural." VAMCs designated as "Urban" were subdivided into two categories: Small/Medium Metro and Large Metro, by the size of the urbanized areas, on the grounds that the size of the metropolitan area may limit or enable access to non-VA care and therefore be an important dimension to consider in constructing the purposive sample of VAMCs. Size of the metropolitan area was obtained from the American Community Survey 2013 estimates of population for Core-Based Statistical Areas, which comprise micropolitan and metropolitan areas. These statistical areas are co-terminus with county boundaries, so it was possible to link the county location given for each facility in the Veterans Affairs Site Tracking System extract to its

associated Core-Based Statistical Area population. A threshold of 4 million in population was used to distinguish Small/Medium Metro areas from Large Metro areas.

Appendix A.3 VA Resources and Capabilities

As part of our assessment of physical infrastructure capabilities and resources, we identified and defined clinical care services that are definitive for one or more of the seven illustrative clinical populations described in Section 2, Table 2-1. Table A-2 provides a full list of 27 such services and their definitions, grouped by clinical population.

Table A-2. Definitions of Condition-Specific Services

Clinical Population and Service #	Services	Definition
Acute Coronary Syndromes		
1	Emergency department	Hospital facilities for the provision of unscheduled, outpatient services to patients whose conditions require immediate care.
2	Coronary care unit	A hospital unit with specialty services to care for patients with heart attacks, unstable angina, cardiac dysrhythmia, and other cardiac conditions.
3	Telemetry (If CCU/ICU not available)	Electronic monitoring of heart rate and rhythm.
4	Non-invasive cardiology services	Evaluation of heart disease using external tests such as echocardiograms and stress tests.
5	Diagnostic cardiac catheterization	This technique assists in diagnosing complex heart conditions. cardiac angiography Involves the insertion of a tiny catheter into the artery in the groin then carefully threading the catheter up into the aorta where the coronary arteries originate. Once the catheter is in place, a dye is injected which allows the cardiologist to see the size, shape, and distribution of the coronary arteries. These images are used to diagnose heart disease and to determine, among other things, whether or not surgery is indicated.

Clinical Population and Service #	Services	Definition
6	Interventional Cardiology	Nonsurgical procedure that utilizes the same basic principles as diagnostic catheterization and then uses advanced techniques to improve the heart's function. It can be a less-invasive alternative to heart surgery.
7	Cardiac Surgery	Includes minimally invasive procedures that Include surgery done with only a small incision or no incision at all, such as through a laparoscope or an endoscope, as well as more invasive major surgical procedures that include open chest and open heart surgery.
Colon Cancer		
8*	Primary Care Clinic	A unit or clinic within the hospital that provides primary care services (for example, general pediatric care, general internal medicine, family practice, gynecology) through hospital-salaried medical and/or nursing staff, focusing on evaluating and diagnosing medical problems and providing medical treatment on an outpatient basis.
9	Colonoscopy	An examination of the interior of the colon using a long, flexible, lighted tube with a small built-in camera.
10	Computerized Tomography Scan	Computed tomographic scanner for head or whole body scans.
11	Surgical Services	Inpatient and outpatient services for patients requiring surgery.
12	Oncology Services	Inpatient and outpatient services for patients with cancer, including comprehensive care, support and guidance In addition to patient education and prevention, chemotherapy, counseling and other treatment methods.

Clinical Population and Service #	Services	Definition
TBI		
13	Polytrauma Support Clinic Team	An interdisciplinary team of health care providers who provide and coordinate rehabilitation services for patients with traumatically induced structural injury and/or physiological disruption of brain function as a result of an external force. Polytrauma Support Clinical Teams also conduct comprehensive evaluations of patients with positive TBI screens, and develop and implement rehabilitation and community reintegration plans.
14	Polytrauma Network Site	Sites that provides inpatient and outpatient rehabilitation care and coordinate polytrauma and TBI services throughout the VISN, generally with less comprehensive services than Polytrauma Rehabilitation Centers. (VA-specific term)
15	Polytrauma Rehabilitation Center (Program)	Regional referral centers for the comprehensive acute rehabilitation for Veterans with complex and severe polytrauma. Polytrauma Rehabilitation Centers maintain a full staff of dedicated rehabilitation professionals and consultants from other medical specialties to address the complex medical and psychosocial needs of patients with polytrauma. The Polytrauma Rehabilitation Centers serve as a resource for educational programs and best practice models for other facilities. (VA-specific term)
16	TBI Specialty Care	Specialty services designed for evaluation and treatment for patients with TBI.
Type 2 Diabetes Mellitus		
8*	Primary care clinic	(defined above)
17	Diabetes specialty or endocrinology clinic	Clinic that provides specialty care for patients with diabetes, including diagnosis, testing of glucose levels, and education about self-care and self-monitoring.
18	Podiatry clinic	Clinic that provides specialty care to diagnose and treat diseases affecting the feet and ankles.

Clinical Population and Service #	Services	Definition
19	Ophthalmology clinic	Physician-staffed clinic that provides specialty care to diagnose and treat diseases of the eye.
PTSD		
20	Domiciliary Residential Rehabilitative Treatment Program	A DRRTP provides a residential level of care for Veteran populations including medical, psychiatric, SUD, PTSD, and homelessness. DRRTPs provide a 24-hours-per-day, 7 days-per-week (24/7) structured and supportive residential environment as a part of the rehabilitative treatment regime. DRRTPs are larger residential programs with multiple units serving various patient populations. (VA-specific term)
21**	Mental Health Services	A broad variety of health care services to diagnose and treat mental illness.
22	PTSD psychotherapy	Psychotherapy (talk therapy) services specially designed to alleviate symptoms for patients with PTSD, including behavioral techniques.
SUD		
23	Residential SUD treatment	Diagnosis and therapeutic services to patients with alcoholism or other drug dependencies as part of inpatient/residential treatment for patients whose course of treatment involves more intensive care than provided in an outpatient setting or where patient requires supervised withdrawal.
24	Methadone	Outpatient clinic that dispenses the drug methadone to patients with drug addiction to avoid symptoms of narcotic withdrawal.
25	Outpatient specialty SUD care	Diagnosis and therapeutic services to patients with alcoholism or other drug dependencies.
26	Inpatient detoxification	Inpatient unit to manage the narcotic withdrawal process for patients with drug withdrawal symptoms.
21**	Mental health services	(defined above)

Clinical Population and Service #	Services	A-11 Definition
Conditions Requiring Gynecological Surgery		
27	Gynecological surgery services	Facility that provides care to patients requiring surgery on either an inpatient or outpatient basis.

SOURCES: Definitions 1, 5-10, 12, 23, 25, and 26 adapted from the American Hospital Association Annual Survey Reporting Instructions, 2008. Definitions 13-15 adapted from the VHA Handbook 1172.01, March 20, 2013. Definition 20 adapted from the VHA Handbook 1162.02, December 22, 2010. Definitions 2-4, 16-19, 21-22, 24, 26 provided by RAND staff.

Notes: *Service 8, primary care, appears twice and retains the same number in this table.
**Service 21, mental health services, appears twice and retains the same number in this table

Appendix A.4 Access to VA Care

This subsection provides additional information on the methods used for two components of our assessment of access to VA care:

Measures of access (Subsection A.4.1)
Systematic literature review (Subsection A.4.2).

Appendix A.4.1 Measures of Access

We characterized access to VA care and, where possible, compared access in the VA versus non-VA settings, by analyzing performance measure data from VA and non-VA data sources. Table A-3 provides a list of access measures used in this assessment, organized by the five dimensions of access.

Table A-3. VA Access Measures and Questions By Domain (Timeliness, Geographical, Financial, Digital, and Cultural)

Domain of Access	Access Measure or Survey Question	VA Data Source(s)	Non-VA Data Source(s)
Timeliness	▪ Percentage of primary care appointments completed in less than or equal to 30 days from preferred date for: ▪ New patients ▪ Established patients ▪ Percentage of specialty care appointments completed in less than or equal to 30 days from preferred date for: ▪ New patients ▪ Established patients ▪ Percentage of mental health appointments completed in less than or equal to 30 days from preferred date for: ▪ New patients ▪ Established patients	VHA Support Service Center (VSSC)	Not available for a representative sample of health care providers or plans

Timeliness	• Outpatient access composite case-mix adjusted (%) • Get an urgent care appointment as soon as needed case-mix adjusted (%) • Get a routine care appointment as soon as needed case-mix adjusted (%) • Got answer to phone question during regular office hours on same day • Got answer to phone question after hours as soon as needed • Saw provider within 15 minutes of appointment time • Got needed care during evenings, weekends, or holidays	VA Survey of Healthcare Experiences of Patients (SHEP): Patient-Centered Medical Home (PCMH) survey	AHRQ CAHPS Database[75]
Timeliness	• Veterans like me can get in and out of an appointment at VA in a reasonable time • When Veterans like me go to VA for an appointment, they do not wait a long time to see the doctor	VA Survey of Enrollees	Not available
Geographical	• It is easy to get to my local VA facility • There is a VA provider in my area that offers all of the health care services that Veterans like me need • It is easy for Veterans like me to get around in the VA health care facility	VA Survey of Enrollees	Not available

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[75] National scores are available for the CAHPS Health Plan Survey and Medicare CAHPS surveys; however, the measures on these surveys are not the same as those on the SHEP PCMH.

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Financial	▪ If the cost of health care to me increases, I will use VA more ▪ Veterans who can afford to use other sources of health care should leave the VA to those who really need it ▪ VA offers Veterans like me the best value for our health care dollar ▪ VA is the most cost-effective health care provider for Veterans like me ▪ My use of VA will decrease if my financial resources improve	VA Survey of Enrollees	Not available
Digital	▪ Access to the Internet	VA Survey of Enrollees	Not available
Cultural	▪ Veterans like me like going to VA because you can talk to other Veterans ▪ VA health care providers treat their patients with respect	VA Survey of Enrollees	Not available

To identify measures of access for analysis, we conducted an environmental scan of access measures in VA performance measure reporting systems and publications, including the Strategic Analytics for Improvement and Learning (SAIL) (VA, 2014h), VA Hospital Compare ASPIRE (VA, 2014d), Linking Knowledge & Systems (LinKS) (VA, 2014c), and the Facility Quality and Safety Report (VA, 2013d).

Fifteen access measures or survey questions relate to the timeliness domain of access (Table A-3), including six related to appointment completions (wait-time measures), one composite measure, and six individual questions regarding access to care from an annual survey of Veterans who have used VA outpatient care (SHEP PCMH), and two items from an annual survey of Veterans who are enrolled in the VA health care system (VHA Survey of Veteran Enrollees' Health and Reliance upon VA, known as the Survey of Enrollees). We also analyzed measures related to the digital (one question), financial (five questions), geographical (three questions), and cultural aspects of access to VA care (two questions) from the Survey of Enrollees.

Appendix A.4.2 Methods for Systematic Literature Review on Access to Care for Veterans

To summarize the peer-reviewed literature, we conducted a systematic review on access to VHA care for Veterans. Figure A-1 illustrates our review process.

Search Strategy. We built our search terms based on three major areas of interest that include (1) articles that focus on Veterans and VA health care facilities, (2) search terms around access

(defined as the availability of services), and (3) search terms around utilization (defined as the use of services). The search identified 724 articles of potential interest. The start date for the PubMed search was January 1, 2005, and the end date was April 10, 2015. A Stage 1 form was developed in DistillerSR with inclusion and exclusion criteria, and two researchers screened each title and abstract produced by the search. An article was selected for full-text screening when both researchers agreed it should be included. When disagreement about the initial assessment (inclusion or not) occurred, the specific articles were discussed with at least one other senior member of the review team. A total of 217 articles were carried through to the following stage.

Study Selection. Full-text articles selected for screening were reviewed by two trained researchers using a Stage 2 form in DistillerSR. To be included in the review, the article was required to evaluate access to care and/or the relationship between access to care and the utilization of services at VA facilities. Additionally, the Stage 2 screening form collected basic information about the articles to confirm that it should be carried forward to the final stage of review: outcome(s) related to access and/or access and utilization; type of access based on the outcomes (check all that apply). A total of 112 articles were carried through to the following stage.

Data Abstraction. Data were abstracted by one reviewer using a Stage 3 form in DistillerSR. Once the forms were completed, a senior member of the review team reviewed all the data. The following data were abstracted from all studies: author names, publication year, type of data, type of study design, sample size and unit of measurement, study health care setting, location, insurance status of study participants, outcome related to access and/or access and utilization (up to five could be reported), results related to access and/or access and utilization (up to five could be reported). A total of 108 articles were reviewed at this final stage.

Data Synthesis. We classified articles according to the dimensions of access outlined in Section 1. All articles that had been classified as "other" also overlapped with a specific domain of access (geographic, timely, financial, digital, and cultural) and results were reported in those respective dimensions. Within each dimension, studies were sufficiently heterogeneous to preclude meta-analysis. Consequently, our syntheses are narrative.

Figure A-1. Literature Flow for Access Review
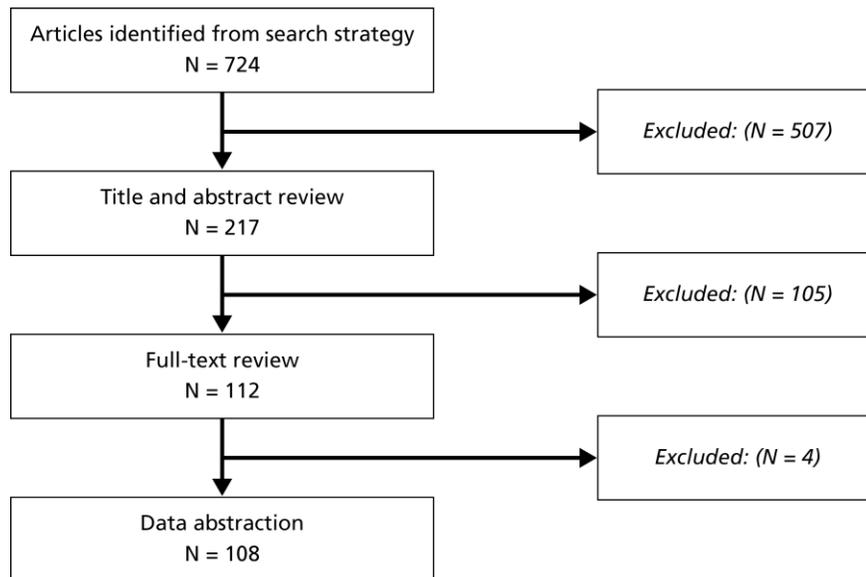
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Appendix A.5 Quality of VA Care

This subsection provides additional information on the methods used for three components of our assessment of the quality of VA care:

- Measures of quality (Subsection A.5.1)
- Comparing quality in VA and non-VA inpatient settings (Subsection A.5.2)
- Systematic literature review (Subsection A.5.3).

Appendix A.5.1 Analysis of VA Performance Measures

We used performance measures tracked by VA and evidence from peer-reviewed literature to measure quality of care in the VA, compare across VA facilities, compare across subgroups of Veterans, and compare with non-VA benchmarks. We selected a subset of performance measures for analysis from the more than 500 measures of quality available for use in the VA system. We analyzed measures for this report for which there were data available for VA patients; data for non-VA comparison groups was also analyzed when available. We prioritized quality measures that reflect national standards and are reported by national performance measurement programs, as follows:

The HEDIS measures, which were developed by the National Committee for Quality Assurance (National Committee for Quality Assurance, 2014). HEDIS measures included in this report relate to screening, prevention, and wellness, as well as management of chronic medical conditions, such as diabetes, hypertension, cardiovascular disease, and depression. HEDIS outpatient quality measures of effectiveness reported by VA and the National Committee for Quality Assurance are shown in Table A-4.

Table A-4. HEDIS Outpatient Quality Measures of Effectiveness Reported by VA and the National Committee for Quality Assurance

Measure Title*
Screening, Prevention, and Wellness
Tobacco Use: Advising Smokers and Tobacco Users to Quit
Breast Cancer Screening (50-74)
Colorectal Cancer Screening (50-75)
Chronic Condition Management
Persistence of Beta-Blocker Treatment After a Heart Attack
Comprehensive Diabetes Care
Blood Pressure Control (diagnosis of DM and hypertension, 18-85 years, and <140/90 mm Hg)
Eye Exams
HbA1c Screening
Poor Glycemic Control (HbA1c >9%)—Lower rates signify better performance
LDL-C Screening
LDL-C Control (<100 mg/dL)
Medical Attention for Nephropathy
Hypertension
Controlling High Blood Pressure (Diagnosis of hypertension, 18-85 years and <140/90)
Cholesterol Management for Patients With Cardiovascular Conditions
LDL-C Screening
LDL-C Control (<100 mg/dL)
Antidepressant Medication Management
Acute Phase
Continuation Phase
*VA facility-level data for HEDIS outpatient quality measures were obtained from the VA Office of Performance Measurement. National data for HEDIS outpatient quality measures for non-VA patients in health plans (commercial HMO, Medicare HMO, and Medicaid HMO) were obtained from the following report: National Committee for Quality Assurance. 2014. *The State of Health Care Quality 2014.* Available as of March 20, 2015 at www.ncqa.org.

The patient experience measures for health care received in the outpatient and inpatient settings adapted from the CAHPS (AHRQ, 2015) and HCAHPS (CMS, 2015) measure sets, respectively. For patients receiving care in non-VA hospitals, we used HCAHPS data that are reported on the CMS Hospital Compare website (CMS, 2015). Patient experience measures reported by VA are shown in Table A-5.

Table A-5. Patient Experience Measures for Outpatient and Inpatient Settings Reported by VA and Non-VA Facilities

Measure Title
Outpatient Setting*
Communication (How Well Providers Communicate with Patients)
Office Staff (Helpful, Courteous, and Respectful Office Staff)
Comprehensiveness (Providers Pay Attention to Your Mental or Emotional Health)
Self-Management Support (Providers Support You in Taking Care of Your Own Health)
Providers Discuss Medication Decisions
Patients' Rating of the Provider
Follow-up on Test Results
Provider was informed and up-to-date on care received from specialist
Talked about prescription medicines at each visit
Provider's office gave information on what to do if care needed on evenings, weekends, or holidays
Got reminders from provider's office between visits
Inpatient Setting**
Communication with Nurses
Communication with Doctors
Communication about Medicine
Responsiveness of Hospital Staff
Discharge Information
Pain Management
Care Transition
Cleanliness of the Hospital Environment
Quietness of the Hospital Environment
Overall Rating of Hospital

*VA facility-level data for outpatient patient experience measures (Survey of Healthcare Experiences of Patients) were obtained from the VA Office of Performance Measurement. **VA facility-level data for inpatient patient experience measures (Survey of Healthcare Experiences of Patients) were obtained from the VA Office of Performance Measurement. Non-VA facility-level data for inpatient patient experience measures were obtained from the CMS Hospital Compare website.

The ORYX measures (also known as the National Hospital Quality Measures) developed by the Joint Commission for hospital quality improvement and used in its hospital accreditation

process (Joint Commission, 2015). We used data for VA and non-VA hospitals that are reported on the CMS Hospital Compare website (CMS, 2015). The ORYX measures included in this report relate to acute myocardial infarction, heart failure, pneumonia, and surgical care. Inpatient hospital quality measures reported by VA and non-VA hospitals are shown in Table A-6.

Table A-6. Inpatient Hospital Quality Measures Reported by VA and Non-VA Hospitals

Measure Title
Acute Myocardial Infarction*
Timing of receipt of primary percutaneous coronary intervention (PCI)
Aspirin prescribed at discharge
Statin prescribed at discharge
Heart Failure*
Discharge instructions
Evaluation of left ventricular systolic function
ACEI or ARB for left ventricular systolic dysfunction
Pneumonia*
Initial antibiotic for community-acquired pneumonia (CAP) in immunocompetent patient
Surgical Care*
Prophylactic antibiotic received within one hour prior to surgical incision
Prophylactic antibiotics discontinued within 24 hours after surgery end time
Surgery patients who received appropriate venous thromboembolism prophylaxis within 24 hours prior to surgery to 24 hours after surgery
Surgery patients on beta-blocker therapy prior to arrival who received a beta-blocker during the perioperative period
Prophylactic antibiotic selection for surgical patients
Cardiac surgery patients with controlled 6 a.m. postoperative blood glucose
Urinary catheter removed on postoperative day 1 (POD 1) or postoperative day 2 (POD 2) with day of surgery being day zero
Surgery patients with perioperative temperature management
Patient Safety**
Complication/patient safety for selected indicators (composite) (observed: expected)
Death rate (per 1,000) among surgical inpatients with serious treatable complications
Iatrogenic pneumothorax (per 1,000)
Postoperative pulmonary embolism or deep vein thrombosis rate (per 1,000)
Postoperative wound dehiscence (per 1,000)

Measure Title
Accidental puncture or laceration (per 1,000)
Outcome
Readmission*
Acute myocardial infarction (AMI) 30-day all-cause risk-standardized readmission rate
Heart failure (HF) 30-day all-cause risk-standardized readmission rate
Pneumonia (PN) 30-day all-cause risk-standardized readmission rate
Mortality*
Acute myocardial infarction (AMI) 30-day all-cause risk-standardized mortality rate
Heart failure (HF) 30-day all-cause risk-standardized mortality rate
Pneumonia (PN) 30-day all-cause risk-standardized mortality rate

*VA and non-VA facility-level data for these inpatient hospital measures were obtained from the CMS Hospital Compare website.
**VA facility-level data for the patient safety indicator measures were obtained from the VA Inpatient Evaluation Center (IPEC). Non-VA facility-level data for the patient safety indicator measures were obtained from the CMS Hospital Compare website.

The Patient Safety Indicators (PSIs) developed by the AHRQ to provide information about adverse events and complications of care that may occur in the hospital (AHRQ, 2015). The PSIs in this report include two composite measures on overall inpatient safety and surgical safety, and four specific complications (Table A-6). We used data for VA and non-VA hospitals that are reported on the CMS Hospital Compare website (CMS, 2015).

The 30-day all-cause risk-standardized mortality and readmission measures developed by the CMS in conjunction with the Hospital Quality Alliance (CMS, 2014). We used data for VA and non-VA hospitals that are reported on the CMS Hospital Compare website (CMS, 2015). The mortality and readmission measures in this report include those for acute myocardial infarction, heart failure, and pneumonia (Table A-6).

The number of VA and non-VA hospitals that report data to CMS Hospital Compare varies across measures for several reasons. Different numbers of hospitals meet the CMS Hospital Compare criteria for reporting the various measures. The criteria include: the number of cases/patients must meet the required minimum number for public reporting (for example, 25 cases for the AMI measures); and the number of cases/patients must be large enough to reliably tell how well a hospital is performing and protect personal health information. Other reasons include the hospital did not have data to report for a measure, or a hospital did not have any patients meet the inclusion criteria for a measure.

Appendix A.5.2 Comparing Quality in VA and Non-VA Inpatient Settings

In this subsection, we describe our method for comparing quality in VA and non-VA settings and, in particular, for propensity score matching. For inpatient quality measures, we compared

VA performance rates based on data provided by VA with data for non-VA hospitals on CMS Hospital Compare. To ensure optimum comparability between VA and non-VA facilities in our analysis, we identified a subset of non-VA facilities with similar characteristics. For this, we used a file of American Hospital Association data (American Hospital Association, 2014), which include facility-level characteristics for 135 VA facilities[76] and 6,332 non-VA facilities. We used the American Hospital Association data for propensity score matching based on the predicted likelihood that a non-VA facility could be a VA facility given certain characteristics (covariates). For matching, we selected four facility characteristics most likely to differ between VA and non-VA hospitals, and shown to be predictive of performance on Hospital Compare measures. The facility-level characteristics used for matching were:

- Bed size (<100 beds, 100–199 beds, and 200+ beds)
- U.S. Census division (East North Central, East South Central, Mid-Atlantic, Mountain, New England, Other, Pacific, South Atlantic, West North Central, and West South Central)
- Location (urban, rural)[77]
- Teaching status (teaching facility, non-teaching facility).[78]

We performed a t-test comparing all VA facilities and all non-VA facilities on the four baseline characteristics before building the propensity score model. There were significant differences between the VA and non-VA facilities for almost every characteristic. Therefore, the goal was to minimize these differences using our propensity score matching method. Next, we ran a logistic regression model to compute a propensity score for each facility. In our case, the propensity score is the predicted probability of the facility being a VA facility. We matched non-VA facilities to VA facilities based on these probabilities. We chose to match three non-VA facilities to each VA facility with a maximum allowable absolute difference between propensity scores of 0.0009. Non-VA facility matches were identified for all VA facilities. We ran t-tests again comparing the baseline characteristics of VA facilities and the matched set of non-VA facilities. There were no significant differences between the VA and the matched non-VA facilities for any characteristic in the model, indicating that the two sets of facilities are well-matched. When we estimated the measure results for the VA and non-VA comparison groups, if a VA hospital had a missing value

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[76] Seven of 135 facilities flagged as "VA" in the American Hospital Association file could not be matched to the CMS Hospital Compare file, and therefore, were excluded from the propensity score matching. Of the seven excluded VA facilities, three facilities had measure data for Fiscal Year 2014 Q4 CMS Hospital Compare, and four facilities had Patient Safety Indicator and SHEP data from the VA's datasets. Based on a comparison of the measure performance between the included and excluded hospitals, we concluded there were no meaningful differences between the two groups.

[77] Facilities are categorized as urban or rural based on the AHA definition: "A rural hospital is located outside a Metropolitan Statistical Area (MSA), as designated by the U.S. Office of Management and Budget (OMB), effective June 6, 2003. Urban hospitals are inside Metropolitan Statistical Areas."

[78] Teaching facilities are defined to include all major and minor teaching hospitals, with a major teaching hospital being those with a Council of Teaching Hospitals (COTH) designation and a minor teaching hospital being those with another teaching hospital designation. Facilities without a teaching hospital designation were classified as non-teaching facilities.

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for a measure, we excluded the non-VA hospitals matched to that hospital from the analysis of that measure. In addition, if one of the matched non-VA hospitals had a missing value for a measure, the remaining two hospitals were "up-weighted" by a factor of 3/2 or 1.5, and if two of the matched non-VA hospitals had a missing value for a measure, the remaining hospital was "up-weighted" by a factor of 3. Results are presented for comparisons of VA facilities and non-VA hospitals overall.

Appendix A.5.3 Methods for Systematic Literature Review Comparing Quality of Care for Veterans in VA and Non-VA Settings

We conducted a systematic review of evidence on the quality of care provided by the VA compared with non-VA health care facilities and systems based on studies published in the peer-reviewed literature.

Search Strategy. We defined quality of care broadly using the Institute of Medicine's definition, which is "the degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge" (IOM, 2001). The Institute of Medicine further proposed six characteristics of high-quality care: safe, timely, equitable, effective, efficient, and patient-centered. Timeliness as it relates solely to access is addressed by a separate literature review.

Given the existence of a recent systematic review on the quality of health care delivered in VA versus non-VA settings performed on this topic by RAND investigators, we chose to explicitly build upon this work (Asch et al., 2010). We built our search strategy using terms from this review.

The start date for the search was January 1, 2005, and the end date was January 1, 2015. We chose a cut-off of 10 years to ensure that we captured the most recent literature. Because of the focus on U.S. health care, we searched Medline only. Titles and abstracts identified by our literature search were then screened by two researchers trained in the critical analysis of literature. Articles that both agreed should be included were then selected for full-text screening. When differences in the initial assessment (inclusion versus not) occurred, the specific articles were then discussed with the senior member of the review team.

Study Selection. Full-text articles selected for screening were reviewed using a two-page screening form. Each article was again reviewed by two trained researchers. To be included in our report, the article had to present a comparison of quality of health care in VA and U.S. non-VA settings. Full inclusion and exclusion criteria were developed and applied consistently.

The screening form also collected basic information about the articles: whether the data for the comparison were sufficiently contemporaneous (within one to two years of each other); how VA and non-VA data were assembled; from what geographical area(s) VA and non-VA data were collected and analyzed; what conditions were covered in the quality assessment; what features of quality were measured (structure, process, and/or outcomes); which dimensions of quality were covered; and how similar the specifications were for quality assessments comparing VA and non-VA samples. Articles that had been previously included in the systematic review by

Asch et al. were reviewed at the full-screening stage only to identify which dimensions of quality they covered as this had not been included in the original review.

Data Abstraction. Data were independently abstracted by two reviewers using a one-page abstraction form. Once the forms were completed, differences in the data were reconciled by the two reviewers, and the evidence grade was reviewed by the senior member of the review team. The following data were abstracted from included studies: sample size for both VA and non-VA sources, years of data collection covered for both VA and non-VA sources, control variables, primary outcomes, and secondary or associated findings. Articles abstracted by Asch et al. in the previous review from 2005 to 2009 were not abstracted again, but are included as part of our results to present a complete picture from 2005 to 2015.

Assessment of Study Quality. Each article was given an overall assessment, which was based on the following criteria: time frames, samples (both VA and non-VA), quality measurements, outcomes, importance of measures, and statistical methods. Each of these factors was assigned a grade (A, B, or C) based on the data abstraction grading guidelines developed. The overall assessment was predicated on the global assessment of the article, considering the individual components, but was not an average. Thus an article that had, for example, a critical flaw in methodology would be a "C," even if other issues were satisfactory. During this phase, or during the initial assessment or data abstraction phases, disagreements or questions about the articles or information were discussed with at least the senior member of the team in order to reach consensus. The specific definitions used in the quality assessment are provided here:

Time frames

- Contemporaneous time frames
- All studies with time frames between A and C
- Non-contemporaneous

Samples (both VA and non-VA)

- Representative or national samples (both VA and non-VA)
- All studies with samples between A and C
- Small, limited, unequal or non-representative samples

Quality measurements

- Specified and identical measures with a similar assessment format for those measures
- All studies with quality measurement between A and C
- Dissimilar measures and/or dissimilar assessment methods

Outcomes

- Outcomes are either well established clinical endpoints or processes strongly associated with well-established clinical endpoints
- All studies with outcomes between A and C
- Outcomes are structures, processes or clinical endpoints that are not well-established or are indirect measures of quality

Importance of measures (for example, number of clinically relevant indicators, potential impact of indicators)

- High

- Medium

- Low

Statistical methods

- Sufficient sample size and/or methods appropriate to address hypothesis(ses)

- All studies with statistical methods between A and C

- Insufficient sample size and/or methods questionable to address hypothesis(ses)

Data Synthesis. We classified articles along the dimensions of quality outlined by the Institute of Medicine. Within these categories, studies were sufficiently heterogeneous to preclude meta-analysis. Consequently, our synthesis is narrative.

In total, 461 articles from 2005 to 2015 were returned by the literature search (Figure A-2). Of the 306 articles that did not go on for full-text screening, most were due to a lack of comparison of quality between VA and non-VA settings (N = 297). We conducted full-text screening for the remaining 155 articles, of which 86 were excluded (69 because of a lack of comparison of quality, 12 because they were graded "C" or lower, 3 because they were systematic reviews, and 2 because they looked exclusively at cost comparisons). We abstracted new details (related to dimensions of quality) for 31 articles from 2005 to 2009 previously reviewed by Asch et al. Ultimately, an additional 38 new articles underwent full data abstraction, which left us with a total of 69 articles for inclusion in the review.

Figure A-2. Literature Flow for Systematic Review of Quality
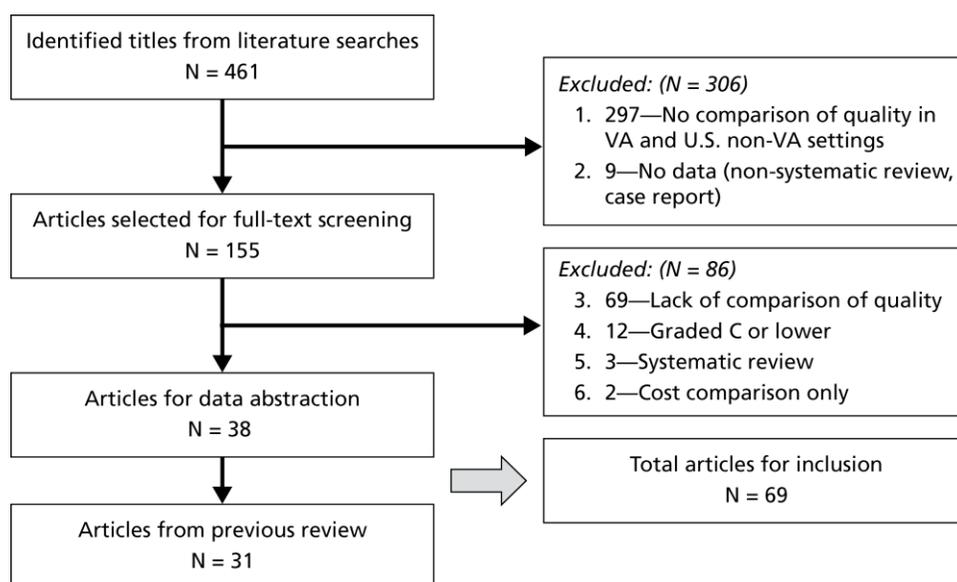
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Strengths and Limitations of Review. Our review has several strengths, including using systematic methods and using only adjusted results, which more fairly accounts for differences in patient characteristics between VA and non-VA care. Limitations of our review include the possibility of publication bias, in which studies that fail to show a statistically significant difference in a comparison are not submitted or accepted for publication. However, as Asch et al. (2010) point out, it is not clear which directionality of a comparison of quality of care between VA and non-VA facilities would lead to a study not being published. Although we used systematic review methods, it is possible that the patient populations are sufficiently different to make a comparison of results, even though adjusted for differences, subject to bias. Another limitation is almost all of the studies were supported by VA research funding or had VA investigators performing the work, which may have introduced some bias.

Appendix A.6 Developing Policy Options

This subsection contains additional information regarding the methods used to identify and describe potential policy options for improving VA's ability to provide timely and accessible care to Veterans. There are two parts to this appendix:

Methods to establish criteria for evaluating policy options (Subsection A.6.1)
Systematic literature review (Subsection A.6.2).

Appendix A.6.1 Methods to Establish Evaluation Criteria for Policy Options

We began with a standard set of evaluation criteria commonly used to evaluate the value and feasibility of health policy options (Rossell, 1993):

- Economic feasibility, including costs and benefits

- Equity, which refers to the social distribution of costs and benefits
- Effectiveness, which is the extent to which the policy would achieve the stated policy objectives
- Operational feasibility, including both legal authority and ease of implementation
- Stakeholder acceptability, which refers to both political and social acceptability.

In an iterative process utilizing data from our interviews and literature review and input from our in-house experts, we further refined this list to better suit the unique context of VA and the issue of timely access to care. Our final set of evaluative criteria included:

- Impact on access: the extent to which the stated policy option is likely to achieve improvements in timely and accessible care.
- Fiscal impact: direct costs and potential savings (that is, fiscal benefits to be realized) associated with implementing the policy option
- Stakeholder acceptability: the likelihood that the policy option will have sufficient stakeholder support to be politically feasible to legislate or to implement by VA under its existing authority
- Operational feasibility: the ease of implementing the policy option into practice.

We excluded "equity" as a separate criterion because social justice and social distribution are issues impacting social acceptability and, as such, would include the stakeholder acceptability criterion. We also excluded the issue of legal authority from our definition of administrative feasibility, as this is separately covered in detail by Assessment C.

Appendix A.6.2 Systematic Literature Review

Once an initial list of possible policy options was drafted, we conducted a more exhaustive review of the peer-reviewed and gray literature for options and approaches to improve VA's ability to provide timely and accessible care (see Figure A-3). Data from the literature review were used to identify new policy options and to modify the initial list, as well as to collect evidence pertaining to the evaluation criteria in order to compare and contrast a final set of policy options.

Figure A-3. Flow Chart of Peer-Reviewed and Grey Literature

| PubMed Main Search: **548 articles** | PubMed Supplemental Search: **792 articles** | Grey Literature Search **75 documents** |

Number of records for screening (duplicates removed): **1,243 articles**

Number of records excluded: **1,035 articles**

Number of records excluded: **38 articles**

Number of records after title/abstract screening: **208 articles**

Number of records excluded: **55 articles**

Number of records after full-text screening: **153 articles for abstraction**

Number of records after title/abstract/full-text screening: **37 articles for abstraction**

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Peer-Reviewed Literature: We first searched PubMed for all English-language articles published from 1995 to the present using a broad search strategy that combined terms representing VA resources and capabilities and each of the dimensions of access (see Table A-7). We also conducted separate targeted searches on potential policy options that were mentioned during the key informant interviews and not fully captured in the main literature search, and on topics that were most frequently raised during the interviews, such as contracted care, DoD care, waitlists and scheduling, physician recruitment, and hiring and overall access to care (Table A-8).

Table A-7. Search Strategy: Main Search for Potential Policy Options

Dimension	Strategy
Fiscal and Economic Resources	(((united states department of veterans affairs[majr] OR hospitals, veterans[majr] OR veterans health[majr])) AND ((Organization and Administration[Mesh]))) AND ((financial management[majr] OR economics[majr] OR budgets[majr] OR financing[majr] OR financing, government[majr] OR financing, organized[majr] OR healthcare financing[majr]))
Workforce	((((united states department of veterans affairs[majr] OR hospitals, veterans[majr] OR veterans health[majr])) AND ((Organization and Administration[Mesh])))) AND ((health manpower[majr] OR personnel management[majr] OR health personnel[majr]))
Physical Infrastructure	((((united states department of veterans affairs[majr] OR hospitals, veterans[majr] OR veterans health[majr])) AND ((Organization and Administration[Mesh])))) AND ((infrastructure OR facilities[ti]))
Interorganizational Relations	((((united states department of veterans affairs[majr] OR hospitals, veterans[majr] OR veterans health[majr])) AND ((Organization and Administration[Mesh])))) AND ((inter-organization* OR inter-institution* OR interorganization* OR organizational relation* OR partner*))
Informational Resources	(((united states department of veterans affairs[majr] OR hospitals, veterans[majr] OR veterans health[majr])) AND ((Organization and Administration[Mesh]))) AND (((electronic medical records OR emr OR computerized physician order entry OR cpoe OR computerized order entry OR computerised order entry OR electronic health record* OR Medical Order Entry Systems OR information technolog* OR information resource* OR medical informatics[majr])))
System Boundaries and Size	((((united states department of veterans affairs[majr] OR hospitals, veterans[majr] OR veterans health[majr])) AND ((Organization and Administration[Mesh])))) AND ((size[ti] OR boundary OR boundaries OR limit*[ti]))

Table A-8. Search Strategy: Targeted Search

Dimension	Strategy
Access to VA Care	(health services accessibility[MeSH Terms]) AND united states department of veterans affairs[MeSH Terms]
Specific: Contract Care	(((("united states department of veterans affairs"[majr] OR hospitals, veterans[majr] OR veterans health[majr] OR veteran[tiab] OR veterans[tiab] OR va[ti])) AND outsourc*))
	((("united states department of veterans affairs"[majr] OR hospitals, veterans[majr] OR veterans health[majr] OR veteran[tiab] OR veterans[tiab] OR va[ti])) AND "fee-based care")
	(((("united states department of veterans affairs"[majr] OR hospitals, veterans[majr] OR veterans health[majr] OR veteran[tiab] OR veterans[tiab] OR va[ti])) AND "purchased care"))
	((((("united states department of veterans affairs"[majr] OR hospitals, veterans[majr] OR veterans health[majr] OR veteran[tiab] OR veterans[tiab] OR va[ti])) AND "contract* care")))
	(((((("united states department of veterans affairs"[majr] OR hospitals, veterans[majr] OR veterans health[majr] OR veteran[tiab] OR veterans[tiab] OR va[ti])))) AND "non-va care"
Specific: Wait lists	(((("united states department of veterans affairs"[majr] OR hospitals, veterans[majr] OR veterans health[majr] OR veteran[tiab] OR veterans[tiab] OR va[ti])) AND waiting list[MeSH Terms]) AND list, waiting[MeSH Terms]) AND lists, waiting[MeSH Terms]
Specific: DoD	((("United States Department of Defense"[Mesh]) AND (united states department of veterans affairs[majr] OR hospitals, veterans[majr] OR veterans health[majr] OR veteran[tiab] OR veterans[tiab] OR va[ti])))
Specific: Workforce	((("united states department of veterans affairs"[majr] OR hospitals, veterans[majr] OR veterans health[majr] OR veteran[tiab] OR veterans[tiab] OR va[ti])) AND (personnel staffing and scheduling[MeSH Terms]))
	((((("united states department of veterans affairs"[majr] OR hospitals, veterans[majr] OR veterans health[majr] OR veteran[tiab] OR veterans[tiab] OR va[ti])))) AND (salaries and fringe benefits[MeSH Terms])
	(((((("united states department of veterans affairs"[majr] OR hospitals, veterans[majr] OR veterans health[majr] OR veteran[tiab] OR veterans[tiab] OR va[ti])))))) AND personnel selection[MeSH Terms]
	((((("united states department of veterans affairs"[majr] OR hospitals, veterans[majr] OR veterans health[majr] OR veteran[tiab] OR veterans[tiab] OR va[ti])) AND "contract* care")))

Review and Abstraction Process: Two researchers independently screened first titles, then abstracts, and finally the full texts of the identified articles, applying a consensus-based set of inclusion criteria at each stage. Briefly, we included articles of any type or study design that analyzed, made recommendations, and/or discussed barriers and facilitators to providing timely and accessible care within VA. Three researchers then independently reviewed the full texts of then-accepted articles and abstracted the following information into an Excel spreadsheet: author, title, manuscript type, objective, primary domain, secondary domain, and key findings. Based on the key domains in the conceptual framework, the domains were community care, workforce, physical infrastructure, information technology, interorganizational relationships other than community care, and care management. We also included wait time as a domain to capture articles related to scheduling and timeliness of appointments.

Grey Literature Search: We searched think tank, research institute, and foundation websites (for example, RAND, Commonwealth Fund, Brookings Institute, Cato Institute, Kaiser Family Foundation, Robert Wood Johnson Foundation, National Bureau of Economic Research) for research and policy reports pertaining to timely and accessible care in VA. We also searched multiple government websites, including VA, DoD, Congressional Budget Office, GAO, Congressional Research Service, and VA Office of Inspector General and Defense Technical Information Center, for relevant reports and data pertaining to VA's ability to provide timely and accessible care. Additionally, we reviewed congressional testimony before the House Veterans Affairs Committee and Senate Veterans Affairs Committee to better understand congressional priorities and potential challenges to policy development, adoption, and implementation, and to capture the perspectives of key stakeholders. Finally, we searched gray literature sites such as the New York Academy of Medicine Grey Literature Report, GreyNet International, Google Scholar, and Google for any additional data or research and policy reports. We searched for reports published between 2005 and the present and, where relevant, used a combination of search terms representing VA capabilities and resources, access to care, and each of the dimensions of access. We restricted the date range for our search of congressional testimony to the past two years to identify the most recent policy priorities in the context of the current wait-time issues facing VA. Two researchers independently reviewed the titles, abstracts, and full-texts of the articles and abstracted the following information into an Excel spreadsheet: author, title, primary domain, and key findings.

Appendix A.7 Projecting Future VA Capabilities and Resources

This subsection covers additional methods used in projecting future VA capabilities and resources to provide timely, accessible care. There are two topics covered in this subsection:

- Data sources, input preparation, and data validation (Subsection A.7.1)
- Analytical methods (Subsection A.7.2).

Appendix A.7.1 Data Sources, Input Preparation, and Data Validation

This subsection details the data sources and model input preparation necessary to implement the projection models. Specifically, this subsection details the VA EHCPM demand RVU forecasts and the VA staffing data obtained from the VA Productivity Cube. The EHCPM initially forecasts RVU demand by VA Sector (geographic area) and by EHCPM Healthcare Service Category. The EHCPM then translates the forecasts from VA Sector-Healthcare Service Categories to VA specialties and administrative parents. Our analysis uses the results of these EHCPM translations, but we independently verified the quality of the mapping. This subsection also presents an independent comparison of the data used for quantifying how historical FTE data from the VA Productivity Cube and EHCPM RVU forecasts differ from observed FY14 FTE and RVU data provided by VA and compiled by Assessment G. The data received from Assessment G data are used in Section 3 on workforce and human resources.

VA Staffing Data. The VA staffing data used in the projection models are taken from the VA Productivity Cube and contain the number of physician clinical FTEs from 2009 through 2015 for each administrative parent and specialty. The VA staffing data are mostly complete, but there are some specialties and specialty-administrative parent combinations that do not contain enough historical data to build an FTE projection model. We exclude any specialty-administrative parent combinations with less than six years of data from the projection model.

Demand Forecast Data. The EHCPM forecasts made available to Assessment B are based on historical data through FY13 with forecasts for RVUs for FY14 through FY23. The EHCPM 10-year annual forecast of demand is measured in RVUs and provided by VA specialty and VA administrative parent. To generate this, the EHCPM projects Healthcare Service Categories by repackaging Current Procedural Terminology codes based on Milliman's proprietary model. The EHCPM projects Veteran enrollment and utilization for 83 Healthcare Service Categories for each of 425 VA geographic sectors that are areas defined by the residential locations of Veterans. The model determines the number of Veterans enrolled in the VA for each forecasted year and then estimates the portion of care that the enrollees will demand from the VA (that is, reliance) (Milliman Inc., 2014). The EHCPM then translates the forecasted RVUs by VA sector and Healthcare Service Category into forecasted RVU by VA specialty and administrative parent by matching the sectors to administrative parents and Healthcare Service Categories to the appropriate physician specialties.

Independent Evaluation of Converting EHCPM Data Forecasts from Healthcare Service Category and VA Sector to VA Specialty and Administrative Parent. We independently assessed this conversion by performing our own basic RVU mapping of Healthcare Service Categories to physician specialties and VA sectors to administrative parent. Three RAND researchers, one a physician (MD) and subject matter expert, reviewed the Healthcare Service Category descriptions and attributed them to the VA physician specialties.

We reallocated Veteran statistics from VA sector to administrative parent catchment area by using 2014 Veteran population at the U.S. Census block group level as a proxy for Veteran statistics in general. We pulled Veteran estimates by block group from the American Community Survey five-year estimates for 2014 along with the associated spatial block group GIS files. Because VA sectors are composed of collections of whole counties, we were able to

code these block groups unambiguously by VA sector. We then calculated the total number of Veterans (as measured by the American Community Survey) for each VA sector by summing the Veteran population for each of the block groups in each sector. We then calculated the fraction of the Veteran population from each sector residing in each block group by dividing the population of that block group by the Veteran population of the sector in which it is contained. We then coded block groups by 40-mile drive radius (which is very similar to the one-hour drive time radius) to approximate the prime catchment area for each administrative parent. With this coding in place, we were able to calculate the percentage of the Veterans from each sector falling into the prime catchment area of each administrative parent. These fractions could then be used to translate any projection about Veteran populations stated at the VA sector level to the administrative parent level.

We then summed the pertinent Healthcare Service Category for each specialty and used the proportion of demand from each sector that applied to each administrative parent. We compared the resultant projected summed Healthcare Service Category by specialty-administrative parent with the projected RVU by specialty-administrative parent performed by Milliman on behalf of VA.

In general, RAND's conversion of Veteran conditions and residences to VA physician specialties at facilities matched quite well to the same conversion as performed for EHCPM. The Assessment B team independently converted the data for 14 specialties at 118 administrative parents. Of the 1,652 possible specialty-administrative parent combinations, 85 percent showed correlations of Assessment B and EHCPM conversions greater than 0.9. The low correlations were clustered within three specialties: nephrology (37 of 118 administrative parents with correlation <0.9), psychology (50 of 118 administrative parents with correlation <0.9), and obstetrics and gynecology (81 of 118 administrative parents with correlation <0.9). Other specialties exhibited correlations less than 0.9 in 15 percent or fewer of the administrative parents. This likely indicates differences in the conversion logic used by Assessment B and the EHCPM to match Healthcare Service Categories to physician specialties. The overall conclusion is that an independent look at the conversion process appears to validate this aspect of the demand projection used in workforce planning by VA.

Differences Between the EHCPM Projected Demand RVUs and Observed RVUs in FY 2014. We obtained projected demand from the EHCPM for FY 2014 through FY 2019. We also obtained observed RVUs from Assessment G for FY 2014. Assessment G obtained the observed RVU data from the VISTA New Person File, the VISTA Patient Care Encounter File, and the Monthly Program Cost Report. Comparing across the projected and actual data for FY 2014, we found that the FY 2014 EHCPM projected demand estimates are close to the observed data provided by Assessment G though not identical. Nationally, the EHCPM forecasted RVUs were between five percent and 15 percent larger than the observed RVUs for most specialties. The discrepancies did not appear to be administrative parent-specific and it is unclear what the causes are aside from the fact that EHCPM RVUs are projections from FY 2013 and the data from Assessment G are observed actuals from FY 2104.

Differences Between Data from VA Productivity Cube and from Assessment G on FTEs in FY 2014. The FTE data used in the projection models is taken from the VA Productivity Cube and

contains the number of physician clinical FTEs from 2009 through 2015 for each administrative parent and specialty. We also obtained FY 2014 FTE data from Assessment G. Assessment G obtained their FTE data from the VISTA New Person File, the VISTA Patient Care Encounter File, and the Monthly Program Cost Report and generated FTE counts by administrative parents and specialty. Comparing across the two sources of FTE data, we found only very small differences, typically less than 5 percent for most specialties. It is unclear what is generating the small differences between Productivity Cube FTE data and the FTE data compiled and provided by Assessment G. We use the FTE data provided by Assessment G for our assessment of VA's workforce and human resources in Subsection 3.2 so that it is consistent with Assessment G. We use the FTE data from the Productivity Cube for the projection model since it was the only source that provided historical data that could be used to model trends.

Appendix A.7.2 Description of Analytic Methods

In this subsection, we describe the analytic method used in the forecasts. This subsection builds upon the discussion presented in Subsection 2.8.2.

Increasing the Number of Resources. The purpose of this projection, supply scenario one, is to assess how well projected supply (as measured by physician clinical FTEs) aligns with projected demand (measured in RVUs) overall, by provider specialty, by administrative parent, and by VISN. The provider forecasts at the administrative parent level project supply that would be produced if historical hiring trends persist. The supply projection is modeled as a linear regression model where the response is the number of physician FTE for a given specialty-administrative parent pair and the regressor is the year. The equation below shows the structure of the provider administrative parent-level regression model:

$$y = \beta_0 + \beta_1 * year + \varepsilon$$

Where y is the number of provider FTEs for a given specialty, β_0 is the intercept, "year" is the regressor and the specified year to forecast, β_1 is the coefficient for the year regressor, and ε is an error term representing the unexplained variation in the data. The model uses at least six but up to seven years of VA staffing data to fit the regression and forecast FTEs for FY 2015 through FY 2019 by administrative parent and VA specialty. In general, the fitted regression models had highly variable quality of fits. Seventy-five percent of the administrative parent specialties had an R^2 greater than 0.15, 50 percent had an R^2 greater than 0.43, 25 percent had an R^2 greater than 0.72, and 10 percent had an R^2 greater than 0.87. The analysis team decided to use these models for forecasts despite the highly variable fit quality because the intent is to capture overall trends over the seven years of historical data; some VA administrative parent-specialty combinations added provider FTEs and then removed them over the course of the seven years, which decreased the quality of fit for the model. Because for some models there are quality of fit concerns and because provider FTE trends found in the seven years of data may not continue for the several years in the future, the analysis limits the provider FTE forecasts to a maximum of a 30-percent change from the mean FTEs in FY 2014.

Having conducted our own projection of FTEs and having validated the projections of demand provided measured in RVUs by the EHCPM, the analysis team took the difference between these projections to identify in which administrative parent and specialty combinations where

projected growth in demand was expected to exceed projected growth in supply. The difference between EHCPM forecasted percent change in RVU (Demand) to the FTE (Supply) forecasted percent change from FY14 to FY19:

$$\text{FTE} - \text{RVU Difference} = (\text{Forecasted \% change in FTE from FY14 to FY19})$$
$$- (\text{Forecasted \% change in RVU from FY14 to FY19})$$

The analysis focuses on five-year projections in the report because these projections are more reliable than are 10-year projections, which would be highly unpredictable if any systemic changes occurred, such as new legislation or executive policies.

Improving Provider Productivity. The purpose of this projection, supply scenario two, is to quantify how increased provider productivity can increase capacity to manage demand increases in the future. The policy options that improve efficiency of internal resources have the potential to enable providers to be more productive. RVU per FTE from EHCPM is used in this analysis as the measure of productivity.

This projection targets administrative parents with low RVU/FTE ratios and increases their productivity to a specified level within a specialty. The specified levels are then varied in three ways:

- **Productivity Level 1**: All administrative parents operate at least at the FY 2014 25th RVU/FTE percentile within each specialty nationally.

- **Productivity Level 2**: All administrative parents operate at least at the FY 2014 50th RVU/FTE percentile within each specialty nationally.

- **Productivity Level 3**: All administrative parents operate at least at the FY 2014 75th RVU/FTE percentile within each specialty nationally.

For example, if administrative parent A is operating at the 16th RVU/FTE percentile nationally within cardiology, the first bullet analysis would raise their productivity to the 25th percentile nationally within cardiology. The productivity of the administrative parents that operate above the specified level is left unchanged. Increasing the administrative parent productivity will increase the number of RVUs that can be seen per provider FTE.

This analysis quantifies how many RVUs would be gained for each specialty if all administrative parents were performing at the three productivity levels for each specialty. Then the analysis compares the gain in RVU with the projected increased demand of RVU from FY 2014 to FY 2019 from the EHCPM. In addition, for supply scenario three, we project the RVU gains if both the FTE forecasts and productivity gains were realized. The analysis also quantifies the percentage of RVU demand that would have to be redistributed if provider productivity increased.

Appendix B   Survey

1.1 Appendix B.1 Overview

The 2015 Survey of VA Resources and Capabilities, part of Assessment B, was designed to identify clinically meaningful delays for Veterans in access to care for seven illustrative clinical conditions: PTSD, SUD, TBI, acute coronary syndromes, colon cancer, diabetes mellitus (type 2), and conditions requiring gynecologic surgery. The conditions were chosen based on their importance to VA (for example, high prevalence, congressional focus, service connection) and were selected to represent diversity across care settings, acuity, type of care, workforce, and population characteristics (for example, sex, age, era of military service).

To develop the survey, the team specified clinical care trajectories for each of the seven conditions, based on existing VA and DoD clinical practice guidelines (where available) and on interviews with VA and non-VA subject matter experts. The care trajectories map out the different care paths that a patient with one of the clinical conditions might take, depending on the severity of the condition and the resources available. The survey asked respondents to report how often there were clinically meaningful delays at various junctures in each care trajectory. Where delays were identified, respondents were asked to indicate which of the solution components listed might be important in reducing the delay. The survey also contained questions related to workforce in order to evaluate the difficulties VA may be facing in recruiting, hiring, and retaining the clinical personnel necessary to provide care to Veterans in these clinical populations.

In addition to condition-specific data, the survey sought to gather information at the facility level about issues that negatively impacted provider and system efficiency, about use of purchased care, and about the availability and use of information technology.

Reflecting these goals, the survey had eight modules—a general module focused on facility-level issues, and one module for each of the seven conditions. The survey was sent to the Chief of Staff at the parent facility of each local VA system, nationwide. The Chief of Staff was asked to complete the "general module," which focused on primary care and topics not specific to the care of one of the illustrative populations, and to send the other modules to the clinical chiefs (or other leadership) best able to speak about care for the clinical condition of interest (for example, chief of cardiology for acute coronary syndromes; chief of gastroenterology for colon cancer).

By virtue of the respondents' leadership positions and the fact that parallel questions were asked across disciplines and across facilities nationwide, the results offer a unique opportunity to understand common concerns and how those varied, both across clinical specialties and between VA facilities. In addition to questions about specific services, respondents had an opportunity to amplify their answers and to offer general observations about the functioning of the VA health care system and the access to care it provides for Veterans.

Our discussion of the survey results is organized as follows. We begin by describing our methods, including development, piloting, and administration of the survey. We then report

the survey results for the eight modules, beginning with the general module for which the Chief of Staff was the intended respondent. We conclude with some general observations about issues and solution components that figure prominently in the survey results. Tables in Appendix I report the raw data from each survey module. Additional tables referenced in this text are also in Appendix I.

1.2 Appendix B.2 Methods

1.2.1 Appendix B.2.1 Questionnaire Development

We developed survey questions targeted to the Chief of Staff at each parent facility. We also developed questions designed to be answered by the service chiefs most appropriate for each of the seven clinical care trajectories. These questions were designed to identify potential bottlenecks in care at key junctures in each of the clinical care trajectories. The survey questions first elicit respondents' perceptions about the existence of *clinically meaningful* delays. Specifically, respondents were asked to "*Consider delays which might put a patient at risk for adverse outcomes, slow resolution of symptoms, or which are not compliant with VA/DoD guidelines.*" We use the term *clinically meaningful* in our discussion as shorthand for this more precise definition. Here is an example survey question from the colon cancer module.

> Consider the use of colonoscopy for patients with the following indications. In the PAST 12 MONTHS, how often were there delays in colonoscopy for patients with the following indications: Screening for average-risk patients; Screening for high-risk patients (for example, strong family history of colon cancer or personal history of inflammatory bowel disease.)

Respondents indicate the proportion of patients with clinically meaningful delays on a five-point scale ranging from "No delay" to "51 percent or more of patients experience a clinically meaningful delay."

Respondents who indicated that delays sometimes exist were asked to formulate a solution for reducing delays and to then rate the importance of various components to that solution (using a four-point scale ranging from "critically important" to "unimportant").

> Based on your knowledge and experience, think of the most effective way to reduce delays for colonoscopy. How important are each of the following elements in your solution: Less use of colonoscopy for screening; Discourage inappropriate colonoscopy (for example, surveillance for adenomas earlier than recommended by guidelines); Better scheduling mechanism to avoid no-shows; Hire more gastroenterologists; Build more procedure rooms; Increase weekend and evening availability of colonoscopy; Allow patients more access to colonoscopy outside VA system (purchased care)?

Each module also contained a question that asked respondents to identify issues that affect provider and system efficiency, and to rate the degree to which each of the following had a negative impact:

- Providers performing clinical activities that could be performed by individuals with less training

- Providers performing administrative activities that could be performed by others
- Residency training/teaching requirements
- Insufficient clinical/administrative support staff
- Inadequate scheduling system and policies (for example, hard to cancel or reschedule, coordinate)
- Unnecessary documentation requirements or inefficient CPRS interface
- Patient no-show rates
- Poor patient flow management (room/bed turnover, appointments)
- Too many administrative requirements (Initiatives/Policies/Programs).

There were two questions about workforce recruitment and retention: We asked respondents whether they had difficulty recruiting and retaining clinicians with expertise in the clinical condition of interest. The chiefs of staff were asked about staff categories that spanned multiple conditions. For those facilities reporting difficulties in recruiting or retaining staff in a given category, respondents were asked to identify barriers to recruitment and retention. Suggested barriers were the same for the Chief of Staff and all disease-specific modules. Possible barriers to recruitment included the following:

1. Senior management does not agree to post new position
2. Non-competitive wages
3. Work schedule (for example, call requirements)
4. Benefits (for example, health insurance, leave, continuing education, travel)
5. Equipment/resources/office space
6. Facility condition
7. Case types/complexity
8. VA reputation
9. No academic affiliation/lack of protected time for early career investigator
10. Geographic location of facility
11. HR process (for example, time to advertise; length of time from job offer to start date)
12. Lack of qualified applicants

We were also interested in understanding why there might be problems in retaining the same staff categories. Possible barrier options were as follows:

1. Lack of opportunity for professional growth/promotion
2. Dissatisfaction with supervision/management support
3. Dissatisfaction with support staff
4. Dissatisfaction with physical demands of the job

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5. Lack of frozen pathology or gynecology backup

6. Lack of trained operating room support or lack of post-operating room nursing support

7. Dissatisfaction with workload

8. Lack of incentives or "management levers" to encourage productivity (that is, no accountability)

9. Organizational culture that does not prioritize/encourage productivity

10. Administrative/program demands

11. Lack of professional autonomy

12. Dissatisfaction with pay

13. Work schedule

The categories for barriers to recruitment and retention were developed from existing VA survey questions, retention and recruitment issues raised in the literature, and in consultation with VA. All survey questions were reviewed by a range of VA and non-VA survey, data, and clinical experts and then revised.

1.2.2 **Appendix B.2.2 Pilot Test**

Each survey module was pilot-tested by a sample of two to five additional VA subject matter experts identified by RAND and VA staff. Pilot study respondents were asked to provide feedback on the survey instructions, questions, and time required to complete each module. The survey was revised based on feedback from the pilot testing. To the extent possible, question formats were consistent across modules.

1.2.3 **Appendix B.2.3 Sample Frame**

The survey sample frame included all of VA's 141 administrative parents (for example, local health care systems with at least one hospital and its affiliated clinics). The administrative parent within VA is defined as:

> A collection of all the points of service that a leadership group (Medical Facility Director, Deputy Medical Facility Director, Chief of Staff, Associate or Assistant Director, and Nurse Executive) manages. The points of service can include any institution where health care is delivered. All of the data that originate from these points of service roll up to a single station number representing the administrative parent for management and programmatic activities.

The administrative parents are distributed across the United States and the territories, including the Philippines and Puerto Rico (see Table B-1).

Table B-1. VA Administrative Parents, by VISN

VISN	Station Number	Name	City, State
1	402	Maine VA Medical Center	Augusta, Maine
	405	White River Junction VA Medical Center	White River Junction, Vermont
	518	Edith Nourse Rogers Memorial VA Medical Center-Bedford	Bedford, Massachusetts
	523	Boston VA Medical Center-Jamaica Plain	Boston, Massachusetts
	608	Manchester VA Medical Center	Manchester, New Hampshire
	631	Central Western Massachusetts VA Medical Center-Leeds	Leeds, Massachusetts
	650	Providence VA Medical Center	Providence, Rhode Island
	689	Connecticut VA Medical Center-West Haven	West Haven, Connecticut
2	528	Western New York VA Medical Center-Buffalo	Buffalo, New York
	528A5	Canandaigua VA Medical Center	Canandaigua, New York
	528A6	Bath VA Medical Center	Bath, New York
	528A7	Syracuse VA Medical Center	Syracuse, New York
	528A8	Samuel S. Stratton VA Medical Center-Albany	Albany, New York
3	526	James J. Peters VA Medical Center-Bronx	Bronx, New York
	561	New Jersey VA Medical Center-East Orange	East Orange, New Jersey
	620	Franklin Delano Roosevelt VA Medical Center-Montrose	Montrose, New York
	630	New York Harbor VA Medical Center-Manhattan	New York, New York
	632	Northport VA Medical Center	Northport, New York
4	460	Wilmington VA Medical Center	Wilmington, Delaware
	503	James E. Van Zandt VA Medical Center-Altoona	Altoona, Pennsylvania
	529	Butler VA Medical Center	Butler, Pennsylvania

VISN	Station Number	Name	City, State
	540	Louis A. Johnson VA Medical Center-Clarksburg	Clarksburg, West Virginia
	542	Coatesville VA Medical Center	Coatesville, Pennsylvania
	562	Erie VA Medical Center	Erie, Pennsylvania
	595	Lebanon VA Medical Center	Lebanon, Pennsylvania
	642	Philadelphia VA Medical Center	Philadelphia, Pennsylvania
	646	Pittsburgh VA Medical Center-University Drive	Pittsburgh, Pennsylvania
	693	Wilkes-Barre VA Medical Center	Wilkes-Barre, Pennsylvania
5	512	Maryland VA Medical Center-Baltimore	Baltimore, Maryland
	613	Martinsburg VA Medical Center	Martinsburg, West Virginia
	688	Washington VA Medical Center	Washington, District of Columbia
6	517	Beckley VA Medical Center	Beckley, West Virginia
	558	Durham VA Medical Center	Durham, North Carolina
	565	Fayetteville VA Medical Center	Fayetteville, North Carolina
	590	Hampton VA Medical Center	Hampton, Virginia
	637	Charles George VA Medical Center-Asheville	Asheville, North Carolina
	652	Hunter Holmes McGuire VA Medical Center-Richmond	Richmond, Virginia
	658	Salem VA Medical Center	Salem, Virginia
	659	W.G. (Bill) Hefner VA Medical Center-Salisbury	Salisbury, North Carolina
7	508	Atlanta VA Medical Center	Decatur, Georgia
	509	Charlie Norwood VA Medical Center-Augusta	Augusta, Georgia
	521	Birmingham VA Medical Center	Birmingham, Alabama
	534	Ralph H. Johnson VA Medical Center-Charleston	Charleston, South Carolina
	544	William Jennings Bryan Dorn VA Medical Center-Columbia	Columbia, South Carolina

VISN	Station Number	Name	City, State
	557	Carl Vinson VA Medical Center-Dublin	Dublin, Georgia
	619	Central Alabama VA Medical Center-Montgomery	Montgomery, Alabama
	679	Tuscaloosa VA	Tuscaloosa, Alabama
8	516	C.W. Bill Young VA Medical Center-Bay Pines	Bay Pines, Florida
	546	Bruce W. Carter VA Medical Center-Miami	Miami, Florida
	548	West Palm Beach VA Medical Center	West Palm Beach, Florida
	573	Malcom Randall VA Medical Center-Gainesville	Gainesville, Florida
	672	San Juan VA Medical Center	San Juan, Puerto Rico
	673	James A. Haley VA Medical Center-Tampa	Tampa, Florida
	675	Orlando VA Medical Center	Orlando, Florida
9	581	Huntington VA Medical Center	Huntington, West Virginia
	596	Lexington VA Medical Center-Leestown	Lexington, Kentucky
	603	Robley Rex VA Medical Center-Louisville	Louisville, Kentucky
	614	Memphis VA Medical Center	Memphis, Tennessee
	621	James H. Quillen VA Medical Center-Mountain Home	Mountain Home, Tennessee
	626	Tennessee Valley VA Medical Center-Nashville	Nashville, Tennessee
10	538	Chillicothe VA Medical Center	Chillicothe, Ohio
	539	Cincinnati VA Medical Center	Cincinnati, Ohio
	541	Louis Stokes VA Medical Center-Cleveland	Cleveland, Ohio
	552	Dayton VA Medical Center	Dayton, Ohio
	757	Chalmers P. Wylie VA Ambulatory Care Center-Columbus	Columbus, Ohio
11	506	Ann Arbor VA Medical Center	Ann Arbor, Michigan

VISN	Station Number	Name	City, State
	515	Battle Creek VA Medical Center	Battle Creek, Michigan
	550	Illiana VA Medical Center-Danville	Danville, Illinois
	553	John D. Dingell VA Medical Center-Detroit	Detroit, Michigan
	583	Richard L. Roudebush VA Medical Center-Indianapolis	Indianapolis, Indiana
	610	Northern Indiana VA Medical Center-Marion	Marion, Indiana
	655	Aleda E. Lutz VA Medical Center-Saginaw	Saginaw, Michigan
12	537	Jesse Brown VA Medical Center-Chicago	Chicago, Illinois
	556	Captain James A. Lovell VA Medical Center-North Chicago	North Chicago, Illinois
	578	Edward Hines Jr. VA Medical Center-Hines	Hines, Illinois
	585	Oscar G. Johnson VA Medical Center-Iron Mountain	Iron Mountain, Michigan
	607	William S. Middleton Memorial Veterans Medical Center-Madison	Madison, Wisconsin
	676	Tomah VA Medical Center	Tomah, Wisconsin
	695	Clement J. Zablocki VA Medical Center-Milwaukee	Milwaukee, Wisconsin
15	589	Kansas City VA Medical Center	Kansas City, Missouri
	589A4	Harry S. Truman VA Medical Center-Columbia	Columbia, Missouri
	589A5	Colmery-O'Neil VA Medical Center-Topeka	Topeka, Kansas
	589A7	Robert J. Dole VA Medical Center-Wichita	Wichita, Kansas
	657	John Cochran VA Medical Center-St. Louis	St. Louis, Missouri
	657A4	John J. Pershing VA Medical Center-Poplar Bluff	Poplar Bluff, Missouri
	657A5	Marion VA Medical Center	Marion, Illinois

VISN	Station Number	Name	City, State
16	502	Alexandria VA Medical Center	Pineville, Louisiana
	520	Gulf Coast VA Medical Center-Biloxi	Biloxi, Mississippi
	564	Fayetteville VA Medical Center	Fayetteville, Arkansas
	580	Michael E. DeBakey VA Medical Center-Houston	Houston, Texas
	586	G.V. (Sonny) Montgomery VA Medical Center-Jackson	Jackson, Mississippi
	598	John L. McClellan VA Medical Center-Little Rock	Little Rock, Arkansas
	623	Jack C. Montgomery VA Medical Center-Muskogee	Muskogee, Oklahoma
	629	Southeast Louisiana VA Medical Center-New Orleans	New Orleans, Louisiana
	635	Oklahoma City VA Medical Center	Oklahoma City, Oklahoma
	667	Overton Brooks VA Medical Center-Shreveport	Shreveport, Louisiana
17	549	North Texas VA Medical Center-Dallas	Dallas, Texas
	671	Audie L. Murphy VA Medical Center-San Antonio	San Antonio, Texas
	674	Olin E. Teague VA Medical Center-Temple	Temple, Texas
	740	Texas Valley Coastal Bend VA Medical Center-Harlingen	Harlingen, Texas
18	501	Raymond G. Murphy VA Medical Center-Albuquerque	Albuquerque, New Mexico
	504	Thomas E. Creek VA Medical Center-Amarillo	Amarillo, Texas
	519	George H. O'Brien, Jr. VA Medical Center-Big Spring	Big Spring, Texas
	644	Carl T. Hayden VA Medical Center-Phoenix	Phoenix, Arizona
	649	Northern Arizona VA Medical Center-Prescott	Prescott, Arizona

VISN	Station Number	Name	City, State
	678	Southern Arizona VA Medical Center-Tucson	Tucson, Arizona
	756	El Paso VA Medical Center	El Paso, Texas
19	436	Montana VA Medical Center-Fort Harrison	Fort Harrison, Montana
	442	Cheyenne VA Medical Center	Cheyenne, Wyoming
	554	Eastern Colorado VA Medical Center-Denver	Denver, Colorado
	575	Grand Junction VA Medical Center	Grand Junction, Colorado
	660	George E. Wahlen VA Medical Center-Salt Lake City	Salt Lake City, Utah
	666	Sheridan VA Medical Center	Sheridan, Wyoming
20	463	Alaska VA Medical Center-Anchorage	Anchorage, Alaska
	531	Boise VA Medical Center	Boise, Idaho
	648	Portland VA Medical Center	Portland, Oregon
	653	Roseburg VA Medical Center	Roseburg, Oregon
	663	Puget Sound VA Medical Center-Seattle	Seattle, Washington
	668	Mann-Grandstaff VA Medical Center-Spokane	Spokane, Washington
	687	Jonathan M. Wainwright Memorial VA Medical Center-Walla Walla	Walla Walla, Washington
	692	Southern Oregon VA Medical Center-White City	White City, Oregon
21	358	Manila VA Clinic	Phillipines
	459	Spark M. Matsunaga VA Medical Center-Honolulu	Honolulu, Hawaii
	570	Central California VA Medical Center-Fresno	Fresno, California
	612	Northern California VA Medical Center-Martinez	Martinez, California
	640	Palo Alto VA Medical Center	Palo Alto, California
	654	Ioannis A. Lougaris VA Medical Center-Sierra Nevada Reno	Reno, Nevada

VISN	Station Number	Name	City, State
	662	San Francisco VA Medical Center	San Francisco, California
22	593	Southern Nevada VA Medical Center-Las Vegas	North Las Vegas, Nevada
	600	Long Beach VA Medical Center	Long Beach, California
	605	Loma Linda VA Medical Center	Loma Linda, California
	664	San Diego VA Medical Center	San Diego, California
	691	Greater Los Angeles VA Medical Center	West Los Angeles, California
23	437	Fargo VA Medical Center	Fargo, North Dakota
	438	Sioux Falls VA Medical Center	Sioux Falls, South Dakota
	568	Black Hills VA Medical Center-Fort Meade	Fort Meade, South Dakota
	618	Minneapolis VA Medical Center	Minneapolis, Minnesota
	636	Nebraska-Western Iowa VA Medical Center-Omaha	Omaha, Nebraska
	636A6	Central Iowa VA Medical Center-Des Moines	Des Moines, Iowa
	636A8	Iowa City VA Medical Center	Iowa City, Iowa
	656	St. Cloud VA Medical Center	St. Cloud, Minnesota

1.2.4 Appendix B.2.4 Survey Administration

The invitation to participate in the survey was sent via email directly to the Chief of Staff at each administrative parent. The email included instructions, links to the survey modules, and a signed letter from the Under Secretary for Health for the Department of Veterans Affairs encouraging VA employees to assist in the assessments of the Veterans Choice, Access and Accountability Act. The survey was web-based, and each of the eight modules could be completed independently. Survey instructions described suggested respondents, based on job title, for each of the modules. (Please see Table B-3 for the "Targeted Point of Contact" for each module). The Chief of Staff was responsible for completing the general module, identifying the most appropriate individual to complete each of the clinical condition modules, and overseeing the completion and return of all survey modules.

The survey was in the field for approximately two and a half weeks from Thursday, May 7, 2015, through Tuesday, May 26, 2015. During the survey fielding, the Chiefs of Staff were sent reminders via email and phone. Three question-and-answer phone sessions were held during the survey period, and respondents could also ask questions by phone or email.

1.2.5 **Appendix B.2.5 Response Rates**

Overall, the survey response rate was high, ranging from 83 percent for the general module to 94 percent for the PTSD module. These high response rates are reassuring in terms of the potential for bias due to non-response. Table B-2 shows variability in response rates across three key confounders: (1) region, (2) rural or urban designation, and (3) facility complexity as categorized by VA according to seven characteristics (for example, volume and patient case mix, total residency slots).

The general module (for Chiefs of Staff) had the most variability across potential confounders. We estimated a non-response weight using a logistic regression model that included all three confounders. Based on this model, we estimated the probability of response, and weighted estimates based on their inverse probability of response. This approach gives greater weight to facilities with lower response probabilities.

The condition-specific modules all had response rates greater than 90 percent. For these outcomes, we estimated response weights using a restricted model that included only rural/urban location. An evaluation of the weights and response rates suggested that the weights were not necessary; thus we present only unweighted results.

Table B-2. Response Rates

	N	General	PTSD	SUD	TBI	Acute Coronary Syndromes	Colon cancer	Diabetes Mellitus	Gynecologic surgery
N		117	117	114	107	100	109	111	107
Overall	141	0.83	0.94	0.91	0.91	0.91	0.93	0.91	0.93
Northeast	26	0.81	0.90	0.90	0.80	0.81	0.94	0.90	0.94
Midwest	34	0.85	0.90	0.90	0.86	0.90	0.83	0.82	0.92
South	50	0.86	1.00	0.98	0.98	1.00	1.00	1.00	0.95
West	29	0.79	0.92	0.81	0.90	0.81	0.88	0.85	0.88
Rural	21	0.76	0.88	0.88	0.79	0.86	0.82	0.88	0.85
Urban	119	0.85	0.95	0.92	0.92	0.91	0.94	0.91	0.94
Complexity 1a	32	0.84	1.00	0.93	0.96	0.93	1.00	1.00	0.93
Complexity 1b	16	0.94	1.00	0.93	0.93	0.93	1.00	1.00	1.00
Complexity 1c	26	0.89	0.92	0.92	0.92	0.88	0.92	0.92	0.96
Complexity 2	32	0.88	0.96	0.93	0.88	0.90	0.88	0.89	0.91

	N	General	PTSD	SUD	TBI	Acute Coronary Syndromes	Colon cancer	Diabetes Mellitus	Gynecologic surgery
Complexity 3	32	0.70	0.85	0.86	0.83	0.89	0.81	0.79	0.84

Note: Response rates are based on responses to each module and indication by the Chief of Staff that the module-specific service is offered within the administrative parent.

1.2.6 Appendix B.2.6 Survey Respondents

The recommended staff and selection of job titles for actual respondents are listed in Table B-3.

Table B-3. Typical Titles of Respondents by Module

Module	Topic	Targeted Point of Contact	Sample Job Titles for Respondents
1	General Facility Questions	Chief of Staff; Associate Director for Patient Care Services; Head of Primary Care	Chief of Staff, Acting Chief of Staff, Deputy Chief of Staff, Interim Chief of Staff, MD, Medicine Service Line Manager, Secretary to Chief of Staff, Special Assistant to Chief of Staff
2	PTSD	Associate Chief of Staff for Mental Health; Administrative Officer for Mental Health; Chief of PTSD Services	Chief of Staff, Chief of Behavioral Health, Chief of Mental Health, Chief of Psychology, Director of PTSD Division, Coordinator of PTSD program, Lead Psychologist, Staff Psychiatrist
3	SUD	Associate Chief of Staff for Mental Health; Administrative Officer for Substance Abuse Services; Chief of Substance Abuse Treatment Services	Chief of Mental Health Service, Chief of Substance Abuse Treatment Program, Attending Psychiatrist, Director of Addiction Recovery Treatment Services, Program Manager, Staff Psychiatrist, RN, Acting Chief of Staff
4	TBI	Chief of Staff; Chief of Physical Medicine and Rehabilitation (PM&R); Chief of Neurology; Administrative Officer for TBI, PM&R or Neurology; POC for TBI services	Chief (PMR), MD, Polytrauma/TBI Coordinator, Chief of Staff, Chief of Mental Health, Neurologist, Rehab MD, Staff Psychologist

Module	Topic	Targeted Point of Contact	Sample Job Titles for Respondents
5	Acute Coronary Syndromes	Chief of Cardiology; Administrative Officer for Cardiac Services; Chief of Cardiothoracic Surgery; Chief of Internal Medicine	Chief of Cardiology, MD, Chief of Medicine, Chief of Surgery, ACOS Primary Care, Medicine Service Line Manager
6	Colon Cancer	Gastroenterology Point of Contact; Oncology Point of Contact; Oncology Surgery Point of Contact; Laboratory Services Point of Contact	Chief of Medicine, Chief of Gastroenterology, Gastroenterologist, MD, Chief of Staff, Chief of Surgery, Chief of Oncology, Cancer Coordinator
7	Type 2 Diabetes	Chief of Staff; Administrative Officer for Primary Care; Associate Director for Patient Care Services; Head of Primary Care	Chief of Endocrinology, Endocrinologist, MD, Chief of Primary Care, Chief of Staff, Clinical Director of Primary Care, Nurse Practitioner and Diabetes Educator
8	Gynecologic Conditions	Women's Health Point of Contact; Administrative Officer for Women's Health	Chief of Surgery, Gynecologist, Women Veterans Program Manager, Women's Health Medical Director, MD, ACOS (ambulatory care)

1.2.7 Appendix B. 2.7 Data Analyses and Presentation

Data were analyzed at the level of each administrative parent (N = 141) and aggregated to national estimates. Stata (version 13) and SAS (version 9.3) were used for data analyses. In reporting these data, we summarize quantitative survey results for each of the eight modules. With regard to delays, we focus on items where respondents report that more than 10 percent of patients experienced a delay in the service in question. We refer to delays experienced by more than 10 percent of patients as "frequent." We also present findings on workforce issues, use and availability of health IT, and efficiency issues.

Where respondents identified problems, we asked them to formulate a solution and rate the importance of each of various elements of the solution (for example, increase clinical staff, increase space for patient care).

Tables in the second half of this report present aggregated raw survey results in the basic format in which questions were asked. We reference the relevant table(s) in discussing our findings.

A note about the "NA" response. For all Likert-type questions, an NA response was allowed. In the raw survey results, we present NA as a response category, and include it in the denominator wherever percentages are given. In the narrative description and interpretation of

the results, we exclude NAs from the denominator. We do this because, in most cases, the meaning of "NA" is apparent from the context (for example, bariatric surgery, interventional cardiology, and residency training programs are examples of services that are known not to exist at many institutions), and the interpretation is more intuitive with the exclusion. The one exception is the presentation of the "solutions element" and efficiency questions. For these types of questions, the meaning of "NA" is less clear, and the NA response is infrequent. Therefore, to keep the descriptions of these results numerically consistent with the large number of tables, we do not exclude NA from the denominator here. We do not expect that the results would change meaningfully if we did otherwise.

1.3 Appendix B.3 Results

1.3.1 Appendix B.3.1 General Module: Chief of Staff as Main Respondent

Background

The general module was designed to identify clinically meaningful delays in primary care and to assess other centrally managed factors related to patient care, including recruiting and retaining primary care staff, use of purchased care, and IT.

Survey Results

The overall response rate to the general module was 83 percent (N = 117). Below we report survey responses regarding delays in care, issues affecting provider and system efficiency, workforce issues, experiences with purchased care, and the availability and use of information technology.

Delays

Respondents were asked about delays at two care junctures: (1) obtaining a "new patient" appointment in primary care, and (2) obtaining a follow-up appointment in primary care. Specifically, we asked respondents to "*Consider delays which might put a patient at risk for adverse outcomes, slow resolution of symptoms, or which are not compliant with VA/DoD guidelines.*" Respondents who reported delays were asked to formulate a solution and to rate the importance of 11 potential components (for example, creating additional space, increasing the number of licensed independent practitioners) of their solutions.

Juncture 1: Obtaining a "new patient" appointment in primary care

Reported delays are detailed in Table I-4. Survey respondents (N = 114) were asked what percentage of patients experienced frequent delays in obtaining a primary care appointment as a new patient. Those who indicated frequent delays were asked to rate the importance of a range of potential solutions (for example, create additional space for patient care) on a four-point scale ranging from "critically important" to "unimportant."

Slightly more than half of respondents indicated that within the previous 90 days, no patients had experienced a clinically meaningful delay trying to obtain a new primary care appointment within their local health care system. Frequent delays (that is, experienced by more than 10 percent of patients seeking appointments) were reported by 5 percent of respondents.

Respondents (n = 49) who reported delays also answered the question on the most effective ways to reduce such delays (Table I-5). The following solution components were most frequently identified as "critically" or "very important":

Increase the number of licensed independent practitioners	94%
Increase the number of other personnel	80%
Improve information technology	77%
Change "central office policies" that affect workflow and efficiency	73%
Create additional space for patient care	71%
Improve personnel supervision, management, or incentives	67%
Implement or increase the availability of telehealth services	45%
Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community	45%
Some other solution(s)	33%
Increase weekend and evening availability of services	31%
Acquire and/or improve availability of equipment	24%

Juncture 2: Obtaining a follow-up appointment in primary care

A question about delays in obtaining a follow-up (rather than initial) primary care appointment produced similar responses (Tables I-6 and I-7).

Issues Affecting Provider and System Efficiency

A total of 112 respondents reported how provider and system efficiency were affected by a number of issues, including providers performing administrative tasks or tasks that could be performed by individuals with less training (Table I-8). The following issues were most frequently identified as "a fair amount" or "a lot":

Too many administrative requirements	86%
Providers performing administrative activities that could be performed by others	84%
Inadequate scheduling system and policies (for example, hard to cancel or reschedule, coordinate)	81%
Unnecessary documentation requirements or inefficient CPRS interface	81%
Insufficient clinical/administrative support staff	74%

Providers performing clinical activities that could be performed by individuals with less training	68%
Poor patient flow management (room/bed turnover, appointments)	52%
Patient no-show rates	48%
Residency training/teaching requirements	20%

Recruitment and Retention

We asked about recruitment and retention for a range of core clinical personnel (for example, radiologists, hospitalists) not covered in the other condition-specific modules of this survey. Table I-9 shows responses to the question "did your local health care system have problems recruiting and hiring." Three-quarters of respondents reported difficulty hiring primary care providers. About 60 percent said recruiting specialized staff such as laboratory or imaging technicians was also a challenge; about half reported difficulties recruiting registered nurses, licensed practical nurses, and clinical nurse specialists. About 20 percent reported that inpatient support staff, social workers, telehealth technicians, and radiologists were difficult to recruit. Respondents who reported recruiting difficulties were asked to suggest the cause (Table I-10). In the case of primary care providers, slightly fewer than one-half cited the geographic location of the facility and non-competitive wages as the main barriers. In the case of specialized support staff, about half of respondents cited lack of qualified applicants as a key barrier, but nearly three-quarters said the wages were non-competitive.

Tables I-11 and I-12 show results for analogous questions regarding personnel retention rather than recruitment. Retention was generally less of a problem: For most service lines, one-third to one-half as many respondents indicated problems with retention. Notable exceptions were primary care providers, nursing, technicians, and administrative support staff; for those categories, respondents thought retention appeared to be as much of a problem as recruitment.

The two most frequently reported reasons for problems in retaining primary care staff problems were dissatisfaction with supervision and management support as well as dissatisfaction with workload. The top two retention problems for administrative support staff were dissatisfaction with management and dissatisfaction with salaries.

Purchased Care Experiences (Assessment C)

The survey included seven survey questions in this module intended to provide information for Assessment C – Authority, Benefits, and Outside Contracting. Questions were designed to assess the frequency of, and reasons for, referrals to purchased care; and to capture respondents' experiences with episodes of care, electronic record sharing, priority ratings, and the Non-VA Care Coordination program (Tables I-13 to I-19).

There is a range of purchased care mechanisms, each with different rules for eligibility. To gauge the basis for purchased care use, we asked a series of questions about referral processes. Respondents were asked how often, and why, they refer Veterans out for purchased care. Frequency of referrals varied substantially: 16 percent of respondents refer patients out 1

percent of the time or less; referral rates for other respondents ranged about evenly from 2 percent to 100 percent of the time. More than three-quarters of respondents indicated that a lack of clinical services at VA was the most important reason for referring patients to non-VA care; far fewer respondents mentioned either travel distance or wait time as primary reasons.

Respondents were also asked about data collection and sharing of health records. In response to a question about how often the VA facility collects data about wait times with non-VA providers, one quarter of respondents said they never collect such data; only 14 percent of respondents do it all of the time; and the remaining respondents answered some or most of the time. Respondents were also asked about whether, and how often, they share electronic health records with non-VA providers. About one-half said that they never share such data, and only 5 percent said they always do; the rest reported that they share such records some or most of the time.

Internal processes for scheduling appointments are also important because they help convey how VAMC staff interpret the legal authorities for purchased care. We asked about various internal processes. Almost all respondents indicated that they have implemented the Non-VA Care Coordination program. We were also interested in the role of priority ratings, which are intended to ensure that certain Veterans are enrolled in the health care program before others. About 40 percent of respondents answered that they consider Veteran priority ratings and the service-connection of the injury or disease when scheduling appointments. However, only a few respondents said that they bump Veterans from scheduled appointments to accommodate the appointment needs of a Veteran from a higher priority group.

In an effort to determine whether only one referral is needed for visits to a single specialist over various periods of time, respondents were also asked several questions about episodes of care. Respondents were first asked about situations where referrals are for care that requires more than one visit. Eight percent of respondents said that they would need a separate referral for each visit. The rest of the respondents were about equally split between reporting that one referral would cover all related visits to the specialist within a 60-day timeframe, and indicating that some other method applied.

Asked about situations where the care would span a period longer than 60 days, about 20 percent indicated that the Veteran would need a separate referral for each visit. The remainder were about evenly split between stating that one referral would still cover all related visits regardless of timeframe, and believing that another method was used.

Information Technology
Information technology questions for the Chief of Staff focused on the availability of wireless internet access and on the use of Telehealth (Tables I-20 to I-30).

Internet access. Wireless Internet (wifi) access enables use of mobile technology, such as iPads, both for patients and for providers. According to our respondents, patients and guests can expect wifi to be reliably available everywhere at only 21 percent of VAMCs, and they will find no wifi at all in almost 40 percent of VAMCs. Staff had higher rates of extensive reliable access, but nearly 40 percent of them also have no access at VAMCs. Wifi access is even lower at CBOCs: 72 percent provide no wifi for patients, and 64 percent do not have it for staff.

<u>Telehealth</u>. Telehealth at VA is divided into three categories. Store-and-forward Telehealth is used to transfer images in a non-synchronous manner. A major use of this tool is for radiology reading, which is done offsite. About one-third of respondents report using remote reading as a constant service; 56 percent say they use the service only at night. When reading is done offsite, facilities tend to select interpretation services for their store-and-forward data from providers that are outside either their administrative parent (58 percent) or entirely outside VA (47 percent).

Two other IT tools are clinical video telehealth in which providers and patients communicate by synchronous video, and home telehealth, which allows providers to monitor patient clinical measures like glucose levels or blood pressures while patients remain at home. According to respondents, among the seven conditions analyzed for this survey (PTSD, SUD, TBI, colon cancer, type 2 diabetes, acute coronary syndromes, and gynecologic conditions), clinical video telehealth between provider and patient was the most widely used telehealth modality. Store-and-forward telehealth was the technology least likely to be used for this purpose. About two-third of facilities confirmed that none of these technologies was available for use with colon cancer patients.

Clinical video telehealth can be conducted between VAMCs, from a VAMC to a CBOC, or even from the facility to a patient's home. We found that telehealth providers were usually (77 percent) at VAMCs, and patients were usually at CBOCS, particularly small to medium sized CBOCs, although occasionally the converse is true.

<u>Home telehealth monitoring</u>. Respondents were asked how long the average patient spends in a home monitoring program. About half said four to six months or less; one in five said more than 12 months. Nearly half of respondents said that the primary reason patients stop participating in home telehealth is that their health improves.

Asked about the size of their home telehealth programs, about half of the respondents reported that between 100 and 500 patients were enrolled at their local VA system; about one-third said that more than 500 patients were enrolled.

Finally, we asked where the home telehealth providers are located relative to the patients (more than one response was allowed). About one-half said that providers are sometimes located at the patient's primary CBOC and about one-third said they were sometimes at a different VA facility within the same local system. No respondent said that outside vendors provided home telehealth offsite.

Free-text comments

Comments that respondents offered augment the detailed survey results regarding clinically meaningful delays in care, hiring and retention of staff, IT, and use of purchased care.

Policies and mandates of the VA Central Office were a reoccurring theme in respondent comments. For example, "Policies get pushed down from Central Office that are often more mandates than guidelines and recommendations without field input or sufficient consideration for clinical repercussions." Respondents indicated that many policies and standards are based on a "one-size fits all" approach and that there is a "disconnect between Central Office and the

facilities providing the care."

Several respondents felt that VA Central Office policies and programs are implemented "without thought of the impact on the field or the needs of the Veterans." Others noted that VA polices are bureaucratic and politically motivated. For example: "VA has been overrun with bureaucratic policies and oversight that often lays in direct contrast to access and quality care for our Veterans. The idea that 'if a little is good, much more must be better' is the standard operating procedure of VA" and "Central Office seems solely politically driven and is not using best medical evidence to drive decisions on access and focuses on process not outcome measures."

Many respondents viewed the scheduling software as inefficient, antiquated, and inflexible. Respondents also note a lack of support staff to facilitate scheduling. The disconnect between the Central Office and the field with respect to scheduling policies was also noted. For example: "[VA Central Office] imposes reporting criteria that make it difficult to schedule, but facilitate their reporting of our scheduling." Many respondents also noted the inefficiencies of CPRS including "inordinate amount of clinical reminders, view alerts, suspense, metrics require large amounts of administrative time that could be better used to see patients" and "documentation requirements [are] for regulatory and not medical reasons."

Inadequate staffing, for both clinical and support responsibilities, figured prominently in respondent comments. Many reported that due to insufficient support staff, burdensome administrative mandates, new training requirements, ineffective staffing modules, and an "overwhelming" number of "clinically insignificant" electronic health record prompts, clinicians were required to perform tasks well below their levels of training.

In addition, respondents noted clinician shortages in primary care, urology, psychiatry, surgery, and orthopedics. Multiple respondents noted that VA salaries were not competitive and felt that inefficient human resources processes, including "lag time" in the hiring process, make it difficult to recruit into VA. One Chief of Staff summarized the situation as follows: "Ability to recruit and retain physicians is a huge problem. VA pay for providers has not kept track with what has been available in our area. Additionally, once we get good providers in place, an unending bureaucracy, difficulty dealing with non-productive clerical staff, and burdensome clinical reminders leads them to consider other jobs. Too many of our provider hires consider VA a "temporary" job until something better comes along or they can move to another area. For the most part, we have the appropriate number of support personnel, but maintaining those with a good work ethic is difficult and getting rid of those who are unproductive is even more difficult. Equipment procurement and contracting are extremely difficult to navigate, making new purchases a challenge. Central Office's requirements, while noble, fail to take into account the current status of non-VA health care systems across the country. Mandating 30-day evaluations for VA when most clinicians in our area can't accommodate similar requests is unreasonable. Patients that we send out via Choice are rarely seen any sooner than we could see them in our facility."

Several respondents noted that limited space and lack of exam rooms pose barriers to efficient patient care. Respondents indicated that primary care providers are frequently limited to a single exam room and that "2 exam rooms per provider would greatly facilitate workload." The

"cumbersome contracting" and leasing process were noted as barriers in obtaining required space.

Some respondents indicated that they use purchased care when necessary for specialty care and in rural areas; however, other respondents noted that purchased care is "not Veteran-centric" and "is to be avoided if possible since the model of delivery that is a hallmark of VHA quality cannot be assured under these circumstances." Respondents also indicated that using purchased care presents many challenges, for example, "The difficulties in trying to assure coordination of care through NVCC [Non-VA Care Coordination] and the Choice program is creating substantial additional workload on clinicians that diminishes efficiency."

Conclusion

This module of the survey was completed by the Chief of Staff of the parent facility of 117 local VHA systems nationwide, and focused on topics best answered by the person in charge of all clinical departments across the local system. The items included questions on access to primary care, on system efficiency and workforce hiring and retention, on purchased care, and on certain aspects of IT infrastructure.

Chiefs of Staff reported few problems with access to primary care, either for "new patient appointments" or follow-up appointments. Very few (about one in 20) reported frequent delays in access to primary care. This is remarkable in light of the fact that nearly three in four respondents described difficulties recruiting and retaining primary care personnel, and that there were many reports of inefficiencies, inadequate staffing, and provider dissatisfaction.

Those who did report delays overwhelmingly reported that more primary care providers were needed. Nearly as many said that other types of personnel were also needed.

Problems recruiting and retaining primary care providers were reported more often than for any other clinical specialty although there were widespread reports of problems across personnel types. Such comparisons across personnel types must be interpreted with caution, however, since hiring and retention problems might be more apparent for specialties with more personnel.

Below-market wages appeared to be less of a perceived problem for hiring primary care workers than for many other specialists, likely because the wage gap between the private sector and VA is lower for primary care than for other specialties or other types of personnel.

A high proportion of Chiefs of Staff perceive substantial inefficiencies in clinical operations, mostly revolving around burdensome administrative requirements, inadequate IT tools, and inflexible Central Office policies. In aggregate, comments suggest that these problems have had a substantially negative impact on employee morale, and possibly on patient care.

1.3.2 **Appendix B.3.2 Post-Traumatic Stress Disorder**

Clinical Background

Post-traumatic Stress Disorder (PTSD) affects hundreds of thousands of Veterans and service members (Institute of Medicine, 2014). An estimated 7–20 percent of service members who have served in Iraq or Afghanistan report having PTSD (Vasterling et al., 2010; Tanielian &

Jaycox, 2008; Smith et al., 2008; Seal et al., 2007; Hoge et al., 2004). Individuals with PTSD have been exposed to a traumatic event and experience symptoms such as intrusive thoughts and nightmares and alternations in arousal and reactivity; they avoid associations with the traumatic event and experience negative alterations in cognitions and also mood (American Psychiatric Association, 2013).

Research suggests that Veterans exposed to combat are more likely to develop PTSD than those who have not experienced combat. For instance, in one study, the odds of screening positive for PTSD were more than four times higher for Operation Iraqi Freedom Veterans who experienced combat compared with those who did not (Hoge et al., 2006). Individuals with PTSD are also more likely to have a second or third co-occurring mental health disorder. For example, in one study, 70 percent of National Guard soldiers returning from Iraq who were diagnosed with PTSD were also diagnosed with depressive disorders (Kehle et al., 2011). In another study, 41 percent of Veterans with a substance use disorder who served in the Vietnam era or later had comorbid PTSD (Petrakis et al., 2011).

RAND reviewed VA/DoD clinical practice guidelines for post-traumatic stress (VA, Management of Post-Traumatic Stress Working Group, 2010) and interviewed key informants within VA to better understand the course of clinical care for Veterans with PTSD. Within VA, there are typically three stages of treatment: assessment and diagnosis, acute treatment, and relapse prevention/care coordination. Veterans can be initially screened and assessed for PTSD in any of several clinics including primary care, mental health, and specialty PTSD clinics. Female military personnel can also be screened in women's health and at specific women's PTSD clinics at some facilities.

Women Veterans are also screened for military sexual trauma, which can also result in PTSD. All VA primary care and mental health providers are required to complete training on military sexual trauma. VA offers a number of other resources, including national training calls, web-based information, and an annual conference to provide further training (VA, 2015f).

Veterans with PTSD seeking treatment may access psychotherapy or pharmacotherapy treatment within the VAMC and CBOC; the level and number of services available depends on the size and location of these facilities. Patients with severe or refractory PTSD can also be transferred to residential treatment programs, which are available in some VISNs.

Clinical practice guidelines detail evidence-based psychotherapy and pharmacotherapy approaches that are recommended for PTSD treatment (VA, Management of Post-Traumatic Stress Working Group, 2010). Treatment may be provided in primary care or specialty PTSD or mental health clinics (for example, pharmacotherapy) by a variety of professionals, including nurse practitioners, primary care physicians, and psychiatrists. Psychotherapy may be provided in specialty PTSD care or mental health clinics (for example, cognitive processing therapy) by clinical psychologists, licensed social workers, and other licensed mental health professionals. While treatment is typically provided in-person at a VA facility, telemental health can allow a Veteran at a CBOC to receive care from a mental health professional at a remote site. Once symptoms have decreased, the frequency and intensity of treatment can be adjusted, and ongoing relapse prevention or care coordination can be provided through primary care or the specialty clinics at VAMCs or CBOCs.

Survey Results

A total of 117 respondents answered one or more questions in this module, which contained questions about the frequency of delays and proposed solutions for addressing them. Questions also touched on factors impacting provider and system efficiency, and workforce recruitment and retention.

Delays

Respondents were asked about delays at two care junctures: (1) PTSD diagnosis and assessment and (2) PTSD treatment. Both of these categories were further subdivided (as discussed below). Specifically, we asked respondents to "*Consider delays which might put a patient at risk for adverse outcomes, slow resolution of symptoms, or which are not compliant with VA/DoD guidelines.*"

Respondents who reported delays were asked to formulate a solution and to rate the importance of 11 potential components (for example, creating additional space, increasing the number of licensed independent practitioners) of their solutions.

Juncture 1: Diagnosis and assessment

Reported delays are detailed in Table I-31. We asked about delays in the following services related to PTSD diagnosis and assessment: in general mental health clinic; evaluation by the PTSD clinical team; evaluation using telehealth in CBOCs; evaluation for mental health services in CBOCs; and self-referred appointment in general mental health clinic. Most respondents said that delays for PTSD Diagnosis and assessment services were infrequent. About half said that no patient experienced delays; 70–90 percent reported that delays that were infrequent. The proportion of respondents indicating frequent delays, by service are presented below:

Evaluation in general mental health within your local health care system	10%
Evaluation by the PTSD clinical team	17%
Evaluation using telehealth in CBOCs (all sizes)	20%
Evaluation for mental health services in CBOCs (all sizes)	30%
Getting appointments when patients are self-referred for an evaluation in general mental health	10%

Respondents who identified delays in particular services were asked to think about a solution, and to rate the importance of various "elements of the proposed solution." Tables I-32 to I-36 describe the responses in detail. The responses (N = 36) for "Evaluation in general mental health within your local health care system" are typical (percentages are given as the proportion of respondents who rated the element "critically important" or "very important").

Increase the number of licensed independent practitioners	83%
Create additional space for patient care	69%
Increase the number of other personnel	69%

Improve information technology	64%
Change "central office policies" that affect workflow and efficiency	61%
Improve personnel supervision, management, or incentives	61%
Implement or increase the availability of telehealth services	33%
Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community	28%
Acquire and/or improve availability of equipment	22%
Increase weekend and evening availability of services	19%

Juncture 2: PTSD treatment

Reported delays are detailed in Table I-37. We asked about delays in the following services related to PTSD treatment: Pharmacotherapy in general mental health, pharmacotherapy in CBOCs, pharmacotherapy using telemental health in CBOCs (all sizes), group or individual psychotherapy in general mental health, group or individual psychotherapy in CBOCs, group or individual psychotherapy using telemental health in CBOCs, group or individual psychotherapy with a provider trained in evidence-based psychotherapy for PTSD, group or individual psychotherapy with a provider trained in evidence-based psychotherapy for PTSD in CBOCs, group or individual psychotherapy provided by telemental health with a provider trained in evidence-based psychotherapy for PTSD, a PTSD specialty bed in mental health residential rehabilitative treatment programs, and intake with the SUD/PTSD treatment program.

Reports of widespread delays were more frequent for PTSD treatment as compared with diagnosis and assessment. Between 20 percent and 40 percent of respondents reported delays in the various services that comprise PTSD treatment. Delays were most often reported in receipt of group or individual psychotherapy in CBOCs (39 percent), receipt of group or individual psychotherapy with a provider trained in evidence-based psychotherapy for PTSD (38 percent), and mental health residential rehabilitation beds (35 percent). The proportion of respondents who said that there were frequent delays at their institutions are shown:

Pharmacotherapy in general mental health	20%
Pharmacotherapy in CBOCs (all sizes)	29%
Pharmacotherapy using telemental health in CBOCs (all sizes)	22%
Group or individual psychotherapy in general mental health	24%
Group or individual psychotherapy in CBOCs (all sizes)	39%

Group or individual psychotherapy using telemental health in CBOCs (all sizes)	24%
Group or individual psychotherapy with a provider trained in evidence-based psychotherapy for PTSD	23%
Group or individual psychotherapy with a provider trained in evidence-based psychotherapy for PTSD in CBOCs (all sizes)	38%
Group or individual psychotherapy provided by telemental health with a provider trained in evidence-based psychotherapy for PTSD in CBOCs (all sizes)	24%
A PTSD specialty bed in Mental Health Residential Rehabilitative Treatment Programs	35%
Intake with the SUD/PTSD treatment program	14%

Tables I-38 to I-46 describe the responses for "elements of a proposed solution" in detail. Responses shown here (N = 37) for "Group or individual psychotherapy in CBOCs" were typical (percentages are given as the proportion of respondents who rated the element "critically important" or "very important").

Increase the number of licensed independent practitioners	83%
Create additional space for patient care	79%
Improve information technology	50%
Increase the number of other personnel	45%
Improve personnel supervision, management, or incentives	45%
Change "central office policies" that affect workflow and efficiency	38%
Implement or increase the availability of telehealth services	36%
Some other solution(s)	24%
Increase weekend and evening availability of services	17%
Acquire and/or improve availability of equipment	14%
Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community	14%

Issues Affecting Provider and System Efficiency

Respondents were asked to describe the degree to which various issues affected provider and system efficiency. Table I-47 describes the results. The proportion of respondents who said that there were frequent delays at their institutions are shown:

Inadequate scheduling system and policies	74%
Insufficient clinical/administrative support staff	72%
Providers performing administrative activities that could be performed by others	72%
Too many administrative requirements	63%
Unnecessary documentation requirements or inefficient CPRS	62%
Patient no-show rates	56%
Providers performing clinical activities that could be performed by individuals with less training	45%
Poor patient flow management	30%
Residency training/teaching requirements	15%

Recruitment and Retention

The facility survey also contained questions that focused on retention and hiring issues. Tables I-48 to I-51 describe the results. Several staff categories are central to treating PTSD, including psychiatrists, psychologists, and support staff such as nurses or physician assistants. Counselors and mental health social workers were also included. About 115 facilities responded to questions about problems recruiting/retaining the given staff position.

More than 80 percent of survey respondents reported problems recruiting psychiatrists and more than half reported problems recruiting psychologists for PTSD treatment. The top two reasons cited for recruitment problems for psychiatrists were non-competitive pay and the geographic location of the facility. About half of respondents reported that the human resources process took too long in hiring psychologists. Geographic location of the facilities was also identified as a barrier to recruiting psychologists.

About half the respondents also reported that psychiatrists and psychologists were the mental health specialties most difficult to retain, once hired. The most commonly cited reasons for problems retaining psychiatrists were dissatisfaction with workload and dissatisfaction with pay. About one-third of respondents also identified burnout as a retention problem. Indeed, 40 percent reported that burnout was the top reason for retention problems with psychologists. A second reason cited was lack of opportunity for professional growth or promotion.

Free-text comments

The free-text comments that respondents provided echo the numerical results.

Many respondents commented heavily on shortages of clinicians, on space for patient care, and the interplay between the two:

We are in dire need of more space and more providers. If both were increased, the access issue would be resolved.

We do not have the space to add more clinicians.

Many viewed the VistA scheduling system as a barrier to timely and efficient care:

The scheduling system is archaic, cumbersome, and does not meet the needs of modern health care systems. It needs not a set of "fixes" but replacement.

Rather than having a real time calendar that demonstrates all clinic slots available for booking, in general there are specific slots assigned to a given program (that is, Thursdays from 2-3 pm). If that slot does not work for the patient(s) then it may go un-utilized, whereas other services may be able to utilize that slot.

Comments suggest some support for the finding that delays are greater with regard to ongoing PTSD care than with diagnosis and assessment:

Limited providers in the outpatient clinic have resulted in large panel sizes for providers that limit frequency of sessions.

Current staff are insufficient for the demand; cannot get patients back for weekly psychotherapy when necessary.

Comments on telehealth were mixed. Several respondents expressed a desire for more telehealth resources, while others questioned the value or applicability of telehealth:

Better Tele-equipment would be helpful, as well as more available units.

Veterans have not, in our experience, enjoyed attempts to participate in groups via telehealth with a group of Veterans at our parent facility (even our staff who use telehealth equipment to be involved in team discussions feel removed and thus it is more difficult to engage).

There is a general lack of interest in telemental health in the patient population who can travel easily to the medical center.

Several comments highlighted a perception that requirements from VA Central Office and other bureaucracy have a negative impact on efficiency and morale:

Clinicians spend far too much time on nonclinical duties. We have a ridiculous amount of irrelevant trainings TMS [online coursework for staff], for instance.

[We should] focus on clinical care not political care; eliminate government roadblocks and bureaucracy, eliminate irrelevant and unsuccessful measures unrelated to providing good clinical care.

We have to pull clinicians away from clinical care to keep up with the growing amount of time devoted to complete administrative requirements, training, completion of reports, etc. The efficiency of providing care is being greatly reduced.

Policies really need to be made with better vertical as well as horizontal transmission for optimal understanding of local impact.

The documentation requirements and paternalistic rules for managing patients are so overwhelming that it over-tasks the providers and causes huge morale issues.

> Regarding personnel supervision and management: We need to be able to FIRE people who cannot or do not do their jobs. Right now that is nearly impossible.

> The environment in VHA currently is punitive in many cases, rather than offering rewards for excellent ideas, policies, and procedures.

Respondent comments surfaced several other ideas:

> We have a large volume of referrals to contracted providers (about 20 percent) but many Vets insist on being seen at VA.

> The evidenced based psychotherapies are a tough sell with the Veterans as whole. It is not easy to get them engaged in a therapy process that requires more active participation—but this is true in the civilian sector as well. I think the national expectation for the adoption of these therapies and their clinical penetration was unrealistically hopeful.

Conclusions

While a majority of respondents indicate that clinically meaningful delays in the care of PTSD patients occur infrequently at their local VA system, it is clear that at many institutions, the demand for some PTSD services such as regularly scheduled evidence-based therapy exceeds supply. Access problems appear to be more common with regard to ongoing treatment than with assessment and diagnosis. Respondents suggest several explanations: ongoing therapy is inherently resource-intensive, patient volume has been increasing, and facilities are substantially constrained by lack of both clinical personnel and physical space.

Respondents also noted a number of inefficiencies, chief among them those created by an outdated scheduling system and by what are viewed by some to be onerous regulations and mandated activities that detract from time available for clinical care.

Respondent comments highlighted the need for more clinical personnel and for more space in which to provide patient care.

Views on telehealth were mixed. Some respondents viewed it as potentially helpful, if more resources could be devoted to it; others questioned whether Veterans would find it useful, especially if they were able to travel easily to the VA medical center.

1.3.3 **Appendix B.3.3 Substance Use Disorder**

Clinical Background

Between 7 and 20 percent of Operation Enduring Freedom/Operation Iraqi Freedom Veterans and service members report heavy alcohol use, 12 percent report illicit drug use (including prescription drug misuse), and 2 percent report illicit drug use (excluding prescription drug misuse) in the past 30 days (Bray et al., 2009). Individuals with SUD can experience a continuum of problems that range in severity from mild to severe. These problems may include cravings and urges to use the substance, development of withdrawal symptoms, and social and occupational impairment (American Psychiatric Association 2013). According to Bray et al., 11 percent of active duty service members in 2008 self-reported the misuse of prescription medications, up from just 2 percent in 2002 (Bray et al., 2009). Within the active-duty military population, those members in possession of prescriptions for pain medications were nearly 3

times more likely to self-report misuse as compared with those without a prescription (Substance Abuse and Mental Health Services Administration, 2002).

RAND reviewed VA/DoD's clinical practice guidelines for SUD (Management of Substance Use Disorders Working Group. 2009) and interviewed key informants within VA to better understand the course of clinical care for Veterans with SUD. Treatment begins with a comprehensive assessment leading to a treatment plan, followed by either medication management of withdrawal symptoms, a brief intervention for someone with less severe alcohol abuse or specialty treatment for individuals with more severe alcohol or other drug use disorders. Medication-assisted withdrawal management can occur in either the inpatient or outpatient setting; treatment can include outpatient or residential psychosocial treatment and/or pharmacotherapy for either alcohol or opiate disorders, which can occur in primary care, specialty mental health, or specialty SUD care. Telemental health can also be used to provide outpatient psychosocial treatment. Frequently there are transitions in care, as when a Veteran is transferred from primary to specialty SUD care, from the emergency department to inpatient detoxification for withdrawal management, or from outpatient to residential treatment.

Opioid disorders should be mentioned specifically, as pharmacotherapy for opioid addiction requires additional resources. Veterans can receive office-based opiate treatment or be treated in Opioid Addiction Treatment Programs, which are more commonly located in specialty SUD clinics. Several requirements are needed to administer pharmacotherapy, including X-waivers for physicians to administer buprenorphine in either primary or specialty care or a licensed methadone program for methadone maintenance. As a result, pharmacotherapy such as methadone may only be available at larger facilities. Treatment for SUD may be complemented with other services including adjunctive treatment from the Pain Clinic, Sleep Clinic, and Specialty Mental Health care.

Survey Results

A total of 114 respondents answered one or more questions in this module, which contained questions about the frequency of delays and proposed solutions for addressing them. Questions also addressed reasons impacting provider and system efficiency, and workforce recruitment and retention.

Delays

Survey respondents were asked what percentage of patients experienced clinically meaningful delays in the following categories: (1) Comprehensive evaluation for SUD, (2) SUD treatment, and (3) SUD care transitions (that is, transitioning from one service or program to another). We further subdivided the three categories into subcategories: Evaluation had eight subcategories (for example, referral to SUD specialty care, referral to methadone clinic), Treatment had 12 subcategories (for example, medication-assisted withdrawal management, SUD psychosocial treatment, methadone maintenance), and Care Transitions had six subcategories.

Once participants reported the percentage of patients experiencing delays, they were asked to think about ways to reduce the number of these delays. For the services with the greatest frequency of delay (that is, the highest percentage of patients experiencing a delay),

participants were asked to formulate a solution that could reduce the number of these delays and to report the importance of 11 potential components (for example, creating additional space, increasing the number of licensed independent practitioners) to their solutions, using a four-point scale (1 = critically important to 4=unimportant). We report only on those solution components identified as important by more than 10 respondents.

Juncture 1: Comprehensive evaluation for SUD

There were about 112 respondents for each of the possible eight delay subcategories. The subcategories for which delay was reported the most frequently were those that involved access to care outside of the respondent's local health care system—that is, referral to residential treatment at another administrative parent (44 percent) and referral to fee-basis or contracted SUD care (29 percent) (Table I-52). The proportion of respondents who said that there were frequent delays at their institutions are shown:

Referral to general mental health	7%
Referral to SUD specialty care	8%
Referral to telemental health	11%
Referral to SUD services located in CBOCs (all sizes)	16%
Referral to methadone clinic	20%
Patients who are self-referred for a SUD evaluation in general mental health	5%
Referral to SUD services from the administrative parent to fee-basis or contracted care	29%
Referral to residential treatment at another administrative parent	44%

Respondents who identified delays in particular services were asked to think about a solution, and to rate the importance of various "components of the proposed solution." Tables I-53 to I-60 describe the responses in detail. Responses shown here (N = 58) for "referral to residential treatment at another administrative parent" were typical. The most frequently cited as "critically important" or "very important" were as follows:

Create additional space for patient care	64%
Increase the number of licensed independent practitioners	52%
Increase the number of other personnel	48%
Improve personnel supervision, management, or incentives	38%
Change "central office policies" that affect workflow and efficiency (for example, rules governing documentation or how quickly certain services must be provided)	33%

Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community	31%
Improve information technology	22%
Some other solution(s)	21%
Implement or increase the availability of telehealth services	17%
Acquire and/or improve availability of equipment	9%
Increase weekend and evening availability of services	7%

We note for both of these SUD comprehensive evaluation services for which respondents reported significant access delays, the most commonly suggested components of solutions were to increase the number of independent licensed practitioners and to create additional space for patient care.

Juncture 2: SUD treatment or follow-up to the initial evaluation

One hundred thirteen respondents answered the delay questions about the 12 treatment subcategories (Table I-61). The SUD treatments with the most commonly reported clinically significant delays were opiate dependence treatment, when it was provided through purchased or contracted care (33 percent for buprenorphine and 31 percent for methadone maintenance). Other important delays in care reported included psychosocial treatment within residential SUD care (30 percent), and, in CBOCs, pharmacotherapy for alcoholism (all sizes) (20 percent), and psychosocial treatment (19 percent). The proportion of respondents who said that there were frequent delays at their institutions are shown:

Medication-assisted Withdrawal Management for Alcoholism provided as an inpatient within your local health care system	8%
Medication-assisted Withdrawal Management for Alcoholism provided as an inpatient through fee-basis or contracted care	14%
Medication-assisted Withdrawal Management for Alcoholism provided as an outpatient within your local health care system	11%
Medication-assisted Withdrawal Management for Opiate Dependence provided as an inpatient within your local health care system	5%
Medication-assisted Withdrawal Management for Opiate Dependence provided as an inpatient through fee-basis or contracted care	17%

Medication-assisted Withdrawal Management for Opiate Dependence provided as an outpatient within your local health care system	15%
Outpatient SUD Psychosocial Treatment (either group or individual) within your local health care system	8%
Psychosocial Treatment (either group or individual) within Residential SUD care	30%
SUD Psychosocial Treatment in CBOCs (all sizes)	19%
SUD Psychosocial Treatment (either group or individual) using tele-mental health in CBOCs (all sizes)	17%
Pharmacotherapy for Alcoholism provided in specialty mental health clinics within your local health care system	11%
Pharmacotherapy for Alcoholism provided in specialty SUD clinics within your local health care system	6%
Pharmacotherapy for Alcoholism provided in CBOCs (all sizes)	20%
Maintenance Pharmacotherapy for Opiate Dependence: Buprenorphine within your local health care system	15%
Maintenance Pharmacotherapy for Opiate Dependence: Buprenorphine provided through fee-basis or contracted care	33%
Methadone Maintenance within your local health care system	24%
Methadone Maintenance provided through fee-basis or contracted care	31%

Respondents who identified delays in particular services were asked to think about a solution, and to rate the importance of various "components of the proposed solution." Tables I-61 to I-71 describe the responses in detail. Responses shown here (N = 58) for "psychosocial treatment within residential SUD care" were typical: The most frequently cited as "critically important" or "very important" were as follows:

Create additional space for patient care	81%
Increase the number of licensed independent practitioners	66%

Increase the number of other personnel	59%
Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community	47%
Improve personnel supervision, management, or incentives	41%
Some other solution(s)	36%
Change "central office policies" that affect workflow and efficiency	31%
Improve information technology	28%
Increase weekend and evening availability of services	25%
Acquire and/or improve availability of equipment	22%
Implement or increase the availability of telehealth services	22%

We note that for both of these SUD treatments, the most commonly suggested solution components were increasing the number of licensed independent practitioners and creating additional space.

Juncture 3: SUD care transitions

A total of 112 respondents reported on delays for the six subcategories on SUD care transitions (Table I-72). Delays in transitioning patients to residential treatment were endorsed much more frequently than any other transition in care. The proportion of respondents who said that there were frequent delays at their institutions are shown:

From primary care (excluding CBOCs) to outpatient specialty SUD care	4%
From general mental health to residential SUD care	31%
From Emergency Department to outpatient specialty SUD care	3%
From Emergency Department to inpatient detox	5%
From ambulatory detox to residential SUD treatment	37%
From CBOCs (all sizes) to specialty residential SUD care at your local health care system	31%

Respondents who identified delays in particular services were asked to think about a solution, and to rate the importance of various "components of the proposed solution." Tables I-73 to I-78 describe the responses in detail. Responses shown here (N = 52) for "transitioning patients from general mental health to residential SUD care" were typical: The most frequently cited as "critically important" or "very important" were as follows:

Create additional space for patient care	67%
Increase the number of licensed independent practitioners	63%
Increase the number of other personnel	56%
Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community	38%
Improve personnel supervision, management, or incentives	31%
Some other solution(s)	27%
Improve information technology	21%
Change "central office policies" that affect workflow and efficiency	21%
Implement or increase the availability of telehealth services	19%
Increase weekend and evening availability of services	19%

We note that for all three of these SUD care transitions, creating additional space, increasing the number of licensed independent practitioners, and increasing the number of other personnel were the most commonly suggested solution components.

Issues Affecting Provider and System Efficiency

A total of 113 respondents reported on the negative impact of a number of issues, ranging from providers performing clinical duties that could be performed by individuals with less training to administrative requirements, on provider and system efficiency (Table I-79). The following issues were most frequently identified as "a fair amount" or "a lot":

Patient no-show rates	66%
Insufficient clinical/administrative support staff	65%
Providers performing administrative activities that could be performed by others	65%
Too many administrative requirements	57%
Inadequate scheduling system and policies	51%
Unnecessary documentation requirements or inefficient CPRS interface	50%
Providers performing clinical activities that could be performed by individuals with less training	36%
Poor patient flow management (room/bed turnover, appointments)	26%

Residency training/teaching requirements   12%

Recruitment and Retention

The SUD staff categories are similar to those of PTSD, with the addition of providers specializing in opioid disorder treatment (buprenorphine), social workers and psychologists. Also important for continuity of care in this population are schedulers.

One hundred and thirteen respondents reported problems recruiting or retaining a given staff position. The percentage of respondents reporting barriers for the given staff category are calculated from the subset answering 'yes' to problems recruiting/retaining.

Prescribing mental health professionals (76 percent) and prescribing providers with X-waivers for office-based buprenorphine treatment (58 percent) were the most commonly reported staff categories for which respondents reported difficulty recruiting or hiring (Table I-80). Psychologists and nurses or physician assistants with specializations in mental health were close behind with 47 percent and 49 percent reporting difficulties in hiring/recruiting these staff positions. For both of these positions, the top recruitment barrier reported was non-competitive wages (57 and 55, respectively) (Table I-81). The second most common reason for both staff categories was lack of qualified applicants (35 and 44 percent, respectively).

Prescribing mental health providers were the main staff category that respondents reported problems in retaining, with 52 percent reporting difficulties (Table I-82). Less than 35 percent of respondents reported having difficulty retaining the rest of the mental health professionals. The top barriers to retaining the prescribing mental health providers were dissatisfaction with pay (51 percent) and dissatisfaction with workload (29 percent) (Table I-83).

Free-text comments

Respondents offered comments/suggestions on issues affecting delays in access to SUD care and on matters related to provider and system efficiency.

First, respondents reported that they did not have enough clinical staff and support staff to efficiently serve Veterans. In particular, they noted the need for more psychiatrists and support staff to work with the psychiatrists. "[I] simply need additional psychiatrists; numbers are critically low with [my] two suboxone-qualified psychiatrists on deployment or indefinite leave. A primary care provider will appropriately have three support staff[;] a psychiatrist is expected to work with a fraction of a nurse and a fraction of a scheduler." "[We] require an addiction psychiatrist and another nurse practitioner who could do the physical screening."

The lack of providers able to prescribe burprenorphine/Suboxone was frequently mentioned: "[We need] a new addiction psychiatrist to see Suboxone patients." "We need to pay Suboxone providers more." "We have limited Suboxone providers on staff." "We need buprenorphine providers." Other providers were also needed. As one respondent noted "I do not have enough providers to offer this service without fatiguing my existing providers." Another respondent mentioned "Staffing at CBOCs is a particular problem."

The lack of residential treatment was identified frequently as a concern.

> There is no available VA residential care in [name of state]. Often there are lengthy application processes and complicated travel arrangements. There is no centralized way to know about wait times.
>
> The process of referring to SUD residential care at other facilities remains problematic.
>
> We need an increase in [residential] beds. We have 20 beds with a waitlist that fluctuates between 2-3 months.
>
> Our beds are full on a consistent basis . . . there is no healthy environment during the wait time to residential.
>
> There are long waits to transfer Veterans [to residential treatment.] Sometimes we are told that our Veterans cannot access the desired programs because they have too long of a waiting time for their own residents.
>
> Referrals can take months.

Respondents also reported needing additional support staff to schedule patients who were waiting for appointments and to help make reminder calls, potentially preventing common no-shows for appointments in this population. Respondents felt that having support staff available to provide such services would free clinical staff from these administrative burdens.

> The SUD clinician handles scheduling…there aren't enough administrative staff.
>
> Understaffing is the biggest problem.

Ancillary staff were also viewed as essential. "Specify staffing models for different levels of care based on ASAM [American Society of Addiction Medicine] criteria to include designated staffing for ancillary/support services such as gym, recreation therapy, occupational therapy, vocational rehab. Ancillary services are critical to reconditional the limbic system/ leisure time activity and reduce relapse risks."

Telehealth had the potential to enhance access:

> Telehealth from home would improve PT [patient] access and outcomes but VA would need to supply iPad and needed equipment. Standardized biofeedback equipment such as apps and finder monitors which are used on personal cell phones [would need to] be funded and made available to Veterans for mood regulation.

Respondents also identified lack of space as a significant issue: "Space is a critical need at all CBOCs." Another observed that due to the lack of space, they have "created offices on what used to be porch space just to make room for more providers." And "…group space is important for ability to do additional group therapies."

Respondents also commented on their experiences in referring patients to purchased care in the community or to other VISNS. Many respondents thought the current referral processes, which they saw as long and cumbersome, could be made more efficient: "Fee-basis approval can be a slow process as there is limited staff to process consults and limited programs in the community that offer this service."

Quality of purchased care was also a concern. A few respondents reported the need to find ways to offer Veterans services within the facility or a nearby VISN because of their concerns with the quality of care at community-based organizations and the lack of VA staff time and

resources to coordinate and follow care of a Veteran in purchased care. One respondent said "I have concerns about the standard of care at local methadone clinics and some ambiguity about how responsible VA staff are for care at outsourced private clinic." "I have been disappointed with the quality of care in the community, yet I am responsible." Another felt that Veterans wanted "improvement to occur in VA and not contracted to some programs that have poor environment for recovery."

Several respondents reported that community-based organizations needed more incentives to treat Veterans and that they needed to be paid in a more timely manner. One respondent said "our payment rate is low to these fee-basis providers such that they are not eager for our business." Lack of financial incentives may be a barrier to needed treatment: "Community Fee-Base programs feel that VAs are not paying enough vs Medicaid rates." Supply of community-based providers was also highlighted as a potential barrier to access: "VA needs to market and recruit more Non-VA Care agencies in some areas (for example, Methadone/Suboxone) as there is far more need and not enough services available."

The final issue respondents most frequently commented on was the need to have an updated scheduling software program. Respondents characterized the current system as "antiquated," "archaic," "ancient," and "arduous." They observed that "at many CBOC sites, CPRS bandwidth is severely limited and [there is] very slow computer responsiveness." The system was seen as inefficient and error-prone. CPRS documenting was reported as cumbersome and time-consuming.

Conclusion

While delays in accessing outpatient SUD treatment services within the respondent's local health care system were reported infrequently, many more respondents reported delays when trying to access either residential treatment, treatment at another administrative parent, or fee-basis or contracted care. Access to residential treatment or medication-assisted treatment for opioid dependence, whether for buprenorphine or methadone, was noted as a particular problem; residential treatment because of the lack of beds and space, and medication assisted treatment because of the lack of providers. By contrast, apart from within CBOCs, delays in access to pharmacotherapy for alcoholism were not reported by many respondents. The most commonly cited staff recruitment and retention problem were for prescribing mental health providers.

1.3.4 Appendix B.3.4 Traumatic Brain Injury

Clinical Background

While many Veterans with who carry a TBI diagnosis sustained their injuries during deployment, a substantial number relate to other trauma such as motor vehicle accidents. TBI services at VA are referred to as "Polytrauma" in recognition of the fact that severe traumatic brain injuries rarely occur in isolation (they are commonly associated with extremity injuries, lung injuries, etc.). VA's organizational structure for the care of Polytrauma patients is outlined in the Polytrauma System of Care handbook [VHA Handbook 1172.01].

VA defines several levels of Polytrauma services. Nationwide, there are five Polytrauma Rehabilitation Centers which focus on treating patients with severe TBI in the immediate aftermath of the injury. The next level is the Polytrauma Network Site which serves as the regional TBI referral center; there is at least one Polytrauma Network Site per VISN (VISN 8 and 17 each have two). Finally, the Polytrauma support clinic team at most large VAMCs organizes local TBI care and helps facilitate the comprehensive TBI evaluation for patients who screen positive (discussed below).

TBI can be categorized as mild or severe, recent or chronic. Patients with severe and recent TBI often enter the system (either via the DoD health system if the injury is service-related, or otherwise) at a Polytrauma Rehabilitation Center, and then are referred to the Polytrauma Network Site closest to home for ongoing care. Mild TBI, on the other hand, is often diagnosed long after the injury. Screening for TBI is mandatory for all new VA enrollees who separated from service after September 11, 2001, and takes place via a "clinical reminder" during their first clinical encounter. Patients who "screen positive" are referred for an extensive "comprehensive TBI evaluation." Depending upon the results of that evaluation, patients may be referred for further studies (for example, sleep studies, neuropsychiatric testing). Depending upon the results of the initial comprehensive TBI evaluation and those tests, a care plan is developed and implemented locally or at a regional center as necessary.

TBI and PTSD are closely intertwined conditions as to some extent they share a common etiology, and as neuropsychiatric symptoms are common to both. One unique feature of TBI is that the disease itself can interfere with treatment for it: Patients with cognitive disabilities are more likely to be no-shows to appointments, for example.

Survey Results

There were between 107 respondents for questions regarding TBI. Rates of "not applicable" responses varied substantially across sub-questions. Please see Table I-2 for details of responses and response rates.

Delays

Respondents were asked about delays at three care junctures after screening: (1) Comprehensive TBI evaluation, (2) Additional assessments after the comprehensive TBI evaluation, (3) Ongoing TBI care. Categories were further subdivided into specific services.

Those who reported delays were asked to formulate a solution and to rate the importance of 11 potential components (for example, creating additional space, increasing the number of licensed independent practitioners) of their solutions.

Juncture 1: Comprehensive TBI evaluation after a positive screening test

Respondents were asked where patients who screened positive for possible TBI symptoms were typically sent for a comprehensive TBI evaluation (Table I-84). The most common venues were reported to be as follows: Interdisciplinary TBI clinic within local health care system, physical medicine & rehabilitation clinic, and neurology clinic. As indicated in the comments section, several respondents noted that the interdisciplinary TBI clinic exists within the physical medicine & rehabilitation clinic at their institution. One respondent reported that the

comprehensive TBI evaluation occurs at CBOCs via telemedicine led by an interdisciplinary TBI team. Approximately 20 percent of respondents reported frequent delays (Table I-85).

Components of a solution to delays in obtaining comprehensive TBI evaluation that were most frequently cited as critically important or very important were as follows (Table I-86):

Increase the number of licensed independent practitioners	52%
Increase the number of licensed independent practitioners	52%
Improve information technology	48%
Increase the number of other personnel	39%
Change "central office policies" that affect workflow and efficiency	38%
Implement or increase the availability of telehealth services	34%
Some other solution(s)	29%
Improve personnel supervision, management, or incentives	27%
Create additional space for patient care	25%
Increase weekend and evening availability of services	13%
Acquire and/or improve availability of equipment	11%
Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community	11%

Juncture 2: Delays in obtaining additional assessments after the comprehensive TBI evaluation

Table I-87 describes reported delays in the following services used in the next stage of assessment after the comprehensive TBI evaluation: Magnetic resonance imaging, comprehensive sleep evaluation, neuropsychiatry evaluation, case management services, mental health evaluation, neuro-optometry/ophthalmology testing, hearing assessment, balance and vestibular testing, physical therapy evaluation, and occupational therapy evaluation. Comprehensive sleep evaluation and neuropsychiatric evaluation had the most reports of frequent delays. The proportions of respondents who reported frequent delays are as follows:

Magnetic resonance imaging	20%
Comprehensive sleep evaluation	35%
Neuropsych evaluation	27%

Case management services	8%
Mental health evaluation	16%
Neuro-optometry/ ophthalmology testing	18%
Hearing assessment	14%
Balance and vestibular testing	11%
Physical therapy evaluation	13%
Occupational therapy evaluation	9%

Respondents who identified delays in particular services were asked to think about a solution, and to rate the importance of various "components of the proposed solution." Tables I-88 to I-96 describe the responses in detail. Responses shown here for "Comprehensive sleep evaluation" were typical (proportions of respondents who answered either "critically important" or "very important" are shown):

Create additional space for patient care	45%
Increase the number of licensed independent practitioners	59%
Increase the number of other personnel	44%
Acquire and/or improve availability of equipment	39%
Implement or increase the availability of telehealth services	15%
Improve information technology	15%
Change "central office policies" that affect workflow and efficiency	10%
Improve personnel supervision, management, or incentives	10%
Increase weekend and evening availability of services	18%
Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community	29%
Some other solution(s).	28%

Juncture 3: Ongoing TBI care

Approximately 30 percent of respondents reported that their local system was a Polytrauma Network Site. Of the 73 who said that they were not, 12 percent said that most TBI patients were referred out to the regional Polytrauma Network Site, while 88 percent said that most TBI care occurred at their own facility. (Table I-98)

We asked about the following services for ongoing TBI care: Ongoing care by a TBI specialist at your facility, ongoing care at a regional Polytrauma Network Site, neuropsychiatric therapy, other mental health therapy, pain clinic for refractory symptoms, sleep clinic follow-up for refractory symptoms, physical therapy, occupational therapy, speech therapy, and vocational rehabilitation. Reports of frequent delays were somewhat more common for care at this juncture as compared with assessment after the comprehensive TBI evaluation. The services with the most respondents reporting delays were pain clinic and sleep clinic (about one third of respondents for each said that there were frequent delays). Notably, only 20 percent said that there were frequent delays in ongoing neuropsychiatric therapy, and only 16 percent identified frequent delays in other mental health therapy. It is not clear whether respondents took this question to refer to the initial appointment for ongoing therapy, or to access to ongoing care at regular intervals. The proportions of respondents who reported frequent delays are as follows:

Ongoing care by a TBI specialist at your facility	14%
Ongoing care at a regional Polytrauma Network Site	11%
Neuropsych therapy	20%
Other mental health therapy	16%
Pain clinic for refractory symptoms	34%
Sleep clinic follow-up for refractory symptoms	34%
Physical therapy	12%
Occupational therapy	7%
Speech therapy	11%
Vocational rehabilitation	15%

Respondents who identified delays in particular services were asked to think about a solution, and to rate the importance of various "components of the proposed solution." Tables I-100 to I-107 describe the responses in detail. Responses shown here for "Treatment from a pain clinic for refractory symptoms" were typical (proportions of respondents who answered either "critically important" or "very important" are shown):

Increase the number of licensed independent practitioners	84%
Create additional space for patient care	62%
Increase the number of other personnel	56%
Improve information technology	38%
Improve personnel supervision, management, or incentives	29%
Acquire and/or improve availability of equipment	28%
Change "central office policies" that affect workflow and efficiency	26%

Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community	25%
Increase weekend and evening availability of services	23%
Some other solution(s)	18%
Implement or increase the availability of telehealth services.	17%

Issues Affecting Provider and System Efficiency

A total of 106 respondents reported the negative impact on provider and system efficiency from issues such as providers performing clinical duties that could be performed by individuals with less training or from administrative requirements, (Table I-108). The following issues were most frequently identified as "a fair amount" or "a lot":

Patient no-show rates	71%
Inadequate scheduling system and policies	63%
Insufficient clinical/administrative support staff	59%
Unnecessary documentation requirements or inefficient CPRS interface	58%
Providers performing administrative activities that could be performed by others	57%
Too many administrative requirements	56%
Inadequate physical space (for example, exam rooms) or equipment	38%
Providers performing clinical activities that could be performed by individuals with less training	29%
Poor patient flow management (room/bed turnover, appointments)	22%
Residency training/teaching requirements	5%

Recruitment and Retention

We asked about recruitment (Tables I-109 and I-110) and retention (Tables I-111 and I-112) of a variety of physician specialists, mental health professionals, and therapists involved in the care of TBI patients.

In most cases, about one-half of respondents reported problems with recruitment; substantially fewer reported problems with retention. Excluding those who answered "NA," about one-half reported problems recruiting most personnel types. Less than one-third reported problems with personnel retention.

Noncompetitive wages and dissatisfaction with pay were far more frequently cited than other reasons for problems with recruitment and retention, respectively.

Free-text comments

Respondents offered additional observations about delays, staffing, efficiency, and Central Office policies, among other issues.

Respondents felt that some delays were caused by Veterans themselves

> Veterans frequently cancel or no-show and when the appointments are re-scheduled per the Veterans request it often gives the appearance of delay on the part of the facility.

> There is a high no-show rate (traditionally almost 50 percent, improved to 33 percent d/t overbooks, not because patients are showing up more frequently!!)

Shortages of clinical and support staff was a prominent concern as was concern about insufficient space for existing staff to provide care.

> Our facility receives approximately 100 consults a months with only 1.5 FTE provider(s) to see those requiring a CTBIE [comprehensive TBI evaluation]

> We are dealing with a shortage of providers, both physicians and mid -level providers. There is a shortage of nursing personnel, both RN [registered nurse] and LPN [licensed practical nurse]. We have a critical shortage of physical space, not enough exam rooms to the point of inhibiting productivity. Telemedicine has increased our ability to reach rural areas, and this should be expanded. Providers other than neurologists and physiatrists are capable of performing the CTBIE [comprehensive TBI evaluation]. We are currently doing this; otherwise we would not be capable of keeping up with the demand.

> Lots of funding for Polytrauma site- those funds need to be shared with Polytrauma Support Clinic Sites as that is where the bulk of follow up and long term care resides.

Respondents had varied perspectives on the accessibility and utility of information in a Veteran's medical record.

> The lack of medical records from DoD does not delay or providing the Second Level TBI Evaluation. We always provide the evaluation regardless of records from DoD.

> This is a trick question. Remote data allows you to access DoD records from CPRS. However, those records are rarely relevant to the evaluation. They are often VA records that have been transferred into the DoD database, and almost never contain information about injures that happened in theatre or that involved medical care while on Active Duty that is associated with the reported TBI.

> I never see the inpatient records from Walter Reed, Landstuhl or Iraq or Afghanistan. I sometimes see the outpatient records from remote facilities in Iraq or Afghanistan, but they are few and far between. I *never* have access to things like sleep studies or the images from studies such as CT or MRI and usually have to re-image anything that I want to look at.

Respondents did report frequent delays but thought measuring delay in obtaining a new visit did not capture true access to mental health care, for which effectiveness would be a more appropriate measure.

> We are capacity constrained in mental health due to the number of providers we have and the demands for services. We can see patients quickly, but then they may have a long wait to be seen again. We might be able to be more effective if we see the same patient more often, but that results in delays in seeing others. As delay is what is being measured, not effectiveness (a tough measure), we end up with many patients being seen, but not very effectively.

> At this juncture, this level 1A hospital has two 0.5 psychologists who treat PTSD. This is far less than prior to 911. This is beyond unacceptable.

> Delays in neuropsychiatric assessment sometimes as long as 4 months

Many respondents voiced frustration with the CPRS tool for the comprehensive TBI evaluation, and for Central Office policies they viewed as not focused on patient care.

> Many CO [Central Office] directives do not address the real need of having the ability to schedule and contact Veterans more efficiently. Wait times are arbitrary and rarely reflect clinical need or community standards.

> Many Veterans that are screened for TBI are many years past the initial incident. It is important to address their clinical needs but the required templates are not necessary for many of the evaluations.

> VA is run, to quote a director, so as "to control the doctors." You cannot run a health care system against the doctors. All the problems mentioned above derive fundamentally from the desire to by CO [Central Office] to control the system not let professionals do their job.

> We have a doctor and nurse doing a great deal of clerical work and much of the documentation requirements do not feel meaningful to the actual care of the patient.

> Delay due to staffing issue and lack of leadership support to address this issue in hiring appropriate personnel.

> The TBI second level screening tool in CPRS is difficult to use, frequently does not work and is very slow. While it may allow [VA Central Office] to collect data, it adds nothing to clinical care for the Veteran.

> The TBI screening program is flawed and has resulted in too many Veterans being diagnosed with TBI based on limited info. The need to complete Mayo-Portland evaluations for mild TBI patients is not helpful.

> No show rates, clerical staff, and the ridiculous CPRS/VISTA interface are interconnected problems.

Conclusion

VA has a well-developed system of care in place for patients with TBI. Except for the military, it is likely unrivaled in the depth of expertise available system-wide, or in the immediate care of the most severely injured patients. Access to care for those with less severe or less recent injuries is somewhat less clear.

Numerical survey results tell a somewhat different story than do the accompanying comments. The former suggests that at a majority of facilities, delays experienced by TBI patients at any care juncture are relatively uncommon. Moreover, it is suggested that many apparent delays are actually precipitated by patient no-shows for care (presumably in part related to cognitive deficits related to injury).

The comments suggest greater problems with access, and particularly that the system is responding to the access measures that are being audited, such that true problems may be understated. Neuropsychiatric evaluations and ongoing mental health care of any kind appear particularly problematic. It is possible that the comments give disproportionate voice to an unrepresentative sample of respondents. It is also possible that survey questions regarding "delays in ongoing care" were interpreted according to the letter of our instructions (for example, if no adverse outcome, and in keeping with VA/DoD guidelines, then no delay was reported).

Transfer of information between the DoD health care system and a VA Polytrauma Rehabilitation Center is generally done via "warm handoff" whereby pertinent medical history is discussed between providers at the two institutions. For less acute or less serious cases, survey evidence suggests that DoD records are often not deemed particularly relevant, nor are they routinely available (as they relate to the injury in questions or care for it); in short, there does not appear to be a perceived problem with regard to information transfer.

Comments also reflect widespread dissatisfaction with CPRS screening and evaluation tools for TBI, and with VA Central Office policy that is seen by some as focused on data collection at the expense of patient care.

1.3.5 Appendix B.3.5 Acute Coronary Syndromes

Clinical Background

The term "acute coronary syndromes" describes a constellation of signs and symptoms of myocardial ischemia or infarction. Acute coronary syndromes is a spectrum of disease ranging from "unstable angina" to "non-ST elevation myocardial infarction" to ST elevation myocardial infarction (STEMI). Patients seen in the emergency department for symptoms (typically chest pain) that might or might not be caused by acute coronary syndromes are commonly included in discussions of acute coronary syndromes care, and we do so here.

Acute coronary syndromes is an emergent condition where outcome depends upon timely diagnosis and treatment. Therefore, patients with compatible symptoms are told to call 911, and ambulance protocols usually suggest transport to the emergency department of the nearest appropriately equipped hospital. In some 911 systems, ambulances are equipped to perform 12-lead EKGs and will divert STEMI ("heart attack") patients to regional centers equipped to perform emergent coronary interventions. A substantial proportion of acute coronary syndromes patients arrives via "self-transport" and do not come by ambulance.

STEMI

In the emergency department, if the EKG suggests STEMI, then a strategy to re-open the obstructed coronary artery must be undertaken immediately. Reperfusion can be achieved in two ways: via a percutaneous coronary intervention or via a "clot-dissolving" thrombolytic drug such as Tissue Plasminogen Activator. Outcomes are better with the percutaneous coronary intervention strategy; thrombolytics are only used if transport time to a percutaneous coronary intervention capable hospital would be prohibitive. However treated, STEMI patients are admitted to a coronary care unit, where they are treated and monitored for life-threatening complications.

Acute coronary syndromes other than STEMI

If STEMI is excluded then patients are typically admitted either to a short-stay observation unit or an inpatient telemetry unit, depending on the probability that symptoms are caused by myocardial ischemia and on the risk of life-threatening complications. Acute coronary syndromes are diagnosed or excluded on the basis of EKGs, laboratory tests, and sometimes "non-invasive" evaluation of the coronary arteries. If acute coronary syndromes are diagnosed (or if it is felt to be probable), then the next step is diagnostic cardiac catheterization (also called coronary angiography). Patients found on catheterization to have an unstable coronary artery lesion usually will go on to an interventional procedure (that is, the placement of an intra-coronary stent).

Post-acute care (all acute coronary syndromes patients)

Patients found to have other coronary artery lesions (besides the one that caused acute coronary syndromes) may be referred for elective PCI or coronary artery bypass graft surgery. Whether or not that occurs, they are then typically followed at regular intervals in an outpatient cardiology clinic. Follow-up focuses on monitoring for symptoms of complications, medications to prevent blood clots in the coronary arteries, and on lowering the risk (through medications and behavioral interventions) of future acute coronary syndromes episodes. Once symptoms stabilize, a patient may be referred back to primary care for ongoing care.

Survey Results

A total of 98 respondents answered one or more questions in this module, which contained questions about the frequency of delays, proposed solutions for improving delays, factors impacting provider and system efficiency, and questions about workforce recruitment and retention.

Delays

Respondents were asked about delays at five care junctures: (1) Emergency department assessment of patients with "possible acute coronary syndromes," (2) Inpatient assessment of patients with "possible acute coronary syndromes," (3) Patients with STEMI, (4) Revascularization for inpatients who are symptomatically stable but who have acute coronary lesions, and (5) Post-discharge care. Categories were further subdivided into specific services (for example, cardiology consultation, echocardiography). Specifically, we asked respondents to *"Consider delays which might put a patient at risk for adverse outcomes, slow resolution of symptoms, or which are not compliant with VA/DoD guidelines."*

For the services with the greatest frequency of delay (that is, the highest percentage of patients experiencing a delay), participants were asked to think of the most effective way to reduce the number of delays, and to rate the importance of various elements of a solution (for example, create additional space, increase the number of licensed independent practitioners).

Juncture 1: Emergency department assessment

The first set of questions focused on the emergency department assessment of patients with symptoms that might suggest acute coronary syndromes. Responses are detailed in Table I-113. We asked about delays in the following services or transitions: Completing the emergency department evaluation, transferring from the emergency department to a short-stay observation unit, to a telemetry unit, or to a CCU bed.

For each step in the emergency department assessment, most respondents said that delays were infrequent. Transfer from the emergency department to telemetry was the step for which the most respondents (22 percent) reported that delays occurred in more than 10 percent of patients. The proportions of respondents who reported frequent delays are as follows:

Completing the emergency department evaluation	6%
Transfer from the emergency department to a short-stay observation unit (that is, "chest pain unit")	10%
Transfer from the emergency department to a telemetry bed	22%
Transfer from the emergency department to a CCU or ICU bed	12%

Respondents who identified delays in a particular service were asked to think about a solution, and to rank the importance of various "components of the proposed solution." Tables I-114 to I-117 describe the responses in detail. Responses (N = 36) to "Transfer from the emergency department to a telemetry bed" are typical:

Create additional space for patient care	86%
Increase the number of other personnel	57%
Increase the number of licensed independent practitioners	43%
Increase weekend and evening availability of services	38%
Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community	38%
Improve personnel supervision, management, or incentives	31%
Change "central office policies" that affect workflow and efficiency	26%

Acquire and/or improve availability of equipment	24%
Implement or increase the availability of telehealth services	6%

Juncture 2: Inpatients admitted to rule out acute coronary syndromes

Regarding stable inpatients admitted to "rule out" acute coronary syndromes, we asked about delays in the following: Cardiology consultation, Echocardiography, Non-invasive coronary evaluation (for example, nuclear stress testing), On-site coronary angiography, Transfer to another VA health care system for coronary angiography, and Transfer to non-VA facility for coronary angiography (fee-basis or contracted care).

Delays in cardiology consultation and on-site coronary angiography were reported to be uncommon. A slightly larger number of respondents reported delays in transfer to an outside (non-VA) facility for coronary angiography, and for echocardiography, and non-invasive coronary testing. Transfer to a different VA facility appear to be a less common event (half reported "NA") but more than one-third who answered said that frequent delays occurred. The proportions of respondents who reported frequent delays are as follows:

Cardiology consultation	6%
Echocardiography	13%
Non-invasive coronary evaluation (for example, nuclear stress testing)	19%
On-site coronary angiography	5%
Transfer to another VA health care system for coronary angiography	36%
Transfer to non-VA facility for coronary angiography (fee-basis or contracted care)	10%

Respondents who identified delays in a particular service were asked to think about a solution, and to rank the importance of various "components of the proposed solution." Tables I-119 to I-124 describe the responses in detail. Responses (N = 35) for echocardiography were typical: The most frequently cited as "critically important" or "very important" were as follows:

Increase the number of other personnel	70%
Acquire and/or improve availability of equipment	46%
Create additional space for patient care	43%
Change "central office policies" that affect workflow and efficiency	41%
Increase the number of licensed independent practitioners	37%
Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer	37%

to care in the community

Increase weekend and evening availability of services	29%
Improve personnel supervision, management, or incentives	23%
Implement or increase the availability of telehealth services	9%

Juncture 3: *Patients with ST-Segment Elevation MI*

Delays in caring for patients with STEMI are of particular concern because there is a well-documented inverse relationship between time-to-treatment and chance of death or heart damage. With regard to management of STEMI, we asked about the following: Emergency department activation of STEMI protocol, Primary PCI at an on-site catheterization laboratory, Primary percutaneous coronary intervention at a different VA facility (via transfer), Primary percutaneous coronary intervention at a non-VA facility (via transfer), and Thrombolytic therapy.

For these services, one-half to three-quarters of respondents reported that there are no delays for any patients, and 80–90 percent said that delays occurred for 10 percent of patients or fewer. Of note, a majority responded "NA" with regard to "Primary percutaneous coronary intervention at a different VA facility," and "Thrombolytic therapy," suggesting that use of these services may not be widespread. The proportions of respondents who reported frequent delays are as follows:

Emergency department activation of STEMI protocol	12%
Emergency department activation of STEMI protocol	12%
Primary percutaneous coronary intervention at an on-site catheterization laboratory	12%
Primary percutaneous coronary intervention at a different VA facility (via transfer)	19%
Primary percutaneous coronary intervention at a non-VA facility (via transfer)	13%
Thrombolytic therapy	0%

Respondents who identified delays were asked to think about a solution, and to rank the importance of various "components of the proposed solution." Tables I-125–I-129 describe the responses in detail. Responses (N = 34) for "Emergency Department Activation of STEMI protocol" were typical: The most frequently cited as "critically important" or "very important" were as follows:

Increase the number of other personnel (for example, nursing, technicians, pharmacists, clerical staff)	48%
Increase the number of other personnel (for example,	48%

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nursing, technicians, pharmacists, clerical staff)

Increase the number of licensed independent practitioners (for example, physicians, nurse practitioners, psychologists)	44%
Create additional space for patient care (for example, more exam rooms, procedure rooms, inpatient beds)	38%
Some other solution(s)	35%
Improve personnel supervision, management, or incentives	33%
Increase weekend and evening availability of services	32%
Change "central office policies" that affect workflow and efficiency (for example, rules governing documentation or how quickly certain services must be provided)	26%
Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community	26%
Acquire and/or improve availability of equipment	18%
Implement or increase the availability of telehealth services	6%

Juncture 4: Revascularization for inpatients who are symptomatically stable but who have acute coronary lesions

We asked about delays in obtaining: On-site percutaneous coronary intervention, Transfer to another VA facility for percutaneous coronary intervention, Transfer to a non-VA facility for percutaneous coronary intervention, On-site coronary artery bypass graft surgery, Transfer to another VA facility for coronary artery bypass graft surgery, and Transfer to a non-VA facility for coronary artery bypass graft surgery.

While more than half of respondents reported infrequent delays in each of these services, a substantial minority (35–45 percent) reported more frequent delays in transfer to another VAMC for percutaneous coronary intervention, in on-site coronary artery bypass graft surgery, and transfer to another VAMC facility for coronary artery bypass graft surgery.

Reports of delays in transfer to non-VA facilities for non-emergent percutaneous coronary intervention were notably uncommon (3 percent of respondents reported that delays occur more than 10 percent of the time). The proportions of respondents who reported frequent delays are as follows:

On-site percutaneous coronary intervention	6%
Transfer to another VA facility for percutaneous coronary intervention	26%
Transfer to a non-VA facility for percutaneous coronary	3%

intervention

On-site coronary artery bypass graft surgery	48%
Transfer to another VA facility for coronary artery bypass graft surgery	46%
Transfer to a non-VA facility for coronary artery bypass graft surgery	9%

Respondents who identified delays were asked to think about a solution, and to rate the importance of various "components of the proposed solution." Tables I-131–I-136 describe the responses in detail. Notably, the number of responses for many of these steps was low, reflecting, probably the relatively small number of patients who need these services (and likely their uneven distribution throughout the VA system). Responses shown here for "coronary artery bypass graft surgery on-site" were typical: The most frequently cited as "critically important" or "very important" were as follows:

Increase the number of licensed independent practitioners	81%
Increase the number of other personnel	71%
Create additional space for patient care	43%
Increase weekend and evening availability of services	33%
Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community	33%
Acquire and/or improve availability of equipment	29%
Improve personnel supervision, management, or incentives	24%
Change "central office policies" that affect workflow and efficiency	19%
Implement or increase the availability of telehealth services	19%

Juncture 5: Transfer of acute coronary syndromes patients from an outside hospital to a VAMC

Here we asked about transfers of (symptomatically stable) Veterans either from other VAMCs without required acute coronary syndromes services, or from non-VA hospitals (Table I-137). One quarter of respondents answered "not applicable," expected since many VA systems would be transferring patients out, not in (since they lack services). Those who answered the question said that more than half of all patients who needed to be transferred to their facility experienced delays.

Transferring patients from an outside hospital to your hospital for further evaluation	44%

Respondents who identified delays were asked to think about a solution, and to rate the importance of various "components of the proposed solution." Responses were as follows (see also Table I-138). Of note, free-text comments suggest that "additional space" refers to inpatient beds, and that "some other solution" may relates to changes in organizational culture or incentive structure to encourage the acceptance of transfers. The most frequently cited as "critically important" or "very important" were as follows:

Create additional space for patient care (for example, more exam rooms, procedure rooms, inpatient beds)	87%
Increase the number of other personnel (for example, nursing, technicians, pharmacists, clerical staff)	56%
Some other solution(s)	53%
Increase the number of licensed independent practitioners (for example, physicians, nurse practitioners, psychologists)	49%
Improve personnel supervision, management, or incentives	37%
Increase weekend and evening availability of services	35%
Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community	34%
Acquire and/or improve availability of equipment	30%
Improve information technology (for example, scheduling system, electronic health record)	24%
Change "central office policies" that affect workflow and efficiency (for example, rules governing documentation or how quickly certain services must be provided)	24%

Juncture 6: Post-discharge care

With regard to care of acute coronary syndromes patients after hospital discharge, we asked about delays in the following: Follow-up cardiology clinic appointments (percutaneous coronary intervention), Non-invasive coronary evaluation (for example, nuclear stress testing) as outpatients, Initial cardiothoracic surgery appointment for patients referred for possible elective coronary artery bypass graft surgery, Pre-operative testing (for example, carotid ultrasound) for patients under consideration for elective coronary artery bypass graft surgery, Elective coronary artery bypass graft surgery, Elective (or otherwise non-emergent) angiography or percutaneous coronary intervention (Table I-139).

While a majority of respondents cited infrequent delays for each of these steps, 32 percent reported more frequent delays in elective coronary artery bypass graft surgery, 17 percent in non-invasive coronary evaluation, and 16 percent in obtaining follow-up cardiology clinic

appointments. The proportion of respondents who said that there were frequent delays at their institutions are shown:

Follow-up cardiology clinic appointments (percutaneous coronary intervention)	16%
Non-invasive coronary evaluation (for example, nuclear stress testing) as outpatients	17%
Initial cardiothoracic surgery appointment for patients referred for possible elective coronary artery bypass graft surgery	24%
Pre-operative testing (for example, carotid ultrasound) for patients under consideration for elective coronary artery bypass graft surgery	9%
Elective coronary artery bypass graft surgery	32%
Elective (or otherwise non-emergent) angiography or percutaneous coronary intervention	5%

Respondents who identified delays in services for post-discharge care were asked to think about a solution, and to rate the importance of various "components of the proposed solution." Responses are given in tables I-140 to I-145. Responses for "follow-up cardiology clinic appointment" were typical and are given below: The most frequently cited as "critically important" or "very important" were as follows:

Increase the number of licensed independent practitioners	46%
Create additional space for patient care	39%
Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community	36%
Improve personnel supervision, management, or incentives	32%
Increase the number of other personnel	32%
Increase weekend and evening availability of services	32%
Change "central office policies" that affect workflow and efficiency	25%
Acquire and/or improve availability of equipment	21%
Implement or increase the availability of telehealth services	14%

Issues Affecting Provider and System Efficiency

Respondents for the module (N = 98) were asked to describe the degree to which various issues affected provider and system efficiency. Table I-146 describes the results. The most frequently cited as "critically important" or "very important" were as follows:

Insufficient clinical/administrative support staff	66%
Providers performing administrative activities that could be performed by others	61%
Too many administrative requirements	58%
Inadequate scheduling system and policies	53%
Inadequate number of staffed inpatient beds	48%
Unnecessary documentation requirements or inefficient CPRS interface	47%
Poor patient flow management (for example, bed turnover)	34%
Providers performing clinical activities that could be performed by others	33%
Inefficient processes related to outmoded or suboptimal physical infrastructure	32%
Patient no-show rates (for outpatient follow-up)	30%
Residency training/teaching requirements	21%
Delays in obtaining specialized supplies or devices	21%

Recruitment and Retention

We asked about recruitment (Tables I-147 and I-148) and retention (Tables I-149 and I-150) for emergency physicians, cardiologists (various subspecialties), cardiothoracic surgeons, technicians, and specialized support staff. Ninety-eight percent of respondents answered the questions about recruiting and retaining staff, although a large proportion of responses were "not applicable," presumably reflecting the fact that many local systems do not have the relevant service, and possibly also that because the number of staff is small at most facilities that do have them, turnover is infrequent.

For most workforce categories, about half of the respondents (excluding "NA") said that there were recruitment difficulties. Notably, this proportion was somewhat lower for interventional cardiologists (approximately one third of respondents said that there were recruitment problems).

Substantially fewer respondents identified problems with workforce retention, as compared with recruitment. The specialist most frequently identified as having problems with both recruitment and retention were emergency physicians. It should be noted that the cardiology chief would not normally be involved in their recruiting or hiring (this is true for other personnel

types such as cardiothoracic surgeons), so the source of these perceptions might be questioned.

Non-competitive wages/ dissatisfaction with pay were by far the most common reasons cited for problems with recruitment and retention, respectively.

Free-text comments

Timeliness of STEMI care was mentioned by several respondents. At least one comment was congruent with the survey result that STEMI delays were rare, while others were not:

> We usually get our STEMIs out in time and there are no issues with local acceptance.

> If we have an STEMI after hours it will require transfer from VA to university which will take a minimum of one hour, usually more, to work out. We cannot staff a cath lab 24h, 7d a week.

> This facility provides primary PCI [percutaneous coronary intervention] only during business hours if (single) cath lab is available. Delays in inter-hospital transfer night/weekends related to recognition and facile activation of STEMI system for transfer or thrombolytics + transfer. Need to work with community to permit transmission of first-contact ECGs and administrative authority to directly route patient to closest PCI center for optimal STEMI care without cost to patient.

Timeliness of elective coronary artery bypass graft surgery and transfer of a Veteran into VA from an outside VA (or non-VA) facility were discussed. Some of these touched on organizational culture as being part of the problem.

> Delays in getting outpatient CABG [coronary artery bypass graft surgery] for patients after ACS [acute coronary syndromes] happen often, partially because the referral center surgeons insist on multiple consults by other services before seeing the patients. Also, I assume because of lack of OR [operating room]. Often patients wait for months to get outpatient CABG in the referral VA. Better communication between cardiologists at our VA and surgeons in referral VAs may help, and we can work on this on our own. VISN level cardiovascular meetings where the Chiefs of Cardiology or even all cardiologists/CT [cardiothoracic] surgeons get together to discuss pressing issues, would help A LOT.

> If Central Office could incentivize our tertiary hospitals to take our patients, incorporate customer service reviews perhaps this could change. Our community hospitals are more accepting and easier to deal with.

> Unlike the private sector there is not a "service mentality" in the transfer office. The transfer process is "unfriendly" to referring hospitals, typically they have to leave a message and get a call back, rather than having a transfer clerk consistently available to answer the phone directly. This is a problem both for referring physicians and in-house physicians trying to get a patient admitted.

Some comments alluded to a "domino effect" whereby bottlenecks at one hospital location or with one service can cause downstream problems with timely care:

> We have enough medical provider staff- we could use a LMSW [Licensed Master Social Worker] to help us move people more quickly out of the UCC [urgent care center] so we

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can care for our ACS [acute coronary syndromes] and other urgent patients more quickly.

Our single biggest deficiency is in availability of inpatient beds. Most often, but not always, the actual shortfall is in bed staffing (that is, nursing) and not in physical beds. This results in delays in transfer of patients from the emergency department to the floor, and creates further bottlenecks for the procedure areas. For example, in the Cardiac Cath lab patients often must be held in the Recovery area for additional hours due to lack of available telemetry beds, which pulls cath lab staff from other duties and affects procedure throughput.

Radiology needs additional personnel for staffing on nights and weekends when there is often only one X-ray tech for the entire building and services the ED [emergency department], ICU, and OR [operating room] simultaneously.

Comments regarding physical space primarily focused on the availability of ICU and telemetry beds. While some respondents made the distinction between the availability of physical beds versus staffed beds, others did not.

We have physical beds but not enough nurses to take care of patients; hence the wait time for inpatient beds. We cannot transfer ACS [acute coronary syndromes] patients (to our VA for cardiac cath) easily from outside hospitals or other VAs because of the bed situation

No physical beds.

One noted that problems with bed capacity are seasonal:

Our facility has too few inpatient beds for busy months of the year, for example, flu season.

Several comments suggested that VA may not be well-suited to care for many enrollees with acute, time-sensitive conditions, by virtue of the fact that non-VA resources are often much closer:

Our options for ACS [acute coronary syndromes] are to transfer patients locally (we have a local contract with a community medical center) or to send ~200 miles to [redacted]. The patients have to wait on average 2–3 days or longer for beds at those outside facilities. The VA preference is that we send within VA rather than the community for financial reasons. However, it is inappropriate for ACS [acute coronary syndromes] patients (even stable patients, chest pain free, with mild or no troponins) to wait 48 hrs.

Patients with chest pain should be evaluated in local ER and service should be provided (paid for) by VA. If patient requires admission, cath, etc., stabilize and transfer to VA. Currently services outside VA are not paid for unless patient is service connected. This means many patients attempted to drive long distances (hours) to a VAMC for ACS [acute coronary syndromes]. The result is substantial delay in treatment of ACS.

Depending on the urgency of the situation as determined by the Urgent Care physician, the patient is transferred to a local non-VA facility or (if very stable) to a VA hospital which is 90 to 120 miles away. Because VA must pay Medicare rates if admitted to a non-VA facility, there is emphasis on trying to admit to a VA facility if deemed safe. If

our clinic could work out a financial arrangement with a local inpatient facility, it would alleviate the need to transport long distances patients with potential unstable cardiac conditions.

Would be nice to have CABG [coronary artery bypass graft] surgery done locally rather than traveling to another state to get to a VA offering this service.

One respondent suggested at least for certain facets of cardiovascular care, Veterans prefer to stay within VA:

The vast majority of Veterans do not want to take advantage of fee-basis opportunities or the Veterans Choice Act. If the services can be offered at VA, they seem committed to staying within VA. So, it would be helpful to provide the infrastructure to help them do so.

Some comments on coronary artery bypass graft surgery alluded to perceived problems with training or quality. The need for trained emergency physicians rather than primary care providers to staff ERs was also mentioned.

The department of CT [cardiothoracic] surgery requires a substantial overall. Employ energetic, eager to work, and, most importantly, competent cardiac surgeons

Retire cardiac surgeons who are no longer able to provide state of the art operations and real on-call coverage

Several comments mentioned that low salaries caused hiring difficulties; others discussed the HR process.

VA is not competitive (salary) in hiring echo technicians. This results in delays in getting inpatient echocardiograms.

In Cardiology we have a shortfall in technologist positions -- primarily cath lab techs and echo techs. Technologist pay scales fall far below market in high cost of living areas, and we have continual problems attracting and retaining these critical personnel.

Pay for interventional or other cardiologists are much lower than market pay ranges

When hiring new staff for technical positions, such as echocardiography technician, it is important to test the technical skills of the people applying. With current HR [human resources] rules, it is difficult to do (if there are no local Veterans applying, then you have to consider Veteran applicants from across the country but nobody pays them to fly out for an in-person interview.

VA has become increasingly bureaucratic and inefficient in terms of hiring; this is affecting patient safety and care, and is also very expensive as increasing numbers of patients are sent out to community.

Conclusion

This module reflects the opinions of the heads of cardiology at 98 local VA systems. They were asked about acute coronary syndromes, broadly defined, including the spectrum of illness ranging from symptoms that might be caused by myocardial ischemia to acute STEMI, and about the phases of care ranging from the initial emergency department presentation to post-hospitalization follow-up. Of the eight modules in the survey, this is the only one that focused on either an emergent condition or inpatient care.

One striking finding was that inadequate clinical (provider) personnel were rarely mentioned as a cause of inpatient delays. Problems reported were most frequently attributed to bed shortages and to organizational problems.

Delays in initial emergency department evaluation and STEMI care, the most time-sensitive and high-risk scenario covered here, were reported to be infrequent. Delays in admission of stable patients to inpatient beds were more common, attributed primarily to problems of bed capacity (whether physical beds or beds empty but unstaffed).

Remarkably, about half of respondents (excluding "NA" responses), when asked about transfers of (symptomatically stable) acute coronary syndromes patients into their facilities, said that more than 50 percent of such patients experienced clinically meaningful delays. These delays were attributed both to bed capacity problems and to a lack of incentive and a "lack of a service mentality" among certain administrators at the receiving facilities.

For the most part, these survey questions only addressed the care of those Veterans who made it to a VAMC for acute coronary syndromes care. As some respondents alluded to, however, many patients with emergent conditions such as this cannot or should not travel the extra distance to a VAMC if there is an appropriately equipped non-VA hospital that is closer. To the extent that some Veterans spend extra travel time when they should not, or are not covered when they are admitted to non-VA hospitals, problems with access to care for this patient population might not be fully reflected in this survey.

1.3.6 Appendix B.3.6 Colon Cancer

Clinical Background

Colon cancer is a leading cause of cancer and cancer-related deaths in the United States and among Veterans. It is one of the few cancers for which there is strong evidence that screening and timely follow-up to screening saves lives. Because of this, timely and appropriate screening, follow-up to screening, and treatment of patients who are diagnosed with colon cancer are areas of intense interest to VA. Moreover, the logistics of ensuring that a massive population (for example, every Veteran over 50) is screened without fail, and that a mechanism exists to enforce a zero tolerance policy for failure to follow-up on a positive screening test, would challenge even the most sophisticated health care organization. Colon cancer is therefore an ideal condition with which to illustrate the strengths and weaknesses of a variety of VA systems.

Clinical guidelines have evolved over time, and there are currently a number of screening mechanisms viewed by many to be equally effective, although they vary substantially in cost and patient convenience. Three screening mechanisms currently predominate: (1) An annual test for small amounts of blood in the stool, "fecal occult blood test," (2) A flexible sigmoidoscopy examination every five years, and (3) a screening colonoscopy examination every 10 years. Colonoscopy has the advantage of being definitive—either a cancer or precancerous lesion is seen or it is not. Fecal testing is reliable if done correctly and tests are done annually, but a substantial number of patients who do not actually have colon cancer will have a positive test and will need to go on to colonoscopy anyway. Until recently fecal occult

blood testing was done via the "guaiac test," which has been used for decades. More recently, an immunochemical test for fecal occult blood has been advocated by some as more effective, but it is more expensive.

Patients who go on to colonoscopy (either primarily or after a positive occult blood test) are biopsied if there are suspicious lesions. If a cancer diagnosis is made, then a variety of ancillary tests are performed and depending upon the stage and location, definitive treatment can include surgical excision (usually hemi-colectomy), and adjuvant chemotherapy or radiation therapy.

Survey Results

There were 109 respondents for the colon cancer module. Please see Table I-2 for details of responses and response rates.

Survey respondents were asked about three junctures in the care pathway: (1) Screening of asymptomatic patients, (2) Colonoscopy, whether for screening or other indications, and (3) Care for biopsy-proven colon cancer. Categories were further subdivided into specific services.

Juncture 1: Screening

We asked respondents to identify the screening methods were commonly used at their facilities. More than one response was allowed. In decreasing order of frequency, responses were: colonoscopy every 10 years (92 percent), fecal immunochemical testing (70 percent), standard stool guaiac (36 percent), flexible sigmoidoscopy every five years (17 percent), double contrast barium enema every five years (4 percent) (Table I-151).

Regarding availability of the fecal immunochemical test at their facility, 73 percent said that this was available at all locations, 10 percent at some but not all locations, and 17 percent said that fecal immunochemical testing was not available at their institution (Table I-152).

Respondents were asked whether CPRS clinical reminders for colon cancer are implemented. All respondents (100 percent) answering the question said that they were (Table I-153). Regarding CPRS "view alerts" for a positive fecal occult blood test: 45 percent of respondents said that a fecal occult blood test generates an alert which requires some sort of acknowledgement by the clinician, 32 percent said that it generates an alert which may be easily overlooked, and 22 percent said that positive fecal occult blood tests are automatically routed to gastroenterology (Table I-154).

Juncture 2: Colonoscopy (for screening and other indications)

Respondents were asked to estimate the average colonoscopy wait times at their facilities, for various indications. The median response was 30 days for colonoscopy for high risk patients or those with symptoms, iron deficiency anemia, or a positive fecal occult blood test, and 55 days for a screening colonoscopy for average-risk patients (Table I-155).

Delays in colonoscopy varied somewhat with the clinical indication. Frequent delays were most often reported for screening in average-risk patients (20 percent of respondents), and least often for routine follow-up to positive fecal occult blood test (Table I-156). The proportions of respondents who reported frequent delays are as follows:

Colonoscopy screening for average-risk patients	21%
Colonoscopy screening for high-risk patients (for example, strong family of colon cancer or personal history of inflammatory bowel disease)	13%
Colonoscopy for patients with positive fecal occult blood test	8%
Colonoscopy for patients with iron deficiency anemia	11%
Colonoscopy for patients with other symptoms or indications	13%

Respondents who identified delays in particular services were asked to think about a solution, and to rate the importance of various "components of the proposed solution." Table I-157 describes the responses in detail. Proportion of respondents indicting the solution to delays in colonoscopy is "critically" or "very important" are shown below for the 64 respondents:

Increase the number of licensed independent practitioners	78%
Increase the number of other personnel	67%
Create additional space for patient care	52%
Improve information technology	50%
Change "central office policies" that affect workflow and efficiency	48%
Some other solution(s)	45%
Acquire and/or improve availability of equipment	33%
Improve personnel supervision, management, or incentives	33%
Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community	25%
Increase weekend and evening availability of services	9%
Implement or increase the availability of telehealth services	3%

Juncture 3: Management of biopsy-proven colon cancer

We asked about the following services for patients already diagnosed with colon cancer: Initial evaluation by a surgeon, computerized tomography scan for staging, partial colectomy, chemotherapy, and radiation therapy (Table I-158). For each of these services, fewer than 10 respondents reported frequent delays. Possible solutions to reducing delays are therefore not discussed (Tables I-159–I-164).

Issues Affecting Provider and System Efficiency

A total of 107 respondents reported on the negative impact of a number of issues, ranging from providers performing clinical duties that could be performed by individuals with less training to administrative requirements, on provider and system efficiency (Table I-165). The following issues were most frequently identified as "a fair amount" or "a lot":

Insufficient clinical/administrative support staff	72%
Providers performing administrative activities that could be performed by others	71%
Inadequate scheduling system and policies (for example, hard to cancel or reschedule, coordinate)	65%
Patient no-show rates	64%
Unnecessary documentation requirements or inefficient CPRS interface	58%
Too many administrative requirements	56%
Providers performing clinical activities that could be performed by individuals with less training	50%
Poor patient flow management	39%
Residency training/teaching requirements	13%

Recruitment and Retention

The colon cancer section asked about specialties associated with colon cancer care such as gastroenterologists, surgeons and oncologists, as well as support staff trained in oncology. One hundred six respondents answered the recruitment and retention questions. Two-thirds reported difficulties in hiring gastroenterologists. More than 90 percent of respondents said that non-competitive wages were the major barrier (Table I-167). A distant second was burdensome human resources process to actually hire someone (26 percent).

Nearly 38 percent of respondents reported problems retaining gastroenterologists, once they were hired (Table I-168). About two-thirds said this was due to dissatisfaction with pay (Table I-169). Of those facilities reporting problems in retaining gastroenterologists, 30 percent of respondents reported dissatisfaction with management support as the next most common barrier to retention.

Free-text comments

Many respondents reported high demand for gastrointestinal services, exceeding the supply that their facility was capable of providing. In particular, the high rate of no-shows was highlighted as wasting physician time. As one respondent observed: "…physicians especially procedural physicians need nurses to follow up with patient labs, etc. and to remind and educate patients regarding their upcoming procedure appointments otherwise we have an increase in no show and cancellation rates." According to another respondent, the "biggest problem is no shows and [appointments] cancelled by patient too late to move someone in."

Some respondents mentioned the clinical reminders in VistA/CPRS to prompt physicians to order screening colonoscopies for their patients. However, several respondents felt that the documentation requirements associated with colorectal cancer screening and care were onerous and represented a significant barrier to access to care, as the workflow for a colonoscopy was similar to the workflow for surgery. They thought that physicians spent an excessive amount of time on documentation and paperwork: "A lot of time is spent by providers in administrative work, triaging consults etc. No training is given to providers to capture work load properly."

One respondent observed that the burden of paperwork was a barrier to using new purchased-care programs effectively: "The non VA care department is overwhelmed by the demand created by the various new programs. As in all cases, every effort should be made to streamline paperwork." "It takes longer to do the paper work than perform the procedure and MOST of the paper work is not value added." Others felt that the electronic health record system was too clunky and should be streamlined for optimal care, adding that the potential for "pop-up fatigue" limits the effectiveness of reminders and alerts.

Staffing was a major concern. As one respondent telegraphed: "Desperately needed—GI physicians [gastroenterologists] and endoscopy nursing personnel; badly needed—more endoscopy rooms." Multiple respondents suggested that the salaries offered by VA are too low to attract providers, who have the potential to make much more money in other care systems. "…The salary range for GI physicians [gastroenterologists] is still far lower than in the private sector. In addition, despite the increase recently in the salary caps, these increases will only be given to new hires. . . . This will mean that the seasoned staff including the department chiefs will be paid less than the freshman. "

Many respondents felt that more nurses and support staff, such as techs, were needed. "We are understaffed with respect to GI providers [gastroenterologists] and nurse/techs to run the rooms. We do not have sufficient Facilitators to schedule procedures, and we do not have enough Nurse Care Coordinators to manage the complex patients we do see." Low salaries were also cited as a barrier to adequate staffing in these areas: "Nurse hiring and retention [are] problematic due to noncompetitive grades/salaries and long HR [human resources] delays."

Respondents viewed increasing support staff as essential to increasing more physician services. The understaffing of VA administration and support personnel was seen as "a pervasive and longstanding VA problem." Several respondents also decried a shortage of providers from other specialties, such as anesthesiology, radiology, and surgical oncology. The need for more space was also frequently mentioned. "Limited number of endo [endoscopy] rooms, lack of nursing support and delays in replacing equipment are major causes for delays."

But multiple respondents commented on how the disconnect between one-size-fits-all requirements for obtaining appointments and clinical realities affected VA abilities to provide the right care at the right time. Several respondents observed that screening policies and metrics used to monitor quality of colorectal cancer care were not designed with input from clinicians and therefore do not reflect the most current evidence. As one articulated: "The central office policies need to be revised because obviously non-clinicians are making decisions

as to how quickly patients need to undergo procedures. The doubling time in the colon is ~5 years, therefore the average patient does not need to have a procedure performed within 30 days or even 60 days."

Given these clinical facts, one respondent observed that a metric rewarding providers based on how many of their patients receive a colon cancer screening within 30 days creates unnecessary pressure to get low-risk patients in quickly for screening, diverting patient and provider attention from problems that actually require urgent attention. As one respondent commented, "a patient referred for routine screening colonoscopy because it has been 10 years since his last one should have ONE YEAR--365 days--to get his procedure done sometime in that calendar year." In addition, the guidelines should be applied that "stop screening at age 75, so that 82 year-olds stop being referred for routine endoscopy and clogging the system."

Respondents did not perceive purchased care as a necessarily promising option for expanding access and had concerns about the quality of care Veterans would receive outside VA: "To me [non-VA care] is the worst of all possible solutions. Our experience has been that we end up repeating studies due to poor quality of procedures performed resulting in waste of resources and what is worst delay in diagnosis and treatment. Furthermore, community resources are limited and waiting times are even longer that at VA. While we devote to high quality procedures; we end up offering substandard care in the community due to lack of capacity to cope with the demand."

At least one respondent felt that more efficient processes within VA would have the effect of expanding access. "Space and personnel are key, but we could do many more procedures with existing structural resources if our processes were more efficient/streamlined. There are major organizational and regulatory (VA-specific) impediments to efficient care. Examples: (1) misaligned incentives between nurses/techs and physicians; (2) high nurse turnover; (3) high regulatory burden (that is, excessive time out requirements, lack of ability for non-physician consents, etc.); (4) antiquated scheduling system; (5) lack of operational data to guide process improvement. This being said, the patients in VA are MUCH more complicated than your normal community screening patient, and so non-VA benchmarks don't apply."

Conclusion

Colon cancer screening is an excellent example of the degree to which practices vary across the VA system, even for something that would seem highly amenable to a standard nationwide protocol. Variation is not necessarily a problem—there is no universal consensus regarding the best screening method—and VA probably mirrors non-VA systems in this regard. However, insofar as colonoscopy demand appears to outstrip supply at many local VA systems, an argument might be made for a system-wide shift away from screening colonoscopy for average risk patients, as some respondents have indicated that their institutions have already done.

Questions about VA mechanisms to ensure that colon cancer screening takes place and that abnormal results receive timely follow-up touch upon two functions of the CPRS clinical information system that have been identified elsewhere in this survey and in other parts of the Assessment B report as widespread sources of provider dissatisfaction: "Clinical reminders" and "View alerts." Clinical reminders were developed for tasks such as this—automatically notifying

providers when it is time (that is, calendar date) to take a specific action such as ensure colon cancer screening. But reminders have evolved into what is perceived by many to be primarily a tool for measuring compliance regarding clinical and administrative processes, detracting from rather than enhancing clinical care. Survey results demonstrate that the colon-cancer screening reminder is implemented throughout the VA system (although, interviews described in Section 3 suggest that there is variability across institutions in whether or not clinicians actually use the reminder to ensure timely screening).

We instructed respondents to consider delays with actual health impact or delays that would render care not compliant with VA/DoD guidelines. In the context of screening, a delay measured in weeks to months could not plausibly be expected to cause adverse clinical consequences. This is even true with regard to follow-up to abnormal screening tests. Survey comments indicate that many consider current VA guidelines mandating colonoscopy within a specific short time interval (and require referral to outside care if they are not met) to be without a solid clinical rationale, and an unnecessary constraint to optimal deployment of colonoscopy resources to those who need them most urgently.

Moreover, respondents pointed out that community standards for colonoscopy appointments are not better, that Veterans generally do not like to go outside the system for colonoscopies, and that colonoscopies done outside are often suboptimal in quality or pose challenges in terms of the timely availability of clinical reports that are usable within the VA system. Respondents also thought that clinicians and patients faced substantial paperwork to arrange for purchased care.

At most facilities, barriers to increasing the number of colonoscopies performed include lack of physical space, lack of support staff, and lack of physicians trained in performing them. The greatest barrier to hiring more gastroenterologists appears to be pay that is well below national standards. Policy-related inefficiencies were also mentioned: For example, a mandate that colonoscopy patients must be fully dressed when consenting for the procedure undoubtedly has well-intentioned, patient-centric origins, but in fact it causes significant disruptions to the normal workflow, and insofar as it seems like a solution in search of a problem might be an example of the kind of ponderous "mandate from above" that is damaging to employee morale.

1.3.7 Appendix B.3.7 Diabetes Mellitus (Type 2)

Clinical Background

Type 2 diabetes mellitus is a chronic disease of relative insulin deficiency resulting in abnormal blood sugar regulation and associated symptoms and sequelae. Obesity and a family history of diabetes are substantial risk factors for this disease. Type 1 diabetes mellitus is a distinct and less common disease and will not be considered further in this report. Hereafter we refer to type 2 diabetes mellitus as "diabetes."

Care setting

Diabetes is often diagnosed in a primary care setting, after routine blood work shows an elevated blood glucose level in an asymptomatic patient. It may also come to attention after a

patient complains of symptoms of high blood sugar (commonly visual or urinary changes). Once diagnosed, treatment involves education about the disease, diet modification, weight loss, and, usually, one or more medications. Primary care physicians are well-qualified to care for most diabetes patients; however, diabetes is particularly well-suited to an interdisciplinary approach (either in a diabetes specialty clinic or a team-based primary care setting). Patients with diabetes that is difficult to control or who have complications may be referred to a diabetes specialist (typically an endocrinologist).

Complications

Poorly-controlled diabetes can result in both acute and chronic sequelae. Acutely, high blood sugar can cause symptoms severe enough to necessitate hospitalization. Overmedication can result in abnormally low blood sugar, which can also lead to hospitalization. High blood sugar over a longer timeframe can lead to a variety of end-organ damage, most notably to the kidneys, the eyes, the peripheral nerves, and the cardiovascular system. Foot problems are also common, due to both peripheral vascular disease (which delays healing) and to neuropathy (which prevent patients from sensing and protecting injuries). Diabetes, not combat-related injuries, is the leading cause of amputations in the VA population (VHA Handbook 1172.03, Amputation System of Care, August 2012).

Monitoring

Patients are asked to use glucometers to frequently check blood sugar and help guide therapy. Successful blood sugar regulation over time is measured by a blood test known as "Hemoglobin A1C." Patients are screened in primary care for many complications, and often in ophthalmology for periodic retinal examinations, and podiatry for foot care.

Survey Results

There were 110 respondents for the diabetes module. Please see Table I-2 for details of responses and response rates.

Delays

Survey respondents were asked what percentage of patients experienced clinically meaningful delays in receiving (1) services to treat/manage diabetes itself, and (2) services to manage complications. For the services with the greatest frequency of delay (that is, the highest percentage of patients experiencing a delay), participants were asked to formulate a solution that could to reduce the number of these delays and to report the importance of 11 potential components (for example, creating additional space, increasing the number of licensed independent practitioners) to their solutions. We report only those solution components identified as important by more than 10 respondents.

Juncture 1: Diabetes management

We asked about delays in obtaining the following services: primary care clinic appointment for issues related to glycemic control (for example, symptoms or glucometer reading), consult with endocrinologist/diabetes specialist, nutritionist, podiatry clinic for preventative care, retinopathy screening services, retinopathy treatment services, bariatric surgery (in patients

deemed to be good candidates), and dispensing diabetes-related personal equipment such as glucometers or special footwear.

With the exception of bariatric surgery, for each service, a majority of respondents reported that 10 percent or fewer patients experienced delays. For bariatric surgery, 50 of the 110 respondents reported "not applicable," and more frequent delays were reported by half of the others (30 of 60). Of note, the interpretation of "Not Applicable" survey responses is unclear; such a response could indicate Veterans' lack of need for a service, or conversely, complete absence of the service at the facility, despite need. In the case of bariatric surgery, we believe that "not applicable" responses are more likely to represent unmet need, rather than complete lack of demand for this service.

The services most commonly cited as associated with frequent delays were as follows: consult with endocrinologist/diabetes specialist (for example, or poor glycemic control, or for patients at high risk for complications) (27 percent), podiatry clinic (27 percent), and in-person endocrinology for poor glycemic control, or for patients at high risk for complications (21 percent) (Table I-170). The proportions of respondents who reported frequent delays are as follows:

Primary care clinic appointment for issues related to glycemic control (for example, symptoms or glucometer reading)	20%
Consult with endocrinologist/diabetes specialist (for example, or poor glycemic control, or for patients at high risk for complications)	27%
In-person care at endocrinology, for poor glycemic control, or for patients at high risk for complications	21%
Nutritionist	13%
Podiatry clinic for preventative care	27%
Retinopathy screening services	12%
Retinopathy treatment services	11%
Bariatric surgery (in patients deemed to be good candidates)	50%
Dispensing diabetes-related personal equipment such as glucometers or special footwear	6%

Respondents who identified delays in particular services were asked to think about a solution, and to rate the importance of various "components of the proposed solution." Tables I-171 to I-178 describe the responses in detail. Responses shown here (N = 44) for "consult with endocrinologist/diabetes specialist (for example, or poor glycemic control, or for patients at high risk for complications)" were typical: The most frequently cited as "critically important" or "very important" were as follows:

Acquire and/or improve availability of equipment	9%
Increase weekend and evening availability of services	14%
Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community	20%
Implement or increase the availability of tele-health services	23%
Some other solution(s)	28%
Improve personnel supervision, management, or incentives	39%
Improve information technology	43%
Change "central office policies" that affect workflow and efficiency	45%
Create additional space for patient care	48%
Increase the number of other personnel	57%
Increase the number of licensed independent practitioners (for example, physicians, nurse practitioners, psychologists)	59%

Juncture 2. Services to manage complications of diabetes

We asked about delays in services to manage the complications of diabetes. For each, a majority of respondents reported that 10 percent or fewer patients experienced delays (Table I-179). The top three services with delays of more than 10 percent of patients were as follows: evaluation and treatment by vascular surgery for non-acute limb ischemia (19 percent); evaluation and treatment by cardiology for new symptoms or refractory hyperlipidemia (18 percent); and evaluation and treatment by cardiology for new symptoms or refractory hyperlipidemia (17 percent) (Table I-179). The proportion of respondents who reported frequent delays for these services are as follows:

Evaluation and treatment by vascular surgery for non-acute limb ischemia	19%
Evaluation and treatment by podiatry for new foot lesions	12%
Evaluation and treatment by nephrology for worsening renal function	18%
Evaluation and treatment by cardiology for new symptoms or refractory hyperlipidemia	14%
Evaluation and treatment by podiatry for new foot lesions	17%

Respondents who identified delays in particular services were asked to think about a solution, and to rate the importance of various "components of the proposed solution." Tables I-180 to I-184 describe the responses in detail. Responses shown here (N = 36) for "evaluation and treatment by vascular surgery for non-acute limb ischemia" were typical:

Increase the number of licensed independent practitioners	75%
Increase the number of other personnel	58%
Create additional space for patient care	42%
Acquire and/or improve availability of equipment	39%
Improve information technology	34%
Improve personnel supervision, management, or incentives	33%
Change "central office policies" that affect workflow and efficiency	31%
Some other solution(s)	31%
Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community	26%
Implement or increase the availability of telehealth services	17%
Increase weekend and evening availability of services	14%

Issues Affecting Provider and System Efficiency

Respondents for the diabetes module (N = 110) were asked to rate the importance of nine potential negative impacts to efficiency. Responses were given on a four-point Likert scale (none, a little, a fair amount, a lot; also "not applicable"). We ranked the items according to the number of respondents who said that they had "a fair amount" or "a lot" of impact (Table I-185):

Providers performing administrative activities that could be performed by others	80%
Too many administrative requirements	76%
Inadequate scheduling system and policies	73%
Insufficient clinical/administrative support staff	70%
Unnecessary documentation requirements or inefficient CPRS interface	65%
Providers performing clinical activities that could be performed by individuals with less training	62%
Patient no-show rates	45%

Poor patient flow management	43%
Residency training/teaching requirements	14%

Recruitment and Retention

Specialties examined in this module included primary care staff involved in coordinating care, as well as specialties particular to diabetes, endocrinology, podiatry, nutrition counseling and ophthalmology. 110 of the facilities answered the questions relating to whether there were problems recruiting or retaining these staff categories. Only those facilities responding "yes" to a given category were asked about barriers to retention or recruitment.

Similar to the general (Chief of Staff) module, a high proportion of facilities reported difficulty in recruiting primary care physicians (72 percent) (Table I-186). Non-physician primary care staff categories were also problematic with 43 percent reporting difficulties. While nearly a third of facilities reported trouble hiring endocrinologists, 35 percent of facilities reported this position as not applicable. Non-competitive wages were the most commonly cited reason for recruitment problems for both primary care and the non-physician primary care staff (60 and 70 percent, respectively) (Table I-187). The second most common reason for both was the human resources process at 43 and 47 percent, respectively.

Nearly two thirds of facilities also reported difficulties in retaining primary care physicians, followed closely by 31 percent of facilities reporting problems retaining non-physicians primary care providers (Table I-188). For primary care physician and non-physician staff, the most common retention problem was the dissatisfaction with workload (45 and 41 percent, respectively), followed closely by burnout (49 and 38, respectively) (Table I-189).

Free-text comments

Comments from respondents augment the detailed survey results regarding delays in diabetes care.

Multiple respondents reported that the inability to prioritize patients led to delays in care, relative to when it was truly needed, for patients with relatively urgent problems. For example, mandated limits on time from appointment request to delivery of care prevented VA staff from exercising clinical judgment, paradoxically worsening delays for patients with truly urgent needs because patients with less urgent conditions were scheduled first, to stay within the rigid benchmark: "Blanket mandates for timing between consultation request placement and delivery of care cause inefficient utilization of limited resources."

Many respondents viewed the scheduling software as antiquated, inflexible, and error prone, exacerbating delays; they believed that inadequately trained scheduling staff precluded intelligent patient scheduling based on true clinical urgency. Policies penalizing canceled and rescheduled appointments further impeded priority-driven scheduling. For example, one respondent commented: "…clinic staff have to spend additional time working around scrubbing of bookings to protect access." In another example, podiatry clinics were judged to have lower standards for urgent access, forcing patients with urgent podiatric problems to receive care elsewhere.

Inadequate staffing, for both clinical and support responsibilities, figured prominently in

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respondent comments. Many reported that due to insufficient support staff, burdensome administrative mandates, and a flood of EHR prompts, clinicians were required to perform tasks well below their levels of training. For example, "Many clinical reminders can and should be done by ancillary staff, yet are left to providers to complete and this takes time away from patient care responsibilities." Insufficient support staff made it difficult to offload work such as chronic disease management from clinicians.

In addition, respondents noted clinician shortages in endocrinology, podiatry, nephrology, ophthalmology, wound and vascular care, and nutrition and bariatric services. Multiple respondents noted that VA salaries in these specialties were lower than non-VA salaries, making it difficult to recruit into VA. Cumbersome hiring rules and regulations were thought to worsen the problem.

Telehealth was cited as a potential way to expand clinical resources. For example: "If teleretinal imaging could be done as screening every year, it might free up time of the eye providers to see those that truly need an exam." "Additional access to tele-endocrinology services could be made possible with the addition of 1-2 tele-endocrinologists." No-shows were noted by multiple respondents as a barrier to access since these consumed appointment slots. But respondents thought "Telehealth services will certainly improve no show rates and is excellent for diabetes follow-up appointments."

Some respondents observed that even when it was available, purchased care was not necessarily an adequate substitute for within-VA care because poor communication between VA and non-VA providers hampered care coordination. For example, "Out-sourcing endocrine care tends to fragment care, since communication is less good." Some respondents suggested telehealth as a way to make care transitions seamless.

Finally, and very interestingly, a small number of respondents reported that quality measures resulted in delays. For example, licensed practical nurses checking blood pressure multiple times to meet a quality performance measure created delays within the primary care clinic and tied up staff who could otherwise be assisting more patients.

Many individuals summarized a range of frustrations and the multifactorial nature of problems:

> Primary Care panel sizes are too large, operating at 100 percent of capacity, which increases risk of burnout and leads to lapses in care… There needs to be stronger link between what program offices require and the funding to the field. Currently the requirements of program offices are often unfunded mandates. Program offices need to understand that incremental change ultimately requires re-thinking staffing models or the field dies a death of a thousand cuts. In our location night and weekend hours are not desired by our patients and requiring continuing these activities is wasteful. Some of the changes coming in the IT and EHR [electronic health record] world like active notes could be game changer. Tele health has been oversold as a potential solution. Smaller panel sizes and more PACT [Patient Aligned Care Teams] imply more space. The current space planning process is so lengthy that space is often too small by the time it is opened.

> Safe and quality diabetes care CANNOT be delivered to all Veterans who need it in the current care delivery paradigm. We have strong data that system based diabetes case

management models work well but facilities must provide sufficient qualified personnel (diabetes case managers) AND support medical directors (e.g., MD, DO) to oversee these programs. The type of effort involved in effective/safe diabetes care that is well established to be time-intensive MUST be able to be captured and recognized as effort (beyond current RVU based methods) . the number of Primary care MDs are also currently insufficient to provide diabetes care to patients who are not high-risk (that diabetes case management and endocrinologist see).

I am taking this survey at 6AM on a Sunday. We don't need more supervision and incentives…Just remove some barriers to efficiency, provide the type of support mentioned (space for one on one teaching and for groups, excellent diabetes educators, and a facile EHR) FYI it take roughly 30 percent of the time allotted for office visit to document, place orders etc. there's room for improvement when our highest paid personnel are doing this....

Conclusions

Diabetes is a common but serious chronic illness that is managed primarily by primary care providers, but which can benefit from an interdisciplinary approach to care. It is itself a leading cause of morbidity and mortality among Veterans and therefore access to high quality and timely care is of paramount importance.

The survey suggests that frequent delays in obtaining a primary care clinic appointment for glycemic control problems occur at approximately one in five local VA systems. This is a higher number than that obtained from a similar question posed to the chiefs of staff regarding access to primary care follow-up in general (only 7 percent of those respondents noted frequent delays). The discrepancy might be explained because the observers are different or because there is some imprecision in how the question might be interpreted.

Conceptually, there is not a clear definition of what constitutes optimal access to care for a diabetes patient, and therefore what a delay really is. We know it primarily when we do not see it—as stated in one comment, "planned 6 month appointments with the PCP [primary care physician] is not adequate for good control of diabetes mellitus." But what is? Arguably, the measure might have something to do with whether a provider is able to schedule follow-up appointments as frequently as he/she deems necessary. The survey does not tell us whether this is so. An alternative to a timeliness-focused process measure might be to consider objective measures such as hemoglobin A1C as a marker of whether access to quality care was truly adequate.

Reported delays in access to endocrinologists or other diabetes specialists were slightly more widespread, as were delays to podiatry appointments. Bariatric surgery was a notable outlier. Half the respondents marked "NA" and half of those who didn't reported frequent delays.

With the caveat that free-text comments come from a selected sample of respondents, in aggregate they paint a striking picture of frustration—partly because resources are inadequate, but perhaps more strikingly, it appears that many of these chiefs of service (and presumably those under them) appear to believe that they are doing battle against the institution they work for, rather than working with them, to offer Veterans the care they believe they need.

1.3.8 Appendix B.3.8 Gynecologic Surgery

Clinical Background

Women are a rapidly increasing and important component of the U.S. armed services. While female Veterans make up approximately 8 percent (1.8 million) of the current Veteran population, their numbers are expected to grow, as the number of women entering the active duty military force and the National Guard and Reserves continues to increase. The number of women Veterans who use services provided by the VHA has doubled in the past 10 years, growing from 160,000 in 2000 to more than 337,000 in 2011; their median age of 48 years is significantly younger than their male counterparts (median age 63 years).

With their growing numbers has come an increased emphasis on the provision of female-specific health care. Female Veterans have unique and complex health care needs, ranging from care for obstetric and gynecologic conditions to mental health and chronic pain/musculoskeletal conditions. In this subsection, we focus on access to care for conditions requiring gynecologic surgery, such as gynecologic cancers, fibroids, endometriosis, ectopic pregnancies, and stress urinary incontinence. While some of these conditions could be handled by a general surgeon, the intent was to focus on conditions for which the standard of care would include surgical treatment by a gynecologist, whether in the inpatient or outpatient setting. In the survey, we focus on access to an initial surgical evaluation by a gynecologist, and then access to the surgery itself, regardless of whether it was inpatient or outpatient surgery.

Survey Results

A total of 107 respondents answered one or more questions in this module, which contained questions about the frequency of delays and proposed solutions for addressing them. Questions also touched on factors impacting provider and system efficiency, and workforce recruitment and retention.

Delays

Respondents were asked about delays at two care junctures: (1) Scheduling an initial surgical evaluation with a gynecologist, and (2) Receiving the surgical procedure.

Respondents who reported delays were asked to formulate a solution to the delay, and to rate the importance of 11 potential components (for example, creating additional space, increasing the number of licensed independent practitioners) of their solutions.

Juncture 1: Initial surgical evaluation

Reported delays related to scheduling an initial surgical evaluation with a gynecologist are detailed in Table I-190. Most respondents said that delays for this service were infrequent, and about half said that no patient experienced delays, regardless of the setting. The most notable reported delays (20 percent) were when a patient needed to be referred to a gynecologist outside the respondent's local health care system for an initial surgical evaluation (specific services and proportion of respondents who mentioned frequent delays in that service are given below):

VA Gynecologist located at this administrative parent (local health care system)	9%
VA Gynecologist located at another VA health care system	20%
Community Gynecologist (fee-basis or contracted care)	17%

Respondents who identified that there were clinically meaningful delays in scheduling patients for an initial surgical evaluation (N = 22) were asked to think about a solution, and to rate the importance of various components of the proposed solution. Tables I-191–I-193 describe the responses in detail. Responses shown here for "VA gynecologist located at this administrative parent (local health care system) were typical, and show that increasing the number of providers/personnel and space for patient care were the most commonly suggested components of the solution to the delay problems (percentages are given as the proportion of respondents who rated the element "critically important" or "very important").

Increase the number of licensed independent practitioners	73%
Increase the number of other personnel	73%
Create additional space for patient care	59%
Acquire and/or improve availability of equipment. Describe the type(s) of equipment needed in the comments box below	55%
Improve personnel supervision, management, or incentives	50%
Change "central office policies" that affect workflow and efficiency	45%
Improve information technology	41%
Some other solution(s)	41%
Implement or increase the availability of telehealth services	27%
Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community	27%
Increase weekend and evening availability of services	5%

Juncture 2: Surgical procedure

The survey asked separately about delays in undergoing the surgical procedure. Responses to this question produced similar patterns (Tables I-194 to I-197). The proportions of respondents who said that there were frequent delays at their institutions are shown:

At this local VA health care system	12%

At another local VA health care system	23%
In the community using fee-basis or contracted care	15%

Issues Affecting Provider and System Efficiency

Respondents were asked to describe the degree to which various issues affected provider and system efficiency. Table I-198 describes the results. The most frequently cited issues were as follows:

Insufficient clinical/administrative support staff	45%
Providers performing administrative activities that could be performed by others	43%
Patient no-show rates	43%
Inadequate scheduling system and policies (for example, hard to cancel or reschedule, coordinate)	40%
Unnecessary documentation requirements or inefficient CPRS interface	39%
Too many administrative requirements (Initiatives/Policies/Programs)	39%
Providers performing clinical activities that could be performed by individuals with less training	29%
Poor patient flow management (room/bed turnover, appointments)	20%
Residency training/teaching requirements	12%

Recruitment and Retention

The facility survey also contained questions that focused on issues related to hiring and retaining gynecologists. There were 106 facilities responded to questions about problems recruiting/retaining gynecologists. Approximately 28 percent reported problems recruiting gynecologists. The top two recruiting barriers were non-competitive wages and the length of the human resources process (83 percent for both).

Only 12 percent of respondents reported problems retaining gynecologists. Among the few facilities reporting difficulties, the main reasons cited were dissatisfaction with pay and inadequate equipment/resources/space (62 percent, both) (Table I-199 to I-202).

Free-text comments

Respondents for the gynecologic surgery module represent a service that is in much lower demand than many of the other conditions we surveyed, even though demand is growing in some areas of the country. As a result, the gynecology programs rely more heavily on non-VA or purchased care compared with other programs. In-house gynecology services are often only provided for a few days per week or month. The limited offering of clinic time has obvious

ramifications for Veteran access, which many of the respondents noted in the free text citations.

Barriers such as not enough provider time or space for existing staff to work in were frequently mentioned. Several respondents mentioned limited access to the operating room as a key barrier: "Because GYN [gynecology] is a small clinical service competing for [operating room] time with much larger and more politically powerful services this is not always seen as important (though I must add that immediate supervisors and Surgery admin staff are very responsive and try their best)." Burdensome administrative requirements and a lack of adequately trained support staff were also often mentioned in the free-text responses. For example, one respondent noted: "Administratively, too often we are assigned duties without adequate data reports, and without staff well versed in how to generate that data. So we spend gobs of time figuring out how to get the data we need."

Many respondents noted difficulties in referring patients to gynecologic surgery services in the community, which also hampers Veteran access. Several respondents noted that, at best, the processes to refer Veterans out to the community, pay claims, and then receive the medical records back in-house are inefficient: "Our business office cannot process our non-VA care requests fast enough and do a miserable job at bill paying. Female [Veterans] need to fend off collection agencies and fight damaged credit due to non-payment of maternity care bills." Many respondents noted that TriWest and Health Net do not schedule appointments quickly enough. (TriWest and Health Net are the two contractors operating the provider network system for some of the non-VA care requests.) Respondents also noted that the staff within these organizations may not be sufficiently trained to provide the community facilities with enough background on the Veteran so the community facility may not schedule them in an appropriate time frame for the given medical problem.

Conclusion

Although the absolute number of female Veterans who require surgical treatment by a gynecologist is low, demand is likely to increase as more women are discharged from military service and seek care at VA. Our results suggest that when gynecologic surgery services are available at a local VA health care system, fewer than 10 percent of respondents report clinically meaningful delays in patient access to an initial surgical evaluation. However, when patients need to go outside the local health care system, either to the community or to another administrative parent, the frequency of reported delays rises to 17 percent and 20 percent respectively. Similar results are seen for access to surgical treatment. The lack of administrative support staff, which results in providers needing to do administrative tasks, was seen by nearly half of the respondents as an important cause of provider and system inefficiency. Low wages were the most frequent response for problems in both hiring and retaining gynecologists on VA staff.

1.4 Appendix B.4 Discussion

The 2015 Survey of VA Resources and Capabilities provides a unique and comprehensive, though subjective, assessment of VA's capacity to provide timely and accessible care to

Veterans. The survey provides VA employee perspectives on the strengths and weaknesses of their organization. Survey respondents—VA chiefs of staff and clinical chiefs of service—generally have considerable experience working in the VA system and managing VA medical facilities and health care employees. Thus, their assessments, though by their nature subjective, are informed by direct and diverse experiences in providing health care to Veterans.

The survey's eight modules were distributed to eight different clinical leaders at each institution. Therefore, an additional strength of the results viewed in aggregate is that many of the same questions (with slight context-specific modification) were answered independently by different people in charge of different clinical domains. Therefore, to the extent that common themes emerge, this is likely to reflect broader experiences and not those specific to a single clinical department.

A primary feature of the survey was asking respondents to estimate the proportion of patients who were delayed in receiving services or undergoing care transitions. We specified that we were interested in "clinically meaningful delays," and at each point such a question appeared, we specified the following: "Consider delays which might put a patient at risk for adverse outcomes, slow resolution of symptoms, or which are not compliant with VA/DoD guidelines." Several respondents noted that where delays did occur, they did not believe they had any adverse clinical consequences. However, respondents may have different perspectives on when delays lead to adverse clinical consequences or are not compliant with guidelines. As noted in Section 6, in many clinical areas, there is a thin evidence base on the association between wait times and adverse outcomes.

A strong common theme in responses across modules was that VA guidelines are overly prescriptive, enforcing timeliness standards that are not met in the private sector, that do not have an evidence-based rationale, and that constrain providers in a way that diminishes their capacity to divert resources to the patients who need them most urgently. Moreover, the essence of many comments, remarkably consistent across disciplines, is that such constraints, and more generally the feeling that inefficiencies are imposed from a VA Central Office lacking real-world clinical sensibilities, are demoralizing. Demoralized clinicians might be expected to contribute to broader problems with organizational culture that are described in each set of responses.

It is also possible that diverting the focus of a clinical encounter away from patient-driven concerns and toward overly prescriptive VA guidelines may have an adverse impact on patient care. Likewise, insofar as resources are limited, diverting resources away from clinical activities and toward clerical duties, mandatory online trainings, elaborate screening questionnaires, and even questionnaires such as the 2015 Survey of VA Resources and Capabilities (as one respondent ironically pointed out) could limit the total amount of care that can be provided and thereby diminish access in one way or another. Similar concerns have been raised in private-sector health care delivery organizations.

When assessing delays in access to care, it is easy to focus on delays in receiving a discrete one-time service or an initial appointment to a clinic, if for no other reason than it is measurable as the elapsed time between when care is requested by a patient or provider and the time when the service occurs. But an unintended consequence of such a focus—highlighted in responses

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to both PTSD and TBI with regard to mental health professionals and particularly mental health subspecialists (for example, cognitive behavioral therapists and neuropsychiatrists)—is to create a focus on initial assessment rather than ongoing treatment. For mental health conditions, some PTSD and TBI module respondents reported that they lack the ability to schedule repeated follow-up visits on a sufficiently regular basis to develop a therapeutic relationship.

Our respondents were ambivalent about the contributions of telehealth. Some saw it as increasing the reach of VA providers in circumstances when patients could not readily come to the VA health center. But others questioned its acceptance by patients and expressed skepticism regarding potential productivity gains.

When asked about purchased care, respondents generally reflected some degree of support for increased use of it in certain situations. However, many respondents also expressed concern about the quality of care for VA patients using purchased care. Multiple respondents felt that some Veterans, whether being treated for service-connected disabilities or not, feel that VA is their medical home. In addition, respondents viewed it as likely that some VA patients have had bad experiences with unexpected bills generated outside the VA system.

Respondents reported concern that purchased care currently presents a substantial challenge for information transfer. For some conditions (for example, coronary artery bypass graft surgery) there may be fewer points of coordination between VA and non-VA providers. However, if a VA patient uses purchased care for an ultrasound or a colonoscopy and the results are not available, then the value of that service is diminished if the results are not as quickly or completely accessible as they would be in-house, if the quality is not as good, or if, as is reportedly sometimes true, the service takes longer to get outside the system than it would within it. Furthermore, some respondents (for TBI in particular) indicated that in-house capacity constraints are often paralleled by non-VA capacity constraints in the same region for the same services.

Coronary artery bypass graft surgery was one service where delays were reported to be frequent and where several respondents made a strong case for increased use of purchased care. The rationale is that there are problems with access not only in terms of time, but also in terms of geography. Several respondents noted that because regionalization is a necessity (since cardiothoracic surgeons must do a minimum number of annual cases to maintain proficiency), some patients must travel long distances for this operation. There was also a suggestion (by more than one respondent) that some cardiothoracic surgeons performing coronary artery bypass graft surgery at VA did not meet acceptable proficiency and training standards. One of the respondents therefore posed the following question: Should a patient travel 200 miles away from home to have major open heart surgery performed by a surgeon that may not have state-of-the art skills, when closer alternatives will allow a recovery closer to home and family and possibly offer a better chance at a good outcome?

In a related vein, responses to the acute coronary syndromes module, unique in that it covered inpatient care and treatment for an emergent condition, raised similar questions about how access should be defined. For acute inpatient care, it is tempting to consider timeliness from the time that a patient hits the door of the emergency department, but in fact, the biggest

problems with access might be seen in patients who never receive care at all. Nor is it clear that they should, since the "standard of care" in terms of instructing patients with acute coronary syndromes-type symptoms is to go to the nearest emergency department. But if the nearest emergency department is not at a VA facility, then a patient will either end up outside the system with a bill that might not be covered by VA, or may have taken an unnecessary risk by travelling too far. This conundrum was discussed by at least two respondents. Moreover, while a middle-ground solution might be that a patient should go to the nearest emergency department and then transfer to a VAMC when stable, the greatest delays described, among all questions in the survey, were in regard to transfer of stable acute coronary syndromes patients in to VA for further management. This, respondents described, is a function both of limited bed availability, and an institutional culture that lacks a "service mentality."

One service chief posed a provocative alternative that seems consistent with the views of many other respondents: "Space and personnel are key, but we could do many more procedures with existing structural resources if our processes were more efficient/streamlined. There are major organizational and regulatory (VA-specific) impediments to efficient care."

Appendix C   References

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Appendix D   Acronyms

Acronym	Definition
AHRQ	Agency for Healthcare Research and Quality
APN	Advanced Practice Nurse
ARCH	Access Received Closer to Home
CAHPS	Consumer Assessment of Healthcare Providers and Systems
CBOC	Community-Based Outpatient Clinic
CCU	Critical Care Unit
CMS	Centers for Medicare & Medicaid Services
CPRS	Computerized Patient Record System
CWT/TR	Compensated Work Therapy/Transitional Residential
DoD	U.S. Department of Defense
EHCPM	Enrollee Health Care Projection Model
EKG	Electrocardiogram
FQHC	Federally Qualified Health Center
FTE	Full-Time Equivalent
FY	Fiscal Year
GAO	U.S. Government Accountability Office
GIS	Geographic Information System
HEDIS	Healthcare Effectiveness Data and Information Set
HMO	Health Maintenance Organization
HUD	U.S. Department of Housing and Urban Development
HUD-VASH	U.S. Department of Housing and Urban Development–Veterans Affairs Supportive Housing
ICU	Intensive Care Unit
IT	Information Technology
LDL-C	Low-Density Lipoprotein Cholesterol
OMB	Office of Management and Budget
PC3	Patient-Centered Community Care
PCMH	Patient-Centered Medical Home
PPC	Physician Productivity Cube

Acronym	Definition
PSI	Patient Safety Indicator
PTSD	Post-Traumatic Stress Disorder
RVU	Relative Value Unit
SHEP	Survey of Healthcare Experience of Patients
SHEP-PCMH	Survey of Healthcare Experience of Patients-Patient Centered Medical Home
SPARQ	Specialty Productivity Access Report and Quadrant Tool
STEMI	ST Elevation Myocardial Infarction
SUD	Substance Use Disorder
TBI	Traumatic Brain Injury
VA	U.S. Department of Veterans Affairs
VAMC	Veterans Affairs Medical Center
VERA	Veterans Equitable Resource Allocation
VHA	Veterans Health Administration
VISN	Veterans Integrated Service Network
VistA	Veterans Health Information Systems and Technology Architecture
VLER	Virtual Lifetime Electronic Record
VSSC	VHA Support Service Center
Wifi	Wireless Internet

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Assessment B (Health Care Capabilities) Appendices E-I

September 1, 2015

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Preface

Congress enacted and President Obama signed into law the Veterans Access, Choice, and Accountability Act of 2014 (Public Law 113-146) ("Veterans Choice Act"), as amended by the Department of Veterans Affairs (VA) Expiring Authorities Act of 2014 (Public Law 113-175), to improve access to timely, high-quality health care for Veterans. Under "Title II – Health Care Administrative Matters," Section 201 calls for an Independent Assessment of 12 areas of VA's health care delivery systems and management processes.

VA engaged the Institute of Medicine of the National Academies to prepare an assessment of access standards and engaged the Centers for Medicare & Medicaid Services (CMS) Alliance to Modernize Healthcare (CAMH)[1] to serve as the program integrator and as primary developer of the remaining 11 Veterans Choice Act independent assessments. CAMH subcontracted with Grant Thornton, McKinsey & Company, and the RAND Corporation to conduct 10 independent assessments as specified in Section 201, with MITRE conducting the 11th assessment. Drawing on the results of the 12 assessments, CAMH also produced the Integrated Report in this volume, which contains key findings and recommendations. CAMH is furnishing the complete set of reports to the Secretary of Veterans Affairs, the Committee on Veterans' Affairs of the Senate, the Committee on Veterans' Affairs of the House of Representatives, and the Commission on Care.

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[1] The CMS Alliance to Modernize Healthcare (CAMH), sponsored by the Centers for Medicare & Medicaid Services (CMS), is a federally funded research and development center (FFRDC) operated by The MITRE Corporation, a not-for-profit company chartered to work in the public interest. For additional information, see the CMS Alliance to Modernize Healthcare (CAMH) website (http://www.mitre.org/centers/cms-alliances-to-modernize-healthcare/who-we-are/the-camh-difference).

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Appendix E Summary of Qualitative Interview Results

This appendix provides a descriptive summary of the results from the expert and facility-level interviews conducted as part of Assessment B. The methods used are described in Chapter Two and Appendix A. Below, we present a descriptive summary of the qualitative interview data for the following domains:

Fiscal and economic resources
Workforce and human resources
Physical infrastructure resources
Information resources
Access/quality
Policy options

Appendix E.1 Results by Domain

Appendix E.1.1 Fiscal and Economic Resources

In 11 qualitative interviews with VAMC leadership (Directors and Associate Directors), the questions for the fiscal and economic resources domain focused on the effects of decentralization on the ability to allocate resources at the facility level, potential drivers of costs, and perspectives on the process for contracting to outside providers. Table E-2 at the end of this section provides the code counts by interview for each fiscal and economic resources domain code.

Budget and Budget Process

VAMC administrators were asked whether there were disconnects between the projection model, which helps develop the budget submitted to Congress, and the VERA model, which allocates money from the VISN to facilities. Most respondents indicated that the VERA distribution model worked well at efficiently allocating resources from the VISN to the VAMC based on workload and population factors at the facility level. However, respondents noted different issues with the process, including time lags in the data used in the VERA model or delays in receiving the allocation itself (four facilities) and the need to document and code accurately to reflect actual workload (two facilities). Several respondents noted that after being initially underfunded through the VERA allocation process the VISN was able to supplement their budget to bridge the gap.

> …there's actually a two-year lag between what data that methodology looks at, so there can be some significant population and/or workload shifts that take place. [F-005]

> In as far back as I can remember, we haven't gotten a budget allocation for several months into the fiscal year. Sometimes we've gone till six months into the fiscal year before we have a budget, so that's sort of a very difficult question to respond to when we're dealing with such a vacuum of information.[F-064]

> Probably about five years ago we started looking at a lot of the things that impact VERA to make sure that we were maximizing…or we were documenting correctly, we were coding correctly, we were getting everything completed within the amount of time to capture the appropriate workload. [F-061]

Respondents at five facilities also commented on whether the reallocation process was flexible enough to allow for redistribution based on changes in the patient population with some indicating the VISN had

flexibility (four facilities) while others described constraints on the ability to redistribute funds (two facilities).

> ….so, again, you may have a base allocation that's provided, but then as things change during the year there's enough flexibility in that the funds both to the facility and then within the facility can be redistributed or reallocated without really going into a VA cost accounting. [F-005]

> If the VISN holds a reserve, which they do, you're halfway through the year and you see a big shift, then some money can shift with it out of the reserve. The problem is that, again, we have created rules that all of your reserve needs to be out—all of your projects need to be obligated in the first six months of the year, all of your equipment has to be purchased in the first six months of the year, which doesn't leave you any room to have emergencies or make shifts as the environment shifts. [F-044]

Administrators at all facilities described different challenges to using allocated funds, including the time it takes to acquire new space (three facilities), mandates that have to be funded out of the allocation (three facilities), the inability to move funds between categories at the facility level (two facilities), and the burden of maintaining physical infrastructure no longer used for patient care (one facility).

Time to acquire new space

> … that we are in a huge space crunch and so right now I'm being told that you've got to bring 150-some mental health staff onboard. And in order to do that we're putting up modular buildings until once the space is available. Then we can start bringing the people onboard. But you can't recruit until you have that space to accommodate that staff. So it works great when the money comes at the beginning of the fiscal year. You have time to plan well and you've got the space. But when it comes at a very restricted time or the timeline is very short it makes it a challenge. [F-084]

Mandates and special programs

> I think it's a lot of the mandates or all of the sudden something new comes from a program office that then it's thrown back at you and you have to then fund it with the money that you've been allocated from the beginning. And then it becomes a challenge. [F-084]

Inability to move funds between categories

> If we're spending more than it was originally budgeted in a certain category, we would need to go to our network to try to get approval to move money from one account to another. Generally we're not allowed to do that. [F-064]

> In addition is all the special funding that comes out of central office. So they decide what your needs are, they decide that you need 15 mental health providers and say, "Here you go. You can only spend this money on this." And then at the end of the year if you didn't necessarily need that, you can't use the money for different operations somewhere else. You would have to return that money to central office. [F-041]

Need to maintain physical infrastructure

> The problem is that for this facility here, it's a pretty significant bill that we pay every year that the funding methodology does not compensate for, to maintain these buildings and the grounds that are really no longer needed for healthcare. So that has

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an impact on our budget, a direct impact on our budget, because we still have to manage these buildings and maintain them and the infrastructure to support them, but it generates no revenue for us in workload or anything else. And so that puts us—is a handicap right away in our budget methodology. [F-024]

Respondents at most facilities offered suggestions for improving the allocation process, including using a long-term budgeting process, allowing flexibility to move funds between categories at the facility level, and developing a performance-based model that goes beyond assessing prior workload.

VA has been attempting to go more toward a planning-based or performance-based model that would, again, truly based on—and this would be more at the local or the market level—based on needs of the specific, unique population of the area and based on the capacity, not only in the VA but the capacity in the community resources, that those kind of be reconciled, to make sure that optimal treatment is given and services provided based on what is available in the budget. [F-005]

In terms of overall adequacy of the budget allocated through the VERA process, there was variation across facilities, with some starting out positively while others begin the fiscal year in a deficit. One administrator noted that the overall budget was constrained by centralized programs that required a lot of resources, while another commented that these centralized programs did not appear to be coordinated by the central office.

Currently and for the last several years has been a positive VERA in terms of—that our allocation is, at the onset, sufficient to take care of our operational needs. That is not the case with all of the medical centers in our network. Some of them start with a projected deficit with regard to what they've been allocated. [F-064]

Of course, we never have enough to go around everywhere. Actually this year we faced a pretty substantial projected budget deficit. So we had to take some steps locally to deal with that and delayed some funding of programs, that type of thing, to make sure we were going to close the year out—and we'll do fine now. [F-024]

For instance, a lot of money comes out of the budget to support centralized programs both at the big VA level and at the VHA level and there's been tremendous growth in those programs that take money – there's only a fixed pot of money – that take money out – well, so there's less to be distributed to the field to provide the care to the Veterans. [F-044]

then you have a lot of mandates, either…and from different program offices, that I believe in the sense throughout the organization is that a lot of these mandates that come from the different program offices are not coordinated through the leadership at central office. [F-084]

Hiring

Administrators at four facilities noted that there was discretion at the facility level to hire physicians, nurses, and other clinical staff as necessary to meet local demand.

We do have to ability to do that locally. That's a local decision. Again, it is based on funding availability. And so the way we do it here, we have a physician management committee that looks at all new positions and recurring positions that have come open. And they go through the process of looking at that and looking at our budget projections

and our supportable FTE levels, and then make recommendations to the director on which positions to fill or not fill. [F-024]

Purchasing

Respondents were asked about purchasing drugs and medical supplies. Generally, facilities had fairly good processes in place to meet their needs. One respondent, however, in describing the purchasing process in more detail, emphasized the layers of tasks and processes that needed to be accomplished despite centralized contracting.

> We have the national contracts and the idea was originally that [those] would streamline the process, but since they don't negotiate best pricing, that still has to be done at the regional or local level which then adds a substantial amount of lead time to the average procurement. So anything over $3,000, over the micropurchase threshold, still has to go through a fairly labor intensive and time consuming procurement process to validate [that] we're getting best value. That has a major impact on your efficient supply distribution methodologies because then you have to build that procurement process or that best value analysis process into your lead time. And so when you're trying to go to a just-in-time model of supply support at your facilities so you're efficiently using space and people and everything else, that is counter to that. That causes major, major problems. [F-024]

Contracting to External Providers

Respondents were asked about how they developed budgets for and made the decision to refer to non-VA care. Several themes emerged about the infrastructure and processes for non-VA care.

Developing budgets for non-VA care

Respondents described budgeting for non-VA care as part of the annual budgeting process. Like other parts of the budget, services or segments of the facility are asked to estimate needs for the coming year and provide justification. Given the somewhat unpredictable nature of demand for non-VA services, and the variability in staffing and other resources that might affect the site's ability to provide care in-house, respondents freely admitted that budgeting was only an "educated guess" at what they might need. When demand for non-VA care outstrips the budget, as was commonly true in one site, facilities need to go back to the VISN for more funds.

> We do our budget call, each individual service, medical service, or surgery, or whatever else, they would analyze what they feel they need for fee or non-VA care, so that would be part of the annual budget call. They would try to project what that requirement would be and then of course adjustments are made throughout the year based on actual patient needs. But that is part of the budget call that we do annually with all the services. And it's an educated guess, as things shift. [F-024]

> [To determine the budget for non-VA care] You look at what you did last year.... I say [that] kind of tongue in cheek, but really a lot of it is based upon previous experience. [F-081]

> It's a yearly cycle of being allocated a certain amount and knowing going in that you've executed more money the year before than you started out with the current year—you know you're going to have to go back in for more money. So that's the situation we face. [F-104]

Making referrals to purchased care

Respondents discussed the reasons that purchased care would be used. They emphasized that use of purchased care is based first on clinical need and what is best for the patient, not on cost.

> Those decisions are primarily based on clinical need and we try to keep it that way, that we don't—we try not to bias, if you will, the clinical decision due to funding. So if the need is there, the clinical need is there, we don't have the specialty in-house, then yeah, they are free to fee that out. That is what drives that decision, not the money. [F-024]

> You go through the third party administrator and, to be patient-friendly, you want to get that care as close to the Veteran's home as you can. For instance, if they need PT three times a week for some rehab, you don't want them coming all the way into [central city] for that. Then you'd just bring them to the medical center. You want to do that close to where they live. [F-044]

> Here at the facility level, we can take individuals on an individual basis and kind of do some research on their particular situation and make an exception to that rule [of when to refer to non-VA care]. There is a clause written for the geographical burden; however, the parameters of that decision-making process can be left for very vague interpretation. So our philosophy here is to err on the side of the Veteran and that's taking into account all the geographical barriers, the weather, the road conditions, all these factors that preclude them from being eligible and making an informed decision on that, and so that's kind of given that population of Veterans some hope. [F-005]

Respondents also described the tension between the benefits of providing care through VA and the cases in which non-VA care makes more sense for Veterans. VAMC leadership were attentive to the need to analyze the business case for either model of care, and the importance of periodically re-evaluating to identify the best solution.

> We would always prefer to have people working for us because we feel that provides better continuity of care, continuity of services, when somebody works for you, as opposed to a contract. However, sometimes a contract is better because we don't do enough of that work in-house here to justify having our own staff to do it. Case in point, mammographies. We don't have enough workload to justify the equipment and the personnel to run that equipment on a full-time basis, so we contract for that. And we have sufficient resources in the area to do that. [F-064]

> I feel like we have the authority to look into the demand for health services, and for example, one of the initiatives we're looking at now is, we don't have magnetic resonance imaging or an MRI machine. In the past, they've had contracted services for a service provider could bring a tractor trailer that has the MRI for certain days a week or a certain number of days per month, and so pay a contract fee for imaging onsite. A couple of years ago, it was decided that that was no longer what management wanted to do—instead, they were going to fee out or purchase the MRI services in the local communities. So as we take a fresh look at it, it appears that there's probably a blended approach that's more financially advantageous, so we're working on a contract to bring an MRI vehicle back to our central facility [F-104]

> When we are looking to staff or send something out on contract or bring in a fee provider or somebody on an intermittent basis, we need to look at the workload, we need to make sure that we're doing a make [or] buy analysis and do the best for the

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facility. So if we have the space and we're bringing people in, that's great. If we've got mammography and we know that we can't take care of that and that that's over at [academic partner]; great. But that workload has to be there. That data has to be there and that analysis is done appropriately. [F-041]

Use of contracts

Respondents commented on the challenges of using established third-party administrators (TPA) to refer patients to purchased care. Some facilities described the workflow required to interface with the TPA is duplicative and onerous. Respondents also complained about the limited networks of the TPA, how this affects patients, and how it creates more work for the sites, who must find an out-of-network fee provider when the TPA "fails."

> I can no longer just fee something to the dermatologist across the street unless it's an affiliate, and we have all these other issues we have to jump through. We created this third party administrator that's going to get all the providers for us and you know it sounds great on paper except they can't perform, so I send people out on fee and I can't get the work done because unless we go through this third party administrator. They fail and then I can send it out and get the care done, but I have to prove that the third party administrator can't perform the service first and that is not good patient care and it certainly is not good for patient satisfaction. [F-044]

Choice Cards – Utilization and Challenges

Respondents reported generally low utilization of the Choice Act option for obtaining purchased care. When asked about low demand, respondents surmised that many patients preferred receiving care within VA, and that wait times for community facilities were similar or worse than at VA.

> [The low utilization of the Choice Act is] for multiple different reasons. We could actually have an appointment that's earlier than they can find in the community—which happens a lot. Most of our veterans really love the VA here. We have an inner city population, we've got a high homeless population, and they connect with the VA. They want to be here. They don't want to go outside. … In addition, … for Choice the VA has also contracted with HealthNet. So the veterans just can't go to anybody that they want to go to. They have to go to the HealthNet providers. And if they don't have a good provider network, why are they going to go on the outside? [F-041]

> I've been asking for hard numbers and I haven't been able to get much information, much data yet. So I can only give you anecdotal data that yeah, we're not seeing much use of the Choice Card. And anecdotally, we're getting, again, from patients that, you know, even though they may have to wait a little longer, they'd rather just stay with their VA provider. [F-024]

Respondents also commented on the importance of education around the Choice Act for patients and providers outside VA. Several facilities were making efforts to engage their patients and communities to raise awareness about what the Choice Act does—and does *not*—provide.

> We have had some success where community providers have reached out to us and we've provided them with the literature and the information and the mechanisms to apply for the program and so we've seen some success with that. On the flip side of that, we've also seen where the providers read the details and has opted not to become partnered under that program, so that's one thing that the Veteran has to take and

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account for, too, is that the card in itself isn't a key to that access. It relies heavily on the community partnership, on educating both the Veteran and the provider about the Choice program, so we're doing that on a daily basis.
[F-005]

Finally, respondents discussed administrative challenges with Choice, including the 40 mile "as the crow flies" distance (which was since been changed) and the paperwork overhead for facilities.

Another piece pertaining to that 40-mile radius is that a lot of these folks live in mountainous terrain or there's a canyon separating them or big conservation reservations that they can't cross, and so under that law, "as the crow flies," and whether we agree or disagree with that, it is misleading in the fact that when a Veteran has to drive 90 miles around something, but yet if they were to be able to fly across the mountain they'd be there in 12 minutes, so those are issues that, again, are being taken up with the congressional channels to kind of rewrite that law and take into account the geographic burdens that the Veterans face in the rural communities and, again, we're not any different than other rural communities, but we are subject to quite a mountainous terrain here. [F-005]

It is a tremendous amount of work for our front line people who do scheduling to make the appointment for the Veteran within our own system, which we know he's going to keep and do this work to put him on the Choice Act, and then we have to go in and the [staff who handle fee service referrals] have to upload all of this information when it's not going to be used. [F-044]

Comments on VA bureaucracy

Throughout the discussion of the budget and contracting processes for non-VA care, respondents emphasized the challenges of contracting within VA. Whether contracting for space, supplies, services, or providers, respondents complained that the contracting process was time-consuming and non-responsive.

We have some contract CBOCs. So actually we contract for service and we do have some of our CBOCs that are VA run that are in leased space. So yes, that is a very viable program although again that is a very lengthy approval process, to go through that whole lease process as well.
[F-024]

The ability to [experience saving by purchasing non-VA care] is dependent on your ability to do the analysis, to navigate and negotiate the contracting world to actually accomplish what it is you're trying to set out, and there are sometimes obstacles, certainly in the contracting environment, that delay those kinds of projects for many months. [F-104]

There is an entire process for contracting which is extremely challenging for the medical center. We don't do it. Somebody else does it for us. And it's become—and this is a general comment from my part—it has become so convoluted and so complex over the last couple of years that it is a constant problem for us. It takes too long to be able to accomplish anything with regard to—I'm not using hyperbole—it is just an exasperating process to do anything by contracting. So that's another reason why we would rather do it in-house because we don't want to get involved with contracting. It's the way the government is. [F-064]

Respondents suggested reasons that the VA contracting process might be as bad as they thought it was. They believed that a remoteness from the day-to-day responsibility of patient care kept them removed from the mission of VA, and that the reporting structure—in that contracting reports to Central Office—was not conducive to engaging contracting staff in the goals of a given facility. Other respondents explained the burdensome requirements by acknowledging that VA was part of the federal government, and therefore held to a higher standard for rules and procedures, regardless of the effect on efficiency.

> Our contracting staff are in [another regional city]. I've been there. They sit in a little office park and sometimes they're there, sometimes they're not there. And there's no real incentive for them to hurry the process up…. I should not need to get on the phone or go up there and go through every single thing and say "Why is this not done? Why are you not meeting your deadline on this? Why do you not need this?" If they were under my supervision, fine, because I am generally a tough manager, I'm going to make sure that you meet your deadlines and I want you to understand the whole picture, and by delaying the process, how it's affecting patient care. But since I have no control over those individuals, I sit there and I have my hands tied behind my back a lot of the time. [F-041]

> We are part of the federal government and there are a lot of bureaucratic processes that we're bound by law and regulation to follow. The simpler the process can be made to be, the better our veterans will benefit. So as we go to pay bills, as we enter into contracts, the magnitude of things we have to do to expend that money on behalf of our veterans sometimes slows the process and gets in the way. But we understand we're a public entity with a trust and that we have to do our due diligence to ensure that we're following the law, but that comes at an expense of the speed and volume of care we're able to translate that budget into execution, if that makes sense. [F-104]

> [Contracting is] one of those centralized programs that's beefed up its staffing by about three times, yet the service has gone through the basement, and it's all because one or two people make stupid purchasing decisions so we overreact and create this monster organization, train people – and I'm not exaggerating – one month out of the year, so they're not providing the service and then you centralize them so they are not connected to the mission or to the organization, and you just paralyze. [F-044]

Table E-1. Fiscal resources domain: code count by facility-level interview

Interview ID	Interview type	Respondent type	Facility ID	Facility urbanicity	Facility size	Facility complexity	B1.1 Budget and budget process	1 Disconnect in budget process	2 Reallocation of budget	1 Reallocation process	2 Proposed reallocation fixes	3 Role of VISN	3 Problems with VERA allocation process	1 Time lag	2 Need to document services to insure future allocation	3 Maintaining older facilities	4 Increases in CO staff	4 Adequacy of budget	5 Constraints in using allocated funds	1 Medical care appropriation not flexible across domains	2 Takes time to get new space	3 Lack of incentive to save or plan for capital expenditures	4 Centralized processes take resources from patient care	6 Funding special programs	7 Role of CO staff in budget process	B1.2 Hiring	1 Degree of discretion in hiring	2 Ability to create new positions
F-002	VAMC	Leadership	F1	small-med metro	small	less complex	1	1		1								1										
F-004	VAMC	Leadership	F1	small-med metro	small	less complex																						
F-005	VAMC	Leadership	F1	small-med metro	small	less complex	1	1	1	1	1																1	1
F-021	VAMC	Leadership	F2	large metro	large	complex		1	1						1										1	1		
F-023	VAMC	Leadership	F2	large metro	large	complex																						
F-024	VAMC	Leadership	F2	large metro	large	complex	1	1	1	1			1	1		1		1	1	1	1						1	1
F-029	CBOC	Clinical staff	C2	large metro	large	complex																						
F-032	VAMC	Leadership	F2	large metro	large	complex																						
F-041	VAMC	Leadership	F3	large metro	medium	complex	1	1	1	1	1													1				
F-043	VAMC	Leadership	F3	large metro	medium	complex																						
F-044	VAMC	Leadership	F3	large metro	medium	complex		1					1								1			1			1	1
F-050	CBOC	Leadership	C3	large metro	medium	complex																						
F-052	VISN	Leadership	V4																									
F-054	VISN	Leadership	V4																									
F-060	VAMC	Leadership	F4	small-med metro	medium	complex																						
F-061	VAMC	Leadership	F4	small-med metro	medium	complex		1					1	1	1	1												
F-062	VAMC	Leadership	F4	small-med metro	medium	complex																						
F-063	VAMC	Leadership	F4	small-med metro	medium	complex																						
F-064	VAMC	Leadership	F4	small-med metro	medium	complex	1			1	1		1	1		1		1	1	1				1			1	1
F-065	VAMC	Clinical staff	F4	small-med metro	medium	complex																						
F-069	CBOC	Clinical staff	C4	small-med metro	medium	complex																						
F-070	CBOC	Leadership	C4	small-med metro	medium	complex																						
F-073	VISN	Leadership	V1																									
F-074	VISN	Leadership	V1																									
F-076	VAMC	Clinical staff	F4	small-med metro	medium	complex																						
F-081	VAMC	Leadership	F5	small-med metro	large	complex	1	1							1	1		1	1	1				1				

Interview ID	Interview type	Respondent type	Facility ID	Facility urbanicity	Facility size	Facility complexity	B1.1 Budget and budget process	1 Disconnect in budget process	2 Reallocation of budget	1 Reallocation process	2 Proposed reallocation fixes	3 Role of VISN	3 Problems with VERA allocation process	1 Time lag	2 Need to document services to insure future allocation	3 Maintaining older facilities	4 Increases in CO staff	4 Adequacy of budget	5 Constraints in using allocated funds	1 Medical care appropriation not flexible across domains	2 Takes time to get new space	3 Lack of incentive to save or plan for capital expenditures	4 Centralized processes take resources from patient care	6 Funding special programs	7 Role of CO staff in budget process	B1.2 Hiring	1 Degree of discretion in hiring	2 Ability to create new positions
F-083	VAMC	Leadership	F5	small-med metro	large	complex																						
F-084	VAMC	Leadership	F5	small-med metro	large	complex		1		1	1								1		1						1	1
F-094	VISN	Leadership	V3																									
F-100	VAMC	Leadership	F6	rural	small	less complex																						
F-102	VAMC	Leadership	F6	rural	small	less complex																						
F-104	VAMC	Leadership	F6	rural	small	less complex	1		1				1		1			1	1	1								
F-106	VAMC	Clinical staff	F6	rural	small	less complex																						
F-113	VISN	Leadership	V6																									
F-115	VAMC	Leadership	F6	rural	small	less complex																						
F-122	VISN	Leadership	V5																									
F-141	VISN	Leadership	V2																									
F-142	VISN	Leadership	V2																									
F-150	VAMC	Clinical staff	F1	small-med metro	small	less complex																						
F-153	VAMC	Clinical staff	F1	small-med metro	small	less complex																						
F-154	VAMC	Clinical staff	F1	small-med metro	small	less complex																						
F-164	VAMC	Clinical staff	F2	large metro	large	complex																						
F-171	VAMC	Clinical staff	F2	large metro	large	complex																						
F-182	VAMC	Clinical staff	F3	large metro	medium	complex																						
F-184	VAMC	Clinical staff	F3	large metro	medium	complex																						
F-195	VAMC	Clinical staff	F4	small-med metro	medium	complex																						
F-217	VAMC	Clinical staff	F2	large metro	large	complex																						
F-248	CBOC	Clinical staff	C2	large metro	large	complex																						
F-250	CBOC	Leadership	C2	large metro	large	complex																						
F-251	CBOC	Clinical staff	C2	large metro	large	complex																						
F-255	CBOC	Clinical staff	C2	large metro	large	complex																						
F-256	CBOC	Leadership	C2	large metro	large	complex																						
F-257	CBOC	Clinical staff	C2	large metro	large	complex																						
F-304	VAMC	Clinical staff	F2	large metro	large	complex																						
F-305	VAMC	Clinical staff	F4	small-med metro	medium	complex																						
F-306	VAMC	Clinical staff	F4	small-med metro	medium	complex																						
F-307	VAMC	Clinical staff	F2	large metro	large	complex																						

Interview ID	Interview type	Respondent type	Facility ID	Facility urbanicity	Facility size	Facility complexity	3 Ability to hire into open slots	4 Space limitations	B1.3 Purchasing	1 Systems for centralized purchasing	2 Purchase cards - how fit in budget	3 Purchase cards - limit	B1.4 Contracting to external providers	1 Budgets for contract care	2 Referrals to non-VA care	B1.5 Choice Cards	1 How CC change demand for contract care	2 Relationship CC and contract providers	3 Demand for CC	4 Perspective on changes to CC program elig	B1.6 Other/Unsure	B1.7 Complaints about VACO, bureaucracy
F-002	VAMC	Leadership	F1	small-med metro	small	less complex																
F-004	VAMC	Leadership	F1	small-med metro	small	less complex																
F-005	VAMC	Leadership	F1	small-med metro	small	less complex	1		1				1	1	1	1		1	1	1	1	
F-021	VAMC	Leadership	F2	large metro	large	complex																
F-023	VAMC	Leadership	F2	large metro	large	complex																
F-024	VAMC	Leadership	F2	large metro	large	complex		1	1			1	1	1	1	1			1			1
F-029	CBOC	Clinical staff	C2	large metro	large	complex																
F-032	VAMC	Leadership	F2	large metro	large	complex																
F-041	VAMC	Leadership	F3	large metro	medium	complex		1	1				1	1	1	1	1		1		1	1
F-043	VAMC	Leadership	F3	large metro	medium	complex																
F-044	VAMC	Leadership	F3	large metro	medium	complex		1	1	1		1	1	1	1		1	1	1			1
F-050	CBOC	Leadership	C3	large metro	medium	complex																
F-052	VISN	Leadership	V4																			
F-054	VISN	Leadership	V4																			
F-060	VAMC	Leadership	F4	small-med metro	medium	complex																
F-061	VAMC	Leadership	F4	small-med metro	medium	complex		1				1										
F-062	VAMC	Leadership	F4	small-med metro	medium	complex																
F-063	VAMC	Leadership	F4	small-med metro	medium	complex																
F-064	VAMC	Leadership	F4	small-med metro	medium	complex	1		1	1			1		1							1
F-065	VAMC	Clinical staff	F4	small-med metro	medium	complex																
F-069	CBOC	Clinical staff	C4	small-med metro	medium	complex																
F-070	CBOC	Leadership	C4	small-med metro	medium	complex																
F-073	VISN	Leadership	V1																			
F-074	VISN	Leadership	V1																			
F-076	VAMC	Clinical staff	F4	small-med metro	medium	complex																
F-081	VAMC	Leadership	F5	small-med metro	large	complex								1	1	1			1			
F-083	VAMC	Leadership	F5	small-med metro	large	complex																
F-084	VAMC	Leadership	F5	small-med metro	large	complex		1					1									

The views, opinions, and/or findings contained in this report are those of RAND Corporation and should not be construed as an official government position, policy, or decision.

Interview ID	Interview type	Respondent type	Facility ID	Facility urbanicity	Facility size	Facility complexity	3 Ability to hire into open slots	4 Space limitations	B1.3 Purchasing	1 Systems for centralized purchasing	2 Purchase cards - how fit in budget	3 Purchase cards - limit	B1.4 Contracting to external providers	1 Budgets for contract care	2 Referrals to non-VA care	B1.5 Choice Cards	1 How CC change demand for contract care	2 Relationship CC and contract providers	3 Demand for CC	4 Perspective on changes to CC program elig	B1.6 Other/Unsure	B1.7 Complaints about VACO, bureaucracy
F-094	VISN	Leadership	V3																			
F-100	VAMC	Leadership	F6	rural	small	less complex																
F-102	VAMC	Leadership	F6	rural	small	less complex																
F-104	VAMC	Leadership	F6	rural	small	less complex							1	1		1				1	1	1
F-106	VAMC	Clinical staff	F6	rural	small	less complex																
F-113	VISN	Leadership	V6																			
F-115	VAMC	Leadership	F6	rural	small	less complex																
F-122	VISN	Leadership	V5																			
F-141	VISN	Leadership	V2																			
F-142	VISN	Leadership	V2																			
F-150	VAMC	Clinical staff	F1	small-med metro	small	less complex																
F-153	VAMC	Clinical staff	F1	small-med metro	small	less complex																
F-154	VAMC	Clinical staff	F1	small-med metro	small	less complex																
F-164	VAMC	Clinical staff	F2	large metro	large	complex																
F-171	VAMC	Clinical staff	F2	large metro	large	complex																
F-182	VAMC	Clinical staff	F3	large metro	medium	complex																
F-184	VAMC	Clinical staff	F3	large metro	medium	complex																
F-195	VAMC	Clinical staff	F4	small-med metro	medium	complex																
F-217	VAMC	Clinical staff	F2	large metro	large	complex																
F-248	CBOC	Clinical staff	C2	large metro	large	complex																
F-250	CBOC	Leadership	C2	large metro	large	complex																
F-251	CBOC	Clinical staff	C2	large metro	large	complex																
F-255	CBOC	Clinical staff	C2	large metro	large	complex																
F-256	CBOC	Leadership	C2	large metro	large	complex																
F-257	CBOC	Clinical staff	C2	large metro	large	complex																
F-304	VAMC	Clinical staff	F2	large metro	large	complex																
F-305	VAMC	Clinical staff	F4	small-med metro	medium	complex																
F-306	VAMC	Clinical staff	F4	small-med metro	medium	complex																
F-307	VAMC	Clinical staff	F2	large metro	large	complex																

Source: Authors' analysis of interview data collected and coded for this project

Appendix E.1.2 Workforce and Human Resources

Twenty-six qualitative interviews with VAMC leadership (Associate Directors and Chiefs of Staff) and VAMC and CBOC clinical staff (providers) included questions for the workforce and human resources domain focused on capacity constraints related to the number of providers and provider productivity. Table E-3 at the end of this section provides the code counts by interview for each workforce and human resources domain code.

Provider numbers and staffing

Findings from qualitative interviews at six facilities indicate that staffing shortages are common across VA. Representatives from all facilities could identify at least two areas in which they experience shortages. (Five facilities [83 percent] are short-staffed in primary care and all facilities [100 percent] are short-staffed in at least one specialty). Shortages by specialty are largely idiosyncratic, though a few specialties were identified by multiple respondents: mental health (10), urology (5), orthopedic surgery (3), physical therapy (4), and hospitalists (3) were among the most often mentioned.

Respondents attribute struggles with staffing shortages to non-competitive salaries relative to the private sector (five facilities; 83 percent), national shortages in certain specialties (four facilities; 67 percent), geographic isolation (five facilities; 83 percent), insufficient funds to hire and provide support resources for new providers (four facilities; 67 percent), and insufficient space to add staff (e.g., exam rooms, ORs) (five facilities; 83 percent).

National shortage:

> it's not easy when now, across the board a variety of positions are being recruited by VA when, frankly, nationally we don't have enough providers for the population in this country. [F-063]

> I'd say we're not replacing physicians who leave patient care at the rate at which we need them, considering the demand has increased, both within VA and nationally with the Affordable Care Act, so that's a challenge that we will have [F-063]

Geography:

> It's also very difficult to get specialists into small clinics because they prefer to live in the city where they have potential for income and their families want to live, etc. [F-032]

> In the case of the eye care in the northern clinics, they're relatively rural areas, where we've had two instances of people accepting the position, driving out there with their spouse and then going, "Aw, no, I don't want to move there." [F-021]

> The barrier chiefly for us, aside from being an extremely rural location is that though it's extremely rural, they have an oil boom in our area. So when you have an oil boom, the price of things, everything just went up, it shot, skyrocket. So the people that are coming in for oil, which is one of the major factors that's driving the veterans in as well, because of the job opportunity in the oil field. It's making housing very expensive. So people are not able to afford it and just the cost of living's gone way high and then the amount of accommodations that you have, the demand and supply, so it's not catching up with the level of influx of people. So that is the major factor for us. [F-115]

Salary:

> When you're talking about physicians, the pay scale. You've probably heard this from other people, but when you get into dermatology, neurosurgery, those kinds of things, the top of our top our pay scale is sometimes at best half of what they would make in the private sector.

Insufficient funds to hire:

> We are constrained by budget, I guess I should say. And the ability to… If you have an increase in your demand coming in…demand for services, you have to also be able to increase your full-time equivalent to be able to address that demand. For us for several years we've been under an FTE cap which has prevented us from being able to bring in and grow the number of people that we need to grow. [F-081]

> When you talk about expanding providers, and talking about extra space, then you're also talking about hiring additional environmental management staff, you're talking about extra burden on pharmacy, lab, pathology, radiology. All of those other services also have an impact. And when we do things like our VACAA funding and so forth it's basically just considered the primary care staff, or specialty care staff. It didn't talk about the extra workload that would be generated for lab, radiology, environmental management with a new space, SCS with demand in surgeons, dental. I mean, all of these areas have an impact outside of their small area that they work. [F-094]

Insufficient space:

> Certainly just not having enough space in general is an issue. We are bringing on several new positions and providers and support staff through the VACAA funding, and I have a small group that looks at our physical space and we're doing our very best to utilize every inch that we have and we still don't have enough space to provide everything that we need to provide and to house everyone we need to house, so we're looking at leasing space.
> [F-002]

> We need to hire our providers and I can tell you right now in mental health … I have a meeting later today actually on this very issue. They're holding off on hiring a couple of RN positions and provider – I can't remember if it's a psychologist or a psychiatrist position, some of those, because they don't have the space and I'm saying, no, you need to move forward with the recruiting and we'll figure this out. [F-002]

> The last analysis that we did about six months ago show that easily they need at least two and a half to three providers in that facility. But a concern we have in their facility is that there's nowhere to expand, there's nowhere to put a third provider. And we can't move out because there's no other thing in town that we can put. [F-115]

Respondents named a few sources of benchmarks for determining staffing levels including top-down mandates from program offices, panel sizes (for primary care), and comparison to similar facilities.

> A big chunk of that really came in through mandates from our program offices. And I'm sorry, at that level I don't know the exact models that they use. But they did use some

types of algorithms or models to look at our demand, look at our volume and predict the number of providers that we needed. [F-081]

Primary care is formulaic in that we now determine capacity based on panel size and your number of providers. So we know for a nurse practitioner, they get x amount of patients. A primary care physician gets y amount of patients. [F-023]

Because we use our sister facility, XXXX, as a benchmark and we had something like 40-some FTE and radiology and they had 88. Now they see a few more patients than we do, but not that many more. So we do a business case analysis when we look at these things. [F-043]

Some respondents (50 percent) described difficulties with assessing requisite staffing, including challenges with complexity in treatment modalities (especially in mental health), a lack of ideal or recommended panel sizes in many specialties, and challenges presented by utilizing contract providers.

In terms of capacity, mental health capacity is extremely difficult to figure out. It's not like primary care, where it's by panel. Mental health capacities are many, many different models and the issue with mental health is, unlike primary care which gives you a single therapeutic modality that pretty much everybody agrees with… Mental health has many therapies that are incorporated as part of mental health, including behavioral cognitive therapy, individual psychotherapy and other mental health modalities that you are never going to have enough staff to do. [F-023]

It's not so clear in specialty care. There is no set ratio, so service chiefs for surgery, medicine, PM&R [physical medicine and rehabilitation, etc., have a combination of things that they have to use to determine the number of staff at your site and workload is one, productivity is another. [F-032]

I kind of got in trouble because I was told I had too many providers. But when we did the analysis for medicine, which is our largest service, I asked my chief of medicine to find chiefs of medicine at other 1B facilities and see how many they had, and it turns out they were doing contracts and things like that, which doesn't count in the end number. So we actually had fewer when we did it on a per thousand patients. We had fewer FTE than the other facilities that were like us had because they were doing contracts. [F-043]

As a result, staffing models only account for part of the equation, and about half of respondents (50 percent) indicated that they used additional metrics to determine if changes in staffing were necessary. Access and quality metrics (e.g.,. SPARQ and SAIL data) were used to determine if patients were waiting or quality was slipping; at that point, facilities would devise ways to acquire additional FTE.

Basically we look at all the quality data. We look at SAIL, we look at the 30, 60, 90 days, we also look at panel sizes and try to project. We look at vacancy rates that are coming up and try to make sure that we have those announcements out so that a provider will come in within a reasonable period of time. [F-041]

Well, decisions about adding would be if we're struggling to get patients seen then we're looking at all of the possibilities, are there things we can do to make them more efficient, is there a way to schedule additional clinics using either fee or part-time. [F-083]

Respondents discussed a variety of approaches to acquiring and maintaining FTE at their facilities, including hiring and retaining full time employees, using contract employees, and fee-basis and intermittent staff. All respondents (100 percent of facilities) mentioned that they were actively recruiting for vacancies at their facilities. Hiring decisions were made using a business case analysis, in many cases, and respondents from one facility (17 percent) indicated that they had established a committee to make and execute hiring decisions. For the most part, respondents indicated that they preferred to try to fill vacancies by hiring, especially in primary care where full time providers are virtually required, and that full-time employees tended to be more accountable than contractors.

> So if they do a cost benefit analysis, they've got the workload there and they show the labor mapping of where that physician is actually a map to, you know, whether they're mapped to research and actually doing research, we can find some more capacity within the system so we require them to do an analysis when they go to submit for a position. [F-041]

> Generally speaking if we've identified a demand our preference would almost always be to hire. If then we've been recruiting for a period of time and we can't fill the position we would start looking at fee providers, part-time providers, contracts with the community. We do use a business case planning model that goes through our resource board where if we've identified and people feel reasonable that this is a need that we have, then we begin our recruiting efforts. But we look at workload data, wait times, all of those kinds of things. [F-061]

> The way we do it here, we have a physician management committee that looks at all new positions and recurring positions that have come open. And they go through the process of looking at that and looking at our budget projections and our supportable FTE levels, and then make recommendations to the director on which positions to fill or not fill. And of course they make that decision based on our strategic goals, our issues with access, that type of thing. So all that is in a committee structure, is vetted, analyzed, and then the recommendations are then sent forward to the director. [F-024]

> I just think that we are considering [hiring] more in primary care because primary care here is normally going to be a full position, except with the residents coming over. So again, with the specialty care, we're sharing physicians with the different affiliates, so again, if we need a .2 or a .3, they're going to be able to find someone on their staff and send them over. [F-041]

> Even though you can put items in a contract that you hold people accountable to, they're not as accountable as people who actually work for you and are long term and are devoted to XXXX and its veterans. [F-043]

Barriers to hiring were common (six facilities; 100 percent) and were similar to the reasons for provider shortages described above, but also included a long HR process, and other VA regulations related to the approval process (privileging, credentialing, salary approval, etc.).

> Every time I have an open position I'm amazed by the number and the quality of the applicants that I get. But the HR process is in a state of utter paralysis. They can't move the ball down the field. [F-150]

The VA is trying to address [shortages] to try to hire, but seems like our HR department is not very efficient and so between the selecting the candidates to getting on board it takes between three to six months. [F-251]

Probably the biggest barrier [to hiring] is that our senior leadership understandably watches everyone that's hired and looks at the numbers, and looks at why do we need to hire this person. Why do we need to replace this social worker who just left? And so, this also drags out the process of hiring new staff. And this may actually be one of the major barriers actually, is the attempts by a senior leadership to make absolutely sure that we can justify all of the people that we're hiring, even if these are positions that previously had a demonstrable workload and functioning within the organization. [F-182]

It depends on the specialty, but there are specialties which require approval at the facility level, above the facility, at the VISN level and above the facility at central office level. [F-004]

Other barriers included challenges presented by the culture of the VA (especially among support staff and facility-level administrators) and VA regulations that limit facilities' ability to expand service hours:

Culture of VA:

We have no trouble finding highly trained, highly motivated professional staff. It's just that the efficiency of the place is undermined by not having administrative support commensurate with the professional effort being made. And just a tolerance of, I won't even say mediocrity, worse than mediocrity, in things like HR, contracting. [F-150]

VA regulations

We need more providers. But if we hire the providers and we have nowhere to put them then it's a waste of resources. And we can't just hire providers to work evening hours without their support staff. We can't get past the labor partners to have support staff work those hours. [F-094]

Our full-time docs, they're paid on a 40 hour week but there's no way to pay them for working extra. And while there may be some that would be willing to work extra hours or take a weekend a month, there's no way to pay them for that, other than to rearrange their work week so that they're off other days. But that doesn't give you any net increase. [F-083]

In order to address some of these barriers, respondents at all facilities (100 percent) described a number of strategies utilized to recruit providers, including raising salaries as much as possible within designated tiers, promoting other VA employee benefits, relocation packages, promoting affiliations with universities and other medical centers, utilizing recruiters, attending job fairs, advertising, and promoting unique aspects of practicing in a VA setting (e.g., slower pace at smaller clinics, lack of paperwork and payment processing that comes with private practice). Some respondents also indicate that these strategies could be utilized more effectively.

Pay: Now that's not entirely fair because our pay table recently was raised from just around $200[,000]—maybe a little higher—up to $240[,000] as the top of the pay table, so we are more competitive. What I don't think that we promote as strongly as we could

is that that $240[,000], if we give the top of the pay table—and I have to justify that—if we give that $240[,000] that comes along with other benefits that you don't necessarily get in the private sector like a pension plan, the matching components on the 401k equivalent and lots of various other benefits that the government and civil service provide. So that $240[,000] and equivalent value is probably higher, but to the applicant that's not always clear. [F-004]

Affiliations: In XXXX we are very heavily integrated with the XXXX and XXXX medical schools, particularly XXXX. And so there are a lot of docs that have part-time appointments at VA and at XXXX. And that's actually been an enormously helpful recruiting tool for some of the scarce and more highly paid specialties. [F-083]

Traditional: HR has gone out the last year or so on a regular basis doing job fairs in the different universities around us and different clinics and attending public…like big city of XXXX job fair and stuff like that, just to announce to us for recruitment. No one told me update on that. We've gone into the journals, you know, placed advertisement in the journals, in the local newspapers, especially the weekends so that people are able to read it. [F-115]

Intensity: The other advantage that we offer is that when you work at either of these other two [non-VA] facilities, you are at a much higher level of intensity when you are working. Our facility is small, our facility has a lower average daily census and a lower level of acuity, so the demands placed on the provider are less and sometimes providers are looking for a less intense position.
[F-004]

Comparison to private practice:

I saw an Air Force ad not long ago that I think embodies a really excellent recruitment tool. And the ad basically said, "If you come and work for us you'll take care of patients, we'll take care of the administrative work." And to the degree that that can be realized, that is an area where the VA could be really attractive, particularly to the docs in practice who have gotten tired of interfacing with insurance companies that require preapproval for everything, and more and more forms to fill out, and delays in getting things paid for, and the hassles of running an office and all of that. I think that is a recruiting tool that is probably…not probably, has been grossly underutilized. [F-083]

And we've asked the staff that are currently student that are rotating with us to, even word of mouth, anybody they know. They may know a doctor that is saying okay he's tired because of all these changes in the healthcare outside in non-VA community, that he may want to just transition to the VA. [F-115]

Retention challenges were also common among facilities, with respondents from only one facility (17%) explicitly stating that they had no issues with retention. (The other 5 facilities (83%) did experience provider turn-over). The most common area in which retention was discussed was primary care: While provider turn-over in primary care was often mentioned, recruitment of primary care providers was not a challenge for most facilities.

I think we are in primary care. The only issue is that we do have an influx and outflux of physicians. It's turnover, so making sure that those physicians are adequately

compensated for what they're doing would help with that. But overall, I think primary care is running well. [F-041]

Respondents described struggles with retention due to a number of factors that relate to pay and provider burn-out.

Pay:

The second a provider or someone else like a mental health professional walks on board in XXXX, they're immediately looking for their next job down south where they can increase their pay and automatically get that higher geographic adjustment down in the XXXX area, so we have extremely high turnover in areas where the geographic pay is not matched out in the rest of the system. [F-032]

XXXX is right across the street; seriously, literally across the main XXXX. XXXX is across the street, and I think that there are instances where people will go across the street to XXXX because the pay is better. [F-021]

Technology-based challenges: "why is that, what is it that we're seeing, why is it we're not bringing more patients in, what is this, why does it take 30 minutes for one of these appointments," and a lot of it I'm being told it's the complexities of the CPRS tool and managing and getting through it today. It's also the mandates from all the various program offices that it can take you up to 12 minutes to just get through all of the health factor screenings and all the different questions to get through that; which is also something that has been a problem with maintaining physicians and keeping them onboard, because it's a big drag on them to have to do all of those. [F-081]

Issues with VA culture and process:

And most docs and clinical people really want to provide excellent care and they just get frustrated when they can't do it, when something is getting in the way of it. And it's also I guess part of the sense of, can we trust clinical people or do the clinical people have to be regulated and managed in the sense that, we will give you this and only this, and we're going to expect you to achieve with only what resources we give you. And it's almost like on the administrative side we don't trust that the clinical folks will do the right thing. And again, that seems like an engrained institutional impediment to success. [F-083]

The other problem is that you're working in a VA system and in the VA, there's a lot of frustrations. There's your team. It takes forever to replace when a team member leaves. Computers are clunky. Our beautiful medical records system is no longer state of the art. We kind of lag on that now. And there's provider burnout, particularly in primary care. In mental health, I assume it's the same issues. [F-023]

Just as facilities struggle with keeping providers on payroll, they also implement strategies to enhance retention. Representatives of all facilities (100 percent) identified specific retention strategies. These strategies were primarily financial: increasing salaries, improving debt reduction benefits, and offering pay-for-performance.

> The only issue is that we do have an influx and outflux of physicians. It's turnover, so making sure that those physicians are adequately compensated for what they're doing would help with that. [F-041]

> We're looking at the new EDRP. I've got to try to fund that out of my budget, so right now central office gave us some resources for EDRP if we found certain positions either that we wanted to recruit or retain… So right now we are looking at funding that out of our budget with, again, I mean I have a very, very tight budget to begin with but I'm seeing what I can piece together to try to influence these individuals to stay. [F-041]

> We do as much as we can with recognition awards and retention incentives. On the front end we're using recruitment incentives wherever we can. In rare circumstances if we're looking into a physician from out of the area we may offer a move package. Also, when you're talking the physician providers, we have pay-for-performance, so they have an opportunity to maximize their earnings there. [F-061]

Respondents also described the importance of the "mission" of the VA and maintaining transparency when it comes to retaining providers

> However, the flip side of that is that there are providers who stay because (a) they resonate with the mission or (b) VA is not profit-driven as it were, so some people have left XXXX and come to us because that drive for the almighty dollar is different here. Yes, we have productivity standards, but that concept of the more surgeries you do, the more money you get is a little bit – it's not the same, you know what I mean? [F-021]

> I meet them once a week during journal club just so we are sure to update them on where we are at, what, if anything's in the pipeline, how many interviews have been done so they know that the administration is just not saying okay…they don't think administration is just saying, yeah, we are 50 percent or so providers shorted, so the rest of you get on with it. When they work we appreciate what you're doing. This is what administration is doing. We're very transparent so that they know where we're at and what constraints. Once we get providers that accept we let them know, too, and then the same backpedaling because they can't get any accommodations. You know what I mean? So we let them know that, too. So that way they're in the know and once they know that we're continuously trying they—so far at least—they've been very understanding. And they've really got together and rallied together to help to assist. [F-115]

As described above, respondents indicated that their facilities used a variety of methods to maintain and increase FTE. Contract arrangements were common, with all facilities (100 percent) reporting that they used contract providers in-house, or that they contracted out certain complex or specialized procedures to affiliate facilities. Among the provider positions filled by contractors were difficult-to-recruit specialties (e.g., stroke neurology) or critical specialties (e.g., emergency department providers, hospitalists). Among the procedures that were mentioned as contracted out were mammography, complex surgeries, labor and delivery, and bariatric treatments.

> We've done other creative avenues to increase access. We're currently a standard level complexity facility and we've contracted with our local community hospital to use their OR, for our general surgeons to do intermediate complexity surgery in their facility, so we do creative things and we definitely use contracts. We use fee for service on a

regular basis and we do contract for our, like I had said before, for our overnight hospitalists. [F-002]

We're in an active partnership that's close to being consummated with a DOD facility that in many ways is a mirror image of us. They have multiple specialty physicians who are relatively underutilized because of a relatively healthy population and a medical facility that's relatively underutilized. And so we're in the final stages of completing a sharing agreement that will allow us to refer patients there, as well as even put some VA care teams in that site to take care of VA patients. That's one that we are utilizing. [F-083]

As for sending care out, we would normally do that for things that we could not take care of and it wouldn't be necessarily something that comes up all the time like mammography. [F-041]

Among the reasons cited to use contracts were that they were often cost-effective solutions to access problems, they could quickly begin filling staffing holes more quickly than new-hires, and they improve access, particularly in rural areas.

We use contracts, we use fee basis, we even use intermittent staff, depending on the gaps that we actually have is how we choose to do that and when we're looking or a contract, a make buy analysis is really going to have to be completed and we definitely do that, say, for mammography. We've decided here that it is better for our patients' continuity of care as well as from a financial perspective to send that care to one of our affiliates here at University of XXXX. [F-041]

So the one contract I have was one FTE, is now a .5. I said I was willing to do it if it was cost neutral. So that's a cost neutral contract. It would have been the same if I was paying a .5 stroke neurologist and just had one. [F-043]

We've been very successful with locus tenens because we stay in really close contact with the folks. It tends to be more paperwork that slows it down, waiting for signatures, but from the national office perspective, the office that runs this, we've had a very good relationship… They're already pre-credentialed, they already have everything ready to go and we get our paperwork, and once it gets out of our own site, they tend to move very quickly the locus tenens procedure. We're very pleased at the support we get there. [F-032]

It's actually a contract that we've done with the community hospital… what it allows us to do is, like I said, our facility is a standard complexity and so we can do our intermediate complexity level procedures at that facility, which is beneficial. It gives our surgeons the ability to keep up on some of those skills and it gives access to our patients who otherwise would have to drive at least 250 miles or be transported to another VA. That's how far they would have to go and so it's been a very positive thing that we've done, and we have a good relationship with the local community hospital. [F-002]

On the other hand, two facilities (33 percent) indicated that they did not use contract providers, and many used fee-based or intermittent providers (five facilities; 83 percent). Reasons cited for using fee-based providers were often presented in contrast to using contract providers, including relative time to begin work, relative cost, relative administrative burden, and provider accountability. Provider

productivity among fee-based providers was also seen as a benefit. Much like contract providers, fee-based providers were often used to fill vacancies in difficult to hire, or rarely utilized specialties.

> **Time to begin work:** Fee is much quicker. Contracts are difficult, often taking months to get through the contracting process. That's a theme that you've probably heard before, and which relates to a lot of the support services. One thing that you… And I guess with fee you can turn it on and off quickly, if needed. [F-083]

Relative cost:

> We have quite a few of those, particularly in surgery because we can pay them higher and they're intermittent, and it doesn't make sense to hire a full time person. [F-023]

> The provider can get paid more than if they were part-time and it makes more sense for intermittent roles. And if I'm going to have 400… well, we can't pay 400. We can pay 380,000 is our top salary. If I have some surgeon that's worth 380, but they're only doing 1 surgery a month, I think I probably want to hire him or her intermittently, fee-basis employed, and have them come from XXXX and do the one-a-month surgery here. [F-023]

> It's also usually more expensive to do a contract. So the one contract I have was one FTE, is now a .5. [F-043]

Productivity:

> Fee is more of a productivity model. So folks tend to be productive if they're working in a fee arrangement versus a salaried arrangement. [F-083]

Accountability:

> There's a lot of issues with contracts in that they require monitoring very closely to make sure you get your money's worth. If they're sole source with your affiliate, they get another level of scrutiny. And affiliate is now getting more and more reluctant to enter into these contractual relationships because of that. [F-023]

> Even though you can put items in a contract that you hold people accountable to, they're not as accountable as people who actually work for you and are long term and are devoted to XXXX and its veterans. [F-043]

Respondents also described a few reasons why patients may be sent out into the community for care. Five facilities (83 percent) indicated that they used community-based care to some degree. Reasons for outsourcing care included issues with patient access due to geography, insufficient capacity, or the need for complex procedures. However, the preference of facilities was largely to keep patients in house, or at lease within the VA system.

Geography:

> And another issue is if they don't live within a reasonable drive to the VA, that it's very, very hard for somebody to come to a physical therapist that is not by their home. So we will send a lot of that care out to the community because if they have to come here every day or every other day for physical therapy—that's onerous. [F-041]

> Well, CBOCs don't have large physical therapy activity areas, so when we look at backlogs in PM&R, and physical therapy particularly, we have to really balance bringing a patient all the way in from a long distance into the VA Medical Center, where physical therapy is available versus putting them out into the community like my Veterans Choice or a non-VA care facility, so that is one where we have a very large amount of work trying to balance success. [F-032]

Capacity constraints:

> Those patients, when we can't accommodate them, they do get diverted, they do go to the local facilities. We luckily have a good constructive relationship with both local facilities but the patients aren't happy because if they get diverted without preapproval, they carry more of a financial burden, depending on their level of service connectedness. And I have no control over that. That is Congress, that is legislated, how those patients are handled. [F-004]

Complexity:

> I mean, there's certain surgeries that we don't perform so they go to the community. And, other than that, PET scans we send to one of our network facilities. [F-061]

Preference for network over community:

> I think there's some cases where we couldn't hire somebody and say XXXX could so we used them… So we look to the network as a resource first. And if it's something that we can't resolve within our sister facilities then that's when we go out into the community. [F-061]

Productivity

The qualitative interview also explored provider productivity issues and their causes. The most common issues affecting provider productivity related to different kinds of staffing shortages. Shortages related to clerical or administrative staff and clinical support staff were each cited by respondents at four facilities (67 percent).

> And so in many of those areas you'll have a doc that's working without an assigned nurse, with a rotating clerk who may or may not be very familiar with how to be scheduling patients in that area. And it may be a different person the next week. There's clinics where the docs have to be the ones to go out to the waiting room to find the patients to bring them back to check their vital signs, etcetera. And it's not that they can't do it or that it's work that's beneath them to do, that's not the point. It's just that's not an efficient way to be able to utilize very expensive staff and it keeps them from being able to see the volume of patients that they could see. [F-083]

> The problem is not having people to organize it, people like the schedulers, and the intake staff and that kind of thing [F-150]

> We have almost no administrative support…none. So all those people I mentioned to you, in excess of 50 clinical staff, we have one GS5 secretary. [F-150]

> We have all these appointments that we have with thousands and thousands of tests and procedures. We have no scheduler up here. The clinical staff is doing scheduling, calling the patients, licking the envelopes with the appointment letters. [F-150]

> And then you need a clerk obviously for scheduling, and you need the medical assistant, the LVN, to help you with the flow of your patients. So all those things have to be present to be productive and if you have disruption in your team, it just makes you a lot less productive. [F-023]

Respondents at four facilities (67 percent) also discussed how the lack of clerical and clinical support staff means that providers are spending their time on these activities rather than direct patient care.

> Well, the major barriers to doing anything, as I mentioned, is that it's hard to make providers productive if they're not working at the top of their license. So somebody like me, which I think in a way, it's pretty funny. I spend enormous amounts of time doing—I don't have enough clerical help. So I do a lot of clerical work. I mean, I'm a very highly paid clerk but I mean, do they want me doing that? And same with providers. They spend far too much time doing what is done in an office, in the private sector, by clerks or by somebody else. [F-023]

Respondents at four facilities (67 percent) cited infrastructure issues such as lack of exam and operating room space that negatively affected a provider's efficiency.

> But we don't have enough rooms. If you really want to see patients efficiently, you have two rooms for the physician so that you can move patients in and out more easily. [F-164]

> Surgery, we're impacted by the number of OR rooms that are available and have to schedule around there, which sometimes can be challenging when you've got five specialties that all want to operate on the same day and we don't have rooms available. [F-061]

Respondents at all facilities (100 percent) noted issues related to information technology that negatively impact provider productivity. For example, facility administrators indicated that providers spend a lot of time navigating the complex electronic record system. Also, some respondents discussed how there were assumptions that telehealth visits were more efficient and would increase productivity, but in practice these patient encounters take the same amount of time as face-to-face visits.

> What I hear from a lot of the individual docs, is that a lot of their time is spent on view alerts and other…many of which are not really relevant or necessary in the process of taking care of a patient, or on completing various paperwork electronically that, for one reason or the other in the VA system it's not allowed for someone else to do that work.to complete. [F-083]

> But the bottom line is in primary care, each patient generates gazillions of alerts that go onto your computer that you have to respond to in some way, shape or form. It's a terrible provider burnout problem and it's something we have to work on. [F-023]

> When I look into that and "why is that, what is it that we're seeing, why is it we're not bringing more patients in, what is this, why does it take 30 minutes for one of these appointments," and a lot of it I'm being told it's the complexities of the CPRS tool and managing and getting through it today. It's also the mandates from all the various

program offices that it can take you up to 12 minutes to just get through all of the health factor screenings and all the different questions to get through that; [F-081]

And I don't think it's been clearly recognized that it takes at least as much time to do a Tele visit as it does to do an in person visit. [F-083]

Let's say I order a lab work or an X-ray on a person or a consult or whatnot. From the day I do it, anything else that happen to that thing, I get a view alert on it. That's why the five day doesn't really concern me… I get that all the time. What has been driving them nuts. It's on CPRS. View alert on CPRS, so if nationally you guys can help work on actually improving that so that what is succinctly needed by the provider is what comes to the provider; ah, absolutely the providers would love you. But's the main thing they find they're having to work hard on. [F-115]

According to respondents at two facilities (33 percent), issues related to the Choice Act produce inefficiencies that impact staff and provider productivity.

So right now we are wasting so much of our time because we schedule a patient, then we have to put them on the Veterans Choice list, then if the veteran decides to call, they can call, but our staff has to upload all of the medical records and then they may or may not call in. If they call in and they find out on the outside that it's way longer, then we've done a lot of the work that we don't really have the staffing for and it's just wasted work here. [F-041]

Respondents at all facilities identified other factors that negatively impact provider productivity, including the complexity of the patients, and the teaching responsibilities that come with academic resident training programs.

So, one is that the patients that we work with have a very high level of need. They've got usually multiple problems, medical as well as psychiatric. [F-182]

So residents also slow everything up, but we have to supervise them. So that's another limitation of productivity, but if we get rid of the residents to improve our productivity, then you don't really have a VA. [F-023]

So those that run residency programs will have less time in clinic. And then there's those that have administrative time, like a department chair or myself, who have administrative time to actually carry out the business of delivering healthcare. If you cut all that out, there will be nobody to make decisions because we'll be busy all seeing patients. So that does effect productivity in terms of seeing patients. [F-023]

To maintain those appointments, you have to do some academic. So we give them an extra four hours a week in primary care, the ones that have academic appointments. We give everybody four hours a week to do their catch-up and their education, and we give them an extra four hours to have some sort of a chance at an academic career. So that cuts down on productivity right there in terms of seeing patients. [F-023]

Respondents at four facilities (67 percent) described issues with the culture of the VA, including the regulations and restrictions employees must operate under.

But in addition, a lot of them like to maintain control, so they may want to be scheduling their own appointments instead of sending it out to the clerk to do that, or…I get it as a

control issue.
[F-041]

And often in the VA with a unionized workforce, with very specific prescribed job duties and position descriptions, it's much more of a "no, that's not my job" or "no, you're not my boss" or whether it's said overtly or not, there's that whole sense that we're working together to get, together as a team, get the patients seen that need to be seen. That kind of a team based esprit is often not present and really contributes to a lot of physician frustration that have come from the private sector. [F-083]

And it's also I guess part of the sense of, can we trust clinical people or do the clinical people have to be regulated and managed in the sense that, we will give you this and only this, and we're going to expect you to achieve with only what resources we give you. And it's almost like on the administrative side we don't trust that the clinical folks will do the right thing. And again, that seems like an engrained institutional impediment to success. [F-083]

So there's a lot of concern that we're cluttering up everything to the point that a provider can't work anymore because there's just too many things that you have to address regarding one patient, much of which has nothing to do with their health. [F-023]

They've seen a set number of patients or had a way of working that was very flexible, possibly, for them for lack of a better term, and so there's kind of a cultural shift that has to take place in order to get everyone to try to get the same level of productivity from each, struggling with some providers want 45 minutes for their patient per appointment and where others are okay with a 30-minute or shorter or longer, you know, so those are some of the things that we do struggle with and that we are working on, and I think it's just a different way of thinking, a different way of doing that and it's a challenge for those providers to not feel micromanaged and certainly leads to some dissatisfaction as we move forward in this area. [F-002]

It's also an issue, too, with new consults coming in, having the time to review those consults and make a recommendation for whether they should be scheduled in that specialty or whether that's something that can be done as an e-consult or another form. So working through that, but that takes time, too, so it requires the physicians to do that. [F-041]

But the contrast to that is there's some patients that tend to just walk in—I'm sure you must have heard about the walk in issues with the VA—where if they call, they phone in and nobody's answering them—they just walk in and once this habit get developed that they know that once they walk in they'll get seen, they'll keep doing the walk in instead of actually keeping their own appointment. [F-115]

Respondents at all six facilities (100 percent) described specific efforts undertaken to improve provider productivity, including checking the accuracy of the labor mapping, forming a scheduling committee to review scheduling procedures across the facility, creating group clinics for conditions such as Hepatitis C, utilizing hospitalists so that primary care providers do not have to provide inpatient care, developing consistent care teams, holding phone clinics, improving access to same-day lab work in rural areas, providing training to patients and schedulers to reduce no-shows and walk-ins, and developing clear productivity expectations and monitoring them over time.

We used to—talking about supply and demand—one of our access issues had to do with the fact that primary care providers were providing inpatient care and when that happened, they'd have to cancel their clinic. So now that we have hospital based individuals doing it, we opened up more slots in primary care. [F-043]

That's part of what we're doing with the VACCA and the ACI funding, is going back and really trying to put in place teams of docs and support staff that can get used to working together and can be more efficient together. [F-083]

But what we do here is I was the first mental health provider to get a phone clinic, which to me is very, very helpful. My panel is big enough that there's no way I can get people back in the time frame that I would think they need to have some kind of a touch base appointment in to check, say, if I change the medication; sometime in the next two or three weeks there ought to be some kind of a contact made, and there's simply no way that I can bring people back in two to three weeks for an office visit. And no reason to, for the most part. So it turns into a phone clinic visit. [F-106]

We've made an improvement in that before some of the CBOCs don't have the capability to do lab for those kind of patient that same day, and when we…made sure that the labs can be done any time when that clinic is open now. [F-115]

We've educated the providers, the staff, chiefly, that any of those patients like that that show up even though when we're trying to book them for the appointment ask how long and try not to put those kind of patients for morning appointment, it is going to take them a long time to get to you. We can use the afternoon slots. So to reorganize. But sometimes these things fall through the crack and we've educated staff that when patients show up it is not for you to turn them away. They need to be seen. They may have to wait slightly longer because somebody is in the slot because they didn't show up on time. At least they still get seen. But the contrast to that is there's some patients that tend to just walk in—I'm sure you must have heard about the walk in issues with the VA—where if they call, they phone in and nobody's answering them—they just walk in and once this habit get developed that they know that once they walk in they'll get seen, they'll keep doing the walk in instead of actually keeping their own appointment. So we're trying to tackle both ways to reeducating patients to use their clinic appointment times and reeducating staff that look, patients. [F-115]

When we run into particular productivity issues, service chiefs set up what they call provider agreements when they bring a provider on board and it describes exactly how many patients the provider is expected to see, how much administration time they get, how many slots they will have per day, and then the clinical services have an administrative officer in each of their services, along with the business council that's monitoring it, that follows up with the providers and gives the service chiefs a heads-up when it looks like productivity has changed or the provider is out too much time. [F-032]

Administrators at three (50 percent) of the six VAMC's described how the physician productivity cube was used to look at labor mapping and scheduling grids.

You basically compare the labor mapping to the grids that they have and see whether they're appropriate. And by grids, I'm being a little bit more technical, but when you go into the scheduling package, each clinic and provider will have a grid of the

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appointments that they have and just being able to look in that and see that that is accurate and that matches what the labor mapping is. [F-041]

We went through and looked at them and reviewed all their clinics and all their scheduling practices. Going forward it's something that the chief of staff works with the physician executive groups. They have weekly meetings and it's a standing agenda item that they discuss. [F-061]

…that whole provider productivity cube was developed for departments, but interestingly enough, as I knew it would, headquarters is using that to monitor individual provider productivity. So it's a tool that everybody uses across VA and we use it extensively here. What we're finding is that there are far too many people that are doing administrative work that probably should be doing more clinical work. So we have been slowly but surely relentlessly cracking down on that. [F-023]

Respondents at all facilities (100 percent) described other processes used to assess and measure staff productivity, including routine monitoring of RVUs and other measures by committees or teams, using the OAA and SPARQ tools, and developing other measures of productivity.

And using Medicare work RVUs has finally provided something that the majority of the physicians understand and accept as a way to provide comparability between and among facilities within the same specialty. But even with that as a productivity metric we find that not uncommonly a productivity metric in the private setting is higher than what it is, or at least what the mean is in the VA, and likely related to some of those things that I mentioned earlier, as well as some of the care that's provided and expectations are more intensive than in other settings. [F-083]

Well, there actually are some guidelines that come from OAA and other sources. So we looked at those but then we made some modifications based on we saw our needs are. [F-043]

So we're working on trying to figure out how to measure productivity differently, not just by the number of encounters, but by the patients' level of satisfaction and their improvement in their functioning and moving out of care, rather than just staying stagnant in it. And again, this is a thing that doesn't reflect well when you just look at the numbers. The patient satisfaction and their functional improvements as individuals really matters a lot when you look at "productivity". [F-195]

Knowledge management was set up to constantly monitor all the reports, workload, help us run reports to dig down deeper into particular clinics that seemed to be struggling on access or having problems with longer backlogs, so at the business council we have presentations by groups who have been set up to look at specific areas. We look at productivity, we look at RVUs for clinicians, we monitor panel sizes for providers and every month they have to report back on where they find gaps, why the gaps are happening, what their stop-gap solutions are. Knowledge management is constantly providing senior executives with reports to help us balance the staffing, etc. [F-032]

As noted above, respondents at four facilities (67 percent) described a number of issues with assessing productivity related to labor mapping.

We need to make sure that the chief of staff is watching the physicians and that they are actually having their schedules built on what time they should actually be doing that, so

there can be a lot of variability in that with inpatient consults and whatnot, but we have to make sure that their outpatient clinics are built to really show their real capacity. So that would be an ongoing issue, just making sure that again, that their clinics and their capacity measure truly what their real capacity is. [F-041]

We're also doing a lot of labor mapping and we're finding that our labor mapping is not accurate and that some people have been credit for doing things that they really shouldn't get credit for doing in terms of admin time, education time and so forth. [F-043]

I'll find that that person who I wanted mapped 90 percent to patient care is only mapped 60 percent to patient care because the doctor themselves told the DSS (Decision support systems) person that it takes them a long time to write their notes. [F-004]

Right now I think it's the group practice manager is what will be installed at all of our facilities, but in the private sector people who are group practice managers are paid a heck of a lot more than they're going to get paid in VA, so the current plan is for VA to train these people and then put them in place at each setting. Well, I'm slightly skeptical that we're going to come up with a position description that will adequately pay people to do what we want them to do, and that's absolutely necessary if we're going to be successful, so having, again, knowledgeable, skilled people across the board who are looking at productivity for each provider, for each team, who have the capacity for making adjustments so that resources move to where the patients are would also help so that we don't get into the situation in which we currently find ourselves. [F-063]

Well, we measure the number of nontraditional encounters. We measure of the number of secure messaging, folks that are utilization secure messaging. But there isn't a link between those and access. So by using those the providers are really not getting any credit for their access. So they're just picking up another modality. And many of them have said, "It's a lot more difficult to see my patient, try to answer all my text messages in-between, answer all my phone calls in-between and continue to see the same number of patients. So we really haven't helped and that's part of that provider dissatisfaction. Again, we're worried about the numbers, not worried about the care we're actually delivering and that's what we need. [F-094]

Other capacity constraints

Respondents noted other issues that put a strain on their facilities, outside of or broader than workforce numbers and productivity. The most often-mentioned barrier to providing patients access to timely care was the large, and growing, patient population for most facilities, especially in specialties such as physical therapy, orthopedics, and mental health, without commensurate increases in facility budgets to care for these patients. (Representatives of five facilities [83 percent] described this challenge.)

It is not asking for sufficient resources to meet the increasing number of veterans coming to VA, particularly with the increased eligibility; that is to say veterans of OIF and OEF all had automatic five-year full eligibility for all care and they had, I think it's a year for dental care, so that really increases the volume significantly. It's amazing… so with a lot of folks leaving service or having been activated in the Guard or Reserves, their

eligibility for VA, which was full and unrestricted for an extended amount of time, that represented a large volume of increased users and whatever budget increases came really didn't adequately match their demand for services.
[F-063]

I'd say we're not replacing physicians who leave patient care at the rate at which we need them, considering the demand has increased, both within VA and nationally with the Affordable Care Act, so that's a challenge that we will have, as we have seen with mental health. [F-063]

And the specialty care…oh, and I guess in mental health as well, there's been this push to hire into mental health because of the various initiatives that have been going on. And even though our facility still is pretty significantly behind getting all of those hired, some of which is just due to the enormous scope of the patient base that we have, but specialty care has really suffered. [F-083]

And we do a lot of hip and knee replacements, shoulder surgeries, and that need is very high and so I'm ramping up anesthesia and ramping up orthopedics. [F-004]

Representatives from five facilities (83 percent) also described assorted other capacity constraints, which include issues with Choice Act-imposed access requirements (including wait time benchmarks and service provision requirements), geography-based barriers, issues resulting from telehealth and other IT-initiative implementation, VA regulations that impede facilities from taking on intermittent and contract providers, and implications of the Affordable Care Act.

Wait times*:*

So we haven't had a huge problem such as other medical centers here, but again, if you look at the 30 day time limit to be placed on the Veterans Choice Act, that's a little stringent, and if you look out in the private sector, you're not going to have wait times that are even close to that, regardless. So my input would be is that really reasonable and should we really be going for that level of access? [F-041]

I think the way VA defines it is you have to be able to see any new or follow-up mental health patient within 30 days. But the way we're measured by CNN—you may have noticed lately—is that we have to provide behavioral cognitive therapy to everybody within 30 days and that's just not possible [F-023]

Service provision requirements:

I think the mental health requirement is that we have a provider or mental health access at all of our locations, and that's problematic. That means that I have to, in a very small clinic like XXXX, I have to have some sort of mental health presence. You can do it by Telemedicine, which we are trying to do, having stations in the clinic or taking care of mental health patients at home via computer. That's our so-called Telemedicine mental health programs. But we also have people driving to get to these more remote locations. [F-023]

Mental health has many therapies that are incorporated as part of mental health, including behavioral cognitive therapy, individual psychotherapy and other mental health modalities that you are never going to have enough staff to do. If everybody wanted individual psychotherapy, can you imagine? I'd have 23,000 mental health

patients here. Imagine, I'd have to have how many psychiatrists? You can probably see, what, 10, 12 of these patients. You'd have a tough time seeing all these patients if they all required individual psychotherapy. [F-023]

Physical therapy, PM&R [physical medicine and rehabilitation], there was a point where we have a really fine balance in trying to provide access and enough staff because one of the things you'll find out about physical therapy is it could be unlimited demand. People would like to go to physical therapy the rest of their lives. They would love to have chiropractic constantly, two, three times a week, and so VA has had to say, you know, we're going to look at every episode of care and design a treatment plan and say this is not necessary or appropriate and then cut that off because it would just be constantly growing and growing and growing. [F-032]

Geography-based barriers:

And another issue is if they don't live within a reasonable drive to the VA, that it's very, very hard for somebody to come to a physical therapist that is not by their home. So we will send a lot of that care out to the community because if they have to come here every day or every other day for physical therapy—that's onerous. [F-041]

Telehealth and IT:

Say, for example, I have a primary care doc, maybe a family practitioner who has a face to face clinic and a telehealth clinic. And that person, then their face to face clinic is divided into two sections: new patients and established patients. And when within the established patients there's some that are put in a walk-in clinic versus a scheduled clinic. So here you're already down to—you're at four stop codes per one provider, then you add in that person has telehealth and the telehealth is divided into new patients and established patients, so now you're up to six stop codes. And then I have one doc who also does employee health so that goes into another stop code. So here you got one doc with seven stop codes and he just wants to look at his schedule for the week. [F-004]

However, in rural health when you have remote sites where you cannot get specialties out there, then obvious. [F-024]

It is beneficial financially because you've got to move the patient or you've to get a provider out there. So when you're dealing with your rural areas, yes, there is a benefit. If you're dealing with areas within commute distance, not so much. But it does help, I think, financially for—support rural areas. [F-024]

VA regulations:

Manpower is very easier to get [in the private sector] at as compared to the VA where you have to go with the people that you only have contracts. Sometimes it's a very small locum tenens company that do not have widespread; their catchment is very small so we've utilized that. And we haven't been able to build as quickly as we really would like. And of all the positions that we have now, we have one locum that took maybe about four months to get here. But is already here. He got here last week so we're working on it. Because I affect physician if I get all these national locum companies that send me e-mails almost every day. That if I want to go and work here, let me work there. So the VA

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can at least improve it so that they don't just have the contract with one or two small, you know…broaden it. Maybe you give the contract to five people so that if I need—especially in these extremely rural areas—if we need, we can send to all the five companies instead of sending to one. [F-115]

ACA:

We don't have enough providers within the country while other things are going on outside VA, like the Affordable Care Act, that is making care more readily available to people to whom it has not been available before. [F-063]

Table E-2. Workforce and human resources domain: code count by facility-level interview

Interview ID	Interview type	Respondent type	Facility ID	Facility urbanicity	Facility size	Facility complexity	B2.1 Prov_shortage	1 Yes_PC	2 Yes_Specialty	3 Yes_Inpatient	4 No_PC	5 No_Specialty	6 No_inpatient	7 No_General	B2.2 Prov_shortage_reason	1 Natl_shortage	2 Salary	3 Geographic	4 Insuff_funds	5Insuff space to add	B2.3 Assessing_capacity
F-002	VAMC	Leadership	F1	small-med metro	small	less complex															
F-004	VAMC	Leadership	F1	small-med metro	small	less complex															
F-005	VAMC	Leadership	F1	small-med metro	small	less complex															
F-021	VAMC	Leadership	F2	large metro	large	complex															
F-023	VAMC	Leadership	F2	large metro	large	complex	1		1		1										
F-024	VAMC	Leadership	F2	large metro	large	complex															
F-029	CBOC	Clinical staff	C2	large metro	large	complex															
F-032	VAMC	Leadership	F2	large metro	large	complex		1													
F-041	VAMC	Leadership	F3	large metro	medium	complex															
F-043	VAMC	Leadership	F3	large metro	medium	complex		1	1						1			1	1		
F-044	VAMC	Leadership	F3	large metro	medium	complex						1		1	1					1	
F-050	CBOC	Leadership	C3	large metro	medium	complex						1			1		1				1
F-052	VISN	Leadership	V4									1			1		1		1		
F-054	VISN	Leadership	V4				1		1	1											1
F-060	VAMC	Leadership	F4	small-med metro	medium	complex	1		1												
F-061	VAMC	Leadership	F4	small-med metro	medium	complex	1		1												
F-062	VAMC	Leadership	F4	small-med metro	medium	complex	1		1						1				1	1	1
F-063	VAMC	Leadership	F4	small-med metro	medium	complex	1	1				1									
F-064	VAMC	Leadership	F4	small-med metro	medium	complex	1					1									
F-065	VAMC	Clinical staff	F4	small-med metro	medium	complex															
F-069	CBOC	Clinical staff	C4	small-med metro	medium	complex															
F-070	CBOC	Leadership	C4	small-med metro	medium	complex															

Interview ID	Interview type	Respondent type	Facility ID	Facility urbanicity	Facility size	Facility complexity	B2.1 Prov_shortage	1 Yes_PC	2 Yes_Specialty	3 Yes_Inpatient	4 No_PC	5 No_Specialty	6 No_inpatient	7 No_General	B2.2 Prov_shortage_reason	1 Natl_shortage	2 Salary	3 Geographic	4 Insuff_funds	5Insuff space to add	B2.3 Assessing_capacity
F-073	VISN	Leadership	V1				1	1	1						1			1		1	1
F-074	VISN	Leadership	V1																		
F-076	VAMC	Clinical staff	F4	small-med metro	medium	complex	1				1										
F-081	VAMC	Leadership	F5	small-med metro	large	complex															
F-083	VAMC	Leadership	F5	small-med metro	large	complex															
F-084	VAMC	Leadership	F5	small-med metro	large	complex															
F-094	VISN	Leadership	V3																		
F-100	VAMC	Leadership	F6	rural	small	less complex															
F-102	VAMC	Leadership	F6	rural	small	less complex	1	1	1						1		1		1	1	1
F-104	VAMC	Leadership	F6	rural	small	less complex	1	1	1	1					1	1	1		1	1	1
F-106	VAMC	Clinical staff	F6	rural	small	less complex															
F-113	VISN	Leadership	V6																		
F-115	VAMC	Leadership	F6	rural	small	less complex															
F-122	VISN	Leadership	V5																		
F-141	VISN	Leadership	V2								1										
F-142	VISN	Leadership	V2																		
F-150	VAMC	Clinical staff	F1	small-med metro	small	less complex															
F-153	VAMC	Clinical staff	F1	small-med metro	small	less complex	1	1	1						1	1	1	1	1	1	1
F-154	VAMC	Clinical staff	F1	small-med metro	small	less complex															
F-164	VAMC	Clinical staff	F2	large metro	large	complex	1	1	1		1				1		1	1			1
F-171	VAMC	Clinical staff	F2	large metro	large	complex															
F-182	VAMC	Clinical staff	F3	large metro	medium	complex															
F-184	VAMC	Clinical staff	F3	large metro	medium	complex															

Interview ID	Interview type	Respondent type	Facility ID	Facility urbanicity	Facility size	Facility complexity	B2.1 Prov_shortage	1 Yes_PC	2 Yes_Specialty	3 Yes_Inpatient	4 No_PC	5 No_Specialty	6 No_inpatient	7 No_General	B2.2 Prov_shortage_reason	1 Natl_shortage	2 Salary	3 Geographic	4 Insuff_funds	5Insuff space to add	B2.3 Assessing_capacity
F-195	VAMC	Clinical staff	F4	small-med metro	medium	complex															
F-217	VAMC	Clinical staff	F2	large metro	large	complex															
F-248	CBOC	Clinical staff	C2	large metro	large	complex	1		1		1				1				1		1
F-250	CBOC	Leadership	C2	large metro	large	complex	1		1		1	1		1	1			1			1
F-251	CBOC	Clinical staff	C2	large metro	large	complex	1		1		1				1		1	1		1	1
F-255	CBOC	Clinical staff	C2	large metro	large	complex		1													
F-256	CBOC	Leadership	C2	large metro	large	complex															
F-257	CBOC	Clinical staff	C2	large metro	large	complex	1	1	1			1			1	1		1			1
F-304	VAMC	Clinical staff	F2	large metro	large	complex	1		1		1				1	1		1			1
F-305	VAMC	Clinical staff	F4	small-med metro	medium	complex															
F-306	VAMC	Clinical staff	F4	small-med metro	medium	complex	1		1	1		1			1		1	1			1
F-307	VAMC	Clinical staff	F2	large metro	large	complex	1		1	1	1				1	1		1		1	1

Interview ID	Interview type	Respondent type	Facility ID	Facility urbanicity	Facility size	Facility complexity	B2.3 Assessing_capacity	1 Staff_needs_bench	2 Staff_change_bench	3 PPC_how	4 Process_oth	5 Prod_assess_issues	6_Staffing_assess_issues	B2.4 Prov_staffing	1 Hiring	1 Hire_no	2 Hire_yes	3 Hiring_reas	4 Hire_Yes_decisions_who	5 Hiring_chall	6 Recruit_strat	1 Staff_needs_bench
F-002	VAMC	Leadership	F1	small-med metro	small	less complex																
F-004	VAMC	Leadership	F1	small-med metro	small	less complex																
F-005	VAMC	Leadership	F1	small-med metro	small	less complex																
F-021	VAMC	Leadership	F2	large metro	large	complex																
F-023	VAMC	Leadership	F2	large metro	large	complex								1	1		1			1	1	1
F-024	VAMC	Leadership	F2	large metro	large	complex																
F-029	CBOC	Clinical staff	C2	large metro	large	complex																
F-032	VAMC	Leadership	F2	large metro	large	complex														1		
F-041	VAMC	Leadership	F3	large metro	medium	complex																
F-043	VAMC	Leadership	F3	large metro	medium	complex														1	1	
F-044	VAMC	Leadership	F3	large metro	medium	complex																
F-050	CBOC	Leadership	C3	large metro	medium	complex	1				1									1		
F-052	VISN	Leadership	V4																			
F-054	VISN	Leadership	V4				1						1							1	1	
F-060	VAMC	Leadership	F4	small-med metro	medium	complex																
F-061	VAMC	Leadership	F4	small-med metro	medium	complex											1					1
F-062	VAMC	Leadership	F4	small-med metro	medium	complex	1				1											
F-063	VAMC	Leadership	F4	small-med metro	medium	complex											1			1		1
F-064	VAMC	Leadership	F4	small-med metro	medium	complex											1			1		
F-065	VAMC	Clinical staff	F4	small-med metro	medium	complex																
F-069	CBOC	Clinical staff	C4	small-med metro	medium	complex																
F-070	CBOC	Leadership	C4	small-med metro	medium	complex																
F-073	VISN	Leadership	V1				1	1			1			1	1			1	1	1	1	1

Interview ID	Interview type	Respondent type	Facility ID	Facility urbanicity	Facility size	Facility complexity	B2.3 Assessing_capacity	1 Staff_needs_bench	2 Staff_change_bench	3 PPC_how	4 Process_oth	5 Prod_assess_issues	6_Staffing_assess_issues	B2.4 Prov_staffing	1 Hiring	1 Hire_no	2 Hire_yes	3 Hiring_reas	4 Hire_Yes_decisions_who	5 Hiring_chall	6 Recruit_strat	1 Staff_needs_bench
F-074	VISN	Leadership	V1																			
F-076	VAMC	Clinical staff	F4	small-med metro	medium	complex																
F-081	VAMC	Leadership	F5	small-med metro	large	complex																
F-083	VAMC	Leadership	F5	small-med metro	large	complex																
F-084	VAMC	Leadership	F5	small-med metro	large	complex																
F-094	VISN	Leadership	V3																			
F-100	VAMC	Leadership	F6	rural	small	less complex																
F-102	VAMC	Leadership	F6	rural	small	less complex			1		1				1	1			1	1	1	1
F-104	VAMC	Leadership	F6	rural	small	less complex		1							1	1		1		1		1
F-106	VAMC	Clinical staff	F6	rural	small	less complex	1															
F-113	VISN	Leadership	V6																			
F-115	VAMC	Leadership	F6	rural	small	less complex	1															
F-122	VISN	Leadership	V5																			
F-141	VISN	Leadership	V2																1			
F-142	VISN	Leadership	V2				1															
F-150	VAMC	Clinical staff	F1	small-med metro	small	less complex																
F-153	VAMC	Clinical staff	F1	small-med metro	small	less complex						1	1		1	1		1		1	1	1
F-154	VAMC	Clinical staff	F1	small-med metro	small	less complex																
F-164	VAMC	Clinical staff	F2	large metro	large	complex	1	1		1	1				1	1			1	1	1	1
F-171	VAMC	Clinical staff	F2	large metro	large	complex																
F-182	VAMC	Clinical staff	F3	large metro	medium	complex																
F-184	VAMC	Clinical staff	F3	large metro	medium	complex																
F-195	VAMC	Clinical staff	F4	small-med metro	medium	complex																

Interview ID	Interview type	Respondent type	Facility ID	Facility urbanicity	Facility size	Facility complexity	B2.3 Assessing_capacity	1 Staff_needs_bench	2 Staff_change_bench	3 PPC_how	4 Process_oth	5 Prod_assess_issues	6_Staffing_assess_issues	B2.4 Prov_staffing	1 Hiring	1 Hire_no	2 Hire_yes	3 Hiring_reas	4 Hire_Yes_decisions_who	5 Hiring_chall	6 Recruit_strat	1 Staff_needs_bench
F-217	VAMC	Clinical staff	F2	large metro	large	complex																
F-248	CBOC	Clinical staff	C2	large metro	large	complex	1	1	1		1	1	1	1	1		1	1		1	1	
F-250	CBOC	Leadership	C2	large metro	large	complex	1		1	1	1	1		1	1		1	1	1	1		1
F-251	CBOC	Clinical staff	C2	large metro	large	complex	1	1			1	1	1	1	1					1	1	1
F-255	CBOC	Clinical staff	C2	large metro	large	complex						1					1			1		
F-256	CBOC	Leadership	C2	large metro	large	complex																
F-257	CBOC	Clinical staff	C2	large metro	large	complex	1	1	1	1			1	1	1		1			1		1
F-304	VAMC	Clinical staff	F2	large metro	large	complex	1	1				1		1	1		1			1	1	1
F-305	VAMC	Clinical staff	F4	small-med metro	medium	complex																
F-306	VAMC	Clinical staff	F4	small-med metro	medium	complex	1	1				1		1	1		1			1	1	1
F-307	VAMC	Clinical staff	F2	large metro	large	complex	1	1			1			1	1		1			1	1	1

Interview ID	Interview type	Respondent type	Facility ID	Facility urbanicity	Facility size	Facility complexity	Retent_prob_No	Retent_prob_yes	Retent_strat	4 Retent_chall	Using outside providers/services	Contract	Contract_No	Contract_how	Contract_reas	Fee basis providers	Fee_Yes	Fee_No	Fee_reas	Comm_care_reas
F-002	VAMC	Leadership	F1	small-med metro	small	less complex														
F-004	VAMC	Leadership	F1	small-med metro	small	less complex														
F-005	VAMC	Leadership	F1	small-med metro	small	less complex														
F-021	VAMC	Leadership	F2	large metro	large	complex														
F-023	VAMC	Leadership	F2	large metro	large	complex		1												
F-024	VAMC	Leadership	F2	large metro	large	complex														
F-029	CBOC	Clinical staff	C2	large metro	large	complex														
F-032	VAMC	Leadership	F2	large metro	large	complex														
F-041	VAMC	Leadership	F3	large metro	medium	complex														
F-043	VAMC	Leadership	F3	large metro	medium	complex														
F-044	VAMC	Leadership	F3	large metro	medium	complex														
F-050	CBOC	Leadership	C3	large metro	medium	complex														
F-052	VISN	Leadership	V4																	
F-054	VISN	Leadership	V4																	
F-060	VAMC	Leadership	F4	small-med metro	medium	complex														
F-061	VAMC	Leadership	F4	small-med metro	medium	complex			1	1										
F-062	VAMC	Leadership	F4	small-med metro	medium	complex														
F-063	VAMC	Leadership	F4	small-med metro	medium	complex	1			1										
F-064	VAMC	Leadership	F4	small-med metro	medium	complex														
F-065	VAMC	Clinical staff	F4	small-med metro	medium	complex														
F-069	CBOC	Clinical staff	C4	small-med metro	medium	complex														
F-070	CBOC	Leadership	C4	small-med metro	medium	complex														
F-073	VISN	Leadership	V1						1	1	1		1							

Interview ID	Interview type	Respondent type	Facility ID	Facility urbanicity	Facility size	Facility complexity	Retent_prob_No	Retent_prob_yes	Retent_strat	4 Retent_chall	Using outside providers/services	Contract	Contract_No	Contract_how	Contract_reas	Fee basis providers	Fee_Yes	Fee_No	Fee_reas	Comm_care_reas
F-074	VISN	Leadership	V1																	
F-076	VAMC	Clinical staff	F4	small-med metro	medium	complex														
F-081	VAMC	Leadership	F5	small-med metro	large	complex														
F-083	VAMC	Leadership	F5	small-med metro	large	complex														
F-084	VAMC	Leadership	F5	small-med metro	large	complex														
F-094	VISN	Leadership	V3																	
F-100	VAMC	Leadership	F6	rural	small	less complex														
F-102	VAMC	Leadership	F6	rural	small	less complex	1	1	1	1	1	1	1	1	1	1	1		1	1
F-104	VAMC	Leadership	F6	rural	small	less complex				1	1	1		1	1	1	1		1	1
F-106	VAMC	Clinical staff	F6	rural	small	less complex														
F-113	VISN	Leadership	V6																	
F-115	VAMC	Leadership	F6	rural	small	less complex														
F-122	VISN	Leadership	V5																	
F-141	VISN	Leadership	V2																	
F-142	VISN	Leadership	V2																	
F-150	VAMC	Clinical staff	F1	small-med metro	small	less complex														
F-153	VAMC	Clinical staff	F1	small-med metro	small	less complex	1	1	1	1							1	1		
F-154	VAMC	Clinical staff	F1	small-med metro	small	less complex														
F-164	VAMC	Clinical staff	F2	large metro	large	complex		1		1	1			1	1	1	1		1	1
F-171	VAMC	Clinical staff	F2	large metro	large	complex														
F-182	VAMC	Clinical staff	F3	large metro	medium	complex														
F-184	VAMC	Clinical staff	F3	large metro	medium	complex														
F-195	VAMC	Clinical staff	F4	small-med metro	medium	complex														

Interview ID	Interview type	Respondent type	Facility ID	Facility urbanicity	Facility size	Facility complexity	Retent_prob_No	Retent_prob_yes	Retent_strat	4 Retent_chall	Using outside providers/services	Contract	Contract_No	Contract_how	Contract_reas	Fee basis providers	Fee_Yes	Fee_No	Fee_reas	Comm_care_reas
F-217	VAMC	Clinical staff	F2	large metro	large	complex														
F-248	CBOC	Clinical staff	C2	large metro	large	complex					1	1		1	1	1	1		1	
F-250	CBOC	Leadership	C2	large metro	large	complex		1	1	1	1	1		1	1	1	1			1
F-251	CBOC	Clinical staff	C2	large metro	large	complex		1		1	1	1			1	1	1		1	1
F-255	CBOC	Clinical staff	C2	large metro	large	complex														
F-256	CBOC	Leadership	C2	large metro	large	complex														
F-257	CBOC	Clinical staff	C2	large metro	large	complex		1		1	1	1	1			1	1		1	
F-304	VAMC	Clinical staff	F2	large metro	large	complex		1	1	1	1	1		1	1	1	1		1	
F-305	VAMC	Clinical staff	F4	small-med metro	medium	complex														
F-306	VAMC	Clinical staff	F4	small-med metro	medium	complex		1		1	1					1	1		1	1
F-307	VAMC	Clinical staff	F2	large metro	large	complex	1		1		1	1		1	1	1	1			1

Interview ID	Interview type	Respondent type	Facility ID	Facility urbanicity	Facility size	Facility complexity	B2.5 Prov_Productivity	Prod_Issues_No	Prod_reasons	Infrastructure_issues	Shortage_Clerical	Shortage_tech_clin_support_staff	Cultural_issues	IT_Challenges	Choice_Card_issues	Providers_clerical	Other_issues	Prod_Impr	B2.6 Capacity_Const_Oth	Large_pt_pop
F-002	VAMC	Leadership	F1	small-med metro	small	less complex														
F-004	VAMC	Leadership	F1	small-med metro	small	less complex														
F-005	VAMC	Leadership	F1	small-med metro	small	less complex														
F-021	VAMC	Leadership	F2	large metro	large	complex														
F-023	VAMC	Leadership	F2	large metro	large	complex	1		1		1									
F-024	VAMC	Leadership	F2	large metro	large	complex														
F-029	CBOC	Clinical staff	C2	large metro	large	complex														
F-032	VAMC	Leadership	F2	large metro	large	complex	1									1	1			
F-041	VAMC	Leadership	F3	large metro	medium	complex														
F-043	VAMC	Leadership	F3	large metro	medium	complex					1	1								
F-044	VAMC	Leadership	F3	large metro	medium	complex						1					1	1		
F-050	CBOC	Leadership	C3	large metro	medium	complex											1			
F-052	VISN	Leadership	V4									1								
F-054	VISN	Leadership	V4														1			
F-060	VAMC	Leadership	F4	small-med metro	medium	complex											1			
F-061	VAMC	Leadership	F4	small-med metro	medium	complex			1	1	1	1						1		
F-062	VAMC	Leadership	F4	small-med metro	medium	complex											1			
F-063	VAMC	Leadership	F4	small-med metro	medium	complex											1			
F-064	VAMC	Leadership	F4	small-med metro	medium	complex	1		1			1				1		1		
F-065	VAMC	Clinical staff	F4	small-med metro	medium	complex														
F-069	CBOC	Clinical staff	C4	small-med metro	medium	complex														
F-070	CBOC	Leadership	C4	small-med metro	medium	complex														

Interview ID	Interview type	Respondent type	Facility ID	Facility urbanicity	Facility size	Facility complexity	B2.5 Prov_Productivity	Prod_Issues_No	Prod_reasons	Infrastructure_issues	Shortage_Clerical	Shortage_tech_clin_support_staff	Cultural_issues	IT_Challenges	Choice_Card_issues	Providers_clerical	Other_issues	Prod_Impr	B2.6 Capacity_Const_Oth	Large_pt_pop
F-073	VISN	Leadership	V1				1	1	1					1				1	1	
F-074	VISN	Leadership	V1	small-med metro	medium	complex	1	1	1								1	1		
F-076	VAMC	Clinical staff	F4	small-med metro	large	complex														
F-081	VAMC	Leadership	F5	small-med metro	large	complex														
F-083	VAMC	Leadership	F5	small-med metro	large	complex														
F-084	VAMC	Leadership	F5																	
F-094	VISN	Leadership	V3	rural	small	less complex														
F-100	VAMC	Leadership	F6	rural	small	less complex	1	1	1	1	1	1	1	1		1	1	1	1	1
F-102	VAMC	Leadership	F6	rural	small	less complex	1		1		1	1		1		1	1			
F-104	VAMC	Leadership	F6	rural	small	less complex														
F-106	VAMC	Clinical staff	F6																	
F-113	VISN	Leadership	V6	rural	small	less complex														
F-115	VAMC	Leadership	F6																	
F-122	VISN	Leadership	V5														1	1		
F-141	VISN	Leadership	V2																	
F-142	VISN	Leadership	V2	small-med metro	small	less complex														
F-150	VAMC	Clinical staff	F1	small-med metro	small	less complex	1		1					1				1	1	1
F-153	VAMC	Clinical staff	F1	small-med metro	small	less complex														
F-154	VAMC	Clinical staff	F1	large metro	large	complex	1	1	1	1								1	1	
F-164	VAMC	Clinical staff	F2	large metro	large	complex														
F-171	VAMC	Clinical staff	F2	large metro	medium	complex														

Interview ID	Interview type	Respondent type	Facility ID	Facility urbanicity	Facility size	Facility complexity	B2.5 Prov_Productivity	Prod_Issues_No	Prod_reasons	Infrastructure_issues	Shortage_Clerical	Shortage_tech_clin_support_staff	Cultural_issues	IT_Challenges	Choice_Card_issues	Providers_clerical	Other_issues	Prod_Impr	B2.6 Capacity_Const_Oth	Large_pt_pop
F-182	VAMC	Clinical staff	F3	large metro	medium	complex														
F-184	VAMC	Clinical staff	F3	large metro	medium	complex														
F-195	VAMC	Clinical staff	F4	small-med metro	medium	complex														
F-217	VAMC	Clinical staff	F2	large metro	large	complex														
F-248	CBOC	Clinical staff	C2	large metro	large	complex	1	1	1	1	1	1					1	1	1	1
F-250	CBOC	Leadership	C2	large metro	large	complex	1	1	1		1	1	1	1	1	1	1	1	1	1
F-251	CBOC	Clinical staff	C2	large metro	large	complex	1		1			1					1	1	1	1
F-255	CBOC	Clinical staff	C2	large metro	large	complex				1		1								
F-256	CBOC	Leadership	C2	large metro	large	complex														
F-257	CBOC	Clinical staff	C2	large metro	large	complex	1		1	1	1	1	1	1	1	1	1	1	1	1
F-304	VAMC	Clinical staff	F2	large metro	large	complex	1		1								1	1		
F-305	VAMC	Clinical staff	F4	small-med metro	medium	complex														
F-306	VAMC	Clinical staff	F4	small-med metro	medium	complex	1		1			1	1	1		1	1		1	1
F-307	VAMC	Clinical staff	F2	large metro	large	complex	1		1		1		1					1	1	

Source: Authors' analysis of interview data collected and coded for this project.

Appendix E.1.3 Physical Infrastructure Resources

In 27 qualitative interviews with VAMC leadership (Associate Directors and Associate Directors for Patient Care Services), VISN leadership (Chief Medical Officers), and VAMC and CBOC clinical staff (providers), interview respondents were asked about the physical infrastructure at their sites, which we defined as non-personnel resources that enabled patient care, such as medical equipment and supplies, diagnostic capabilities, exam rooms, and inpatient facilities. Most interview findings addressed the topics in the interview protocol, including medical equipment and supplies and space (e.g., adequacy of, lack of). Questions focused on challenges posed by infrastructure and strategies used by sites to address any infrastructure challenges, when they occurred. In addition, three interviews with VA experts touched on physical infrastructure topics so that information is also included in this summary. Table E-3 at the end of this section provides the code counts by facility-level interview for each physical infrastructure domain code.

Space

On the topic of adequacy of the physical plant, most respondents reported that lack of space was a challenge to optimal functioning. In addition to general comments about lack of space, respondents noted challenges particular to ED, inpatient, and outpatient care; challenges related to parking; costs and challenges of maintaining old and outdated infrastructure; and the relationship of space to staffing.

General Lack of Space

Respondents made general comments on the state of infrastructure at their facilities. Most respondents described lack of space as an annoyance or inconvenience more than an issue that affected patient access; they would enjoy more space or could imagine better configurations, but most did not consider infrastructure to be their site's most pressing problem. However, several respondents affirmed that they would be able to see more patients if they had more space.

> Yes, there are problems because of our lack of space. For instance [in one region], we've got a [huge] void, or gap, just in our physical infrastructure. We are in an old strip mall that has been cobbled together into this very non-efficient facility to enable us to get our patients seen. So that in itself provides hindrances to patient care. [F-081]

> The [challenges] I was talking about related to the space, we still get people in, in a timely manner. It would make things a lot easier for us if we had more exam rooms -- we could see more patients at the same time -- but [it's] nothing that's going to cause a harm in delaying their care. As I mentioned, if it's access issues, it's usually not related to the infrastructure. [F-061]

> Well, there has been a problem for space for the VA from the beginning. … Multiple services are working to provide [care]. Like cardiology was not at [our] VA before, but then in the last five or six years they have just come in because they want to provide [cardiology services here]. So we work very closely with other services, but it's a limitation. I have to go run around, "Could you please? Can I use this room? Can I do this?" So there has to be all this running around… Of course we need more space, better equipment, and more doctors so we can spread out more…. We will never compromise taking care of the patient, period. But again, it's stressful for us. [F-171]

The stress placed on facilities due to limited space was also described by a respondent who felt that his facility was already operating near capacity, and another who spoke to how demand for VA services within his geographic areas was growing faster than VA could obtain space.

> I think our access numbers are good. It's because we're managing it, alright? But to say can we really expand with one or two more staff folks maybe to provide different services at a higher degree, the answer is no, we're limited by space. We're shackled by limits of space. But for all the probably 80% to 90% of all the services that VA Central Office wants us to provide, we can certainly do that. But if they send another mandate out we're sunk. [F-154]

> We are having such a difficult time getting the space to improve that access. There are some opportunities that we can fine tune and tweak but in certain areas, especially here in our [region] …there are only so many things we can tweak and still not have enough room and access to do what we need to do, just because of the sheer increase in volume that we've had with folks relocating to our area. It really wasn't all just backlog. It's just new demand and not being able to increase the resources and the other things that go along with that. [F-094]

Some respondents described the physical infrastructure of their facilities as being good or excellent. Comments about to adequate or ample space were commonly made in tandem with discussing recent construction or renovation projects.

> Yeah, from what I see, we have everything [we need with regard to infrastructure]. We have the high-level technology and we had—oh, it's probably already ten years or even more, time flies—we had a new hospital built. The old space takes an incredibly long time to be renovated, so certainly there is still competition for space and for rooms, but that is, I would say, minor. Otherwise, from my standpoint, it's very good. [F-184]

> The clinic here is great. It's fairly new. It's fairly large, so we don't really have structural problems here, but the [other clinic I work at] is too small and they actually have been on 4/10 schedules there because they don't have enough rooms for the providers. Access is also a huge problem in [the other region]. They are understaffed. They need a bigger facility or another facility in order to improve access and to keep growing like they are growing. [F-029]

> Well, I think we could take on additional workers in our [newly opened specialty care facility] and not have to expand the physical space. We've got the physical availability which is what we're looking at now, is we're hiring more staff so that we can take on more patients. [F-062]

Space Issues in the Emergency Department, Inpatient, and Outpatient Settings

Providers were generally satisfied with ED facilities. Similar to statements about the challenges of old or outdated infrastructure, one respondent described how standards and expectations have changed for how an ED is organized, which has led to the need for additional space and modifications to existing facilities. Another respondent highlighted the relationship between ED capacity and capacity of and flow to the inpatient unit.

> I would say that in the Emergency Department where some would say that we may be delivering some primary care, emergency department care has changed, so, again,

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where you would go into an ER [years ago] where there were basically curtains in between every bed. You'd have 16 beds and there'd be curtains in between, so that if you're lying in an ER bed, the guy next to you is just simply separated by the curtain while they're doing whatever it is they're doing, unless of course they're dealing with a trauma or something and ERs have a room for that. The new standard is, ERs should each have, again, an individual room with a door, I mean, with a big open door, but the idea is, you're separated by hard walls, again, to provide patient privacy, patient satisfaction and to minimize the risk of cross-contamination, so things change, and that makes a difference with respect to what you can provide, so what I've seen over the past few years is a lot of VA facilities are remodeling from the inside out, so you're square that not many facilities are going to get a brand-new, knock it down and build a new building, so the way that VHA and facilities have handled it is, they put in a request for a project and they remodel their ER or they remodel their general medicine ward to have individual rooms, private rooms with private baths for their patients, and that's sort of the process that we've gone through over time in order to address these changes in what we know now versus what we knew then. [F-021]

The ER is totally inadequate in terms of the number of patients that it takes in. I mean, they often have patients backing up in the ER, boarding in the ER, because they can't turn over at the beds upstairs. Some of that has to do with nursing shortages and not having enough nurses upstairs. But some of it just has to do with the physical bed situation, so everything backs up. This place should have an ER that's twice the size than it is now... That causes a very big obstruction. [F-164]

Respondents reported varying levels of satisfaction and difficulties relating to inpatient infrastructure, including operating rooms, general inpatient bed, and specialty care programs. There was also some concern specifically that there would be increased need for inpatient care due to the aging of the population and the high needs for substance use treatment among Veterans. On this topic, one respondent discussed the need for inpatient treatment programs for addiction and acute mental health issues.

We don't probably have enough OR space to adequately accommodate all of the surgeries we need to do. We are looking at shifting some ambulatory surgeries, all of our eye surgeries down to XXXX or wherever they can do an ambulatory surgery. [F-081]

Surgery, we're impacted by the number of OR rooms that are available and have to schedule around there, which sometimes can be challenging when you've got five specialties that all want to operate on the same day and we don't have rooms available. Sometimes it's kind of an artifact of our own system where we start digging down and realize that their clinics were set up incorrectly so they're not schedule appropriately. [F-061]

Another concern is that I've seen some data from some planning committees about what will happen in the future and as far as the number of patients in this area and also nationally, and it seems like there's a sense there's going to need to be an expansion of some type but more specifically for the issue it relates to geriatric patients. I foresee that there's going to be a very much increased need for inpatient geriatric type services like combo geri-psych units, nursing home level assisted living…I'm not sure. But we're getting a lot of patients that are somewhere, for example, in between needing medical

and nursing home care, or in between needing inpatient psychiatric and nursing home. [F-195]

> A lot of what was needed [in inpatient care] was not necessarily 24-hour nursing service, but a safe place for people to go and to be treated for co-morbidities at the same time, in other words, alcohol substance abuse and particularly among the younger vets, if they're addicted, they're poly-addicted. So it's not just alcohol and it's not just drugs. And a lot of what's driving it is PTSD. And so there finally is a pretty good residential program up at [one of our facilities], and then they started at first six beds and now it's 18 beds of inpatient intensive therapy that is 21 days long. [V-16]

On the other hand, respondents at several facilities were relatively happy with the state of their inpatient infrastructure.

> There are enough facilities in the general area that we can access an inpatient level of care as we need it and when they're discharged, we so far haven't had any problems getting them in in the time—certainly not in the VA mandated time frame—and what we want to do is usually shorter than that. So no, we haven't had a problem with [inpatient capacity]. [F-106]

The comments about limits of primary care and outpatient specialty care space centered around the need for more exam rooms.

> There are some isolated instances [of infrastructure being a problem], like, I have an office and across the walkway is my LVN… It really works well when we're in close proximity so that if she sees a patient and my door is open, she'll walk the patient right into my office and when I'm done with my patient and her door is open, I can walk the patient right across the way. So I think if there was some more space maybe we could have a better design and have all the providers close to their LVNs. [F-248]

> The first that occurs to me is we're space challenged, as I'm sure probably some other facilities you've spoken with. So in PACT, for example, ideally we'd like to have three exam rooms per provider. We're just now to the point where I think we've gotten pretty much two across the board. So that impacts their productivity to some degree. [F-061]

Parking

Respondents discussed challenges with parking at facilities.

> Parking problems are big. I know you don't think about that when you think about medical care but it's a huge. [A nearby VA] medical clinic finally got a parking garage… Three years ago—of course I didn't jump the curb with my car—but there were some people [who would] literally create their own parking spot to make [it to their] appointment that they otherwise would have to wait three more months to reschedule [if they missed]. [V-09]

> Just being where we are, traffic is always an issue… just getting here is a problem for many people… We're at one of the busiest intersections in the world… Our parking is insufficient. …Once you do fight [through] the traffic, there's delays in actually physically parking. [F-257]

They don't even have parking for the vets. … They decided it was bad form to build a garage because it gave the wrong impression to build a parking structure where we really needed clinic space and other stuff. So they didn't build a parking structure. So you come there and there are handicapped people, have to schlep … to get to the clinic or to get to any place. It's a totally absurd situation. [F-164]

It still seems there are times when parking is a huge issue for patients. We've also had some new construction. That's made it a little more difficult to get into my clinic. [F-153]

Relationship between Space and Staffing

In relation to questions on infrastructure and site capacity, respondents described how lack of available space slowed or prevented hiring because facilities did not have rooms available for providers to see patients.

There's a definite relationship [between hiring new providers and building new space]. We need to hire our providers and I can tell you right now in mental health … I have a meeting later today actually on this very issue. They're holding off on hiring a couple of RN positions and a provider – I can't remember if it's a psychologist or a psychiatrist position, but one of those -- because they don't have the space and I'm saying, "No, you need to move forward with the recruiting and we'll figure this out." They're really nervous about it and we don't have the space for them, but I have someone working on it and so it is an issue and they're not comfortable… so, yeah. We do have that [problem] and it's a good example of what I'm dealing with today. Those positions have not been opened because of space but I'm trying to push them forward. [F-002]

We are a million square feet short of space in just one of our facilities. We can't recruit and hire without having that space. And the lease thing is absolutely lethal. We couldn't expand our leases sufficiently to accommodate some of the demand, so you recruit people and have no place to put them. That really impacted the hiring process. [F-141]

It's been very difficult to convince leadership that we need [some specialist] positions [like psychiatry] because of budgetary constraints and certainly space. Space is our nemesis, and I'll refer to space problems the whole telephone call if you let me. [F-154]

There're all of these doorstops everywhere we turn. We need more space. We need more providers. But if we hire the providers and we have nowhere to put them then it's a waste of resources… And it's all of the things that happen in the background. I mean, just getting a physician and a nurse and a clerk to work on a weekend would be okay. I mean, we could probably get over that hurdle. But if you're talking about a specialty clinic that has reusable medical equipment that needs SCS to turn that around quickly then we have to talk about SCS. We have lab. We have radiology. We have all of these other ancillary services that support those clinics as well and so the ripple effect isn't just opening a clinic for a few extra hours, you're talking about expanding services across the board. And then when you talk about expanding providers, and talking about extra space, then you're also talking about hiring additional environmental management staff, you're talking about extra burden on pharmacy, lab, pathology, radiology. All of those other services also have an impact. And when we do things like our VACAA funding and so forth it's basically just considered the primary care staff, or specialty care staff. It didn't talk about the extra workload that would be generated for lab, radiology, environmental management with a new space, SCS with demand in surgeons, dental. I

mean, all of these areas have an impact outside of their small area that they work. That's why we have these huge systems. [F-094]

Other respondents described how a lack of adequate staffing caused the site's infrastructure to be underutilized.

I don't think the number of beds is as much of an issue [in creating bottlenecks or delays in patient care] as efficiencies in our—the flow, that deal with the flow and the effective use of staff. So I think that has an issue. [F-024]

They often have patients backing up in the ER, boarding in the ER, because they can't turn over at the beds upstairs. Some of that has to do with nursing shortages and not having enough nurses upstairs. But some of it just has to do with the physical bed situation, so everything backs up. [F-164]

We have struggled to find social workers to support our primary care teams and we have been doing major recruiting efforts to try to do that, so the providers can let the social workers help take care of some of the social needs and placement needs and we have not had social work, so now we're suddenly getting social workers on board without space. We need space for social workers, pharmacists and mental health. That's where our biggest struggle has been so our expansions are primarily space expanding. [F-032]

I would say [our facility's problem with inpatient capacity is] 90 percent physical, 10 percent staffing. We do have a problem, as you heard me talking about, having the trained and experienced nursing staff, and getting staff onboard to make sure that we have that percentage of staffing. But the other is that we just physically don't have the beds. And ideally we'd like to be like regular industry and have single occupancy rooms. But we don't; we have double occupancies. Luckily we've reduced all of our quadruple occupancy rooms. But we run right now at about… I think when we actually count the patients we turn about 50 patients a day. That means how many coming in and going out. And we run about 90… I think I saw it was 97 to 98 percent occupancy. So right now I think this morning we had somewhere between 50, I've heard it up to 60 patients a day, that are out in the community in beds because we can't get them in here to the [VAMC]. We have to monitor very closely our surgeries and our catheterizations to make sure that we have a bed for these patients as soon as they're done with their procedure. [F-081]

I think we're appropriately resourced to see patients in clinic and inpatients who have cardiac disease in the hospital. So for the most part, like I said, I think the clinical resources are, for the most part, adequate. I think there might be some isolated areas where we need more. But again, it's this hospital-wide management disconnect, where you would say, of course we need to have nurses on reserve call, so that if someone calls in sick we don't have to close a bed and spend tens of thousands of dollars sending a patient to a private hospital because we didn't have someone to serve as the nurse. It's like the airline industry. They always have crews. They don't cancel flights because someone has the flu. They have a crew on standby. And they're not doing it out of altruism. They're doing it because it's good business. And this kind of thing doesn't happen here. If a couple of nurses call in sick, the beds get closed, patients have to get sent to an outside hospital, taxpayers have to pay a huge amount for that….I have been told, has a budget for fee basis medical care currently that exceeds 100 million dollars a

year. And some of that is needed because we could be responsible for a patient who has a service connected disability and has an emergency hospitalization 100 miles away. We're obligated to pay for the care at another facility. But much of it is because of poor use of the capacity that we have. So getting patients in and out of the hospital is too slow of a process. There is frequently closure of beds because of quote-unquote, "nursing staffing issues." And as a consequence if a bed is closed and, not because of physical availability the bed isn't there, but because there isn't a nurse to staff it, a patient might come into the emergency room, need hospitalization and has to get sent to another facility at VA expense: Huge, huge waste of money and also disruption in the continuity of care between different health care systems, where it's very likely that things will fall between the cracks…very poor use. [F-150]

Old/outdated infrastructure

Several respondents described ways in which old or outdated infrastructure hindered the optimal functioning of their medical centers. Some comments came from a large, older VAMC that felt burdened by maintaining their physical plant, which was no longer suited to their current needs. In general, respondents generally affirmed the idea that equipment was adequate, but that the physical space at many VA facilities is not sized or configured in most contemporary medical settings. This was attributed to the continually changing standards and requirements for health care. One respondent made the analogy:

All the hospitals in the VHA are competing for a finite number of dollars.… I think they try very hard to ensure that the most critical needs are met first, but it's kind of like painting the Golden Gate Bridge: by the time you get to the one end, you've got to turn around and start all over again at the other end because infrastructure-wise, new technology changes the way that a footprint needs to be done. [F-021]

Another respondent echoed the need for continual renovation to keep up with standards.

I would say in general the space is inadequate, the facilities are old, but because material or the equipment, we can turn over and it has a lifetime, our equipment is fairly new, up to date, state of the art… There's been such a big change in the size of operating rooms and the toys that are in the operating rooms and the need for computers and cabling and electricity, even back to the late '80s, early '90s. If you haven't redesigned your operating rooms since the mid-'90s or the late '90s, your operating rooms are too small and they don't have the infrastructure to support towers and video and all those other types of things because they haven't kept up with medicine. [F-073]

Finally, a related anecdote from a VA leader illustrates the challenges of down-sizing or "right-sizing" VA facilities, a theme we heard from multiple respondents who struggled to maintain facilities that were no longer suited to the local demand.

Their average daily census in [the hospital that we closed] was running between two or three. So there were far more staff than there were patients. And it made absolutely no sense. It had not been closed largely because the veteran community was so against it. But there was a local critical access hospital which was also struggling …We made a decision we were going to close the VA, keep it as a clinic but transfer all the inpatient care to the critical access hospital, which was a mile down the road and it basically was a

win/win for everybody. Veterans were still able to be hospitalized in their local community, it helped the critical access hospital with having a higher volume. [V-10]

The problem that we have with major construction nationally, because there's not a big enough budget to take care of all the needs of all VA Medical Centers nationwide that are an aging infrastructure. We were fortunate to have one of those [major construction projects], but we don't believe it's possible that they can replace all of the buildings fast enough to take all the needed construction. There's going to need to be a major infusion of national funding into the VA construction process to support all the needs to repair and to replace our infrastructure. [F-032]

<u>Strategies to Address Space Challenges</u>

Respondents described different challenges to address space challenges that helped provide more space for patient care, programs, and staff, and are often used in combination to expand sites' capabilities.

Evaluating and monitoring space needs. When asked about strategies used to address space challenges, respondents described institutional planning and decisionmaking processes that were in place to monitor usage and respond to bottlenecks when they arose. Sites also referred to the importance of leadership being aware of facility constraints and proactive in addressing them, whether related to space, staffing, or other infrastructure.

So we look at their current [volume], their [projected] growth. We look at their CBOCs, if they plan an expansion of course we take that into consideration. We also look at by location how many uniques do you have in your CBOC? If you are dropping your CBOC, what are you doing with that space… So we not only look at the data over the past two years from 2012 to 2014 and deal with specific facilities, but we also project which ones are going to drop. So when anything comes in like people asking for a lease or build out, we take [that] into account … So we build that into our decision making process to make recommendations of yea or nay. [F-141]

[If patient volume increased rapidly, under the current director, this particular VAMC] would be morphing and getting providers as needed. Because they've got space, I mean they've got space that they could alter or incorporate, because it used to be an inpatient facility. So they watch their flow very closely, like daily, Monday through Friday, so I think they would just expand as needed. I don't think they'd have a problem facility-wise. [F-102]

I have a small group that looks at our physical space and we're doing our very best to utilize every inch that we have and we still don't have enough space to provide everything that we need to provide and to house everyone we need to house, so we're looking at leasing space. [F-002]

When there is a shortage, it's something that you just feel like, "Okay, we have the right amount of space. We need to hire somebody." Maybe we need to figure out where we're going to put this person but you get a feeling like it was planned out well enough for the current state, and when there's changes it'll have to be worked through in some way, but it's reasonable, yeah. Any facility

would have that issue. You don't want to have just caverns of offices that are unused just in case you hire more people later on. Typically it's not an issue. [F-195]

A: I think our access numbers are good. It's because we're managing it, alright? But to say can we really expand with one or two more staff folks maybe to provide different services at a higher degree, the answer is no, we're limited by space. We're shackled by limits of space. But for all the probably 80% to 90% of all the services that VA Central Office wants us to provide, we can certainly do that. But if they send another mandate out we're sunk.

Q: So if you have to provide something much more specialized, for example, and you don't currently have a person in-house that does that, you just can't hire someone else because there's nowhere to put them.

A: Bingo. And we've been struggling with that for probably four or five years. [F-154]

Reconfiguring to maximize use of existing space. Many sites described efforts to make the best use of their existing resources. At the facility level, they implemented space use arrangements that served as stopgap measures, to expand capacity in the short-term while awaiting new leases or new construction. In an effort to ensure adequate rooms for patient care and staff, sites discussed dividing office space, shifting people around, and being creative about how they used spaces, like having providers use a conference room for office space when there are no offices available. Because of the delays in establishing leases or securing a construction commitment from VA, respondents also described a spirit of self-sufficiency within their facility; they emphasized their commitment to patient care, and how they would make do or find a way, although ultimately, most respondents wished that their facility could have more space. Respondents talked about unconventional ideas that their sites had considered for how to maximize patient care capacity within their limited space. They discussed increasing clinic hours in order to run more clinics over the course of the day, only running clinics on certain days to enable space to be efficiently shared between services, and incentivizing telehealth providers and other staff who could to work from home.

> We're doing our very best to utilize every inch that we have and we still don't have enough space to provide everything that we need to provide and to house everyone we need to house…we're dividing offices that we can into two if they're larger…
> [F-002]

> We don't have enough space for everybody; so we're constantly moving people around.
> [F-248]

> There's a constant refrain that there's a shortage of rooms in the clinic to see patients. Well, if you only use your clinic rooms seven hours a day, yes, there could be a shortage. But there's an inability or unwillingness to consider what I would say is obvious solution to that; which is, instead of running two clinics a day in a given room, making use of it. Perhaps seven hours out of the day, run three clinics and make use of it 11 hours out of the day. And that would also expand access to patients who work early in the morning or into the evening. [F-150]

> Some of the things we're doing for space issues is we're looking at we have after hours clinics, weekend clinics and so forth, so opening up more capacity. Looking at kind of

what I call "hot bunking" exam rooms, where we don't have enough exam rooms for services to have their own so we bring in clinics on certain days. [F-081]

Using the various existing mechanisms to connect Veterans with non-VA care. Another common strategy that sites used to deal with lack of space for patient care was to send patients to other VA and non-VA facilities. To many respondents, lack of space was something to be addressed in the short-term by "feeing out" patients to community facilities. Respondents noted that this practice is expensive, but did not seem hopeful that facility expansion was realistic in the near term. A few respondents suggested that the cost of non-VA care was a barrier to this strategy, or at least that facilities lament that fact that it is so costly, despite their obligation to provide and pay for care when indicated. Another non-monetary cost to using fee or contract care as a strategy to address lack of infrastructure is the challenge of coordinating care for patients who receive care outside VA.

Certainly the ED gets congested, especially now with flu season. And we've been on diversion from time to time. But we send them to another hospital. [F-061]

When we go out and conduct our site visits at hospitals, what we're seeing and hearing is that yes, they have resource or staffing issues, but in those situations, if they don't have the resource or staffing available to meet the immediate needs of veterans at the local facility, they have no choice but to refer them outside the VA to get timely care. But they're reluctant to do that because of the cost. But cost should not be a barrier. [V-05]

I think every CBOC in the country does exactly what we [with regard to when to use non-VA care]. They look for the most critical patients. Most patients can come to the VA Medical Center [to receive diagnostic or specialty services]… We provide a bus transportation system to bring them in from those sites and to get their CT scans and their MRIs. They don't have to pay for [transportation]… however, you don't want a frail, 96-year-old man or woman in our most furthest outlying area coming in on a bus to go all the way to the Medical Center, so those types, we look individually and we get [the care] out into the community whenever there's a critical need to get them in, so somebody who is compromised in their immune system, somebody who has gone through chemotherapy, somebody who can't tolerate the trip down, we approve those on a case-by-case basis, fee for service clinical service, so we prevent those most frail patients from having to come all the way in, but the majority of our patients, we try to bring into the VA Medical Center rather than having them go out in a very costly [way in the] community when they're healthy enough to come in with the VA transportation system we provide. [F-032]

I think this morning we had somewhere between 50, I've heard it up to 60 patients a day, that are out in the community in beds because we can't get them in here… we don't have, in reality, an adequate number of beds in order to take care. We're "feeing out" a lot of the inpatients because our facilities are full…. But when we send people out for surgery for a procedure, [we need to make] sure that we're aware of when they're going to schedule their procedure, when all that is going to happen, so that we can make sure that the DME [durable medical equipment] and the care plans, so the DME and all the other things that are available for them, immediately postoperatively. … There have been instances where patients have gone out and had the surgery and they never let us know when that surgery was going to happen. They went ahead with the

surgery and none of the after care, or none of the equipment that they needed, was available for them. And that doesn't happen overnight. [F-081]

Leasing commercial space to increase capacity. Many respondents mentioned leasing additional space as a solution to space challenges, but few discussed leases without describing what they felt were burdensome and time-consuming administrative processes that needed to be navigated before a lease could begin.

> We're working on a proposal for a comprehensive pain clinic and we'd ideally like to find dedicated space to house enough people in there to make it a one-stop shopping, and just logically right now we haven't been able to identify that space. So we're hoping to have that pretty resolved shortly. But we've done things like we moved our outpatient mental health program to an offsite location. Our dental clinic is an offsite location. We moved our human resources out of the building to provide more clinical space. So we're pretty proactive about that. But our preference is not to have anything go outside. [F-061]

> One of the barriers to telehealth expansion is from a contractual standpoint because right now we, of course, in contracting for a new service or new area that might enhance telehealth care, we have the federal acquisition regulations that must be adhered to and sometimes the timeline for that is kind of stretched. For example, it took almost two years of planning for us—and going through the contractual end of things to get a new community-based outpatient clinic. [F-005]

> It takes a very long time, so it's not an easy nor a smooth process and it involves more than contracting and so, no, it takes a very long time to get a lease in place. I do have one potential small site in town that is currently leased by our VISN contracting office and they have sat there and that lease will be up in May and we're trying to do something faster than a normal lease process, to where we could, like, take over that lease…but, yes, timeframes of getting that in place, it is a very big issue and a big constraint. [F-002]

Establishing agreements to use other facilities. Although less common, some sites mentioned coordination or agreements made with non-VA medical facilities that were not leases, per se, but that still expanded VA capacity. These arrangements were made with military treatment facilities, academic medical centers, and community hospitals.

> [Our facility] does not provide intermediate surgery because we don't have the infrastructure that you would need to do that in a safe manner and that's from a lot of things, not just the specialty providers that we may not have but that's also the support staff, as well, and, in theory, sometimes the space capacity so that capacity does exist at [our local community hospital]. What we have is a very unique relationship and this is all done through a Memorandum of Understanding or agreement and, of course, when it was done it went through Legal and was blessed both at the VISN and national levels, but our doctors—and they're privileged to do this—will go over to the [community hospital] and will use their operating room space and infrastructure. [F-005]

> There was an opportunity [to sublease from an nearby academic medical center] on a time-limited [basis]… Well, orthopedics, which was one area that was significantly

backlogged and that was restrained by the OR capacity at the VA Medical Center, made a pitch to lease property for ambulatory surgery that was available that was excess to the medical school's needs at the time, so VA did that. We did not have to go through the – another problem – cumbersome leasing process, and obtained space where they could do off-site surgery. It was using VA staff but it was giving them additional OR capacity than they had at the Medical Center and that allowed them to go through their backlog and reduce their backlog for orthopedic surgery. [F-063]

Constructing new facilities. Construction was frequently mentioned by sites as a strategy that resolved past space issues, and as a strategy they are pursing to address current infrastructure challenges. Renovation and expansions usually increase room for both staff and patient care space. However, respondents also noted the challenges to completing construction projects, including the bureaucratic process and lengthy time frames. Additionally, the VA's limited budget and high demand for construction among sites increases competition for funding and thus may prevent sites from being able to carry out their construction plans.

> We just opened up our new women's health clinic and it's got more space and much nicer space than they had before. But again, that was something that was planned to do several years ago as part of the strategic planning. So in cardiology it would be the same kind of thing. There's some things that we want to do to expand for the future and we're looking at how to make that happen but so far [infrastructure has] not been an impediment to providing care. [F-062]

> Every single site has a construction project or a lease expansion going on as we speak today because we've anticipated that we have to do that to deal with having access to bringing the system, bringing in that 30-day timeline to get everybody in in 30 days and try to take care of our patients closer to home. So every single one of our CBOCs is doing that right now. [F-032]

> To be able to lease space or build space you have to submit a request through central office. That has to be funded through Congress, so you can't just decide that you have a need here at the facility. You have to compete with all the other facilities across the country and then Congress decides what they're actually going to fund for that year and it may be two to three years down the line. … If we had more space and it was easier to get space, easier to build space, that we could actually use our money on capital projects without going through this bureaucratic process and having to deal with the pots of money, we could definitely improve the patient's experience of care as well as the productivity. [F-041]

> Now we're going to go for a "major", which means adding two floors at once. But we're talking a couple years in the future. [F-043]

> We have issues in our ED. Matter of fact, we have a couple projects on the books to solve that problem. … At this facility here actually, we were just approved at least for the design of a replacement facility… Of course, that will take probably—that's about an eight or nine year process to go through design and construction. [F-024]

> We also have construction going on which creates more space issues in that timeframe. We're building a new physical medicine and we have building, so parking is difficult; it's difficult for patients, it's difficult for staff and we're building a new parking garage and so that construction is ongoing so that will alleviate that, once that's [complete]. [F-002]

Medical Equipment and Supplies

Respondents spoke to the challenges and strategies around medical equipment and supplies. Overall, respondents were generally satisfied with medical equipment, although this varied across facilities and according to specific types of equipment.

Facility type, complexity, and volume of care. Respondents spoke about the limitations of medical equipment at their sites, which was sometimes related to the complexity level of or type of site rather than indicating unmet need. However, respondents reflected on the tension between having all the equipment or capabilities they might want and the need to provide care in a cost-effective way, which sometimes requires utilizing VA network facilities and non-VA care for lower volume or more specialized services.

> Some things [diagnostic equipment and laboratory infrastructure] are [sufficient] and some things aren't. They can do basic phlebotomy. Flat-plate x-rays, screening mammograms, and screening ultrasounds are done through contract or through non-VA care, but there are some things that I wish we could do. I mean, we don't have the appropriate refrigeration, and for some reason we can't give shingle shots here. And…the phlebotomy area, if you want to do a QuantiFERON gold, which is a test for TB, I think it has to be processed appropriately so a patient has to go up to [regional VAMC] or to [regional non-VA hospital]. So those are common tests and vaccinations that are inconvenience to the patient. But, you know, we're primary care, there's not a whole lot of sophisticated equipment that we actually have to have. I do a primary care derm[atology] and we seem to have a mess of equipment for that. We have women's health, [and our clinic] seems to be appropriately stored for that. [F-248]

> We hear about it [from providers] if we don't [have sufficient screening and diagnostic equipment and lab facilities]! Basically, they submit it through the equipment committee and our equipment is prioritized based on the money that we receive. Are some a "need" and some a "like"? Yes, absolutely, but if we had more resources to devote towards equipment, that would absolutely help. [F-041]

> We hear this all the time—why do a lot of the VA clinics not have 24 hour CAT scans, colonoscopies? You can essentially call a civilian hospital and say hey, I need to come in for a CAT scan and they say well, we can see you next Thursday at 11:30 at night. That is very common where I come from, where there's a large teaching hospital. Why can we not do that? It doesn't make any sense at all. The resources are there, they can rotate docs through. You don't even need a doctor to do the scan, you just need a tech. So exploratory and testing types of options should not have a backlog. [V-05]

> The frustration for patients is that the diagnostics typically are at what I call "the mother ship" or at a larger independent CBOC. For example, if you have a simple test X-ray that needs to be done they'll have to travel in order to get that, as opposed to us being able to just go out into the local area. And that's limited by the space in the clinic and also by the expense when you have performance measures that measure the amount of dollars per unique for radiology tests or for lab tests or whatever that measurement may be. [F-081]

> [This VAMC] does not provide intermediate surgery because we don't have the infrastructure that you would need to do that in a safe manner and that's from a lot of

things, not just the specialty providers that we may not have but that's also the support staff, as well, and, in theory, sometimes the space capacity so that capacity does exist at [our local community hospital]. [F-005]

VA specialized infrastructure not available in non-VA settings. Several respondents highlighted the strengths of VA medical equipment and infrastructure for certain types of specialty care. For example, as counterpoint to the discussion of deficiencies in VA infrastructure, one respondent spoke about areas of care at which VA excels and around which it has built up impressive clinical infrastructure.

> Well, by and large the VA has experts in the types of service-connected wounds that we have been seeing over the past 100 years, not only with PTSD, traumatic brain injuries, certain types of cancer, you know, [but other things, like] reaction to toxic wounds, and now prosthetics. So the level of care that [Veterans are] able to get—specialized care specifically, like for spinal cord injuries—at the VA would really be cost prohibitive outside the VA. As a matter of fact, we recently toured [a new facility] only to find that they make a lot of their prosthetics on campus. They don't even contract out for it anymore. They have their own machine labs where they machine their own prosthetics and replacement parts. They can do it right there on site. You're not going to be able to get that type of focused care [anywhere else]… I mean where are you going to get that kind of service? [V-05]

Relationship between space and medical equipment. The physical space available for medical equipment was often a consideration when trying to upgrade machines or make efficient use of existing equipment.

> The next thing is the diagnostic services. We do EMG, we do muscle biopsy, we do nerve biopsy in the neuromuscular program. I have a problem. My machine is kind of kaput, although I requested it [be fixed]. Hopefully it will be…we will be able to get a replacement, but there is a problem [in the meantime]. If I have to do a muscle biopsy, I have to beg dermatology to give us their small OR where they do surgery. But I don't have any space to do any surgical procedures…. So diagnostic equipment, [having] the room for doing diagnostic procedures, they happen to be problems. [F-171]

> Infrastructure-wise, new technology changes the way that a [facility] footprint needs to be done. New inspection control requirements change the way an OR should be designed and the need for humidity control and all of those types of things affect-- for example, here we have ten OR suites. … They were state of the art when they were built, but as things change, they have infrastructure issues that we have to try to retrofit into those existing spaces, which is sometimes a challenge. You know, CT scanners are smaller, believe it or not, now, and they have different MRIs now that you can actually stand in instead of lie down, so I think with respect to infrastructure, there's always going to be a challenge, to be able to provide it in such a way that it meets the needs. [F-021]

Strategies to Address Challenges Related to Lack of Medical Equipment or Supplies

Although most respondents reported that medical equipment, lab services, and supplies were available and adequate at their facilities, they also described two strategies they used to meet patient needs when their sites did not have needed services or supplies.

Sending Veterans to other VA or non-VA facilities that had the needed medical equipment or capabilities. Utilizing other facilities that offered needed diagnostic or medical services, either other VA facilities or non-VA facilities, was a common strategy to address a lack of medical equipment. Respondents discussed their reliance on the capacity available in the wider VA network as a resource for providing certain types of care to patients. For lower-complexity facilities that were sometimes distance from other VAMCs, establishing agreements with non-VA hospitals to allow VA staff and patients use their facilities was a less common but still important strategy to addressing patient needs locally. The types of services offered through these arrangements were usually low volume or highly specialized laboratory services or diagnostic equipment (e.g. mammography, PET scan). Mobile MRI, for example, was mentioned by several sites as a strategy for increasing access to this service for their patients.

> Generally speaking, no, [we don't send out lab and diagnostic services]: we do all of that here. I mean, there's certain surgeries that we don't perform so they go to the community. And, other than that, PET scans we send to one of our network facilities. [F-061]

> There are mobile CTs and MRIs that you can contract with. And so, to improve the access for a short period of time while, you know, maybe a provider is being hired or we work on extending hours, extending hours over weekends and evenings, you know, while that's being worked out. So maybe in the short-term—so that's one of the things we were just batting around. [F-074]

Replacing or constructing medical equipment or infrastructure. Respondents also described replacing or constructing medical equipment or infrastructure to address facility needs. The process of requesting medical equipment, however, was not always a smooth or easy one, as it involved interfacing with the contracting process.

> We're adding to meet the demand. And it's an open demand for eye [care services] and that's one of our greatest demands. And we're actually building more eye lanes here. Our national facility just added four eye lanes down in our [sister] facility. [F-081]

> We've just gotten approval for all of our equipment that would become a patient safety issue if that was not replaced and so we will be getting that equipment. [F-002]

> I will tell you that regardless even if we did have the resources and we were able to buy everything that the physicians would like to take care of the patients, we still have the VA contracting process, which is extremely onerous and will take a long, long time. So as the local medical center, we do not have control over the contracting process. So all the documentation [of equipment needs] is done here and then it's submitted and it may be submitted into a black hole. [F-041]

According to some respondents, assessments and decisions about medical equipment were happening in an ever-changing environment of patient care needs, demand for services, and what technology or equipment was considered adequate or up-to-date. Like in the example above, the growing demand for eye care services seen by one respondent site was in part due to patient demographics (i.e. older patients needing more frequent eye exams), but also a result of a recent clarification of VHA policy on preventative eye services, which respondents belief has increased the volume of Veterans seeking eye care. We heard a similar example about audiology that spoke to how the interplay of changing technology and changing demands affects the strategies sites could use to meet patient needs. At

another site, respondents described how advances in telehealth technology have obviated the need for their site to have an audiology booth.

> …the problem with audiology has been, in the past the requirement for the audiology booth which is, oh, my gosh, construction needs to occur around it, so it's a big constraint. We're able now to do tele-audiology without that big booth. I mean, that was a game stopper right there, and as veterans are aging and there are changes to their hearing ability, the increased demand, and that's likely to continue for audiology. Well now we can do it via telehealth without even having to bring the person to the booth… [F-063]

Table E-3. Physical infrastructure resources domain: code count by facility-level interview

Interview ID	Interview type	Respondent type	Facility ID	Facility urbanicity	Facility size	Facility complexity	B3.01 General Space Issues	B3.1 Med equip/supplies	B3.2 ED	B3.3 Inpatient	B3.4 Outpatient	1 Primary Care	2 Speciality Care	1 Specialty Care - Space	2 Specialty Care - Other	3 Other Outpatient	B3.5 Administrative Space and Other Infrastructure	B3.6 Strategies - Lack med equip/supplies	B3.7 Strategies - Lack of space	1 Strategy, space - Business arrangement	2 Strategy, space - Creative use of existing resource
F-002	VAMC	Leadership	F1	small-med metro	small	less complex															
F-004	VAMC	Leadership	F1	small-med metro	small	less complex															
F-005	VAMC	Leadership	F1	small-med metro	small	less complex															
F-021	VAMC	Leadership	F2	large metro	large	complex															
F-023	VAMC	Leadership	F2	large metro	large	complex	1	1			1			1	1						
F-024	VAMC	Leadership	F2	large metro	large	complex															
F-029	CBOC	Clinical staff	C2	large metro	large	complex															
F-032	VAMC	Leadership	F2	large metro	large	complex	1	1				1				1	1			1	
F-041	VAMC	Leadership	F3	large metro	medium	complex															
F-043	VAMC	Leadership	F3	large metro	medium	complex	1	1	1		1					1		1	1	1	1
F-044	VAMC	Leadership	F3	large metro	medium	complex				1	1			1	1	1					
F-050	CBOC	Leadership	C3	large metro	medium	complex	1		1	1	1			1	1	1			1	1	1
F-052	VISN	Leadership	V4				1	1	1		1					1				1	
F-054	VISN	Leadership	V4				1										1				
F-060	VAMC	Leadership	F4	small-med metro	medium	complex	1	1												1	1
F-061	VAMC	Leadership	F4	small-med metro	medium	complex	1		1											1	
F-062	VAMC	Leadership	F4	small-med metro	medium	complex	1	1	1	1			1		1					1	
F-063	VAMC	Leadership	F4	small-med metro	medium	complex					1	1		1	1					1	
F-064	VAMC	Leadership	F4	small-med metro	medium	complex		1	1	1	1					1				1	1
F-065	VAMC	Clinical staff	F4	small-med metro	medium	complex															
F-069	CBOC	Clinical staff	C4	small-med metro	medium	complex	1												1	1	1
F-070	CBOC	Leadership	C4	small-med metro	medium	complex															
F-073	VISN	Leadership	V1									1		1		1					1
F-074	VISN	Leadership	V1							1										1	1

The views, opinions, and/or findings contained in this report are those of RAND Corporation and should not be construed as an official government position, policy, or decision.

Interview ID	Interview type	Respondent type	Facility ID	Facility urbanicity	Facility size	Facility complexity	B3.01 General Space Issues	B3.1 Med equip/supplies	B3.2 ED	B3.3 Inpatient	B3.4 Outpatient	1 Primary Care	2 Speciality Care	1 Specialty Care - Space	2 Specialty Care - Other	3 Other Outpatient	B3.5 Administrative Space and Other Infrastructure	B3.6 Strategies - Lack med equip/supplies	B3.7 Strategies - Lack of space	1 Strategy, space - Business arrangement	2 Strategy, space - Creative use of existing resource
F-076	VAMC	Clinical staff	F4	small-med metro	medium	complex	1	1	1	1	1	1	1	1		1		1			
F-081	VAMC	Leadership	F5	small-med metro	large	complex					1	1	1	1							1
F-083	VAMC	Leadership	F5	small-med metro	large	complex	1	1	1	1				1	1				1	1	1
F-084	VAMC	Leadership	F5	small-med metro	large	complex	1	1			1	1	1		1						
F-094	VISN	Leadership	V3				1	1			1		1	1							
F-100	VAMC	Leadership	F6	rural	small	less complex	1	1						1							1
F-102	VAMC	Leadership	F6	rural	small	less complex															
F-104	VAMC	Leadership	F6	rural	small	less complex	1	1	1	1	1	1	1	1					1	1	1
F-106	VAMC	Clinical staff	F6	rural	small	less complex															
F-113	VISN	Leadership	V6				1	1											1		
F-115	VAMC	Leadership	F6	rural	small	less complex	1	1		1	1	1				1			1		
F-122	VISN	Leadership	V5																		
F-141	VISN	Leadership	V2				1	1													
F-142	VISN	Leadership	V2																		
F-150	VAMC	Clinical staff	F1	small-med metro	small	less complex	1														
F-153	VAMC	Clinical staff	F1	small-med metro	small	less complex		1			1		1	1					1	1	1
F-154	VAMC	Clinical staff	F1	small-med metro	small	less complex	1	1	1	1	1	1	1	1		1			1	1	1
F-164	VAMC	Clinical staff	F2	large metro	large	complex	1	1	1	1	1	1	1	1			1	1	1	1	
F-171	VAMC	Clinical staff	F2	large metro	large	complex															
F-182	VAMC	Clinical staff	F3	large metro	medium	complex															
F-184	VAMC	Clinical staff	F3	large metro	medium	complex															
F-195	VAMC	Clinical staff	F4	small-med metro	medium	complex															
F-217	VAMC	Clinical staff	F2	large metro	large	complex	1													1	1
F-248	CBOC	Clinical staff	C2	large metro	large	complex	1				1		1	1						1	
F-250	CBOC	Leadership	C2	large metro	large	complex		1	1		1	1	1		1					1	1
F-251	CBOC	Clinical staff	C2	large metro	large	complex	1	1			1	1	1	1					1	1	1
F-255	CBOC	Clinical staff	C2	large metro	large	complex					1				1						

Interview ID	Interview type	Respondent type	Facility ID	Facility urbanicity	Facility size	Facility complexity	B3.01 General Space Issues	B3.1 Med equip/supplies	B3.2 ED	B3.3 Inpatient	B3.4 Outpatient	1 Primary Care	2 Speciality Care	1 Specialty Care - Space	2 Specialty Care - Other	3 Other Outpatient	B3.5 Administrative Space and Other Infrastructure	B3.6 Strategies - Lack med equip/supplies	B3.7 Strategies - Lack of space	1 Strategy, space - Business arrangement	2 Strategy, space - Creative use of existing resource
F-256	CBOC	Leadership	C2	large metro	large	complex			1		1		1	1	1				1		
F-257	CBOC	Clinical staff	C2	large metro	large	complex					1	1									
F-304	VAMC	Clinical staff	F2	large metro	large	complex	1	1	1		1	1	1		1						
F-305	VAMC	Clinical staff	F4	Small-med metro	medium	complex					1	1	1		1					1	1
F-306	VAMC	Clinical staff	F4	Small-med metro	medium	complex															
F-307	VAMC	Clinical staff	F2	large metro	large	complex	1	1		1	1	1	1	1	1			1	1	1	1

Interview ID	Interview type	Respondent type	Facility ID	Facility urbanicity	Facility size	Facility complexity	3 Strategy, space - Construction	B3.8 Rel of space and staffing	B3.9 Old/outdated infrastructure	B3.91 Other/Unsure
F-002	VAMC	Leadership	F1	small-med metro	small	less complex				
F-004	VAMC	Leadership	F1	small-med metro	small	less complex				
F-005	VAMC	Leadership	F1	small-med metro	small	less complex				
F-021	VAMC	Leadership	F2	large metro	large	complex				
F-023	VAMC	Leadership	F2	large metro	large	complex				1
F-024	VAMC	Leadership	F2	large metro	large	complex				
F-029	CBOC	Clinical staff	C2	large metro	large	complex				
F-032	VAMC	Leadership	F2	large metro	large	complex		1		1
F-041	VAMC	Leadership	F3	large metro	medium	complex				
F-043	VAMC	Leadership	F3	large metro	medium	complex		1		1
F-044	VAMC	Leadership	F3	large metro	medium	complex				1
F-050	CBOC	Leadership	C3	large metro	medium	complex		1		1
F-052	VISN	Leadership	V4				1	1		
F-054	VISN	Leadership	V4					1		
F-060	VAMC	Leadership	F4	small-med metro	medium	complex		1		
F-061	VAMC	Leadership	F4	small-med metro	medium	complex	1	1		1
F-062	VAMC	Leadership	F4	small-med metro	medium	complex	1	1		
F-063	VAMC	Leadership	F4	small-med metro	medium	complex	1	1		1
F-064	VAMC	Leadership	F4	small-med metro	medium	complex		1		
F-065	VAMC	Clinical staff	F4	small-med metro	medium	complex				
F-069	CBOC	Clinical staff	C4	small-med metro	medium	complex		1		
F-070	CBOC	Leadership	C4	small-med metro	medium	complex				
F-073	VISN	Leadership	V1							
F-074	VISN	Leadership	V1							1
F-076	VAMC	Clinical staff	F4	small-med metro	medium	complex				1
F-081	VAMC	Leadership	F5	small-med metro	large	complex	1			

Interview ID	Interview type	Respondent type	Facility ID	Facility urbanicity	Facility size	Facility complexity	3 Strategy, space - Construction	B3.8 Rel of space and staffing	B3.9 Old/outdated infrastructure	B3.91 Other/Unsure
F-083	VAMC	Leadership	F5	small-med metro	large	complex	1	1		1
F-084	VAMC	Leadership	F5	small-med metro	large	complex				1
F-094	VISN	Leadership	V3					1		
F-100	VAMC	Leadership	F6	rural	small	less complex		1		
F-102	VAMC	Leadership	F6	rural	small	less complex				
F-104	VAMC	Leadership	F6	rural	small	less complex	1	1		1
F-106	VAMC	Clinical staff	F6	rural	small	less complex				
F-113	VISN	Leadership	V6							
F-115	VAMC	Leadership	F6	rural	small	less complex	1	1		
F-122	VISN	Leadership	V5							
F-141	VISN	Leadership	V2							
F-142	VISN	Leadership	V2							
F-150	VAMC	Clinical staff	F1	small-med metro	small	less complex				
F-153	VAMC	Clinical staff	F1	small-med metro	small	less complex				
F-154	VAMC	Clinical staff	F1	small-med metro	small	less complex	1	1		
F-164	VAMC	Clinical staff	F2	large metro	large	complex				
F-171	VAMC	Clinical staff	F2	large metro	large	complex				
F-182	VAMC	Clinical staff	F3	large metro	medium	complex				
F-184	VAMC	Clinical staff	F3	large metro	medium	complex				
F-195	VAMC	Clinical staff	F4	small-med metro	medium	complex				
F-217	VAMC	Clinical staff	F2	large metro	large	complex				
F-248	CBOC	Clinical staff	C2	large metro	large	complex	1			
F-250	CBOC	Leadership	C2	large metro	large	complex	1			1
F-251	CBOC	Clinical staff	C2	large metro	large	complex	1	1		1
F-255	CBOC	Clinical staff	C2	large metro	large	complex		1		
F-256	CBOC	Leadership	C2	large metro	large	complex	1	1	1	
F-257	CBOC	Clinical staff	C2	large metro	large	complex				

Interview ID	Interview type	Respondent type	Facility ID	Facility urbanicity	Facility size	Facility complexity	3 Strategy, space - Construction	B3.8 Rel of space and staffing	B3.9 Old/outdated infrastructure	B3.91 Other/Unsure
F-304	VAMC	Clinical staff	F2	large metro	large	complex			1	1
F-305	VAMC	Clinical staff	F4	small-med metro	medium	complex				
F-306	VAMC	Clinical staff	F4	small-med metro	medium	complex				
F-307	VAMC	Clinical staff	F2	large metro	large	complex	1	1	1	1

Source: Authors' analysis of interview data collected and coded for this project.

Appendix E.1.4 IT Resources

Twenty-two interviews were conducted with VA leadership (15 VAMC leadership, 1 Central Office staff) and clinical staff (6 respondents) to gain insight into how telehealth is utilized within VA, what barriers exist, and what VA staff think about the potential for telehealth to expand access to healthcare for Veterans.

Telehealth and Access

In discussing the various aspects of telehealth that were the focus of interview questions, respondents directly and indirectly described many ways in which telehealth affects access to care for Veterans, such as by improving "reach" of specialist services and reducing travel burden. Respondents also described challenges to providing and expanding telehealth.

> Anecdotally I heard that an audiologist would get in car and do a circuit of helping people with their hearing aids going from CBOC to CBOC in traffic. If that were happening, they'd be able to see more patients. I've also heard anecdotally that there are no-shows when there is bad weather. I would think telehealth would help with that. [R-536]

> We provide reimbursement for mileage. If we can bring care closer to home then the patient is not on the road and there is less wear and tear on the car. There is also more chance of keeping the appointment. The money saved for travel can be used to care for more patients. There is better use of resources because of telehealth… Think about patient X who lives 398 miles away and needs a cardiology appointment. He is eligible for travel benefits and gets paid $147 for his visit to his VAMC but he lives across the street from a CBOC. If he can go to the CBOC for that care, that is $147 that will not be paid to him… This means more visits for those who are asymptomatic or not willing to drive. More visits, but the costs per visit go down. What is being paid for the patients travel is part of the budget for VA. The dollars not in the beneficiary travel line can be used to provide more care. [R-553]

> Telehealth impacts the no show rate. Although there is a no show rate still with CVT, it is lower than the no show rate for physical face to face visits. Vets are older and they rely on their kids to bring them in. [R-553]

> To be honest most of the time a telehealth visit will require more provider time. More resources are needed than compared to a face-to-face appointment. For example, if you have a provider at a main facility who wants to do a cardiology visit and you have a patient in a remote facility, you do not only need a provider available, but next to the patient you need someone to administer that visit. Sometimes that can be done by a non-technical person that can just connect the equipment. But if it is a follow-up of a cardiac surgery, they may need to have the physician that is following that patient present in the telehealth visit…*with* telehealth, by the time things are set-up it can be more complex. It is patient centered where savings are accrued to them rather than to the providers…To provide the services, you would need to divert resources in the way of taking over exam rooms used for face-to-face care. There is constant competition over space and each site has to determine how to manage this. [R-502]

We are down two positions in a four-position clinic in one of my clinics. At another, we're at full staff, five providers, in really a four-empaneled clinic, so that means there's excess capacity. So we use telehealth to see primary care patients from when the patient's presented in the xxxx clinic, our provider in xxxx sees that patient remotely and then documents that encounter. We do that several days a week as the imbalance of supply and demand surfaces for unforeseen and foreseen reasons throughout our service area…. This load balancing comes at the expense of continuity, so I'm not real happy about that. [F-104]

So we just hired a psychiatrist about six weeks ago—we brought him out here for a month of training… he is brand new to the VA. We trained him up on CPRS and VistA, and then boxed up all his stuff and sent it to Michigan and sent him back home to his home where he is now seeing our patients via telehealth. [F-104]

It's much less a technology issue and much more about the burden and the continuity of care that our veterans receive. And so I think it depends on how you use that technology—there are always pluses and minuses, and again, if you're using it as we are, as a level of supply and demand, I think that is an issue for the use of that technology, if that's how it's being employed. And so I think there's great benefits to access, but it comes at the altar of sometimes continuity, where our veterans have to tell their story or their medical history more frequently than they would otherwise. [F-104]

So on the far end at the CBOC, you need to pull a nurse or someone out of a PACT team to help take care of the vital signs, get the patient prepped and ready. And that's always a challenge because we're already having struggles with access. So we need to figure out some way to have the resources available to support the actual placement of the patient in the room, the scheduling that XXXX mentioned, and then completing the visit…The other time that is precious is the professional time and the specialist time. It turns out that it's actually not a super-efficient way of delivering care because basically the specialist is tied up for the entire time of that visit with that one patient. That's not the way it happens in our face-to-face clinics where you might have a professional, you may have residents, trainees, who are seeing patients and then they present to the attending. The attending goes in and spends like 15 minutes with the patient, as opposed to the full 30 minutes or 40 minutes that it might take for—or even longer—for a telehealth evaluation. So our providers who are doing this, and some of them are scarce professions, right, like a neurosurgeon, might be able to see 6 telehealth patients in a morning, as opposed to 26 in the clinic. So it's really nice from the veteran point of view because they don't have to travel, but we have to somehow realize some of the efficiencies that we get in face-to-face visits. Even if a neurosurgeon were seeing one patient at a time in-clinic, probably that neurosurgeon would be able to see 50% more patients in a standard face-to-face clinic than in a telehealth clinic. [F-024]

And it's a basic thing. I mean, for telehealth, you occupy two exam rooms automatically at different locations. So the organization consumes two exam rooms for one visit. It inevitably is more convenient for veterans. But it's not that efficient, it's not at reduced cost to the system…However, in rural health when you have remote sites where you cannot get specialties out there, then obviously it is beneficial financially because you've got to move the patient or you've got to get a provider out there. So when you're dealing with your rural areas, yes, there is a benefit. If you're dealing with areas within

commuting distance, not so much. But it does help, I think, financially for—support rural areas. [F-024]

For us to survive, we have to make people want to stay in VA and get VA services, and not send everything out. This is one way for us to help to improve our survivability. So it's probably critical to that in many instances. The other thing is that when veterans have to travel very far to see a specialist, even if we can get them in within 30 days, it may be a hardship for them and they may therefore tell their provider, "Please request non-VA care for me because I can't travel down to [the closest VAMC]." And that's very expensive for us, to send people out. And so there could be a business case for telehealth as well. [F-024]

You're going to have a provider doing telehealth, that's great. That reduces the travel time on it. But it still takes the time to do that, so it's still a half an hour slot, say, for the care. So if you can expand the number of veterans who want to and can utilize telehealth, you still have to have the provider here at the medical center to be able to interact with the patient. [F-064]

Telehealth can help in that you become more efficient at using your space and your providers, but the time is not going to change. You still need a half an hour to an hour per patient. If it's a new patient, they claim to need up to an hour. And if it's a follow-up patient, they need to have it up to a half an hour. [F-064]

So but one of the challenges with televisits has been that there's almost been this assumption that it in some way it will either make docs more productive or overcome some of the staffing challenges. And I don't think it's been clearly recognized that it takes at least as much time to do a televisit as it does to do an in person visit. But there's still somebody on the other end that's having to be there for that appointment. And they often take more time than it does to do a face-to-face… We've been told, that you can't mingle televisits with face-to-face visits. You either have a clinic where you're having telehealth encounters, or you have a clinic where you're doing face-to-face. For some of the docs that's a little bit of a challenge because it means that instead of taking existing clinics and putting televisits into open slots, now they've got to find another half a day to set aside as a teleclinic. [F-083]

For example, we have a physician that worked in [one of our urban CBOCs], whose parent is quite ill and [the physician] lives in [farther-out] suburbs of [that city]. And what we have done, because he's providing the care for his elderly parent, is we're allowing him to do telemental health from his home. [F-043]

They go to the CBOC. There's this room set aside. [The telehealth provider is] actually more efficient because he doesn't have the commute and he doesn't have to worry about the weather. XXXX gets a lot of snow. And the patients are happy. They know him. [F-043]

Right now, our transplant program, we used to bring the patients all from different parts of the country to get their initial evaluation. Now we do it all through telehealth. So they stay wherever their facility is. We have a MOU for those facilities. We set it up and we have a technician dedicated to helping the providers at both ends to set up the communication and the equipment, and the patient doesn't have to travel all the way over here just to see if they quality for the program, they meet the clinical needs of the program. That's been huge. [F-084]

They [patients] like it a lot. They like it. They say, "Wow, I didn't know that you could do this." There was one clinic that we started in XXXX. It's a prosthetic clinic and before the patients had to, in order to get their prosthetics equipment or what they needed, they had to drive all the way into XXXX just to get an education. And now we have a technician and a person down in XXXX and the person is over here in XXXX, and they connect through telehealth and the Veteran doesn't have to get on the road for two hours. [F-084]

The most challenging obstruction is the coordination of the telehealth schedule into the schedule of a provider who has other responsibilities such as face to face—it doesn't sync well. So for example, if you're in your face to face clinic, you can walk from room A into room B. But if you've seen three face to face and now you're supposed to see three via telehealth, to be in sync with that remote location and keep things moving in a correct fashion is an extreme challenge. [F-004]

I don't know if that saves the facility a lot of trouble. It saves the patient a lot. So I don't know if it's going to be cheaper. I can't say that. It may be more expensive but when you think about overall, from the economics in the country, we are all going to a big national healthcare system. I think patients are pretty happy to not have to drive 200 miles for care…We pay the patients to travel. You know that. We pay for mileage and travel. [F-023]

Telemental health is great. They like the idea of the remoteness, to kind of help them be more frank in opening up. [F-063]

We've pushed so much onto our primary care providers with the implementation of the PACT model, using telehealth, using My HealtheVet. I've not done a time and motion study, but if a primary care provider was maximally utilizing these models, they would see patients half of the time. Their nurse in their clinic would be seeing most of the patients that have chronic issues. They would be doing a lot of messaging with their panels, their nurses would be doing a lot of messaging, we'd have a lot of group clinics set up for chronic diseases, but we're not there yet. [F-044]

Our guys can read [the teledermatology image] within the next 48 hours, which could mean they can read it at midnight and send the results back, so if you could get your providers, I guess in an ideal world you could have providers seeing patients all day long in the space and then bring in a cadre of other providers that wanted to moonlight or something, do all the readings for your own CBOCs and all the other places after hours, and you would improve the efficiency of the space utilization. I don't know if we have that much volume yet, but we do that with radiology, where radiologists read films at home at night rather than coming in and having to access the data on campus. So it's good for the patient because you have faster turnaround. You could become more efficient instead of having someone reading a tele-slide during the day, they could do it at night so you could have that office space to see patients during the day if you have the providers, so I guess that's a good idea. [F-044]

We recently had a psychiatrist who needed to go home and take care of his ailing mother, and rather than him quit, we set him up so that he could see patients through tele-mental health, so he's still providing care to his patients, but not at the clinic. [F-044]

I've got a mental health patient [at one site] right now who is just a real difficult patient. He threatened the social worker at one of my clinics and so he's barred from coming to the clinic and he's not going to come all the way in here, so he's just constantly on the phone. I mean, 50 times a day, making phone calls to our providers. We tried to use telemental health with him, but he doesn't have a computer and we can't do it, so one thing that would be helpful is … and actually the hospital down the street put in an innovation grant and was funded to provide the hardware to Veterans with, like, hot spot cards or something to Veterans so they can receive their care, especially mental health patients, so they can receive their care without coming into the medical center....We need to provide the care. The VA is obligated to provide the care, but sometimes it's very, very difficult. In the private sector, they say, "You're off my panel," get away from me. We don't have that opportunity. We've got to provide the care, but [the patient I was talking about], he can't go into the clinic because he's threatened to do very bad things to the staff. He won't come in here because our police will escort him around, so using telehealth will give him the care that he needs to, hopefully, stabilize him, but he doesn't have the infrastructure to receive the care. [F-044]

Our Nephrology program…they had a 10.8% no-show rate in the renal clinic and through use of telehealth the rate dropped to 4.4%. [R-525]

Telehealth is not tremendously efficient. I mean, it's great for the patient because they don't have to drive someplace. And I guess it's efficient for physicians because they don't have to drive to someplace. But it's not necessarily a tremendously efficient way to have an office visit. [F-164]

Telehealth gives isolated veterans a bridge to the outside world. Some of my patients in remote areas became confident enough from virtual care and then would start to come in. [R-518]

The facilities use telehealth tools to encourage communication with their spoke facilities when they have medical needs that surpass their capabilities. It is mainly a communication tool in order to do a warm hand-off of patients. [R-532]

And then other issues have been that it takes a provider or mid-level or nurse or someone to bring the person to the room to sit them in there, and this requires staff. [F-195]

I don't know how it goes in other divisions. I can tell you in Cardiology we're not ready for it because it's adding on a service where physicians are already stretched and it's not an efficient service…it would have to add to another timeslot in addition to the times that we're already spending…so if you wanted to do that, you would hire more clinic physicians so that the work was spread around instead of trying to put more work on the same group of people. [F-164]

And telehealth is excellent—I think the patient themselves may not know it can happen. If you ask me, it sort of takes so much of my time, much more than when patient comes in, so I don't like it. Not much more, but more—like, the patient will take 20 minutes and here it will take 30 minutes, which is substantial. Then it means that per hour, in-person I can see three patients instead of two patients, and then it multiplies, so from that standpoint, I don't like it. But from a patient standpoint, I think it's excellent. [F-184]

Telehealth is not a replacement for care; it's an enhancement to, and I think it's kind of, like, high tech, high touch. [F-005]

Telehealth impacts access in two ways. There is the convenience of it. Not having to drive two hours but rather 30 min instead…It offers convenience for specialty care not offered on site but also for things offered at your local CBOC…you can redirect locations that have access to those that don't. For example, primary care and mental health. With teleprimary care or telemental health you can get more timely access when services not available right away available at local site because of staffing… this allows for more efficient use of existing resources… this started first with specialty side and now we are moving to more and more primary care. [R-501]

Well, at my old site we were going to lose a provider. …He got tired of the commute. He lived close to [another city]. He just [said], "I'm done. I can easily get a job [closer to where I live]." We said, "No, we want you," so we used it as a retention tool. We allowed him to see patients from his house so he wouldn't quit…[telehealth] can be used as a retention tool or even a recruitment tool… [F-044]

Telehealth offers the opportunity for more continuous care – can track BP, oxygen saturation – I get an alert every month. If perfect, can make visits every 6 months instead of 3. This is home monitoring types of telehealth. So now my well controlled diabetics are being seen 6 months, opening up slots for other diabetics. [R-519]

Appendix E.1.5 Access/Quality

In this Appendix section, we augment the main Assessment B findings on access and quality, with supplemental information from VA interviewees. The access and quality VA interviews were conducted with administrative staff members and clinical staff from VISNs, VAMCs, and CBOCs.

Table E-4. Types of Interview Questions by Interviewee Type

Interviewee Category	Number of interviews conducted	Basic provider questions (eligibility & initial access, coordinating care within & outside of the VA)	Question on making & attending appointments	Question on measurement (important domains of access)	Question on the domains of access	FULL Access and quality measurement questions
Healthcare Workers						
CBOC providers (5 physicians and 1 nurse)	6	6		6		
VAMC providers	10	10		10		
VAMC chief nurse executives for patient care	1	1	1		1	
VAMC paraprofessionals (3 social workers, 2 medical support assistants; 1 business office)	6	6	6		6	
Administrators						
VISN quality management officers	5					5
VISN Chief Medical Officer	5					5
VAMC Associate Director	3					3
CBOC Director / Medical Director	2					2
CBOC Site Manager	3	3			3	
Total (by column)	41	26	7	16	10	15

These interviews do not reflect the perspective of the Central Office, or VA leadership. Since the majority of the interview content focused on access, we will primarily discuss access to the VA in this section.

How VA Staff Report on Overall Access to the VA for Veterans

A range of reasons was given as to why veterans do and do not enroll in the VA. Interestingly, "word of mouth" and the physical proximity of a Veteran to a VA facility served as both a reason to enroll as well as a reason to seek private health care. For example, living close to a VA facility was cited as a reason to seek VA care, while for others it led to them looking for alternative health care options closer to where

they lived. Once a veteran is enrolled in the system, VA staff indicated that in most places, most of the time, access to care is pretty good where they work.

> There are enough facilities in the general area that we can access an inpatient level of care as we need it and when they're discharged, we so far haven't had any problems getting them in in the time—certainly not in the VA mandated time frame—and what we want to do is usually shorter than that. So no, we haven't had a problem with that. [F-106]

There were problems with providing access in certain locations or at certain facilities, and VA staff we spoke with a very aware of them. Specifically, geographic barriers provide a clear and obvious set of challenges, but one that is difficult for VA staff to overcome. However, some additional services are available for rural veterans in many of the areas we spoke to (more on geographic barriers below).

> There's also … volunteer drivers who pick veterans up at specific locations and bring them to the VA. And then even within the VA we have a transportation system with a few shuttles that go out to specific areas like XXXX and XXXX and will bring patients into the VA [F-076]

A smaller group of respondents were asked about the factors that help or hinder access to the VA. With respect to timely access, the availability of appointments and staffing was referenced as a challenge whereas efforts to extend clinic hours and schedule subsequent appointments were viewed as helpful steps forward. The lack of transportation, traffic, and parking were mentioned as geographic barriers, but voucher programs and specifically the Choice Act were viewed as concrete steps to address these challenges. Regarding financial access, some reported it was difficult to understand if and how income status impacted eligibility and determine the cost of services, though the majority of respondents noted that VA care was far more affordable compared to private sector care. To address digital access, a lack of familiarity with specific programs such as MyHealthVet or telehealth more generally was noted as a barrier among providers whereas respondents listed a lack of access to technology (e.g., among homeless Veterans) or knowledge about how use technology (e.g., among older Veterans) as challenging. Despite this, respondents generally felt that efforts to improve digital access (e.g., through training for providers and help desks for patients) were important. Finally, regarding cultural access, some noted that while efforts are being made to ensure providers as sensitized to the unique experience of Veterans, more should be done to increase their awareness to a range of things such as military-specific language and slang, as well as the changing demographics among Veterans.

For VA staff and patients, access isn't just about providing care within a timeframe. Access is also ensuring trust and confidence that a veteran's provider or health care system will be there when they need it.

> I mean, my experience prior to VA as well with primary care delivery is that if you demonstrate to patients that they can get access to you pretty much whenever they feel like the need to, then the urgency with which they try to get it drops, because they're not panicked all the time about "Oh, my gosh, something terrible's happening, and if I don't start now and press hard, I'm going to get delayed." If they know that they can call or they can send a secure message or they can be seen briefly to get a question answered, then suddenly a lot of that pressure goes away. And except for those few outliers who have what I think are usually psychological issues about fear and about

whatever, if you carve out those few, the vast majority of patients just feel much more comfortable that if they need a question answered, it's going to get answered and it's going to get answered in a timely way, so "I don't need to be calling six times, I don't need to be demanding to be seen, 'cause if I ask to be seen, I'll be seen." [F-070]

Everyday Efforts to Measure and Improve Access

To focus first on the measurement of access, respondents reported that a range of measures was used to evaluate access to care. All respondents reported using measures required by the VA and many mentioned challenges associated with using measures that did not appear to be evidence-based. Relatedly, many acknowledged the need to evaluate patient preference but noted the difficulty in reconciling any gaps between clinically indicated guidelines and patient preference Respondents noted the need to more systematically collect data on patient experiences and satisfaction—recognizing that access and quality are so closely linked—they highlighted that the intense focus on access often means patient experiences are overlooked and that improving patient experience could really impact access.

> … sometimes that 14-day measure isn't realistic based on the patient's needs … sometimes you're striving to meet a measure instead of providing care for the patient results in adverse things, so I would just be cognizant of when we put measures in place, are they for the right reasons? What's the intent of the measure and are we capturing the appropriate thing? [F-060]

> It used to be access had to be within 14 days and seven days and now they've relaxed it to 30 days. Again, it's all about communication. I'll just repeat: if our providers schedule—I mean we can look at the 30 day, no, that's fine, it's 30 days within your desired appointment date or your return date. But really, if we have a patient and they want to be seen sooner, that's what we're here for. We work as a team and whatever it takes to get the patient in, we're committed and we do it and whether that performance measure's there or not, we have 30 days now but if somebody wants to be seen within a week, we pretty much see them within a week because that's just how we are. That's just how we operate. [F-250]

Additionally, several noted challenges around standard measures being able to accurately evaluate the local context.

> So I think in an ideal world, right, you would sort of have the big measure. Central office would give you the big measure, right? …And, here's the things we're going to look at for access, let's say. And you would have the freedom to figure out how that works for you, and what you need to measure for yourself to make it work for your own individual setting. So the problem… Here's what I think happened in the system. What happened in the system was when there was more flexibility at the local level, when there were big national requirements but there was more flexibility at the national level, the organization got into sort of this making excuses model, right? I know that's the measure, right, but here's what's going on locally and therefore we can't meet that. And here's why we can't meet that. Not… It wasn't, "We're unique. Here are the unique things we have to do to meet that." It was, "We're unique and therefore we can't meet that." [F-113]

Further, respondents mentioned either developing additional measures and/or processes (e.g., monthly meetings to discuss access issues at the specific facility) to better understand factors impeding access to

care. Finally, a few respondents indicated that they would like to have more input into the process of measure development.

> One thing that's missing is once they develop a measure of access, run it by the field to see if it makes sense. We've got a ton of smart people who really know what they're doing. They're never asked. And when you give it to them after the fact then they change the measure and then we get into this trouble. [F-141]

Facilities engaged in a variety of day-to-day activities to improve or sustain access for veterans. While a few programs appeared linked to larger, nationally coordinated efforts (e.g., diabetes control), many programs and activities geared toward access improvement were local initiatives. From developing unique partnering arrangements with local providers, to developing innovations in customer service for veterans, we found the range of activities and programs varied greatly by location.

> It's actually a contract that we've done with the community hospital… so we can do our intermediate complexity level procedures at that facility…. It gives our surgeons the ability to keep up on some of those skills and it gives access to our patients who otherwise would have to drive at least 250 miles or be transported to another VA. That's how far they would have to go and so it's been a very positive thing that we've done, and we have a good relationship with the local community hospital. [F-002]

> I think we've all experienced [that frustration]—with large organizations where you call and you're either put on hold for a long period of time or you have to leave a message and you wonder am I really going to be called back… So what they've done is they have created a gigantic call center down in [X-Location]… …And at that point they are able to track how many lost calls come in, how long it takes to answer each call, how many minutes per veteran. … Those patients are automatically routed to the call center where they should be able to speak directly to the veteran and get them—if they can't help them—they get them to where they need to be. Eventually our clinic when they dial our general number which would be XXXX, eventually our general operator line will be transferred automatically to the call center … WE do something a little bit special here in [Y Location] because again, we're a smaller clinic and we have given all our veterans—I have made business cards for each team—and so we give our veterans the option, so for each team—I make them right here in the clinic, they're homemade but they look very professional, and we have the number for the nurse, the number for the scheduler, the telecare nurse, and so they do have the option of once the call center is in effect, and if they dial XXXX, they won't talk to anybody here, but we have these business cards so if they still want to call and talk to their scheduler or talk to the nurse, they will have the direct line to call into our clinic. [F-250]

Access to Coordinated Care within and outside of the VA System

Overall Care within the VA System

Among Veterans who seek care only within the VA, respondents noted that care was very well coordinated, especially as the VA has been at the forefront of electronic medical record implementation, which has streamlined communication between the services provided. Patient Aligned Care Teams (PACT) was highlighted as further contributing to the provision of well-coordinated care. Further, it was noted that VA has made substantial advances in the provision of care to certain groups such as homeless

Veterans and female veterans, alongside those with particular health concerns such as mental health and substance use and abuse. In general, respondents reported that high quality care is provided to all Veterans. It was noted by a small number of participants that the current public and political challenges faced by the VA sometimes lead to pressures in decision making on access issues that may not otherwise exist.

It's kind of political now, how does the Secretary approve closing a CBOC when on the front page of every paper there's access issues. So at this point the veterans groups are on board, the local politicians are all on board, the local elected officials, the veteran's service organizations are onboard and we still are not able to close it. So it's a money pit. [F-073]

Providing Access Outside of the VA is Complex and Unpredictable

The importance of local autonomy and the need for centralized processes were referenced as consistent tensions that persist among efforts to improve access.

> They're certainly dependent on how well we're using the scheduling package. I think the scheduling process… And I'm not all that down on the package. I don't think the package is fabulous, and I think we need a new package and it leads to all kinds of difficulties, but I really think our process is unnecessarily complicated and I think we just invite people to do it wrong. Sometimes I guess sometimes deliberately wrong, although I don't seem to run into that very much. Sometimes deliberately… Let's see. What's the best way to say this? Deliberately doing different from what you've been told in the scheduling package but in an attempt to do the right thing for the patient. [F-113]

> Well, I can give you a great example that we do here in XXXX and it really took an act of Congress, actually, to finally allow the business office to allow us to do it. We do not have radiology services here, so we have…our clinic is like two blocks from, it's called XXXX Radiology. It's a very large group that has several locations all over town and so we have built a rapport over the number of years with them that we would send our patients there and before, it was a contract, and so they would contract them. And easy access (inaudible @ 38:01) if there was a question with the order, they call us direct. The providers have a direct link to look up the result in…it's a secure website. If they send somebody for a hand X-ray, then the provider here has access to it. So it was a great relationship. So what happened when the non-VA care and VA Choice, they changed it all around and so all of a sudden, non-VA care, we couldn't have a contract anymore. And so it was horrible, I mean it was a nightmare. July 31 they said XXXX, you can't send your patients to XXXX Radiology anymore. We don't have a contract, it's all going to non-VA care. And so we—oh, gosh, it just gives me chills when I think about it—so anyway what happened was at the beginning, this shows you how things did get straightened out but at the beginning it was terrible because XXXX Radiology were told they would not get paid. The VA actually told them if you do an X-ray for XXXX, you're not going to get paid unless you have this authorization and all this. So we worked till midnight trying to get authorization forms and get a consult set up in the computer. And it was going pretty smooth and all of a sudden Tri-West came in which a third party administrator and they would see our radiology consult and start calling patients and telling them to go other places. Well, an example would be a mammogram. So if I had a

women's health provider and we have our mammograms done at XXXX Radiology and we know the patients are going there, and Tri West calls and says we're going to send you to [another radiology provider]. We don't know if the picture went there, and we don't know if we're going to get the records. I mean we're talking it was like a major nightmare. And finally we got an agreement through the business office that the third party administrator was not to touch our consult to XXXX Radiology, and that made a huge difference for us so that we were able to continue that relationship. But that's all non-VA care but the way it was set up before with the contracts it was a little bit smoother. We've finally got it smoothed out now. And then on top of it, they didn't pay XXXX Radiology, the fee basis department for care didn't pay Radiology for probably at least 500 denials for claim denials. And at that point XXXX Radiology called me and said I'm not sure we can continue to do business with you because we haven't been paid for like 500 imaging studies. And so I begged. As the manager here I said, oh, I beg you, I beg you, send them to me. I will work on it. I had to look up 500 patients. It was new to our providers, they weren't used to putting in the consult for each one, but instead of the fee basis department, simply looking to see that there was a result there, they just started denying all these claims. So these are the type of things that can really affect the access for the veterans and also affects good patient care. The good news is it's straightened out now after three years, and they have promised us that they will not deny any claims for XXXX Radiology unless they look at it first and then they come to me and if we need a consult, I take care of it and make sure it gets in the computer. But that's just an example of how things can get really out of whack if you don't provide the services on site. [F-250]

A Constantly Changing Process

The constant changing of processes was also referenced as challenges to improving access.

It's been a real struggle for them to know if they're eligible or not, and the training of the people answering the Tri-West or the VA Choice, whoever—I do not even actually know—who mans that. I don't know if it's a third party administrator manning the call center or if it's actually the VA administering the call center. But that really has to improve. The veterans get a lot of misinformation and the runaround and it's not good because it adds extra stress. So an example is the other day I had a patient call, and he was real upset because he lives probably 45 miles from our clinic, he's an elderly gentleman and it's a hardship for him to drive. He lives past XXXX, which means he has to drive…it's a busy XXXX highway. It's just busy. There's a lot of trucks, he's elderly, and I can completely understand why he may choose to want to go with VA Choice to see a provider in his town, which is a mountain town. And when he called the VA Choice line, first they said you're not eligible, then they said he was eligible, then they said well, you have to drive to XXXX and get a consult for that. That's all wrong. So that is one issue that I think is hurting the VA. If they're going to offer that, they need to make sure that it is well staffed and that people are educated, number one; number two, non-VA care is a huge…it's such a bad thing for our veterans. They go through so much. It's so frustrating, you know, the non-VA care, they need to—if this isn't on the topic, then I'll stop, so I don't want to take you off, but here's the problem, if you want problems, this is the problems we see. [F-250]

And I'll tell you why I'm not sure. WE changed the system so much, I'm not sure who's happy anymore. When patients got the appointment they wanted, and then there wasn't access there, we measured that. Then all of a sudden we went into recall and now we're not giving them appointments and they're not happy because we're not giving them appointments, we're denying them that until they call in. So I don't know if they're happy or unhappy with the access or happy or unhappy with the process. The telephone lines don't work, so they can't even get calls. So recall doesn't work for that reason. We have 78,000 pending recall appointments in one facility; 78,000. And that's not our biggest one. So you've got a bunch of people trying to call in on phone lines that don't work and are they happy? No. I think they feel they don't have access. [F-141]

A Complicated Process

Not only are the processes constantly changing but they can be complicated, leaving lots of opportunities for things to simply fall between the cracks. For example, some veterans have had problems because they didn't realize that multiple authorizations were needed for multiple trips. Relatedly, some say it results in 'piecemeal' care and doesn't result in the provision of comprehensive care. Notes from one interview highlighted the fact that sometimes, it a patient has Medicare, it can be easier to say "use Medicare" just because it will be a more simple process and the patient may get seen sooner (Notes from F-031). The following illustrates come of the complications faced by Veterans seeking care.

A lot of it would be with the non-VA care and with the VA Choice, the way that was rolled out. That's been a real…I think it's been a nightmare for many of our veterans. But we are small enough that we work—another we do at our clinic, too—actually monitor to keep tabs on all the different services because we offer audiology, optometry, dental, kinesiotherapy, a large mental health portion with psychiatrists, psychologists, social workers, counselors. We're integrating primary care with mental health. At our clinic once a month we actually meet with every service representative and although we may not be their direct supervisor, as the manager, we meet as a team. And as a team we work to make sure that our veterans are getting what they need, and this may be something might be a little bit unique to our facility, but if our kinesiologist says I need 10 more overbook slots because I'm going to have a group come in, immediately I'll be able to go in and I'll adjust the clinic and add those slots to them. We have such a great working relationship with all the services that we really pay attention to the needs of our veterans here. [F-250]

Going forward, respondents made suggestions regarding how VA access could be improved:

The only thing with access is that when and if Congress continues to change things, that there be a good time frame to actually educate and train their staff so that when it gets rolled out, it gets rolled out as it was intended and there's not so much ambiguity. .. But when something is thrown out there to happen and—my wife got her Choice card before I even fully understood it as an employee—when things are done that way for political gain it really hurts the VA and it hurts their veterans. [F-102]

I think that by and large, the culture was "We are not really primary care providers, we're a secondary backup system, we're a safety net, and we really need you to

acknowledge our needs as a system and work yourself around those if you're the patient." I think a culture that says "We're here to do our best to meet your needs, tell us what those are, and we're going to try to help. We're going to try to do that quickly, efficiently, and even if you're being unreasonable, we're going to try to respond to you in a reasonable way." [F-070]

The Mission of the VA is Important and Matters to Veterans

The end of every access interview guide included a question where respondents could indicate anything about access not discussed to that point. Our research team was surprised to note how often respondents took this unstructured moment (or others) to tell us what they thought was most critical about access at the VA:

First, VA staff are committed to veterans, and willing to do more (even for less) to provide access to care for them.

> We take care of some amazing people… (Notes from F-031)

> We can do anything in VA and we have a very strong health care system and we've got some very talented people who get paid way less than the community that are dedicated to serving our veterans and there's no greater mission [F-102]

Second, VA staff and facilities are in routine contact with their constituents, providing another layer of access to the system. Certain types of VA facilities are required to have regular meetings, and …

Finally, VA staff indicated that veterans within the VA system have access to something 'special.' We did not come into this analysis prepared to measure—and indeed this may be inherently intangible—the 'specialness' of the VA.

> Well, I'll just lead with one thing that's different when a veteran comes to a VA clinic and it is really different, is that they're treated special. They're just not a patient in a waiting room. They're a veteran. And I think eventually even if the patients decide to use Choice—and I think it's really…my personal opinion—it is nice for the veteran. Some of our veterans have to drive down winding mountain roads. I drive myself because I'm from this area so I pretty much know each route to get here and where the patients live. And so I think that there is a purpose for the VA Choice … But there's nothing like coming to the VA. There's nothing like coming when you are with your fellow veterans, and all the different programs that we offer right on site, and all the activities. We have so many activities here for our veterans. We have our welcome home event. We have popcorn in the lobby, we have snow-cones. Our veterans service organizations throughout the city are so supportive of us. And it's just so nice for our patients because I believe that we really do treat them special.
> [F-250]

But more than anything else, what VA staff wanted *us* to hear is that Veterans aren't accessing *any* health system when they go to the VA. This is a community, dedicated to their well-being.

Appendix E.1.6 Policy Options

Policy Options

Our interviews with VA Central Office leadership, VA providers, VISN directors, Congressional staff, Veterans Service Organization representatives, third party administrators were focused on identifying perceived challenges to VA's capabilities and resources for providing timely and accessible care, and potential approaches to addressing those challenges and improving VAs ability to provide timely and accessible care to veterans. Respondents consistently identified issues and solutions across the categories of **workforce, information technology, private sector care, physical infrastructure, and standardization.**

WORKFORCE

Respondents described various challenges to maintaining an adequate workforce to sustain timely and accessible care, including non-competitive physician salaries, difficulty recruiting providers to rural areas, lack of support staff, national workforce shortages, a burdensome hiring process, and a funding system that lags behind actual demand.

Non-competitive salaries

> But the market… The pay is not comparable in all to the private sector. So I think it's still very difficult to recruit good people with the salary and limitations. [V-74]

> It's going to be an issue for VA to attract those types of providers, particularly because of salary rates, special salary rates and etc. that they have. But I think that in order for VA to be a key player in that big arena they're going to have to enhance their salary authorities to be competitive with the private sector. [V-01]

> …there are some specialties that we're just not going to be competitive in the recruitment process. So, what's an example? We're not going to be able to pay a neurosurgeon or an orthopedic surgeon what they're making in the private sector. [V-25]

Recruitment difficulties

> Right. And also we had trouble and still have trouble under the Choice Act finding providers in rural areas. And so, it's sometimes, you just can't find anybody to provide the type of care you need within the limits of the mileage that they're trying to provide or closer to home. So that's another issue. [V-74]

> And so right now there was five million dollars in the Choice funding to provide for staffing and resources, and so the problem that VA is facing, though, with that issue, they're competing with the private sector for the same resources. And so in rural areas it's a very big issue. Metropolitan cities where—particularly in the specialty care arena—where you have a lack of specialized care; a psychologist, psychiatrist and so forth. [V-01]

Inadequate support staff

> So that our physicians may not have three rooms per physician when they're in clinic they may not have the support staff that allows us to optimize three rooms so we can

move people in and move people out as they're seeing a third patient. So I think that's really the first area I would look at is I think we may have a number of physicians, they may be working X number of hours a day but they may not be as efficient in those eight hours as someone who has more examining rooms or a greater staff to support them. [V-25]

National workforce shortages

Well, there's a shortage…psychiatry is, in terms of the medical professions, psychiatry, it can be difficult to recruit specialty…actually, in the report that was done by VA in terms of looking at its own staffing shortages, psychology was also noted as a difficult to recruit profession. However, more importantly than broad statements like that is the fact that it's really a local problem. There are some markets and areas in the country where it would be fairly easy to recruit a psychologist or psychiatrist of other mental health provider, but there are other markets and the boundaries are probably geographic where it's very difficult. There aren't mental health providers in the community and so when VA tries to either recruit or as we may talk about later when we try and send out veterans or provide veterans through the Choice Act with opportunities to get mental health care in the community, there just aren't the resources. [V-39]

But, you know, it's not easy when now across the board a variety of positions are being recruited by the VA when, frankly, nationally we don't have enough providers for the population in this country. So at some point when VA does pull on additional providers' staff, I think it will be way more difficult to find replacements for people who retire or leave for whatever reason, simply because we don't have enough providers within the country… [V-17]

And because if you look at the overall stats of clinicians in America, it's not just military VA coming into a real shortage, you're coming into a big shortage in a society. There aren't going to be enough providers. [V-16]

Burdensome hiring process

The hiring process takes long everywhere and you do miss some really – you have an opportunity where you miss out on really talented folks because they get tired waiting and then they go elsewhere. So that's very real everywhere. [V-19]

But it takes a while to get awhile to get people on board and spun up, etc. [V-39]

Lagging funding system

So today we get funding, for example, to hire staff or to purchase care or to do whatever, but the fact is those things require a year or two to execute. The budget cycle…when somebody comes in in June and gives you three billion dollars, let's say— I'm just making that number up. I think the number was five billion—and they say, "Oh, by the way, you should execute this by October"…even though you may need that, the responsible person can't do that in a responsible way. So I think some of the dilemma at this point is not that the VA has been slow to respond; I think the VA has been very active and very aggressive in responding, but it takes a while to get things in place to really start to affect a change, which I think there has been some changes made. [V-39]

We use Verifunding, so your funding is a population based funding that trails by, I think, two years. So you have a growing population but that growing population, you don't get the funding for that for two years. If you had the funding for it, you can't hire the people you need there, and you have a growing demand. [V-39]

Overall Issues

What about our systems that... You know, it's not that we can't necessarily recruit, can we successfully recruit? So, how long does it take to get a primary care provider credentialed and privileged in the VA? How long does it take them to get appointed? And are they out there? Are we paying them? We each got a small increase in primary care across the country for physician pay. Can we pay them the market value? That has to be fought locally, because we're geographic. It's based on the market. I think the idea that staffing comes into play and can support access is critical and it can't go away. That's a critical aspect. [V-43]

So we knew we had some problems the VA's been struggling with for a long time. Lack of providers in the system and the challenges in recruiting and retaining providers in VA, lack of providers, period, in the country. That definitely makes it a challenge. And also the lack of space and those kinds of… the infrastructure and the sort of supporting considerations that make it more difficult to get folks in. [V-14]

Possible solutions to addressing workforce challenges described by our respondents include:

Use of partnerships to augment VA workforce

I think there are some opportunities for us to partner with academic medical centers and our academic affiliates to help recruit qualified and competent specialists, but specialists who may be interested in education or research, and may not be able to get that protected time if they're in the private sector. So one option is to look at your partners and see how you can leverage partnership and what we have, which is the combination of clinical care, research and education with a specialist interest. [V-25]

I think one of the things we haven't looked at, we've focused on our academic affiliates in larger communities but I think one of the things we haven't done is look at are there ways we can partner with community hospitals in facilities, in towns that don't have an academic affiliation so that much like we partner with an academic affiliate, we partner with a community hospital and maybe between us we could buy somebody that neither of us individually can buy alone. And I think for some of our smaller facilities, and for some of the smaller communities, that's a real opportunity, it's win-win for both. [V-25]

Use of non-physician providers to augment VA capacity

We in some facilities, in some clinics, there might be or there might have been usage when it was more difficult to get physicians to hire nurse practitioners or physicians assistants, and that tends not to be the case in VISN XXXX because we can hire physicians. But at times in some of our locations we will also utilize nurse practitioners and physicians assistants. [V-17]

There aren't going to be enough providers… Particularly the nurses, and that's why many states are now giving much wider range of practice to nurse practitioners. Many will probably follow with PAs, giving them a wider scope of practice. [V-16]

Raising salaries to be market-competitive

> But I think that in order for VA to be a key player in that big arena they're going to have to enhance their salary authorities to be competitive with the private sector. [V-01]

> We've pushed them to make special exceptions so that they can increase the base salary for psychiatrists and so we can recruit more psychiatrists. [V-14]

Respondents also noted that even with increased hiring of providers, optimal provider productivity is dependent on other factors; e.g.: enough space, enough support staff, etc.

> Staffing has a downstream cost, right, so you hire more staff; you have to have more computers, right? You have to have, for higher, faster access. You have to have more buildings. So it creates another host of things. But I like the idea of thinking about measures as signals for the organization to keep tabs of what's going on. [V-39]

> I'm going to start with space because as we have looked at comparisons with the private sector, we have been told, "you're only seeing 10 patients a day but the private sector can see 33 patients a day." I think that ties to the fact that we are not set up as a fee-for system, fee-for-service system, we are set up as an accountable care organization so that we don't necessarily staff to optimize our productivity. So that our physicians may not have three rooms per physician when they're in clinic they may not have the support staff that allows us to optimize three rooms so we can move people in and move people out as they're seeing a third patient. So I think that's really the first area I would look at is I think we may have a number of physicians, they may be working X number of hours a day but they may not be as efficient in those eight hours as someone who has more examining rooms or a greater staff to support them. [V-25]

INFORMATION TECHNOLOGY

Respondents described various challenges to leveraging VAs IT infrastructure to support timely and accessible care. These relate to an outdated and unnecessarily complicated IT systems, particularly related to scheduling software, lack of interoperability of the electronic medical record, and separation of the IT organization from VA healthcare delivery and operations. Tele-health was consistently raised as a potential solution to increasing VA's capability to provide timely and accessible care, although some issues such as ensuring IT support and budget were raised as considerations salient to the success of tele-health.

Outdated IT systems

> One not surprisingly, and one that I'm sure you have heard from others, is the totally outmoded and inadequate scheduling package, as well as some other IT packages that we are using that need to be upgraded.[V-17]

> There's no good excuse that at a higher level in our organization, the upgrading and modernizing our IT systems has not occurred. [V-17]

> You know, I didn't think I needed a person to walk me through the system. So we just need to simplify it. The same with the scheduling package. Make it such that, you know, a not very bright person could figure out how to do it. And we in VA seem to do just the reverse of that. [V-17]

Our scheduling package is, you know, 25 years old. When XXXX talks about multiple modalities care, what you might not realize is that in the VA every single modality has to have a different scheduling grid. We can't see all of them together. So, if you're a clerk and your provider has telephone care and they do some Telehealth and they have secure messaging time or whatever, all of that is on a different scheduling screen. You can't mesh and see an overlay. So the work of primary care, the sheer work of it locally, is almost overwhelming. [V-43]

Lack of interoperability

I used to believe that we should have an integrated medical record, but now that I am dealing with the DOD, I understand. Think about this. In today's atmosphere, where the Department of Defense computer systems are the last think I want to have hacked. Then you have an insecure, it has time and time again been proven that the VA's Internet is not secure. Time and time again. We actually briefed the Secretary on this. So, I sit there and say, "No wonder DOD doesn't want us to have direct access." [V-28]

We have a hard enough time sharing electronic medical records within the VA. Only recently has it become somewhat seamless. But now when we try to expand that between DOD and VA, we're having a huge problem which reflects primarily on the claims side of the house. But it also reflects on the healthcare side. So if we can't get two sister government organizations that are funded by the same funding source, to get on the same electronic health care record system, there's not going to be possible to get the civilian population to work in a comprehensive manner, in a seamless way. [V-01]

Organization of IT accountabilities

Well, I think that one of the barriers is several years back, I don't remember exactly when, there was a reorganization when IT was separated from VHA. IT is a separate silo in VA and I think that, quite frankly, had the IT community were divorced from the healthcare mission in VHA. It's noticeable at facilities. Just the development of the electronic health record, which occurred in VHA, occurred with developers in medical center settings working with clinicians to pull together an electronic medical record that met that needs of clinicians, and that was enormously successful. That ability to work directly with developers has been eliminated. The organizational separation has cast IT out of its support role. IT is a support service, it's not its own entity, and the separation that we have currently, like it's a separate entity and it's not in support of the agency mission, certainly for VHA it's not in support of the VHA health care mission. [V-17]

They don't get it that healthcare mission trumps all, and that's manifest in ways like shutting down a service without adequately consulting with all of the people who are involved, so that you might have patients coming in who are scheduled for care, and the clinicians will find that, oops, that service has been shut down or, you know, utilities have been shut down without recognizing that when work needs to be done, it's done after hours, so that part of your goal is to minimize or eliminate disruption to actual healthcare service. But now with organizational lines being what they are, there isn't that kind of collaborative working together. [V-17]

I don't know a lot about what we're doing with IT. IT, as you know, it's separate from VHA now. When it went separate, we kind of seemed to lose control over what—that's actually one of the barriers. When it used to be under VHA, it seemed like we could do

things more locally, and yet, when you talk to IT, they're saying that VHA, this is what they sent us as their priority. So we do send up our priorities but it seemed like that at like a VISN level or medical center level, you lost any kind of ability to get any IT projects done. It has to a roll up at the VA level. So it was quite challenging. [V-74]

Tele-Health as a solution

I think one of the things as an overall system that maybe we're a little slow in doing but is a tremendous opportunity is our use of tele-health, tele-medicine, which is something that I've been in discussion with that office in terms of how do we develop a better set of business rules and processes, so, for example, if you're in a part of the country that can't hire a provider or find a provider, if that examination can be done via tele-health with, let's say, a part of the country like our part of the country. We can even buy the provider, if you will, and then develop that tele-health relationship, so I think we need to do more of that. [V-19]

One is that it's hard to hire dermatologists. They're expensive, and I think a lot more people need to see them almost like primary care. I don't know about you, but I know when I was growing up we used to slather baby oil all over ourselves, put ourselves out in front of the sun, and there was probably a lot of skin cancer lurking out there. But they're pretty expensive. There's some dermatologists who are largely involved and build a very lucrative practice just around doing cosmetics related things. So dealing with some serious skin illnesses, they're not that easy to recruit; Q - Right. Okay. Excellent. So telehealth also potential in places where you're slightly understaffed. [V-17]

We just did our first C&P exam through tele-health and it was really tremendous because this was one of the most longstanding wait for a C&P exam for mental health for a homeless veteran, and part of the reason was because of having to track down the veteran and then get having to get him to a provider, a C&P provider. It's a difficult population sometimes to engage, but we were able to get the veteran to the medical center. It happened to be here in the XXXX and then do the whole exam through tele-health and the exam was done and completed with results within just a couple of hours. [V-19]

Our goal in thinking about access is to make sure that the veteran has access to the care that he or she needs in the time that they need it. And so the challenge then is to look at things like telemental health. There may be a mental health provider in the clinic, but maybe they don't provide the kind of service that the veteran needs, so it's not just looking at if there's someone on site, but if there's someone on site who can provide the care that the veteran needs. [V-39]

So I think there's a lot of opportunity in virtual care. It has the advantage that I don't need to have a capital infrastructure in a lot of cases. I don't need to have three rooms per patient. And so it makes the use of my resources more efficient. And it's more convenient for the patient and in some cases they can be handled by individuals who don't have to be a doctor. So you've got the advantage of being able to effectively use differing levels of resource. Nurse, physician, nurse practitioner. You've got the ability to use your capital infrastructure in a different way and you've got the ability to provide services at different levels. And maybe they just want to ask a question and you've got the answer in some sort of reading material and that's all they want. [V-25]

> I think the second prong is the expanded use of telemedicine. If I'm remembering correctly, I think close to 40 percent of our patients now, we're touching, if you will, with some mode of electronic communication, be it clinical video telehealth or secure messaging with their providers. And that's, I think, going to continue to be a critical part of the process or the solution to providing more accessible care to people. [V-18]

Enthusiasm from our respondents for tele-health as an opportunity to provide timely and accessible care was tempered by various considerations to ensure success of tele-health, including the need to sort out coding/billing and workload issues, ensuring adequate IT support, and training, space and equipment needs.

Coding/Billing and Workload

> I don't think it's clear for folks how do we establish these maybe service agreements between two networks or two facilities? One is we have to make sure that whoever the provider is doesn't have … that's there's no insurance issues for providing to another state or to another facility. I think there's still some question about that, that they have capabilities to get into the CPRS record, so most of it is technological processes, but in addition that, the provider, there's no problem with the provider being boarded and whatever competencies that they have is transferable across state lines and across another facility, capturing the patient. How does that impact VERA allocations, for example, in cases where we buy the provider, meaning that we hire a provider for another facility? How do we work out those cost transfers? None of this is insurmountable and it's certainly being done; it's just if we could do it in one sort of standardized way, it wouldn't be so onerous every time you want to set it up. And I think that if there was these standard processes, sort of just a rule book to this, then facilities would be more inclined to get it started. [V-19]

> So just the fact that we might not be able to bill for these services because their coding structure's still being developed is one thing. Another thing is, say you're seeing a patient. You're in Atlanta and the patient is four hours away in a different state, and you're not credentialed. The credentialing and privileging has been a real challenge because, even though we're a federal system and our docs do not have to be credentialed in the state—so they don't have to have state credentialing and privileging done—they do have to have it at the facility that they work. And so they may be a seeing patient that's not in their facility, and we run into issues with that. So how do we have that provider have the credentialing and privileging. Those are things they're working out. [V-74]

> Coding and billing issues is a big issue. We need to develop some sort of, you know, there has to be coding that's developed in a streamlined way that would enable workload credit to be accurately obtained for providers, whether it's in a medical center or a CBOC clinic or a home. [V-19]

> They're looking at the stock codes with the decision-support folks to try to get the workload issues resolved and being able to keep track of the workload. To me, like even if we can't track our workload and we can't bill for it, we can still provide it. It's just the VISN directors and the facility directors I was going to say, but where we going to get the money for it if we don't have a way to get VERA, which is our payment allocation

system. If there's no credit in VERA, we're not going to get that reimbursement. So yeah, there are a lot of issues that still need to be worked out. [V-74]

IT support

The challenge with it, frankly, I think, is IT, first of all, and making sure that we have good IT support and good IT budget. [V-18]

I think some the barriers that we still run into is having enough bandwidth, you know. I went out for a visit to XXXX, so they're very rural areas, and I complimented them for their work with Telehealth because they really started to use it and increase it. And they said, "You know, if you could get us more bandwidth, it would really help." And I had not realized they would be struggling with something like that, because everybody has a cell phone and cellular FaceTime. But people, like all across the world, have it, so you wouldn't think about in the United States we still have areas where they don't have—they can't reach in some of these isolated areas. So those are challenges, but they certainly can be overcome. [V-74]

Training, space and equipment needs

Not all providers are trained in the use of tele-health, although I think some of the younger providers have been and the more we use tele-health and normalize it, including with our medical students, the more buy-in we will get. In some cases there's a lack of space so you still need space to provide tele-health, like an office with the equipment, but in terms of the challenges, we need sort of a – this one was interesting. A tele-health help desk for Veterans particularly because we could do video to home which provides an alternative to in person clinic care, particularly for Veterans who can't, you know, for a variety of reasons, do a far distance to get to a facility or to a provider, but they just would need, like, a Help desk in order to help them set it up. We need more clinical engineering support. We've had some great support here in VISN XXXX, but we need to build it into our engineering support so that when we develop office space, for example, it supports tele-health and the equipment. We need to invest some resources for virtual care if we want to move out of bricks and mortar, and some of that would be a greater focus on the business aspects of tele-health through data analysis. [V-19]

PRIVATE SECTOR CARE

Respondents also discussed a range of challenges to efficiently utilizing the private sector to provide care to Veterans, including whether or not there was adequate capacity outside VA, the lack of standardization in rules, processes and utilization of existing community care programs such as PC3 and CHOICE, and the fact that community providers often were not reimbursed in a timely manner, reducing their participation in the network and therefore reducing overall capacity. The most consistently raised issue was the lack of standardization across community care program.

Lack of standardization in the use of existing programs

But right now you have these different methods of non-VA care which are actually competing against each other. You've got the local contracts, some of them that are paying extremely high rates, Medicare plus 140%—a high rate of coverage. And then you've got PC3 which, you know, the contractors are negotiating with individual

providers, so it's Medicare usually plus a discount based on the population of providers, the availability of providers. I guess XXXX they can get a higher—a better discount rate versus XXXX or something like that. And then you've got Choice which is also kind of wrapped into PC3, network versus non-network. You know, network is at the PC3 rate, non-network is Medicare rate. And then you've got your one-off individual referrals which we don't know what those are going at. So they're all competing against each other and some medical centers, like, well, we've always contracted with this facility, we use them all the time. Why should we go with this other provider? And then you look at the providers in the communities, well, why should I go PC3 if I can stay here on this contract that pays significantly more? So there's got to be kind of a one pathway forward that compensates providers adequately to encourage them to participate, but then is also fiscally responsible on the VA side. [V-08]

So there's just a confusing process system, there's no standardized process across— every medical center is different. Sometimes VA uses that as a point of pride that everyone's different but in some ways that lack of standardization on just some basic business processes allows for just a lot of blocks and a lot of (instances [inaudible] @ 0:31:02) and a lot of frustration on the vets' part especially if the veterans are just (inaudible @ 0:31:06) or things like that. And I understand the need for flexibility and diversity between the medical centers, you know, different regions have a different flavor and they also provide different services. But if the skeleton of the system is consistent across the system then there aren't so many opportunities for confusion or not—you know, just—I don't know—manipulation is (the only word that [inaudible] @ 0:31:43). [V-08]

VA begrudges the existing contracting authorities. They don't like PC3, they don't like the ARCH program, they're resistant to use it, and we're angry about that because we consider it to be a great program. They consider it to be an inconvenience. But what we're finding is they are exuberant about the Choice card. So we're a little confused about that and if it's nothing more than from a sales position, we have to get VA to buy into using their contracting authority. [V-01]

Confusion regarding existing programs

And through our whole, non-VA care, PC3 and Choice, the communication process has really been a challenge. My perception, this is my opinion, we have focused more on the business aspect of that model than we have on the clinical aspect of that model. So that is, how do I get somebody out? How do I get information and appointments scheduled? How do I get a bill from that person? How to I pay that bill and how do I close that encounter? The concept of actually getting something back and getting it to a provider as a useable piece of information isn't always something that's been stressed. [V-25]

So yeah, I can think of a few things that really, really make it difficult. For instance, to get the care referred in the community, there's a bureaucratic piece to that, so the veteran just can't go, even with the Choice Card, and go and just say, "Here's my insurance card. Take it." There has to be a list generated that says that this veteran is eligible and you'd have to check all the rules and the mileage. [V-74]

One of the biggest barriers is how they apply the 40 mile rules, the criteria which we all know. But then if they live close to a CBOC and they're directed to that CBOC, when they call the CBOC and they need some care other than primary care and they can't

provide that care, then they're directed to the parent facility and the parent facility in some situations can be a three hour drive one way. [V-01]

One of the veterans also—they're confused on all of that stuff as well. What we've seen is the episode of care component is so in the weeds that they haven't even gone past the first several layers of confusion. No, I'm serious; like they haven't. I'm just going to rattle off some stuff; this is not scientific, not just because it's printed off on a piece of paper. So we had—these are confirmed members of our—so they're confirmed veterans, 226—this will roll over and I can provide this later. But 44% of our roughly 227 folks that have done this said the current eligibility requirements for Choice don't apply to them. Two of three said they had received a Choice card in the mail. Ten percent didn't know. And I can go anecdotally as well across the VSOs as well as veteran friends and neighbors; it's just so confusing. [V-09]

Community provider reimbursement

The reason also, it needs to be directly connected to immediate payment. A lot of docs won't go anywhere the Choice program because they've had the experience with fee basis of having to wait forever. And they're cash flow, they're still paying their people, and so they're just not going to deal with it. They won't take them because VA's sorry, sorry record of not paying, and I'll use as an example something that's gone on for a very long time. [V-16]

If you're service connected disabled, and/or you're just part of VA and you're nowhere near a VA hospital and you have an episode like you're having a heart attack and you go to the nearest hospital and they get you through the first 48 hours and then transport you by ambulance to a VA hospital, and they send the bill to VA, VA doesn't pay it, eight times out of 10. So what happens is ambulance services don't want to transfer for you anymore because they run on an even thinner margin than the hospital. The hospitals don't want to take you unless you have private insurance, because they're already swamped with indigent people in their emergency room. [V-16]

VA's reputation for payment stinks and it has…it's gotten no better over the last 30 years and it's something we've come back and come back to the Congress and the VA [V-16]

So, I would say that the biggest problem now with purchased care, across, is that a lot of the people who are providers and have been for some time are backing out because they have not been receiving their money, their reimbursement, in a timely manner. And why that happens, I do not know. [V-28]

STANDARDIZATION/CENTRALIZATION

Respondents also highlighted the lack of standardization of administrative processes and lack of centralization of authority as a key challenge to efficient delivery of care.

Specific to the VA, I mean, having been in DoD and VA I think it's that lack of the skeleton, that lack of underlying standardization that really kind of feeds this, you know, the one-off. And I know probably—"Well, if you've seen one VA you've seen one VA," that whole statement I find very offensive. It's like why do you have to keep buying into this idea that every medical center has to be different and when it's that different, there is no chain of reporting, there is no clear cut line of authority. I mean, you go around

asking who's in charge of the homeless program here? At one VA it's the mental health director, one of them it's the chief of staff, another one—so you never know who's in charge. Who's in charge? Who do I talk to? Having been in DoD, you go to an Air Force Base, doesn't matter what airplane is on the ramp or what the mission is, I can go on base, I know exactly where base ops is, I know exactly who's in charge of the landscaping, I know exactly who's in charge of the control tower, I know exactly where the flight (kitchen is in relation to… I mean, it doesn't matter what's going on; that base is all skeletons there, that kind of standardization. And when directives come down or things like that then everyone at least follows them. And then you have latitude to be flexible, actually you have more latitude to be more creative around the edges, so you're not worried about all the kind of minutia. I think that's probably in my mind one of the biggest challenges with VA, is it's too many—152 little VAs that aren't reporting to each other. [V-08]

Let me just say this. There is no standardization in VHA. No. There is a lot left to the discretion of the medical center director and/or the chief of staff. That's probably the biggest problem in VA because if you are thinking that you're going to get the same care in the XXXX VA that you're going to get in XXXX, they are both VA MCs, but the care if very different. [V-28]

So when you contract for services you have to abide by contracting rules and VA some years ago centralized this contracting process. So through that centralized process, it's limited local contracting officials' abilities to meet the needs of the local health care facility. And so it has to follow all the way up through central office. And it doesn't follow the principle of health care is local. And so they need to reexamine their contracting process to minimize it and ensure that local contracting officials have the ability to do what they need to do within the confines of law to meet the needs of local veterans. [V-01]

PHYSICAL INFRASTRUCTURE

Respondents commonly described the lack of physical space, particularly exam space for provider to see patients in and a lengthy and burdensome leasing and contracting process, as key challenges related to VA's physical infrastructure for providing timely and accessible care.

Lack of space

And also the lack of space and those kinds of… the infrastructure and the sort of supporting considerations that make it more difficult to get folks in. [V-14]

You know, VA says we don't have the space. They have space. If you go to some of their facilities they have an awful lot of admin space. Their executive suites are rather grand. And I understand the need for having multiple exam rooms where a doctor doesn't have to wait until that exam room is empty before they can go back in there, I get that. And that's why we gave $2.5 billion for that kind of improvement. I'm a little concerned that VA is not utilizing even kind of immediate solutions, you know, mobile exam rooms, kind of like the schools. [V-08]

So the challenges, of course, with our infrastructure is that many of our buildings are old. And whether we want to rebuild, renew buildings that are... A lot of them were built before the 50s, and so they're needing a lot of care if we're going to continue with

those buildings. The other thing that folks I know in the field have said there was some sort of limit on being able to lease space too, so there was like we had to decrease our leasing of space, footprint. We have a declining infrastructure... [V-74]

Space in the context of provider efficiency

And they said it could be much more efficient if each physician had two rooms so they could see the patient, and the next patient is getting ready, go to the next room. We don't have that. I don't know anywhere that actually has that model because of our limited space. They normally have one room and they have to wait for the new patient to get in there and get ready. So space has been a real constraint with access, and I don't know the clinical people talk to the space people. I'm really not sure about that, because those are two very separate areas in Central Office. [V-74]

I'm going to start with space because as we have looked at comparisons with the private sector, we have been told, "you're only seeing 10 patients a day but the private sector can see 33 patients a day." I think that ties to the fact that we are not set up as a fee-for system, fee-for-service system, we are set up as an accountable care organization so that we don't necessarily staff to optimize our productivity. So that our physicians may not have three rooms per physician when they're in clinic they may not have the support staff that allows us to optimize three rooms so we can move people in and move people out as they're seeing a third patient. So I think that's really the first area I would look at is I think we may have a number of physicians, they may be working X number of hours a day but they may not be as efficient in those eight hours as someone who has more examining rooms or a greater staff to support them. [V-25]

Difficulties with leasing/contracting space

But I was saying, okay, maybe it would be better than rather us trying to build a crumbling building, that we rent a floor in the local hospital. You know, we lease space there and we take care of our patients there, but in a brand-new community hospital. And they said there had been a limit to leasing any new space, and they were very challenged by that, the people who, even to start a new clinical outpatient... It has to all be approved. Well, it has to be approved by the capital assets management group here. [V-74]

I mean, a real difficulty is that it takes us so long for getting anything through contracting. It's just crazy when you look at trying to expand. When you look at the need for an additional clinic space, it's several years before you can open it. And, you know, right now that's particularly frustrating because here we've been given the dollars, we've been given to hire additional staff and in many cases people think, where am I going to put them. I need leased space if just to move some administrative activity out of the medical center, so I can then sort of fix the space, convert the space for clinical use, and it just doesn't happen because of the need to go through contracting. [V-17]

I would start with our leasing program, which again, impacts our plans for our community outpatient clinics. It really needs a fresh look. It's a very cumbersome process that takes a lot of time. It's a very layered process from all the multiple approvals. Each takes time to get through. It creates, in essence, a multi-year planning cycle, so you need to know what it is that you want and you need to start working for it at least three years ahead of time in order to get through the process. [V-18]

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Appendix F Access

Appendix F.1. Geographic Access to VA Services for Overall Population

Tables F-1 through F-9 show various measures of access to the VA health care system. After a total count of Veterans, enrollees, and health care users (defined as enrollees who have used the VA health care system) in Table F-1, we show access to all VAMCs (Table F-2), to VAMCs by complexity level (Tables F-3 through F-6), to health care centers (Table F-7), to multi-specialty CBOCs (Table F-8), and primary care CBOCs (Table F-9). The access tables all show access by enrollees and health care users, with access defined as a 40-mile driving distance or 60-minute drive time. All tables show summary figures as well as by VISN.

The source for Table F-1 was the VA Planning Systems Support Group (PSSG) Enrollee file. Tables F2-F9 contain RAND estimates produced from VA Planning Systems Support Group (PSSG) Enrollee file and an April 2015 extract from the VA Site Tracking (VAST) system.

Table F-1. Total and VISN Veteran Population by Enrollee and User Status

	Veteran Pop. (N)	Enrollees (N)	Users (N)
U.S.	21368522	9026767	5786669
VISN			
1	959743	367854	237294
2	450596	204941	123698
3	764042	302953	152623
4	1216068	469282	296206
5	702133	241306	125886
6	1261715	536919	346029
7	1350711	605367	390548
8	1596447	762264	531237
9	925532	418979	280337
10	810589	331940	217645
11	1147262	418686	272889
12	894325	361127	238743
15	820654	349577	231933
16	1628522	731008	479801
17	1017808	461462	286190
18	857342	386064	251107
19	709427	298056	188666
20	1082702	430210	277572

	Veteran Pop. (N)	Enrollees (N)	Users (N)
21	980468	390830	246195
22	1243889	513541	302547
23	948547	444401	309523

Table F-2 Geographic Access to VAMCs

VISN	Choice Eligibility	VAMC (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest VAMC	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
All	All	163	55.3	60.9	53.8	59.4	41.4(39)	51.9(45.3)
	Eligible for choice	163	0	0	0	0	91.7(38.6)	117.3(45.7
	Not Eligible for choice	163	59.6	65.1	58.3	63.7	16.5(10.5)	25.3(14.9)
1	All	11	72.6	79	72.1	78.2	28.1(26.3)	36.4(30.8)
	Eligible for choice	11	0	0	0	0	97.5(42.1)	119.2(46.2
	Not Eligible for choice	11	75.4	81.6	75.3	81.2	17.1(10.9)	25.6(14.9)
2	All	6	65.2	71.8	66.3	72.8	35.9(32.6)	46(36.8)
	Eligible for choice	6	0	0	0	0	97.4(36.2)	122.1(45.5
	Not Eligible for choice	6	67	73.6	68	74.4	18.3(11.5)	29.1(16.5)
3	All	9	88.5	91.8	87.5	90.9	13.7(14.5)	19.4(17.3)
	Eligible for choice	9	0	0	0	0	92.2(5.4)	118.4(5)
	Not Eligible for choice	9	88.6	91.9	87.5	91	10.7(8.9)	16.8(12.1)
4	All	11	64.2	75.7	64.5	75.9	30(22.9)	39.3(28)
	Eligible for choice	11	0	0	0	0	63(20.4)	83.9(28.4)
	Not Eligible for choice	11	65.5	76.8	65.8	77	17.1(11)	28.1(16.6)
5	All	4	82.7	85.1	80.5	83	23.7(22.7)	32.8(29.7)
	Eligible for choice	4	0	0	0	0	52.2(12.3)	64.8(17.9)
	Not Eligible for choice	4	83.6	85.5	81.3	83.5	16.2(10.4)	23.7(13.7)
6	All	8	51.7	61.1	50.7	60.2	47.1(33.3)	59.5(40.4)
	Eligible for choice	8	0	0	0	0	67.3(22)	91.4(30.9)
	Not Eligible for choice	8	56.6	65.8	55.6	65	20.9(11.1)	33.2(15.8)
7	All	10	45.9	49.9	46.1	50	51.4(35.5)	65.6(43.2)

VISN	Choice Eligibility	VAMC (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest VAMC	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
	Eligible for choice	10	0	0	0	0	73.3(21.4)	96.5(28.7)
	Not Eligible for choice	10	50.1	53.7	50.4	53.9	17.9(10.7)	27.6(15.3)
8	All	7	44.6	48.5	44.1	48.1	49.3(40)	57.8(43)
	Eligible for choice	7	0	0	0	0	96.9(35.6)	126.4(38.7)
	Not Eligible for choice	7	45.3	49.2	44.8	48.8	18.2(11.1)	26.5(15)
9	All	8	43.4	50.8	44	51.2	55.8(41.6)	67.7(46.9)
	Eligible for choice	8	0	0	0	0	92.7(29.4)	115(32.8)
	Not Eligible for choice	8	49.3	57.1	50	57.5	15.9(10.4)	25.9(16.1)
10	All	4	52.3	60.5	51.5	59.9	36.4(26.2)	47.1(31.3)
	Eligible for choice	4	0	0	0	0	55(12.1)	79.5(16.8)
	Not Eligible for choice	4	52.7	60.9	51.8	60.2	17(11.3)	27.4(16.1)
11	All	8	49.6	55.3	48.7	54.1	46.4(37.7)	56.7(42.6)
	Eligible for choice	8	0	0	0	0	84(37.8)	102.4(44.5)
	Not Eligible for choice	8	53.3	58.2	52.2	56.9	18.3(11)	27.5(15.6)
12	All	7	61.2	67.9	58.6	65.2	33(33)	42.2(42.3)
	Eligible for choice	7	0	0	0	0	86.1(32.3)	125.3(49.2
	Not Eligible for choice	7	64	70.8	61.6	68.4	15.8(10.6)	22.6(14.2)
15	All	9	53.5	57.6	51.4	55.5	46.3(41.5)	59(50.8)
	Eligible for choice	9	0	0	0	0	94.9(36.1)	123.2(46)
	Not Eligible for choice	9	59.6	63.4	57.5	61.4	15.8(10.3)	23.4(14.9)
16	All	10	36.7	40.9	36	40.4	63.6(45.5)	76.9(51.6)
	Eligible for choice	10	0	0	0	0	87(30.3)	112.2(40.3
	Not Eligible for choice	10	41.2	44.8	40.6	44.4	17.4(10.5)	27.3(15)
17	All	6	57.1	65.1	56.8	64.2	49.2(42.7)	59.3(47.2)
	Eligible for choice	6	0	0	0	0	91.2(38)	116.1(43)
	Not Eligible for choice	6	62.7	70.5	62.5	69.7	20.9(10.5)	30.5(13.9)
18	All	6	55	57	54.4	56.4	50.2(54)	62.9(60.5)
	Eligible for choice	6	0	0	0	0	110.5(46.1	137.9(51.5)
	Not Eligible for	6	60.9	62.8	60.4	62.2	15.7(9.3)	24.6(13)

VISN	Choice Eligibility	VAMC (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest VAMC	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
	choice							
19	All	6	41	46.5	40.6	45.8	58.7(55.6)	69.1(60.2)
	Eligible for choice	6	0	0	0	0	131.5(49.5	154(53.6)
	Not Eligible for choice	6	48.7	54.5	48.7	54.1	16.1(10.3)	27.2(15.1)
20	All	10	61.1	65.4	60	64.2	40.6(40.2)	53.6(50.9)
	Eligible for choice	10	0	0	0	0	94.2(35.1)	126.8(48)
	Not Eligible for choice	10	70.3	73.8	69.2	72.8	15.5(9.7)	24.3(13.9)
21	All	7	60.6	65.2	58.4	62.8	33.5(33.5)	45.7(39.8)
	Eligible for choice	7	0	0	0	0	96.8(48)	130.1(54.2)
	Not Eligible for choice	7	62.9	67.6	60.8	65.4	16.7(9.8)	26.9(14.4)
22	All	6	79.3	85.5	78.4	85	26.1(27.6)	32.5(32.9)
	Eligible for choice	6	0	0	0	0	95(34.2)	122(42)
	Not Eligible for choice	6	81.6	88	80.6	87.4	16.6(8.8)	22.8(11.5)
23	All	10	40.6	44.1	39.6	43	59.2(48.1)	74(56.9)
	Eligible for choice	10	0	0	0	0	95.5(38.6)	123.2(45.9)
	Not Eligible for choice	10	51.8	54.7	50.8	53.6	15.4(10.4)	24.1(15)

Table F-3 Geographic Access to VAMC Complexity Level 1 or 2

VISN	Choice Eligibility	Level 1 or 2 VAMC (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest VAMC complexity level 1 or 2	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
All	All	129	50.9	56.6	49.3	54.9	44.8(42.7)	54.9(48)
	Eligible for choice	129	0	0	0	0	97.6(42.2)	122(47.7)
	Not Eligible for choice	129	54.9	60.5	53.3	58.9	16.6(10.6)	25.4(15)
1	All	8	60.3	72.2	60.2	71.5	33(27.9)	41(32.1)
	Eligible for choice	8	0	0	0	0	97.5(42.1)	119.2(46.2)

VISN	Choice Eligibility	Level 1 or 2 VAMC (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest VAMC complexity level 1 or 2	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
	Not Eligible for choice	8	62.7	74.5	62.9	74.2	17.7(11.5)	27.5(16)
2	All	5	60.2	65.6	61.3	66.4	38.8(34.4)	50.4(40.7)
	Eligible for choice	5	0	0	0	0	106.8(31.4)	135.3(40.5)
	Not Eligible for choice	5	61.8	67.2	62.8	68	18(11.5)	28.6(16.7)
3	All	7	82	86.2	80.4	84.8	15.7(17.7)	21.3(20.3)
	Eligible for choice	7	0	0	0	0	92.2(5.4)	118.4(5)
	Not Eligible for choice	7	82	86.2	80.5	84.8	10.7(9.1)	16.8(12.4)
4	All	7	55.6	65.6	54.8	64.5	36.2(29)	46.1(34.2)
	Eligible for choice	7	0	0	0	0	69.6(25.1)	91.7(33.6)
	Not Eligible for choice	7	56.7	66.4	55.9	65.4	17.6(11.1)	28.6(16.6)
5	All	4	82.7	85.1	80.5	83	23.9(23.3)	32.9(29.9)
	Eligible for choice	4	0	0	0	0	53.1(13.6)	66.2(19.3)
	Not Eligible for choice	4	83.6	85.5	81.3	83.5	16.2(10.4)	23.7(13.7)
6	All	7	50	59	48.5	57.7	49(34.8)	61.3(41.7)
	Eligible for choice	7	0	0	0	0	70(24.6)	93.7(33.4)
	Not Eligible for choice	7	54.6	63.5	53.3	62.3	20.9(11.1)	33.2(15.8)
7	All	8	43.6	48	43.5	47.8	55.1(37.5)	70.2(46.8)
	Eligible for choice	8	0	0	0	0	82.3(28.2)	108.1(37.2)
	Not Eligible for choice	8	47.7	51.6	47.6	51.6	18(10.6)	27.8(15.3)
8	All	7	44.6	48.5	44.1	48.1	49.3(40)	57.8(43)
	Eligible for choice	7	0	0	0	0	97.9(36)	126.6(38.8)
	Not Eligible for choice	7	45.3	49.2	44.8	48.8	18.2(11.1)	26.5(15)
9	All	8	43.3	50.5	44	50.9	56.1(41.9)	67.9(47.2)
	Eligible for choice	8	0	0	0	0	93.4(29.3)	115.6(33)
	Not Eligible for choice	8	49.2	56.8	49.9	57.2	15.9(10.3)	25.7(16)
10	All	4	52.2	58.8	51.3	58.1	37(26.7)	47.6(31.5)
	Eligible for choice	4	0	0	0	0	55(12.1)	79.5(16.8)

VISN	Choice Eligibility	Level 1 or 2 VAMC (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest VAMC complexity level 1 or 2	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
	Not Eligible for choice	4	52.6	59.2	51.7	58.4	17(11.3)	26.6(15.6)
11	All	6	42.1	47	41.1	45.8	56.2(46.9)	64.7(48.7)
	Eligible for choice	6	0	0	0	0	99.9(48.8)	113(50.9)
	Not Eligible for choice	6	45.2	49.6	44.1	48.4	17.5(10.6)	26.7(15.6)
12	All	4	52.9	62.8	49.9	59.5	37.1(39.4)	43.3(43.1)
	Eligible for choice	4	0	0	0	0	106.7(44)	131.2(46.2)
	Not Eligible for choice	4	55.3	65.5	52.5	62.5	16.2(11)	23.6(14.9)
15	All	8	51.7	56.1	49.4	53.8	48.9(44.1)	61.3(53.5)
	Eligible for choice	8	0	0	0	0	98.6(37.7)	126.4(47.6)
	Not Eligible for choice	8	57.6	61.8	55.2	59.6	15.6(10.2)	23.3(14.8)
16	All	7	31.1	34.7	30.2	33.8	75.6(54.2)	88.1(58.8)
	Eligible for choice	7	0	0	0	0	100.1(39.6	124.6(49)
	Not Eligible for choice	7	34.9	37.9	34	37	17.7(10.3)	27.4(14.8)
17	All	6	57.1	65.1	56.8	64.2	49.3(42.9)	59.5(47.4)
	Eligible for choice	6	0	0	0	0	91.5(38.4)	116.4(43.3)
	Not Eligible for choice	6	62.7	70.5	62.5	69.7	20.9(10.5)	30.5(13.9)
18	All	4	51.4	52.6	50	51.4	55.3(62.1)	67(66.7)
	Eligible for choice	4	0	0	0	0	122.7(53.9)	149.5(55.3)
	Not Eligible for choice	4	56.8	58.1	55.6	56.9	15.9(9.2)	24.3(12.5)
19	All	5	40.1	45.5	39.5	44.5	55.9(54.5)	66.1(58.8)
	Eligible for choice	5	0	0	0	0	131.5(50.3)	153.5(53.9)
	Not Eligible for choice	5	47.7	53.5	47.4	52.8	16.2(10.3)	27.3(15.1)
20	All	5	45	48.8	43.2	46.9	49.6(55.8)	59.2(59.3)
	Eligible for choice	5	0	0	0	0	110.8(48.9)	133.8(50.6)
	Not Eligible for choice	5	51.7	54.8	49.8	52.8	15.8(9.4)	24.5(13.8)
21	All	6	52.3	56.8	51.4	55.8	34.2(32.9)	46.7(38.7)
	Eligible for choice	6	0	0	0	0	99.5(53.7)	135.2(55.8)

VISN	Choice Eligibility	Level 1 or 2 VAMC (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest VAMC complexity level 1 or 2	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
	Not Eligible for choice	6	54.2	59	53.5	58.1	17.2(9.9)	27.9(14.4)
22	All	6	79.3	85.5	78.4	85	26.1(27.6)	32.5(32.9)
	Eligible for choice	6	0	0	0	0	95(34.2)	122(42)
	Not Eligible for choice	6	81.6	88	80.6	87.4	16.6(8.8)	22.8(11.5)
23	All	7	34.6	38.5	32.7	36.6	62.4(49.9)	76.8(58.5)
	Eligible for choice	7	0	0	0	0	98.6(39.1)	125.5(46.6)
	Not Eligible for choice	7	44.2	47.5	42.1	45.5	14.9(10)	23.6(14.7)

Table F-4. Geographic Access to VAMC Complexity Level 1A , 1B, OR 1C

VISN	Choice Eligibility	Level 1A, 1B, or 1C VAMC (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest Level 1A, 1B, or 1C VAMC	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
All	All	97	44	49.3	42.1	47.3	52.9(50.7)	62.4(54.7)
	Eligible for choice	97	0	0	0	0	109.3(46.9)	131.9(49.6)
	Not Eligible for choice	97	47.4	52.8	45.6	50.9	16.6(10.5)	25.3(14.8)
1	All	5	48.6	62.2	47.7	60.8	46.6(48.3)	54.7(51.5)
	Eligible for choice	5	0	0	0	0	191(33.3)	201.3(28.3)
	Not Eligible for choice	5	50.5	64.6	49.8	63.5	18.9(11.8)	29.6(16.1)
2	All	5	60.2	65.6	61.3	66.4	39.4(36)	50.8(41.8)
	Eligible for choice	5	0	0	0	0	107.3(32.3	136.9(42.9)
	Not Eligible for choice	5	61.8	67.2	62.8	68	18(11.5)	28.6(16.7)
3	All	7	82	86.2	80.4	84.8	15.7(17.9)	21.4(20.4)
	Eligible for choice	7	0	0	0	0	92.2(5.4)	118.4(5)
	Not Eligible for	7	82	86.2	80.5	84.8	10.7(9.1)	16.8(12.4)

VISN	Choice Eligibility	Level 1A, 1B, or 1C VAMC (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest Level 1A, 1B, or 1C VAMC	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
	choice							
4	All	3	38.9	47.1	37.4	45.5	51.3(40.8)	60.4(44.7)
	Eligible for choice	3	0	0	0	0	117.1(39.5)	135(43.3)
	Not Eligible for choice	3	39.6	48	38.2	46.5	17.7(11.2)	28(16.2)
5	All	3	73.4	75.7	69	71.1	28.4(30.8)	37.2(36.6)
	Eligible for choice	3	0	0	0	0	64.6(31.5)	76(31.6)
	Not Eligible for choice	3	74.3	76	69.7	71.5	15.4(9.9)	22.8(13.3)
6	All	5	27.6	36.9	28.9	38.1	64.2(41.1)	76.1(46.4)
	Eligible for choice	5	0	0	0	0	78.7(35.6)	101.5(43.1)
	Not Eligible for choice	5	30.2	39.4	31.8	40.9	21.7(11.7)	35.8(16)
7	All	6	39.8	43.9	39.8	43.9	63.6(44.8)	77.1(51.7)
	Eligible for choice	6	0	0	0	0	97.2(36.2)	121.6(41.9)
	Not Eligible for choice	6	43.5	47.5	43.6	47.6	18.2(10.6)	28.2(15.3)
8	All	7	44.6	48.5	44.1	48.1	49.4(40.3)	57.8(43)
	Eligible for choice	7	0	0	0	0	99(37.7)	126.6(38.8)
	Not Eligible for choice	7	45.3	49.2	44.8	48.8	18.2(11.1)	26.5(15)
9	All	7	39.5	45.6	40.1	46	64.3(48.8)	75.5(53)
	Eligible for choice	7	0	0	0	0	102(35.3)	123.7(40.9)
	Not Eligible for choice	7	44.9	51.2	45.5	51.6	15.8(10.3)	24.9(15.6)
10	All	3	47.9	54.1	46.7	53.1	46.2(37.2)	53.6(39.4)
	Eligible for choice	3	0	0	0	0	62.2(15.2)	85.5(18.3)
	Not Eligible for choice	3	48.3	54.4	47.1	53.4	16.4(11)	25.6(14.9)
11	All	3	32.2	37.2	30.5	35.5	67.1(51.1)	74.4(52.3)
	Eligible for choice	3	0	0	0	0	121(41.2)	132(42.7)
	Not Eligible for choice	3	34.6	39.6	32.7	37.7	16.8(9.8)	26(15.2)
12	All	4	52.9	62.8	49.9	59.5	37.1(39.5)	43.3(43.1)
	Eligible for choice	4	0	0	0	0	107.7(43.3)	131.7(45.8)

VISN	Choice Eligibility	Level 1A, 1B, or 1C VAMC (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest Level 1A, 1B, or 1C VAMC	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
	Not Eligible for choice	4	55.3	65.5	52.5	62.5	16.2(11)	23.6(14.9)
15	All	6	43	46.2	40.5	43.6	65.4(55.1)	76.3(60.8)
	Eligible for choice	6	0	0	0	0	113.5(43.9)	139.9(49.6)
	Not Eligible for choice	6	47.9	50.8	45.3	48.2	16(10.1)	23(14.2)
16	All	5	27.1	29.1	25.4	27.4	86.4(60)	97.6(63.4)
	Eligible for choice	5	0	0	0	0	111.7(43.8)	134.2(50.3)
	Not Eligible for choice	5	30.4	31.8	28.7	30.1	16.9(9.8)	24.6(12.9)
17	All	6	57.1	65.1	56.8	64.2	49.3(42.9)	59.5(47.4)
	Eligible for choice	6	0	0	0	0	91.5(38.4)	116.4(43.3)
	Not Eligible for choice	6	62.7	70.5	62.5	69.7	20.9(10.5)	30.5(13.9)
18	All	3	48.8	50	47.2	48.5	50.2(62.6)	60.4(64.9)
	Eligible for choice	3	0	0	0	0	148.4(60.9)	168.4(56)
	Not Eligible for choice	3	54	55.3	52.4	53.7	16.3(9.1)	24.8(12.3)
19	All	2	33.3	37	31.6	34.8	53.2(55.1)	63.3(59.3)
	Eligible for choice	2	0	0	0	0	142.3(51.6)	160.3(51.5)
	Not Eligible for choice	2	39.6	43.8	37.8	41.6	16.7(10.2)	26.9(14.2)
20	All	4	39.7	42.8	37.1	40.2	50.7(58.1)	60.1(61)
	Eligible for choice	4	0	0	0	0	111.7(50.6)	133.9(50.4)
	Not Eligible for choice	4	45.6	48.4	42.8	45.6	15.9(9.3)	24.6(13.7)
21	All	4	38.9	43.1	37	41	53(51.5)	67(57.7)
	Eligible for choice	4	0	0	0	0	123.7(52.2)	154.1(50.9)
	Not Eligible for choice	4	40.4	44.8	38.5	42.7	17.9(9.3)	28.7(13.5)
22	All	5	66.3	72.5	64.6	71.2	44.7(63.4)	50.1(62.7)
	Eligible for choice	5	0	0	0	0	102(41.7)	126.9(42.4)
	Not Eligible for choice	5	68.2	74.6	66.4	73.2	17.2(8.9)	23.3(11.7)
23	All	4	26.2	29.4	24.4	27.6	74.4(57.4)	88.5(64.3)

VISN	Choice Eligibility	Level 1A, 1B, or 1C VAMC (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest Level 1A, 1B, or 1C VAMC	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
	Eligible for choice	4	0	0	0	0	112.7(47.7)	139.8(50.5)
	Not Eligible for choice	4	33.4	36.7	31.3	34.7	15.4(9.6)	24.4(14.6)

Table F-5 Geographic Access to VAMC Complexity Level 1A or 1B

VISN	Choice Eligibility	Level 1A or 1B VAMC (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest Level 1A or 1B VAMC	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
All	All	64	34.3	39	32.4	37	66(60.5)	75.1(63.4)
	Eligible for choice	64	0	0	0	0	122.2(50.8)	142.3(51.7)
	Not Eligible for choice	64	37	41.8	35.1	39.8	17(10.4)	25.7(14.6)
1	All	5	48.4	61.5	47.4	60.1	48.8(52.1)	56.1(53.9)
	Eligible for choice	5	0	0	0	0	196.3(29.2)	201(28.5)
	Not Eligible for choice	5	50.3	63.9	49.5	62.8	19(12)	29.5(16.1)
2	All	NA	0	0	0	0	175(38.9)	178.8(38.5)
	Eligible for choice	NA	0	0	0	0	185.6(24)	206.3(22)
	Not Eligible for choice	NA	NA	NA	NA	NA	NA	NA
3	All	3	68.7	80.1	67.2	78.8	23.4(21.3)	29.5(24.1)
	Eligible for choice	3	0	0	0	0	99.5(7.3)	125.4(16.6)
	Not Eligible for choice	3	68.7	80.2	67.3	78.8	14.7(10.6)	22.8(14.6)
4	All	3	38.7	45.5	37.3	44	54.5(45.1)	63.1(48.2)
	Eligible for choice	3	0	0	0	0	126.5(33.9)	144.3(36.8)
	Not Eligible for choice	3	39.5	46.4	38	44.9	17.5(11.1)	27.1(15.7)
5	All	3	73.4	75.7	69	71.1	28.7(31.5)	37.4(37.1)

VISN	Choice Eligibility	Level 1A or 1B VAMC (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest Level 1A or 1B VAMC	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
	Eligible for choice	3	0	0	0	0	64.6(31.5)	76(31.6)
	Not Eligible for choice	3	74.3	76	69.7	71.5	15.4(9.9)	22.8(13.3)
6	All	2	13.9	17.9	13.5	17.2	100.4(55.4)	110.4(58.3)
	Eligible for choice	2	0	0	0	0	109.5(50.9)	129.1(54.4)
	Not Eligible for choice	2	15.2	18.9	14.9	18.1	19.2(10.9)	30.9(15.6)
7	All	4	27.8	31.1	27.5	30.6	83.3(55)	96.4(59.8)
	Eligible for choice	4	0	0	0	0	105.7(38.7)	131.2(44.9)
	Not Eligible for choice	4	30.4	33.6	30.1	33.2	18.7(10.5)	28.9(15.2)
8	All	6	37.2	42.7	36.6	42.2	54.5(41.9)	62.5(44)
	Eligible for choice	6	0	0	0	0	103(34.5)	130.2(35.1)
	Not Eligible for choice	6	37.8	43.3	37.2	42.8	17.8(11.1)	27.7(15.9)
9	All	3	18.8	22.3	18.2	21.5	97.6(62.2)	107.3(63.3)
	Eligible for choice	3	0	0	0	0	123.5(45.9)	141.6(46.8)
	Not Eligible for choice	3	21.4	24.9	20.6	23.9	15.6(9.9)	24.8(15.4)
10	All	2	36.4	46.7	36.7	46.6	57.2(43.5)	63.7(44.5)
	Eligible for choice	2	0	0	0	0	96.3(25.8)	114.5(27.4)
	Not Eligible for choice	2	36.7	47	37	46.9	16.6(11.3)	28.2(16.4)
11	All	3	32.2	37.2	30.5	35.5	67.6(51.8)	74.8(52.8)
	Eligible for choice	3	0	0	0	0	121.8(41.9)	132.5(42.9)
	Not Eligible for choice	3	34.6	39.6	32.7	37.7	16.8(9.8)	26(15.2)
12	All	4	52.9	62.8	49.9	59.5	37.1(39.5)	43.3(43.1)
	Eligible for choice	4	0	0	0	0	107.7(43.3)	131.7(45.8)
	Not Eligible for choice	4	55.3	65.5	52.5	62.5	16.2(11)	23.6(14.9)
15	All	2	19.5	20.9	16.7	17.9	99.6(69.7)	120.6(77.2)
	Eligible for choice	2	0	0	0	0	137.6(54.9)	156.7(54.3)
	Not Eligible for choice	2	21.8	23	18.7	19.8	15.6(10.1)	22.8(13.7)
16	All	3	21.9	23.5	20.4	22.1	106.6(73.6)	114.7(73.1)

VISN	Choice Eligibility	Level 1A or 1B VAMC (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest Level 1A or 1B VAMC	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
	Eligible for choice	3	0	0	0	0	129.3(54.6)	147.9(55.9)
	Not Eligible for choice	3	24.5	25.7	23	24.1	17.2(9.6)	24.5(12.4)
17	All	4	46.5	52.3	45.3	50.7	58.7(47.8)	68.2(51.6)
	Eligible for choice	4	0	0	0	0	100.5(37)	124.5(43.1)
	Not Eligible for choice	4	51.1	57.1	49.9	55.4	21.1(10.2)	30.1(13.3)
18	All	2	20.7	21.1	21.4	21.9	104.3(60.9)	109.1(60.1)
	Eligible for choice	2	0	0	0	0	157.4(60.3)	173.3(56.1)
	Not Eligible for choice	2	22.9	23.3	23.7	24.2	12.7(7.7)	21.4(11.7)
19	All	2	33.3	37	31.6	34.8	53.2(55.1)	63.3(59.3)
	Eligible for choice	2	0	0	0	0	142.3(51.6)	160.3(51.5)
	Not Eligible for choice	2	39.6	43.8	37.8	41.6	16.7(10.2)	26.9(14.2)
20	All	4	39.7	42.8	37.1	40.2	50.7(58.1)	60.1(61)
	Eligible for choice	4	0	0	0	0	111.7(50.6)	133.9(50.4)
	Not Eligible for choice	4	45.6	48.4	42.8	45.6	15.9(9.3)	24.6(13.7)
21	All	3	25.2	27.6	24.1	26.5	70.9(61.7)	82.8(64.6)
	Eligible for choice	3	0	0	0	0	145.4(40.9)	173.8(37.5)
	Not Eligible for choice	3	26.2	28.6	25.1	27.5	18.2(9.6)	27.9(13.5)
22	All	5	66.3	72.5	64.6	71.2	44.7(63.5)	50.1(62.7)
	Eligible for choice	5	0	0	0	0	102.2(42.8)	126.9(42.4)
	Not Eligible for choice	5	68.2	74.6	66.4	73.2	17.2(8.9)	23.3(11.7)
23	All	1	15.3	16.4	14.2	15.3	94.1(72.7)	113.7(79.9)
	Eligible for choice	1	0	0	0	0	132.7(55.3)	157(56.2)
	Not Eligible for choice	1	19.5	20.5	18.3	19.3	15.9(8.6)	23.3(11.7)

Table F-6 Geographic Access to VAMC Complexity Level 1A

VISN	Choice Eligibility	Level 1A VAMC (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest Level 1A VAMC	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
All	All	47	26	29.8	24.8	28.5	80.9(65.1)	88.8(66.3)
	Eligible for choice	47	0	0	0	0	128.1(50.7)	148.7(51.9)
	Not Eligible for choice	47	28	32	26.8	30.7	17.4(10.5)	26.5(14.7)
1	All	5	48.4	61.5	47.4	60.1	48.8(52.1)	56.1(53.9)
	Eligible for choice	5	0	0	0	0	196.3(29.2)	201(28.5)
	Not Eligible for choice	5	50.3	63.9	49.5	62.8	19(12)	29.5(16.1)
2	All	NA	0	0	0	0	173.3(38.1)	175.1(36.6)
	Eligible for choice	NA	0	0	0	0	178.9(17.8)	202.1(20.6)
	Not Eligible for choice	NA	NA	NA	NA	NA	NA	NA
3	All	3	67.7	79.1	66.3	77.8	23.8(21.8)	29.9(24.5)
	Eligible for choice	3	0	0	0	0	102.9(4.4)	128.6(13.8)
	Not Eligible for choice	3	67.7	79.2	66.3	77.9	14.4(10.3)	22.7(14.6)
4	All	2	13.3	16.7	13.6	17	98.9(49.5)	104.3(50.1)
	Eligible for choice	2	0	0	0	0	139(42.3)	157.5(44.4)
	Not Eligible for choice	2	13.6	17	13.8	17.4	15.4(11)	27.6(16.9)
5	All	NA	0	0	0	0	133.5(24.7)	135.6(25.6)
	Eligible for choice	NA	0	0	0	0	120.9(23.9)	136.6(24.4)
	Not Eligible for choice	NA	NA	NA	NA	NA	NA	NA
6	All	2	13.9	16.8	13.5	16.4	100.7(55.4)	110.6(58.2)
	Eligible for choice	2	0	0	0	0	110.1(50.9)	129.5(54.2)
	Not Eligible for choice	2	15.2	17.7	14.9	17.3	19.2(10.9)	30.1(15.3)
7	All	2	22.8	25.9	21.9	25	99.9(68.2)	108.5(68)
	Eligible for choice	2	0	0	0	0	128.8(47.9)	147.6(50.2)
	Not Eligible for choice	2	24.9	28	23.9	27	19.4(10.4)	29.5(15)
8	All	5	28.4	31	29	31.7	73(60.2)	83(60.8)
	Eligible for choice	5	0	0	0	0	114.3(43.6)	143.2(46.3)
	Not Eligible for choice	5	28.9	31.4	29.5	32.1	17.3(11.3)	28.2(16.8)

VISN	Choice Eligibility	Level 1A VAMC (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest Level 1A VAMC	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
9	All	3	18.8	22.3	18.2	21.5	102.4(66.8)	111.8(66.8)
	Eligible for choice	3	0	0	0	0	121.4(48.8)	140.8(50.3)
	Not Eligible for choice	3	21.4	24.9	20.6	23.9	15.6(9.9)	24.8(15.4)
10	All	1	20.4	24.9	20.2	24.7	90.8(54.5)	94.3(52.7)
	Eligible for choice	1	0	0	0	0	132.4(33.6)	148.6(30.8)
	Not Eligible for choice	1	20.6	25.1	20.3	24.9	17.3(11.8)	27.5(15.7)
11	All	1	11.5	13.3	11.5	13.3	143.6(60.7)	144.1(56.3)
	Eligible for choice	1	0	0	0	0	140.3(46.4)	146.6(45.6)
	Not Eligible for choice	1	12.3	13.9	12.4	14	14.6(9.9)	25.3(15.4)
12	All	2	46.4	57	43.3	53.7	44.6(43.9)	50.1(47)
	Eligible for choice	2	0	0	0	0	137.6(33)	159.2(39.9)
	Not Eligible for choice	2	48.5	59.6	45.6	56.4	18.5(10.1)	26.1(13.7)
15	All	2	19.5	20.9	16.7	17.9	87.8(67)	112(78.2)
	Eligible for choice	2	0	0	0	0	121(50.8)	143(53.5)
	Not Eligible for choice	2	21.8	23	18.7	19.8	15.6(10.1)	22.8(13.7)
16	All	1	13.5	14.4	12.3	13.2	118.3(79.2)	130.5(80.6)
	Eligible for choice	1	0	0	0	0	152.6(50.4)	179.2(48.5)
	Not Eligible for choice	1	15.1	16.1	13.9	14.9	18.9(9.6)	26.6(12.4)
17	All	4	46.5	52.3	45.3	50.7	58.7(47.8)	68.2(51.6)
	Eligible for choice	4	0	0	0	0	100.2(36.7)	124.3(42.9)
	Not Eligible for choice	4	51.1	57.1	49.9	55.4	21.1(10.2)	30.1(13.3)
18	All	2	20.7	21.1	21.4	21.9	102.6(59.8)	107.4(58.8)
	Eligible for choice	2	0	0	0	0	143.1(58.8)	162.3(56.3)
	Not Eligible for choice	2	22.9	23.3	23.7	24.2	12.7(7.7)	21.4(11.7)
19	All	1	21	22.6	19.7	21	50.1(50.4)	61.2(56.5)
	Eligible for choice	1	0	0	0	0	135.9(44.7)	154.6(50.3)
	Not Eligible for choice	1	24.9	26.7	23.6	25.1	15.1(9)	24.2(12.6)

VISN	Choice Eligibility	Level 1A VAMC (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest Level 1A VAMC	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
20	All	4	39.7	42.8	37.1	40.2	48.2(55)	57.9(58.6)
	Eligible for choice	4	0	0	0	0	108.1(48.9)	131.3(50.1)
	Not Eligible for choice	4	45.6	48.4	42.8	45.6	15.9(9.3)	24.6(13.7)
21	All	3	25.2	27.6	24.1	26.5	70.9(61.7)	82.8(64.6)
	Eligible for choice	3	0	0	0	0	145.4(40.9)	173.8(37.5)
	Not Eligible for choice	3	26.2	28.6	25.1	27.5	18.2(9.6)	27.9(13.5)
22	All	3	47.8	57.7	45.8	55.4	41.2(36.6)	45.2(38.5)
	Eligible for choice	3	0	0	0	0	133.6(44.9)	155.9(40.5)
	Not Eligible for choice	3	49.2	59.3	47.1	56.9	19.2(9.9)	27.7(13.9)
23	All	1	15.3	16.4	14.2	15.3	94.3(75.9)	112.5(80.8)
	Eligible for choice	1	0	0	0	0	133.5(56.8)	156.8(57.4)
	Not Eligible for choice	1	19.5	20.5	18.3	19.3	15.9(8.6)	23.3(11.7)

Table F-7 Geographic Access to Health Care Centers

VISN	Choice Eligibility	HCCs (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest HCC	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
All	All	14	5.4	6.2	5.4	6.3	117(66.8)	126.8(68)
	Eligible for choice	14	0	0	0	0	145.3(51.5)	167.5(48.6)
	Not Eligible for choice	14	5.8	6.7	5.9	6.8	19(11.1)	30.6(15.6)
1	All	NA	NA	NA	NA	NA	NA	NA
	Eligible for choice	NA	NA	NA	NA	NA	NA	NA
	Not Eligible for choice	NA	NA	NA	NA	NA	NA	NA
2	All	NA	NA	NA	NA	NA	NA	NA
	Eligible for choice	NA	NA	NA	NA	NA	NA	NA
	Not Eligible for choice	NA	NA	NA	NA	NA	NA	NA

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VISN	Choice Eligibility	HCCs (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest HCC	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
3	All	NA	NA	NA	NA	NA	NA	NA
	Eligible for choice	NA	NA	NA	NA	NA	NA	NA
	Not Eligible for choice	NA	NA	NA	NA	NA	NA	NA
4	All	NA	0	0	0	0	191.2(24.5)	189.8(24.1)
	Eligible for choice	NA	0	0	0	0	178(26.8)	197.4(18.6)
	Not Eligible for choice	NA	NA	NA	NA	NA	NA	NA
5	All	NA	0	0	0	0	.(.)	233.3(.)
	Eligible for choice	NA	0	0	0	0	.(.)	233.3(.)
	Not Eligible for choice	NA	NA	NA	NA	NA	NA	NA
6	All	1	8.7	10	9.4	10.8	113.4(63.7)	124.2(64.6)
	Eligible for choice	1	0	0	0	0	138.4(49)	153.6(47.6)
	Not Eligible for choice	1	9.5	10.9	10.3	11.8	20.5(10.2)	31.7(13.4)
7	All	NA	0.9	1.2	1	1.3	158.1(53.3)	173.2(53.5)
	Eligible for choice	NA	0	0	0	0	154.3(42.7)	182.1(41.9)
	Not Eligible for choice	NA	1	1.3	1.1	1.4	33.5(4.2)	43.8(7.6)
8	All	3	18.6	20.5	18.4	20.4	102.2(53.4)	108.9(50.5)
	Eligible for choice	3	0	0	0	0	137.8(56.6)	174.8(49.4)
	Not Eligible for choice	3	18.9	20.9	18.7	20.7	18.2(10.3)	31.2(14.8)
9	All	NA	0	0	0	0	199.1(30.4)	205(17.6)
	Eligible for choice	NA	0	0	0	0	156(44.3)	179.7(26.8)
	Not Eligible for choice	NA	NA	NA	NA	NA	NA	NA
10	All	1	14.3	16.1	13.9	15.7	102.8(47.7)	106.1(44.7)
	Eligible for choice	1	0	0	0	0	104.1(29.8)	121.8(30.7)
	Not Eligible for choice	1	14.4	16.2	14	15.8	15.3(10.1)	25.5(15.9)
11	All	NA	0	0	0	0	182.5(26.8)	204.4(28.1)
	Eligible for choice	NA	0	0	0	0	165.7(39.5)	193.1(35.7)
	Not Eligible for choice	NA	NA	NA	NA	NA	NA	NA
12	All	NA	NA	NA	NA	NA	NA	NA
	Eligible for choice	NA	NA	NA	NA	NA	NA	NA

VISN	Choice Eligibility	HCCs (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest HCC	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
	Not Eligible for choice	NA	NA	NA	NA	NA	NA	NA
15	All	NA	NA	NA	NA	NA	NA	NA
	Eligible for choice	NA	NA	NA	NA	NA	NA	NA
	Not Eligible for choice	NA	NA	NA	NA	NA	NA	NA
16	All	2	8.2	8.9	7.4	8.1	88.9(69.4)	97.9(68.4)
	Eligible for choice	2	0	0	0	0	155.9(59.3)	170.5(46.5)
	Not Eligible for choice	2	9.2	10	8.3	9.1	11.6(10.2)	19.6(16)
17	All	2	3.3	4.2	3.8	4.9	86.1(62.6)	107.9(77.2)
	Eligible for choice	2	0	0	0	0	131.4(37.4)	165.6(42.5)
	Not Eligible for choice	2	3.6	4.7	4.2	5.4	23.1(10.7)	35.1(14.6)
18	All	1	8.4	9.2	8.9	9.6	53.3(64.4)	71.4(75.3)
	Eligible for choice	1	0	0	0	0	166.4(49)	182.8(48.3)
	Not Eligible for choice	1	9.3	10.2	9.9	10.7	14(8.1)	26.3(14.2)
19	All	2	4	4.1	4.6	4.6	103.1(67.7)	120.6(72.7)
	Eligible for choice	2	0	0	0	0	107.4(51.2)	133.3(54.7)
	Not Eligible for choice	2	4.8	4.7	5.5	5.4	9.7(10)	15.7(13)
20	All	NA	0	0	0	0	191.2(18.8)	189.4(20.8)
	Eligible for choice	NA	0	0	0	0	179.4(33.8)	213.7(30)
	Not Eligible for choice	NA	NA	NA	NA	NA	NA	NA
21	All	2	31.2	39.4	29.3	37.4	67.2(54)	75.6(58)
	Eligible for choice	2	0	0	0	0	138.8(57.3)	162.6(50.7)
	Not Eligible for choice	2	32.4	41	30.5	38.9	22.9(10.6)	34.8(14.3)
22	All	NA	0	0	0	0	211.8(8.2)	231.1(5.6)
	Eligible for choice	NA	0	0	0	0	216.4(21.2)	225.6(10.8)
	Not Eligible for choice	NA	NA	NA	NA	NA	NA	NA
23	All	NA	NA	NA	NA	NA	NA	NA
	Eligible for choice	NA	NA	NA	NA	NA	NA	NA
	Not Eligible for choice	NA	NA	NA	NA	NA	NA	NA

Table F-8 Geographic Access to Multi-specialty CBOCs

VISN	Choice Eligibility	Multi-specialty CBOC (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest Multi-specialty CBOC	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
All	All	185	45.9	51.9	44.5	50.4	49.2(43)	60.2(48.4)
	Eligible for choice	185	0	0	0	0	88.2(41.3)	115.5(47.4)
	Not Eligible for choice	185	49.5	55.5	48.2	54	19.1(10.6)	29.3(14.9)
1	All	6	46.8	62.7	44.9	61.2	40.1(30.7)	47.9(35.2)
	Eligible for choice	6	0	0	0	0	76.2(37.5)	104.6(46.5)
	Not Eligible for choice	6	48.6	64.5	46.9	63.2	18.5(12)	29.6(16.7)
2	All	4	34.3	39.3	34.6	40.1	52.9(31.3)	65.3(34.5)
	Eligible for choice	4	0	0	0	0	67.7(16.9)	104.5(30.1)
	Not Eligible for choice	4	35.2	40.3	35.5	41.1	16.9(11)	31.2(17.7)
3	All	9	91.1	99.3	91.3	99.4	21.7(9.9)	27.7(10.7)
	Eligible for choice	9	0	0	0	0	42.4(1.2)	65.7(9.8)
	Not Eligible for choice	9	91.2	99.4	91.4	99.4	20.4(8.5)	27.5(10.4)
4	All	15	66.6	77.2	65.6	76.3	30.8(21.1)	40.3(24.6)
	Eligible for choice	15	0	0	0	0	52.4(17.1)	73.3(22.8)
	Not Eligible for choice	15	67.9	78.1	67	77.3	20.4(10.4)	31.3(14.3)
5	All	9	90.3	92.2	89.8	91.9	20.6(13.9)	29.6(18.3)
	Eligible for choice	9	0	0	0	0	46.6(6.6)	59.2(16.4)
	Not Eligible for choice	9	91.3	92.5	90.7	92.3	17.8(9.7)	26.1(12.5)
6	All	5	17.1	21.4	18	22.5	78.9(39.7)	96.1(46.5)
	Eligible for choice	5	0	0	0	0	80.6(36.1)	106.3(40.5)
	Not Eligible for choice	5	18.7	22.4	19.8	23.7	22.9(11.4)	35.9(15.8)
7	All	7	20.6	24.2	21	24.7	72.1(36.2)	89.1(42.9)
	Eligible for choice	7	0	0	0	0	78.6(26.3)	107.6(34.8)
	Not Eligible for choice	7	22.5	25.9	23	26.5	20.4(11.2)	33.4(16.3)
8	All	13	63.4	72.1	63.2	71.5	38.2(25.1)	47.1(27.3)
	Eligible for choice	13	0	0	0	0	68.8(22.8)	97.5(29.4)

VISN	Choice Eligibility	Multi-specialty CBOC (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest Multi-specialty CBOC	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
	Not Eligible for choice	13	64.4	73.2	64.2	72.7	21.9(11.3)	33.5(14.8)
9	All	6	31.9	39	30.5	37.4	79.3(57.3)	91.4(60.1)
	Eligible for choice	6	0	0	0	0	103.5(51.2)	129.1(53.6)
	Not Eligible for choice	6	36.2	43.2	34.6	41.5	17.8(10.8)	30.7(17.2)
10	All	26	96.1	95.6	96.1	95.5	16.6(11.2)	25.1(16)
	Eligible for choice	26	0	0	0	0	44.7(4)	61.4(8.9)
	Not Eligible for choice	26	96.8	96	96.8	95.9	15.5(10)	23.4(13.8)
11	All	6	34.3	42.7	33	40.7	49.8(29.9)	61.2(34.5)
	Eligible for choice	6	0	0	0	0	64.5(22.2)	80.1(25)
	Not Eligible for choice	6	36.8	44.2	35.4	42.2	21.1(10.6)	33.2(14.3)
12	All	7	44.9	57.2	44.2	54.9	48.9(29.2)	58.2(35.1)
	Eligible for choice	7	0	0	0	0	92.5(38.1)	132.6(50.2)
	Not Eligible for choice	7	47	59.7	46.5	57.5	24.5(11.5)	37.4(14)
15	All	1	3.5	4.3	3.8	4.7	145.2(46.2)	161.5(49.6)
	Eligible for choice	1	0	0	0	0	112.2(41.1)	145.3(50.4)
	Not Eligible for choice	1	3.9	4.5	4.3	4.9	14.7(11.2)	27.9(18.4)
16	All	18	42	47.6	40.9	46.3	54.5(38.8)	66.4(45.1)
	Eligible for choice	18	0	0	0	0	79.6(37.2)	106(45.7)
	Not Eligible for choice	18	47.2	51.8	46.1	50.6	19.5(11.1)	28.7(14.5)
17	All	7	55.9	65.4	55	64	39.5(29.6)	49.2(36)
	Eligible for choice	7	0	0	0	0	79(28.6)	103(36.6)
	Not Eligible for choice	7	61.4	71.4	60.6	70	18.3(11.1)	29.7(15.4)
18	All	9	50.4	50.6	48	48.2	43.5(51.3)	57.5(58.2)
	Eligible for choice	9	0	0	0	0	114(59.3)	143(61.2)
	Not Eligible for choice	9	55.7	55.6	53.3	53.2	16.2(9.3)	26.1(12.5)
19	All	5	42.1	43.3	38.8	40.1	38.5(53.9)	48.6(57.9)
	Eligible for choice	5	0	0	0	0	115.3(45.7)	138.4(51.2)

VISN	Choice Eligibility	Multi-specialty CBOC (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest Multi-specialty CBOC	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
	Not Eligible for choice	5	50.1	51.3	46.5	47.8	16.2(9.7)	23.8(13)
20	All	6	27.4	31.1	27.9	31	69(52.4)	80.2(58.8)
	Eligible for choice	6	0	0	0	0	95.7(45.3)	125.7(48.8)
	Not Eligible for choice	6	31.5	35.3	32.2	35.3	18.9(10.8)	31.7(15.9)
21	All	10	47.4	53	47.4	52.8	41.6(41.8)	52.2(47.3)
	Eligible for choice	10	0	0	0	0	92.6(34.5)	126.6(40.8)
	Not Eligible for choice	10	49.2	55	49.3	54.9	17.8(10.2)	26.9(15.2)
22	All	7	62.9	68.6	60.8	66.8	25.9(24.5)	31.4(27.6)
	Eligible for choice	7	0	0	0	0	92.5(31.9)	122.7(38.3)
	Not Eligible for choice	7	64.7	70.5	62.6	68.5	15.5(9.2)	22.1(13)
23	All	9	24.7	29.3	24.7	28.5	68.1(44.2)	87.1(50.3)
	Eligible for choice	9	0	0	0	0	100.7(41.5)	131.3(43.7)
	Not Eligible for choice	9	31.6	36.8	31.7	36.1	23.9(11.3)	38.5(15.3)

Table F-9 Geographic Access to Primary care CBOCs

VISN	Choice Eligibility	Primary Care CBOC (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest Primary Care CBOC	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
All	All	509	67.7	73.8	66.7	72.8	30.2(25.1)	40.8(31.7)
	Eligible for choice	509	0	0	0	0	66.8(26.7)	94.7(36)
	Not Eligible for choice	509	73	78.9	72.2	78	17.5(11.1)	26.9(15.5)
1	All	30	88.4	91	87.4	90.3	22.6(18.1)	31.4(23)
	Eligible for choice	30	0	0	0	0	70.1(26)	99.5(36.1)
	Not Eligible for choice	30	91.8	94.5	91.3	94.1	18.4(10.2)	26.5(13.2)

VISN	Choice Eligibility	Primary Care CBOC (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest Primary Care CBOC	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
2	All	22	70.9	73.1	70.2	72.6	28.5(22.1)	39.6(27)
	Eligible for choice	22	0	0	0	0	50.8(11.3)	79.8(24.1)
	Not Eligible for choice	22	72.7	74.6	71.9	74	16.2(11.3)	26.1(16.2)
3	All	16	96.7	98	96.5	97.8	9.5(9.1)	14.8(12.4)
	Eligible for choice	16	0	0	0	0	49.1(8.5)	77.2(25.2)
	Not Eligible for choice	16	96.8	98.1	96.5	97.9	8.7(7.1)	14(10.3)
4	All	25	77	81.5	76.6	81.1	27.6(19)	36.9(22.5)
	Eligible for choice	25	0	0	0	0	62.2(21)	83.8(25.1)
	Not Eligible for choice	25	78.5	82.8	78.2	82.5	19.9(10.1)	29.1(13.5)
5	All	8	78.8	83.9	75.3	80.2	25.3(19.2)	33.2(20.8)
	Eligible for choice	8	0	0	0	0	54.1(21.7)	68.2(23.1)
	Not Eligible for choice	8	79.6	84.2	76.1	80.7	18.4(9.5)	27.3(13.1)
6	All	18	51.5	62.2	49.1	60	38.5(21.4)	50.8(26.9)
	Eligible for choice	18	0	0	0	0	55.2(11.4)	79.1(19.3)
	Not Eligible for choice	18	56.3	66.6	54	64.4	21(11.3)	34(16.3)
7	All	33	74.4	78.7	73.5	77.9	28.5(20.3)	43(28.3)
	Eligible for choice	33	0	0	0	0	56.5(13.8)	83.1(21.6)
	Not Eligible for choice	33	81.3	84.8	80.4	84.1	18.5(11)	30.2(15.9)
8	All	31	78.8	87.6	78.5	87.1	25(16.2)	34.6(20.4)
	Eligible for choice	31	0	0	0	0	55.5(11.6)	86.4(17)
	Not Eligible for choice	31	80	89	79.8	88.6	18.8(10.8)	29.6(15.1)
9	All	30	61.5	69	62.2	69.6	35.2(23.1)	48.2(28.6)
	Eligible for choice	30	0	0	0	0	55.8(12.7)	80.3(18.8)
	Not Eligible for choice	30	69.9	76.2	70.6	76.9	19.7(12.1)	32(17.4)
10	All	6	64.2	75	64.8	75.5	30(20)	38.5(24.9)
	Eligible for choice	6	0	0	0	0	57.8(11.8)	87.6(18.3)
	Not Eligible for choice	6	64.7	75.6	65.3	76	18.6(10.7)	28.6(15.9)

VISN	Choice Eligibility	Primary Care CBOC (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest Primary Care CBOC	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
11	All	24	49.7	60.8	50.9	61.7	42.3(22.3)	52.8(23.9)
	Eligible for choice	24	0	0	0	0	56.2(12.6)	75.1(15.7)
	Not Eligible for choice	24	53.4	64.4	54.6	65.2	21.7(12.4)	36.8(17.3)
12	All	25	83.5	86.2	82	84.9	20.2(16.4)	29.5(22.2)
	Eligible for choice	25	0	0	0	0	56.5(15.2)	86.4(22.2)
	Not Eligible for choice	25	87.3	89.8	86.2	88.9	15.9(11.1)	24.2(15.1)
15	All	40	80.2	80.8	79.4	79.9	25.7(19.9)	37.7(27.8)
	Eligible for choice	40	0	0	0	0	57.8(15)	83.1(22.9)
	Not Eligible for choice	40	89.3	88.4	88.9	87.8	17.1(10.5)	25.6(14.7)
16	All	38	38.6	47.9	38.8	47.9	47.2(25.4)	61.1(31.4)
	Eligible for choice	38	0	0	0	0	60.2(16.4)	87.8(24.9)
	Not Eligible for choice	38	43.4	52.4	43.8	52.6	23.7(11.7)	36.1(15.2)
17	All	11	52.3	66.3	50.7	64.5	42(32)	51.4(37.6)
	Eligible for choice	11	0	0	0	0	76.4(34.4)	103.5(40.6
	Not Eligible for choice	11	57.4	72.4	55.8	70.7	23.4(10.9)	33.7(13.3)
18	All	27	69.3	73.1	68.7	72.1	35.8(33.7)	49.9(46.4)
	Eligible for choice	27	0	0	0	0	83.9(35.5)	121(49.8)
	Not Eligible for choice	27	76.7	80.3	76.2	79.5	17.7(11.2)	26.4(14.4)
19	All	22	50.5	54.8	50	53.6	41.9(39)	53.1(48.2)
	Eligible for choice	22	0	0	0	0	93.1(37.5)	119.9(48.4
	Not Eligible for choice	22	60	63	59.9	62.1	14.8(9.4)	21.9(12.6)
20	All	20	66.4	73.6	65.9	72.7	34.7(31.1)	45.3(40.1)
	Eligible for choice	20	0	0	0	0	75.9(29)	106.1(44.1
	Not Eligible for choice	20	76.3	82.9	76	82.1	18.5(11)	26.8(14.4)
21	All	24	76.5	79.2	74.4	77	25.9(21.4)	36.7(30.4)
	Eligible for choice	24	0	0	0	0	73.7(32.3)	113.4(40)
	Not Eligible for choice	24	79.4	82.2	77.5	80.2	18.3(10.3)	26.8(15.1)

VISN	Choice Eligibility	Primary Care CBOC (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest Primary Care CBOC	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
22	All	22	91	95	91.3	95.1	16.7(15.2)	22.3(18.7)
	Eligible for choice	22	0	0	0	0	67.1(29.8)	97.7(43.5)
	Not Eligible for choice	22	93.6	97.4	93.9	97.4	13.8(9.7)	19.4(11.4)
23	All	37	48.2	49.7	47.4	48.9	44.3(32.7)	61.7(43.4)
	Eligible for choice	37	0	0	0	0	70(25.9)	101(35.7)
	Not Eligible for choice	37	61.5	61.4	60.9	60.8	17.4(10.8)	25.7(15.2)

Appendix F.2: Geographic Access to VA Services for Illustrative Clinical Populations

Tables F-10 through F-39 show various measures of access to the services required to treat various medical conditions. First, Table F-10 summarizes the services required to treat patients with each of the clinical conditions, based on VA's clinical inventories of profiles and services. These are the basis of the analyses in the remainder of this appendix. Then, each following table shows the number of facilities where the service is available and the percent of enrollees and health care users who are within either a 40-mile driving distance or a 60 minute drive, by VISN. Two tables also include additional measures: the percent of enrollees whose closest hospital provides a service, and the median driving distance and time to the nearest facility with such services (Table F-11 for EDs, Table F-16 for interventional cardiology). The tables are organized by the illustrative conditions: acute coronary syndrome (Tables F-11 through F-17), colon cancer (Tables F-18 through F-23), diabetes (Tables F-24 through F-27), traumatic brain injury (Tables F-28 through F-31), Post-Traumatic Stress Disorder (Table F-32 through Tables F-34), substance use disorder (Tables F-35 through F-38), and gynecological surgery (Table F-39).

Data in Tables F11–F39 are RAND estimates derived from the VA Planning Systems Support Group (PSSG) Enrollee file, the VA Clinical Inventory Facility Profile Report, and the VA Clinical Inventory Facility Services Report.

Table F-10 Mapping of Clinical Inventory Profiles and Services to the Seven Clinical Conditions

	Clinical Inventory Profile	Clinical Inventory Services
Acute Coronary Syndromes		
Emergency department	ED (Emergency Department) or EDUCC (Emergency Department combined with Urgent Care Center)	

	Clinical Inventory Profile	Clinical Inventory Services
Coronary care unit	ICU level > 0 (Intensive Care Units with a complexity level of 1-4)	
Non-invasive cardiology services		Cardiac Stress Testing On Site
Telemetry (If CCU/ICU not available	Acute Telemetry On Site	
Diagnostic cardiac catheterization		Cardiac Catheterization-Diagnostic On Site
Interventional cardiology		Cardiac Catheterization-Interventional On Site or Cardiology-Interventional On Site
Cardiac Surgery		Cardiac Surgery Services On Site
Colon Cancer		
Primary Care Clinic		Primary Care General On Site or Primary Care Group On Site
Colonoscopy		Colonoscopy On Site
CT Scan		CT Routine On Site
Surgical Services		General Surgery Services On Site
Oncology Services		Chemotherapy Clinic On Site or Oncology-General On Site or any type of Radiation Oncology On Site
Traumatic Brain Injury		
Polytrauma Support Clinic Team	Polytrauma Support Clinic Team	
Polytrauma Network Site	Polytrauma Network Site	
Polytrauma Rehabilitation Center (Program)	Polytrauma Rehabilitation Clinic	
TBI Specialty Care		If any 3 or more of the following 6 services are present On Site: Audiology, Balance Assessment, Occupational Therapy, Physiatrist / PM & R Services, Physical Therapy, Vocational Rehabilitation Therapy
Type 2 Diabetes Mellitus		

	Clinical Inventory Profile	Clinical Inventory Services
Primary care clinic		Primary Care General On Site or Primary Care Group On Site
Diabetes specialty or endocrinology clinic		Diabetes Clinic On Site; Endocrinology On Site
Podiatry clinic		Podiatry Foot Care On Site
Opthamology clinic		Opthamology On Site
Post Traumatic Stress Disorder		
Domiciliary Mental Rehabilitative Treatment Program	PTSD_RRTPDOM or No-Acute Specialized PTSD	
Mental Health Services		Mental Health Integrated Care On Site, or Mental Health Outpatient Individual and Group Services On Site, or Psychiatry Services-Individual/Group On Site, or Psychology Services-Individual/Group On Site
PTSD psychotherapy		PTSD Group On Site, or PTSD Individual On Site, or PTSD Teams On Site, or Services Related to Military Sexual trauma On Site
SUD		
Residential SUD treatment	Substance Abuse DOM/RRTP	
Methadone	Opiod/Methadone Maintenance Program	Opiod Substitution On Site or Substance Use Disorder Medication Clinic On Site
Outpatient specialty SUD care		Substance Use Disorder Intensive Counseling - Individual / Group On Site or Substance Use Disorder Treatment - Individual / Group On Site
Inpatient detoxification	Acute Medical, or Acute Psychiatric, or Acute Substance Abuse	

	Clinical Inventory Profile	Clinical Inventory Services
Mental health services		Mental Health Integrated Care On Site, or Mental Health Outpatient Individual and Group Services On Site, or Psychiatry Services-Individual/Group On Site, or Psychology Services-Individual/Group On Site
Gynecological Surgery		
Gynecological Surgery services		Gynecology Surgery Services On Site

Appendix F.2.1 Services for Populations with Acute Coronary Syndrome (ACS)

Table F-11 Geographic Access to VA Facilities providing ED care

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
All	All	114	50.2	56.1	48.6	54.4	45.9(42.3)	55.8(47.7)
	Eligible for choice	114	0	0	0	0	97.9(41.2)	122(46.7)
	Not Eligible for choice	114	54.1	60	52.7	58.4	16.9(10.5)	25.8(14.8)
1	All	5	50.3	63.7	50.4	63.2	39.6(28.3)	47.4(31.6)
	Eligible for choice	5	0	0	0	0	97.8(42.2)	119.5(46.2)
	Not Eligible for choice	5	52.3	65.7	52.6	65.5	19.9(11.1)	31(15)
2	All	4	49.4	57.3	49.8	57.6	43.6(34.2)	52.5(37.9)
	Eligible for choice	4	0	0	0	0	97.7(36.3)	122.3(45.5
	Not Eligible for choice	4	50.7	58.7	51	58.9	15.9(11.5)	27.4(17.7)
3	All	5	80.5	85.9	79.1	84.5	17.6(17.8)	23.3(20.2)
	Eligible for choice	5	0	0	0	0	92.2(5.4)	118.4(5)
	Not Eligible for choice	5	80.6	86	79.2	84.6	12.2(9.4)	18.9(13)
4	All	6	54.9	63.9	54.1	62.9	36.8(29.4)	46.6(34.3)
	Eligible for choice	6	0	0	0	0	71.1(26.9)	92.7(34.3)

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%) 40 miles	Enrollees (%) 60 min.	Users (%) 40 miles	Users (%) 60 min.	Mean (SD) drive distance and time to closest facility with the service Miles	Mean (SD) drive distance and time to closest facility with the service Minutes
	Not Eligible for choice	6	56	64.7	55.2	63.8	17.6(11)	28.2(16.3)
5	All	2	73.4	75.7	69	71.1	28(28.6)	36.6(34.2)
5	Eligible for choice	2	0	0	0	0	59.4(22.4)	71(25.6)
5	Not Eligible for choice	2	74.3	76	69.7	71.5	15.8(10.2)	23.1(13.5)
6	All	8	51.7	61.1	50.7	60.2	47.1(33.3)	59.5(40.4)
6	Eligible for choice	8	0	0	0	0	67.3(22)	91.4(30.9)
6	Not Eligible for choice	8	56.6	65.8	55.6	65	20.9(11.1)	33.2(15.8)
7	All	7	43.9	48.5	43.9	48.5	54.1(36.5)	67.8(44)
7	Eligible for choice	7	0	0	0	0	77.2(23)	100.2(30.6)
7	Not Eligible for choice	7	47.9	52.4	48	52.5	18.2(10.7)	28.5(15.7)
8	All	7	44.6	48.5	44.1	48.1	49.3(40)	57.8(43)
8	Eligible for choice	7	0	0	0	0	97.5(36.6)	126.4(38.7)
8	Not Eligible for choice	7	45.3	49.2	44.8	48.8	18.2(11.1)	26.5(15)
9	All	7	43.4	50.7	44	51.1	56(41.8)	67.9(47)
9	Eligible for choice	7	0	0	0	0	92.9(29.6)	115.1(32.8)
9	Not Eligible for choice	7	49.2	57	49.9	57.4	16(10.3)	26(16.1)
10	All	3	48.1	54.2	46.9	53.2	44(33.6)	52.1(36.4)
10	Eligible for choice	3	0	0	0	0	57.1(12.5)	81.6(16.8)
10	Not Eligible for choice	3	48.4	54.6	47.3	53.5	16.5(11.1)	25.6(14.9)
11	All	4	36.3	41.6	34.8	40.1	60.9(49.6)	68.9(50.9)
11	Eligible for choice	4	0	0	0	0	112.9(47.6	124.1(48.4)
11	Not Eligible for choice	4	38.9	44.1	37.4	42.5	16.6(10.1)	25.9(15.4)
12	All	6	59.4	64.8	56.6	61.8	35(36.2)	43.7(44.2)
12	Eligible for choice	6	0	0	0	0	93.3(32.6)	130.6(47.4
12	Not Eligible for choice	6	62.1	67.7	59.5	64.9	15.7(10.5)	22.2(13.9)
15	All	7	51.2	55.6	49	53.3	49.5(44.1)	61.7(53.2)
15	Eligible for choice	7	0	0	0	0	98.7(38.5)	125.8(47.2

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
	Not Eligible for choice	7	57.1	61.3	54.8	59	16.1(10.2)	23.6(14.6)
16	All	8	35.3	39.6	34.5	39	69.1(51.5)	81.6(56.5)
	Eligible for choice	8	0	0	0	0	95.6(36.8)	118.2(44.1)
	Not Eligible for choice	8	39.6	43.4	38.9	42.8	17.6(10.4)	27.5(15)
17	All	3	53	61.7	52.1	60.3	52.7(44.3)	62.3(48.7)
	Eligible for choice	3	0	0	0	0	103.2(37.5	125.4(43.1
	Not Eligible for choice	3	58.1	66.9	57.3	65.6	21.4(10.4)	30.9(13.6)
18	All	5	54.5	55.5	53.8	54.9	53.3(61.7)	65.2(66.4)
	Eligible for choice	5	0	0	0	0	119(51.5)	147.1(53.8)
	Not Eligible for choice	5	60.3	61.3	59.7	60.7	15.8(9.2)	24.2(12.5)
19	All	5	40.1	45.5	39.5	44.5	56.9(55.4)	67.1(59.5)
	Eligible for choice	5	0	0	0	0	132.1(50.1)	154.2(53.7)
	Not Eligible for choice	5	47.7	53.5	47.4	52.8	16.2(10.3)	27.3(15.1)
20	All	5	46.9	54	46.1	52.7	51.4(48.3)	62.7(56.3)
	Eligible for choice	5	0	0	0	0	103.9(38.7)	133(47.3)
	Not Eligible for choice	5	53.9	61.1	53.2	59.9	17.7(10.4)	26.9(14.4)
21	All	5	50	54.6	49.2	53.6	36.9(34.7)	49(40.2)
	Eligible for choice	5	0	0	0	0	105.6(52.6)	136.6(52.1)
	Not Eligible for choice	5	51.9	56.7	51.3	55.8	17.4(10.2)	27.7(14.3)
22	All	5	79	84.7	78.1	84.1	27.7(28.4)	33.8(33.6)
	Eligible for choice	5	0	0	0	0	97.4(35)	124.5(42.8)
	Not Eligible for choice	5	81.3	87.1	80.3	86.5	17.6(8.7)	23.4(10.9)
23	All	7	35.6	39.4	33.8	37.6	65.1(52.6)	79.2(60.4)
	Eligible for choice	7	0	0	0	0	102.6(41.3	128.8(48.4
	Not Eligible for choice	7	45.5	48.8	43.4	46.8	15.1(10.1)	23.8(14.7)

Table F-12 Geographic Access to VA Facilities with a Coronary Care Unit

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
All	All	112	50.1	56	48.5	54.3	46(42.4)	55.9(47.8)
	Eligible for choice	112	0	0	0	0	98(41.4)	122.1(46.9)
	Not Eligible for choice	112	54	59.9	52.5	58.3	16.9(10.5)	25.8(14.8)
1	All	5	50.3	63.7	50.4	63.2	39.6(28.3)	47.4(31.6)
	Eligible for choice	5	0	0	0	0	97.8(42.2)	119.5(46.2)
	Not Eligible for choice	5	52.3	65.7	52.6	65.5	19.9(11.1)	31(15)
2	All	3	44.3	51.9	44.5	52	47.8(37)	57.6(42.7)
	Eligible for choice	3	0	0	0	0	109.7(32.8	136.5(41.4)
	Not Eligible for choice	3	45.5	53.2	45.6	53.3	15.1(11.2)	26.5(17.7)
3	All	5	80.5	85.9	79.1	84.5	17.6(17.8)	23.3(20.2)
	Eligible for choice	5	0	0	0	0	92.2(5.4)	118.4(5)
	Not Eligible for choice	5	80.6	86	79.2	84.6	12.2(9.4)	18.9(13)
4	All	6	54.9	63.9	54.1	62.9	36.8(29.4)	46.7(34.4)
	Eligible for choice	6	0	0	0	0	69.7(25)	91.7(33.6)
	Not Eligible for choice	6	56	64.7	55.2	63.8	17.6(11)	28.2(16.3)
5	All	3	82.7	85.1	80.5	83	24.2(23.3)	33.1(29.9)
	Eligible for choice	3	0	0	0	0	53.4(13.7)	66.2(19.3)
	Not Eligible for choice	3	83.6	85.5	81.3	83.5	16.6(10.6)	24(13.9)
6	All	8	51.7	61.1	50.7	60.2	47.1(33.3)	59.5(40.4)
	Eligible for choice	8	0	0	0	0	67.3(22)	91.4(30.9)
	Not Eligible for choice	8	56.6	65.8	55.6	65	20.9(11.1)	33.2(15.8)
7	All	7	43.9	48.5	43.9	48.5	54.1(36.5)	67.8(44)
	Eligible for choice	7	0	0	0	0	77.2(23)	100.2(30.6)
	Not Eligible for choice	7	47.9	52.4	48	52.5	18.2(10.7)	28.5(15.7)
8	All	7	44.6	48.5	44.1	48.1	49.3(40)	57.8(43)
	Eligible for choice	7	0	0	0	0	97.5(36.6)	126.4(38.7

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
	Not Eligible for choice	7	45.3	49.2	44.8	48.8	18.2(11.1)	26.5(15)
9	All	7	43.4	50.7	44	51.1	56(41.8)	67.9(47)
	Eligible for choice	7	0	0	0	0	92.9(29.6)	115.1(32.8)
	Not Eligible for choice	7	49.2	57	49.9	57.4	16(10.3)	26(16.1)
10	All	3	48.1	54.2	46.9	53.2	44(33.6)	52.1(36.4)
	Eligible for choice	3	0	0	0	0	57.1(12.5)	81.6(16.8)
	Not Eligible for choice	3	48.4	54.6	47.3	53.5	16.5(11.1)	25.6(14.9)
11	All	4	36.3	41.6	34.8	40.1	60.9(49.6)	68.9(50.9)
	Eligible for choice	4	0	0	0	0	112.9(47.6	124.1(48.4)
	Not Eligible for choice	4	38.9	44.1	37.4	42.5	16.6(10.1)	25.9(15.4)
12	All	6	59.4	64.8	56.6	61.8	35(36.2)	43.7(44.2)
	Eligible for choice	6	0	0	0	0	93.3(32.6)	130.6(47.4)
	Not Eligible for choice	6	62.1	67.7	59.5	64.9	15.7(10.5)	22.2(13.9)
15	All	7	51.2	55.6	49	53.3	49.5(44.1)	61.7(53.2)
	Eligible for choice	7	0	0	0	0	98.7(38.5)	125.8(47.2)
	Not Eligible for choice	7	57.1	61.3	54.8	59	16.1(10.2)	23.6(14.6)
16	All	8	35.3	39.6	34.5	39	69.1(51.5)	81.6(56.5)
	Eligible for choice	8	0	0	0	0	95.6(36.8)	118.2(44.1)
	Not Eligible for choice	8	39.6	43.4	38.9	42.8	17.6(10.4)	27.5(15)
17	All	3	53	61.7	52.1	60.3	52.7(44.3)	62.3(48.7)
	Eligible for choice	3	0	0	0	0	103.2(37.5	125.4(43.1
	Not Eligible for choice	3	58.1	66.9	57.3	65.6	21.4(10.4)	30.9(13.6)
18	All	4	51.4	52.6	50	51.4	55.2(62.6)	66.7(66.9)
	Eligible for choice	4	0	0	0	0	121.4(53.1	148.1(54.7)
	Not Eligible for choice	4	56.8	58.1	55.6	56.9	15.9(9.2)	24.3(12.5)
19	All	5	40.1	45.5	39.5	44.5	56.9(55.4)	67.1(59.5)
	Eligible for choice	5	0	0	0	0	132.1(50.1	154.2(53.7

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
	Not Eligible for choice	5	47.7	53.5	47.4	52.8	16.2(10.3)	27.3(15.1)
20	All	4	45	51.9	43.7	50.2	51.9(50.3)	63.2(57.6)
	Eligible for choice	4	0	0	0	0	105.3(40)	133.7(48.4)
	Not Eligible for choice	4	51.7	58.7	50.5	57	17.8(10.4)	26.9(14.4)
21	All	5	50	54.6	49.2	53.6	36.5(34)	48.6(39.8)
	Eligible for choice	5	0	0	0	0	99.5(53.7)	135.3(55.7)
	Not Eligible for choice	5	51.9	56.7	51.3	55.8	17.4(10.2)	27.7(14.3)
22	All	5	79	84.7	78.1	84.1	27.7(28.4)	33.8(33.6)
	Eligible for choice	5	0	0	0	0	97.4(35)	124.5(42.8)
	Not Eligible for choice	5	81.3	87.1	80.3	86.5	17.6(8.7)	23.4(10.9)
23	All	7	35.6	39.4	33.8	37.6	65.1(52.6)	79.2(60.4)
	Eligible for choice	7	0	0	0	0	102.6(41.3	128.8(48.4)
	Not Eligible for choice	7	45.5	48.8	43.4	46.8	15.1(10.1)	23.8(14.7)

Table F-13 Geographic Access to VA Facilities with Telemetry

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
All	All	77	35.2	40.2	33.8	38.7	63.5(55.7)	73(58.3)
	Eligible for choice	77	0	0	0	0	113.9(49.3)	137.9(51.1)
	Not Eligible for choice	77	37.9	43.1	36.6	41.6	17.8(10.6)	27.3(15)
1	All	4	44	58.4	43.7	57.6	49.5(43.5)	57.2(45.6)
	Eligible for choice	4	0	0	0	0	144.8(60.5)	166(50.1)
	Not Eligible for choice	4	45.7	60.6	45.6	60	21.3(11.5)	33.1(14.7)

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%) 40 miles	Enrollees (%) 60 min.	Users (%) 40 miles	Users (%) 60 min.	Mean (SD) drive distance and time to closest facility with the service — Miles	Minutes
2	All	1	13	17.7	13.9	18.7	96.1(48.4)	103.6(49.4)
	Eligible for choice	1	0	0	0	0	124.6(31.1)	156.7(39.2)
	Not Eligible for choice	1	13.3	18.2	14.3	19.2	15.6(12.5)	31.9(19.6)
3	All	4	81.5	89.5	80.8	88.7	21.4(16)	28(17.7)
	Eligible for choice	4	0	0	0	0	92.2(5.4)	118.4(5)
	Not Eligible for choice	4	81.6	89.6	80.9	88.8	16.7(10)	24.9(13.1)
4	All	6	55.1	63.7	54.3	62.6	39.3(35.2)	49(39.1)
	Eligible for choice	6	0	0	0	0	71.9(28.5)	93.7(36.2)
	Not Eligible for choice	6	56.2	64.5	55.4	63.5	17.6(11)	28.1(16.2)
5	All	3	73.4	75.7	69	71.1	27.7(28.6)	36.4(34.2)
	Eligible for choice	3	0	0	0	0	59(22.5)	71(25.6)
	Not Eligible for choice	3	74.3	76	69.7	71.5	15.4(9.9)	22.8(13.3)
6	All	5	29.9	32.6	28.8	31.2	88.2(55.7)	100.6(59.6)
	Eligible for choice	5	0	0	0	0	98.3(38.7)	126.5(44.4)
	Not Eligible for choice	5	32.7	35.4	31.6	34	17.9(10.3)	26.4(14.6)
7	All	5	35.5	39.5	35.6	39.6	66.4(45.3)	77.9(50.2)
	Eligible for choice	5	0	0	0	0	92.7(36.3)	114.9(41.6)
	Not Eligible for choice	5	38.8	42.6	38.9	42.8	18.8(10.7)	29.2(15.6)
8	All	5	35	42.5	35.5	42.9	60.3(42.1)	69.3(44.1)
	Eligible for choice	5	0	0	0	0	114.9(49.5)	147.9(48.4)
	Not Eligible for choice	5	35.5	43.2	36.1	43.7	18.1(11.4)	30.7(16.9)
9	All	NA	0	0.5	0	0.5	138.3(40.8)	146.5(42.2)
	Eligible for choice	NA	0	0	0	0	154.7(37.5)	175.7(34.5)
	Not Eligible for choice	NA	0.1	0.6	0	0.6	36.9(.)	53.9(6.2)
10	All	2	20.1	26.7	21	27	78.2(44.3)	87.1(42.3)
	Eligible for choice	2	0	0	0	0	68.7(20.7)	96.8(26.6)
	Not Eligible for choice	2	20.2	26.9	21.1	27.2	17.2(11.4)	31.2(17.8)

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
11	All	7	45.8	52.2	44.4	50.7	47.5(37.9)	57.8(43)
	Eligible for choice	7	0	0	0	0	84.7(38.2)	102.8(44.6)
	Not Eligible for choice	7	49.1	54.9	47.7	53.3	17.9(10.8)	27(15.4)
12	All	3	52.1	58.3	49.1	55	42.2(45.4)	48.1(49)
	Eligible for choice	3	0	0	0	0	133.9(34.5)	158(41.5)
	Not Eligible for choice	3	54.5	61	51.7	57.8	16.5(10.5)	23.1(13.9)
15	All	4	29.6	31.8	27.3	29.4	97.6(68.5)	106.6(67.7)
	Eligible for choice	4	0	0	0	0	113.2(45.5)	138.1(50.7)
	Not Eligible for choice	4	32.9	35	30.5	32.5	16.3(10.4)	24.3(14.9)
16	All	4	21.7	24.9	21.4	24.7	88.5(67.1)	102.8(71)
	Eligible for choice	4	0	0	0	0	124.3(51.5)	145.5(50.7)
	Not Eligible for choice	4	24.3	27.7	24.1	27.6	19.5(10.4)	30.1(15.1)
17	All	2	33	40.8	32.3	39.6	67.9(51.1)	76.5(52.9)
	Eligible for choice	2	0	0	0	0	107.1(42.6)	129.6(46.8)
	Not Eligible for choice	2	36.2	44.1	35.5	42.8	23.7(10)	33.5(12.9)
18	All	2	14.8	15	15.6	15.8	93(48.2)	107.4(49.5)
	Eligible for choice	2	0	0	0	0	150.8(57.3)	177.2(46)
	Not Eligible for choice	2	16.4	16.6	17.3	17.5	12.2(7.1)	20.8(11.9)
19	All	2	14.1	16.1	14	15.9	73.4(65.5)	85.2(71.4)
	Eligible for choice	2	0	0	0	0	149.8(51.9)	172.4(49.2)
	Not Eligible for choice	2	16.8	19.1	16.8	19	19.4(11.7)	31.1(15.4)
20	All	2	7.9	8.2	8.3	8.7	138.7(62.3)	144.2(59.5)
	Eligible for choice	2	0	0	0	0	141(55.7)	168.4(50.7)
	Not Eligible for choice	2	9.1	9.5	9.6	10	14.7(11.2)	24.6(14.7)
21	All	4	43	51.6	42.5	50.6	43.7(36)	55.7(41.1)
	Eligible for choice	4	0	0	0	0	107.6(53.5)	139.9(53.4)
	Not Eligible for choice	4	44.6	53.5	44.2	52.6	18.5(11.2)	32.4(16.2)

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
22	All	4	66	71.6	64.3	70.3	45.9(62.5)	51.5(62.7)
	Eligible for choice	4	0	0	0	0	102.2(40)	129.9(42.9)
	Not Eligible for choice	4	67.9	73.7	66.1	72.3	18.4(8.6)	24(11)
23	All	8	35.9	39.7	34.2	38	64.5(52)	78.7(60)
	Eligible for choice	8	0	0	0	0	100.9(40.1)	127.1(47.1)
	Not Eligible for choice	8	45.9	49.2	43.9	47.3	15.1(10.1)	23.8(14.7)

Table F-14 Geographic Access to VA Facilities providing Non-invasive cardiology services

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
All	All	170	58.3	64.2	57.1	62.9	39.3(37.7)	49.5(43.9)
	Eligible for choice	170	0	0	0	0	92.6(39.7)	117.6(45.9)
	Not Eligible for choice	167	62.9	68.7	61.8	67.5	16.6(10.5)	25.3(14.8)
1	All	10	71.3	79.2	70.6	78.1	28.8(26)	37.3(30.1)
	Eligible for choice	10	0	0	0	0	96.5(42.7)	118.2(47)
	Not Eligible for choice	10	74.1	81.8	73.7	81	17.6(10.5)	26.6(14.2)
2	All	4	50.8	58.8	51.1	59	42.4(33.7)	51.5(37.4)
	Eligible for choice	4	0	0	0	0	93.1(38)	119.9(46.3
	Not Eligible for choice	4	52.1	60.2	52.3	60.3	16.2(11.5)	27.6(17.5)
3	All	12	88.8	92.6	88.1	91.8	14.8(14.2)	20.6(16.7)
	Eligible for choice	12	0	0	0	0	92.2(5.4)	118.4(5)
	Not Eligible for choice	11	88.8	92.7	88.2	91.9	11.8(8.8)	18.3(12.3)
4	All	8	62	72.9	61.9	72.9	31.4(23.4)	40.9(28.4)

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
	Eligible for choice	8	0	0	0	0	62.3(21)	83.6(28.5)
	Not Eligible for choice	8	63.2	73.9	63.2	74	17.6(11.2)	28.6(16.6)
5	All	4	82.7	85.1	80.5	83	23.7(22.7)	32.8(29.7)
	Eligible for choice	4	0	0	0	0	52.2(12.3)	64.8(17.9)
	Not Eligible for choice	4	83.6	85.5	81.3	83.5	16.2(10.4)	23.7(13.7)
6	All	8	51.7	61.1	50.7	60.2	47.1(33.3)	59.5(40.4)
	Eligible for choice	8	0	0	0	0	67.3(22)	91.4(30.9)
	Not Eligible for choice	8	56.6	65.8	55.6	65	20.9(11.1)	33.2(15.8)
7	All	7	43.9	48.5	43.9	48.5	53.3(35)	67.1(42.5)
	Eligible for choice	7	0	0	0	0	76.2(21.8)	99.5(29.5)
	Not Eligible for choice	7	47.9	52.4	48	52.5	18.2(10.7)	28.5(15.7)
8	All	14	71.6	75.2	71.7	75.3	28.4(22.5)	38.1(27.9)
	Eligible for choice	14	0	0	0	0	69.6(23.5)	100.9(31.6)
	Not Eligible for choice	13	72.7	76.4	72.9	76.5	18.1(10.9)	27.2(14.9)
9	All	6	34.6	41.6	35.4	42.1	74.2(52.1)	85.4(54.4)
	Eligible for choice	6	0	0	0	0	107.5(37.9	130.2(38.9)
	Not Eligible for choice	6	39.3	47	40.2	47.4	16.4(10.5)	27.4(16.5)
10	All	5	64.8	71.5	63.4	70.3	29.9(23.7)	38.4(27.4)
	Eligible for choice	5	0	0	0	0	53(8.1)	76.4(13.7)
	Not Eligible for choice	5	65.3	71.9	63.9	70.8	16.2(10.9)	25.2(14.8)
11	All	8	49.8	55.5	48.6	54.1	44.8(37.9)	55(43.1)
	Eligible for choice	8	0	0	0	0	81.4(38.8)	99.6(45.4)
	Not Eligible for choice	8	53.5	58.2	52.1	56.7	17.4(10.8)	25.7(14.8)
12	All	8	67	74.2	64.9	72	28.4(27.3)	37.1(36)
	Eligible for choice	8	0	0	0	0	75.3(28.9)	110.4(44.9)
	Not Eligible for choice	8	70.1	77.5	68.3	75.5	16.1(10.7)	23(14.3)
15	All	9	56.6	61.3	54.9	59.6	41.5(38.1)	54.1(47.9)

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
	Eligible for choice	9	0	0	0	0	92.5(37.8)	120.5(46.8)
	Not Eligible for choice	9	63	67.4	61.4	65.8	16.2(10.3)	24.1(15)
16	All	12	45.3	50.2	43.8	48.9	50.3(38.7)	63.6(47.2)
	Eligible for choice	12	0	0	0	0	84.5(29.6)	109.3(38.8)
	Not Eligible for choice	12	50.8	55.2	49.4	53.8	16.4(10.7)	25.9(15.5)
17	All	3	53	61.7	52.1	60.4	52(43.3)	61.8(47.9)
	Eligible for choice	3	0	0	0	0	100.9(36)	124(42.6)
	Not Eligible for choice	3	58.1	67	57.3	65.7	21.4(10.4)	31(13.6)
18	All	7	63.5	66.2	63.3	66	45.7(48.3)	58.3(55.8)
	Eligible for choice	7	0	0	0	0	106.5(41.7	135.1(50.4)
	Not Eligible for choice	7	70.2	73	70.3	72.9	15.6(9.2)	24.8(13.1)
19	All	7	40.5	46.2	39.4	44.7	58.5(56.4)	69.5(61.5)
	Eligible for choice	7	0	0	0	0	133.5(50)	153.6(52.8)
	Not Eligible for choice	6	48.1	53.9	47.2	52.5	16.2(10.4)	27.4(15.2)
20	All	8	54.4	62	54.6	61.7	45.6(46.1)	57.3(54.1)
	Eligible for choice	8	0	0	0	0	99.8(39.6)	128.7(47.7)
	Not Eligible for choice	8	62.6	70.3	63	70.2	17.3(10.5)	26.6(14.6)
21	All	11	71.2	73.7	69.3	72	26(26.2)	37.3(35.4)
	Eligible for choice	11	0	0	0	0	84.7(44)	121(54)
	Not Eligible for choice	11	74	76.5	72.1	74.9	14.9(9.7)	23.7(14.3)
22	All	9	79	84.7	78.1	84.1	27.2(28.5)	32.8(31.9)
	Eligible for choice	9	0	0	0	0	96.1(34.8)	122.6(41.4)
	Not Eligible for choice	9	81.3	87.1	80.3	86.5	17.1(9.1)	22.7(11.3)
23	All	10	41.1	44.5	39.8	43.1	58.6(48.8)	73.1(56.9)
	Eligible for choice	10	0	0	0	0	97.4(40.5)	124.6(46.8)
	Not Eligible for choice	10	52.4	55.2	51.2	53.9	15.2(10.3)	23.7(14.8)

Table F-15 Geographic Access to VA Facilities providing diagnostic cardiac catheterization

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
All	All	76	42	47.6	40.2	45.7	54.2(49.9)	63.3(53.8)
	Eligible for choice	76	0	0	0	0	110(45.5)	132(48.7)
	Not Eligible for choice	76	45.3	51	43.6	49.2	17.2(10.3)	25.9(14.4)
1	All	3	35.8	54.4	35.1	53.6	49.5(39.1)	56.2(41)
	Eligible for choice	3	0	0	0	0	113.5(61.4	125(61.2)
	Not Eligible for choice	3	37.2	56.1	36.7	55.6	21.1(11.4)	34.1(14.8)
2	All	3	44.3	51.9	44.5	52	47.8(37)	57.6(42.8)
	Eligible for choice	3	0	0	0	0	109.7(32.8	136.5(41.4)
	Not Eligible for choice	3	45.5	53.2	45.6	53.3	15.1(11.2)	26.5(17.7)
3	All	4	78.1	83.6	76.7	82.1	20.7(17.9)	27.5(20.4)
	Eligible for choice	4	0	0	0	0	92.2(5.4)	118.4(5)
	Not Eligible for choice	4	78.1	83.7	76.7	82.1	14.9(9.6)	22.5(12.7)
4	All	3	41.5	51.8	39.7	49.9	46(35.1)	54(38.8)
	Eligible for choice	3	0	0	0	0	89.3(37.8)	108.3(45.9)
	Not Eligible for choice	3	42.4	52.4	40.5	50.5	17.4(11)	27.8(16)
5	All	2	71.8	75.3	67.1	70.7	29(30.9)	37.8(36.8)
	Eligible for choice	2	0	0	0	0	67.2(31.5)	78.3(33.5)
	Not Eligible for choice	2	72.6	75.7	67.8	71.1	15.6(10.2)	23.2(13.6)
6	All	4	21	25.7	21.6	26	75.1(40.7)	85.4(45)
	Eligible for choice	4	0	0	0	0	83.3(33.7)	105.9(40.7)
	Not Eligible for choice	4	23	27.3	23.8	27.7	19.4(11.3)	30.7(15.9)
7	All	5	39.8	43.8	39.8	43.9	64.2(45.8)	77.7(53)
	Eligible for choice	5	0	0	0	0	100.7(40.1	125.5(46.1)
	Not Eligible for choice	5	43.5	47.4	43.6	47.5	18.3(10.5)	28.2(15.2)
8	All	6	43.6	47.7	43	47.3	51.6(43.7)	61.3(47.2)
	Eligible for choice	6	0	0	0	0	123.8(50.6	150.5(48.4)

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
	Not Eligible for choice	6	44.3	48.5	43.7	48.1	18.2(11.1)	26.5(15)
9	All	5	33.3	40.4	34.1	40.8	77.1(52.8)	87.1(54.6)
	Eligible for choice	5	0	0	0	0	110.8(37.4	131.7(38.1)
	Not Eligible for choice	5	37.8	45.6	38.7	46.1	17(10.8)	27.6(16.4)
10	All	3	48.1	54.2	46.9	53.2	44.8(34.8)	52.4(37)
	Eligible for choice	3	0	0	0	0	62.2(15.2)	85.5(18.3)
	Not Eligible for choice	3	48.4	54.6	47.3	53.5	16.5(11.1)	25.6(14.9)
11	All	3	32.2	37.2	30.5	35.5	67.1(51.1)	74.4(52.3)
	Eligible for choice	3	0	0	0	0	121(41.2)	132(42.7)
	Not Eligible for choice	3	34.6	39.6	32.7	37.7	16.8(9.8)	26(15.2)
12	All	4	52.9	62.8	49.9	59.5	37.1(39.5)	43.3(43.1)
	Eligible for choice	4	0	0	0	0	107.7(43.3	131.7(45.8)
	Not Eligible for choice	4	55.3	65.5	52.5	62.5	16.2(11)	23.6(14.9)
15	All	5	47.1	52	44.6	49.4	53.4(46.2)	65.1(54.7)
	Eligible for choice	5	0	0	0	0	104.1(38.7	130.2(46.8)
	Not Eligible for choice	5	52.5	57.5	49.9	55	16.3(10)	24.2(14.8)
16	All	5	28.6	31.3	27.2	29.9	90.9(68.9)	101.1(70.3)
	Eligible for choice	5	0	0	0	0	108.4(44)	129.5(49.4)
	Not Eligible for choice	5	32.1	34.2	30.7	32.9	16.9(9.9)	24.7(13.2)
17	All	2	43.2	49.4	41.5	47.4	61.5(49.3)	70.2(52.6)
	Eligible for choice	2	0	0	0	0	110.5(36.9	132(43.5)
	Not Eligible for choice	2	47.4	54	45.7	51.8	20.9(10.1)	29.9(13.1)
18	All	3	48.8	50	47.2	48.5	50.9(62.4)	61.7(65.8)
	Eligible for choice	3	0	0	0	0	139.5(57.3	163.3(53.3)
	Not Eligible for choice	3	54	55.3	52.4	53.7	16.3(9.1)	24.8(12.3)
19	All	2	33.3	37	31.6	34.8	54.4(55.6)	64.2(59.3)
	Eligible for choice	2	0	0	0	0	142.9(50.8	159.8(50.4)

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
	Not Eligible for choice	2	39.6	43.8	37.8	41.6	16.7(10.2)	26.9(14.2)
20	All	2	33.7	39.8	31.7	37.4	55(57)	64.1(60.1)
	Eligible for choice	2	0	0	0	0	116.1(47.7	138.4(48.2)
	Not Eligible for choice	2	38.7	45.2	36.6	42.6	18.4(10.2)	27.5(14.3)
21	All	3	29.3	31.4	29.1	31	70(59.3)	81(63.4)
	Eligible for choice	3	0	0	0	0	125.1(46.4	159(51.4)
	Not Eligible for choice	3	30.4	32.6	30.3	32.3	18.1(10.2)	26.9(13.5)
22	All	5	79	84.7	78.1	84.1	28.2(30.6)	33.9(33.7)
	Eligible for choice	5	0	0	0	0	99.5(37.3)	124.9(43.5)
	Not Eligible for choice	5	81.3	87.1	80.3	86.5	17.6(8.7)	23.4(10.9)
23	All	4	29.3	32.7	27.1	30.5	68.8(58)	83.1(65)
	Eligible for choice	4	0	0	0	0	112(50.2)	137.4(52.9)
	Not Eligible for choice	4	37.4	40.7	34.9	38.3	15.2(9.8)	24(14.5)

Table F-16 Geographic Access to VA Facilities providing interventional cardiology

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
All	All	79	43.4	49	41.5	47	53.4(48.7)	62.7(52.9)
	Eligible for choice	79	0	0	0	0	111.4(46.1	133.6(48.9)
	Not Eligible for choice	79	46.8	52.5	45	50.6	17.2(10.4)	26.1(14.4)
1	All	2	33.7	51.7	32.8	50.5	55.6(47.6)	62.6(50)
	Eligible for choice	2	0	0	0	0	197.4(35.3	208.4(26.5)
	Not Eligible for choice	2	35.1	53.7	34.2	52.8	21.1(11.4)	33.9(14.7)

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
2	All	3	45.4	53.2	45.5	53.3	47.6(38.4)	57.5(43.9)
	Eligible for choice	3	0	0	0	0	109.8(33.7	140.7(45.9)
	Not Eligible for choice	3	46.6	54.6	46.6	54.5	15.3(11.2)	26.6(17.5)
3	All	5	86.4	91.6	85.6	90.7	18.7(14.7)	25.3(16.9)
	Eligible for choice	5	0	0	0	0	92.2(5.4)	118.4(5)
	Not Eligible for choice	5	86.5	91.7	85.7	90.8	15.4(9.9)	22.9(12.7)
4	All	2	36.4	45.1	35	43.7	53.1(41.1)	60.9(44.3)
	Eligible for choice	2	0	0	0	0	111.9(37)	128.3(40.9)
	Not Eligible for choice	2	37.2	46	35.7	44.6	17.3(11)	27.6(16)
5	All	3	81.1	84.7	78.6	82.6	24.9(24.9)	33.8(31.8)
	Eligible for choice	3	0	0	0	0	59.1(23.5)	71.9(27.8)
	Not Eligible for choice	3	82	85.2	79.4	83.1	16.5(10.6)	24.1(14)
6	All	5	29.6	34.3	29.8	34.3	70.1(39.9)	80.5(43.7)
	Eligible for choice	5	0	0	0	0	81.1(34)	103.9(40.4
	Not Eligible for choice	5	32.4	36.7	32.8	36.8	19.4(11.4)	31(16)
7	All	5	39.8	43.8	39.8	43.9	64(45.4)	77.4(52.5)
	Eligible for choice	5	0	0	0	0	100.2(39.6	124.8(45)
	Not Eligible for choice	5	43.5	47.4	43.6	47.5	18.3(10.5)	28.2(15.2)
8	All	6	43.6	47.7	43	47.3	51.6(43.7)	61.3(47.2)
	Eligible for choice	6	0	0	0	0	123.8(50.6	150.5(48.4
	Not Eligible for choice	6	44.3	48.5	43.7	48.1	18.2(11.1)	26.5(15)
9	All	4	29.5	35.5	30.1	35.9	85.7(56.1)	95.1(58)
	Eligible for choice	4	0	0	0	0	120.5(39.7	140.9(42.6)
	Not Eligible for choice	4	33.5	40.1	34.2	40.5	16.9(10.8)	26.8(16)
10	All	3	47.9	54.1	46.7	53.1	46.2(37.2)	53.6(39.4)
	Eligible for choice	3	0	0	0	0	62.2(15.2)	85.5(18.3)
	Not Eligible for choice	3	48.3	54.4	47.1	53.4	16.4(11)	25.6(14.9)

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
11	All	3	32.2	37.2	30.5	35.5	67.1(51.1)	74.4(52.3)
	Eligible for choice	3	0	0	0	0	121(41.2)	132(42.7)
	Not Eligible for choice	3	34.6	39.6	32.7	37.7	16.8(9.8)	26(15.2)
12	All	4	52.9	62.8	49.9	59.5	37.1(39.5)	43.3(43.1)
	Eligible for choice	4	0	0	0	0	107.7(43.3	131.7(45.8)
	Not Eligible for choice	4	55.3	65.5	52.5	62.5	16.2(11)	23.6(14.9)
15	All	5	47.2	50.8	44.7	48.1	57.9(52)	69(59.2)
	Eligible for choice	5	0	0	0	0	102.4(40.1	127.8(47.5)
	Not Eligible for choice	5	52.6	55.8	50	53.2	16.1(10.2)	23(14.2)
16	All	7	33.2	37.5	31.9	36.4	71.5(52.3)	84.2(57.9)
	Eligible for choice	7	0	0	0	0	99.5(39)	121.9(45.4
	Not Eligible for choice	7	37.3	41	36	39.9	17.5(10.4)	27.3(15)
17	All	2	43.2	49.4	41.5	47.4	61.4(49.2)	70.1(52.5)
	Eligible for choice	2	0	0	0	0	110.3(36.8	131.8(43.2)
	Not Eligible for choice	2	47.4	54	45.7	51.8	20.9(10.1)	29.9(13.1)
18	All	3	48.8	50	47.2	48.5	50.9(62.4)	61.7(65.8)
	Eligible for choice	3	0	0	0	0	139.5(57.3	163.3(53.3)
	Not Eligible for choice	3	54	55.3	52.4	53.7	16.3(9.1)	24.8(12.3)
19	All	2	33.3	37	31.6	34.8	54.4(55.6)	64.2(59.3)
	Eligible for choice	2	0	0	0	0	142.9(50.8	159.8(50.4)
	Not Eligible for choice	2	39.6	43.8	37.8	41.6	16.7(10.2)	26.9(14.2)
20	All	2	33.7	39.8	31.7	37.4	55(57)	64.1(60.1)
	Eligible for choice	2	0	0	0	0	116.1(47.7	138.4(48.2)
	Not Eligible for choice	2	38.7	45.2	36.6	42.6	18.4(10.2)	27.5(14.3)
21	All	4	43	47.1	42	45.7	52.3(53.9)	65.6(60.1)
	Eligible for choice	4	0	0	0	0	114.8(56.3	146.6(57.7)
	Not Eligible for choice	4	44.6	48.9	43.7	47.6	17.9(9.8)	28(13.6)

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
22	All	5	79	84.7	78.1	84.1	28.2(30.6)	33.9(33.7)
	Eligible for choice	5	0	0	0	0	99.5(37.3)	124.9(43.5
	Not Eligible for choice	5	81.3	87.1	80.3	86.5	17.6(8.7)	23.4(10.9)
23	All	4	26.9	30	25	28.1	77.5(58.3)	90.4(64)
	Eligible for choice	4	0	0	0	0	116.7(47)	142.7(49.5)
	Not Eligible for choice	4	34.3	37.5	32.1	35.4	15.1(9.6)	23.9(14.5)

Table F-17 Geographic Access to VA Facilities providing cardiac surgery

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
All	All	75	39.7	46.2	38	44.4	58.3(51.2)	67.6(54.6)
	Eligible for choice	75	0	0	0	0	112.3(45.7)	134.9(48.9)
	Not Eligible for choice	75	42.8	49.6	41.1	47.7	17.8(10.7)	27.5(15.1)
1	All	3	38.6	56.3	38.1	55.6	49.2(38)	57.5(42)
	Eligible for choice	3	0	0	0	0	141.7(57.9)	167.1(49.6)
	Not Eligible for choice	3	40.1	58.4	39.8	57.9	21.2(11.2)	34.1(14.8)
2	All	3	44.3	51.9	44.5	52	48.4(38.5)	58.2(44)
	Eligible for choice	3	0	0	0	0	110.2(33.6)	141.1(45.8)
	Not Eligible for choice	3	45.5	53.2	45.6	53.3	15.1(11.2)	26.5(17.7)
3	All	5	79.5	84.9	78.2	83.6	18(18.6)	23.7(21)
	Eligible for choice	5	0	0	0	0	93.9(6.8)	121.6(3)
	Not Eligible for choice	5	79.5	85	78.2	83.7	11.9(9)	18.7(13)
4	All	2	27.8	40.5	27.4	39.5	59.6(37.8)	69.1(40.6)
	Eligible for choice	2	0	0	0	0	109.2(29.9)	125.8(36.1)

	Not Eligible for choice	2	28.3	41.3	27.9	40.3	22.1(12)	35.4(15.4)
5	All	2	66.6	82.1	63	80.1	32.7(23.9)	42.2(29.3)
	Eligible for choice	2	0	0	0	0	56.9(22.7)	69.2(24.5)
	Not Eligible for choice	2	67.3	82.5	63.7	80.6	20.7(11.6)	32.7(15.7)
6	All	6	43.4	47.9	41.3	45.6	62.7(42.8)	74.6(47.8)
	Eligible for choice	6	0	0	0	0	76(27.7)	100.1(35.5)
	Not Eligible for choice	6	47.4	51.5	45.3	49.1	19.4(10.7)	29(15)
7	All	3	28	31.5	27.3	30.7	78.3(49.8)	90.3(54.6)
	Eligible for choice	3	0	0	0	0	118.7(40.8)	139.7(45)
	Not Eligible for choice	3	30.6	34.1	29.9	33.3	18.8(10.4)	28.8(15)
8	All	6	43.6	47.7	43	47.3	51.6(43.7)	61.3(47.2)
	Eligible for choice	6	0	0	0	0	123.8(50.6)	150.5(48.4)
	Not Eligible for choice	6	44.3	48.5	43.7	48.1	18.2(11.1)	26.5(15)
9	All	5	36.3	43.9	36.8	44.1	64.5(44.3)	75.4(49)
	Eligible for choice	5	0	0	0	0	102.2(33.8)	123.5(35.7)
	Not Eligible for choice	5	41.2	49.5	41.8	49.6	16.4(10.2)	26.5(16.1)
10	All	3	49	62.5	46.7	60.7	38.2(25.9)	46.1(28.9)
	Eligible for choice	3	0	0	0	0	62(13.2)	84.9(16.1)
	Not Eligible for choice	3	49.4	63	47	61.1	17.3(11.4)	30.1(16.8)
11	All	2	23.9	32.2	23.1	31.1	77(50)	85.1(49.8)
	Eligible for choice	2	0	0	0	0	125(41.7)	136.7(43.5)
	Not Eligible for choice	2	25.6	34.3	24.8	33	24.1(11.7)	37.9(14.9)
12	All	3	50.7	61.9	47.8	58.7	39.4(38.6)	45.7(42.1)
	Eligible for choice	3	0	0	0	0	108.7(43)	132.5(45.4)
	Not Eligible for choice	3	53	64.6	50.2	61.6	18.3(10.2)	26.1(13.9)
15	All	2	6.6	7.7	7.2	8.4	112.5(43.7)	120.7(46.9)
	Eligible for choice	2	0	0	0	0	134.1(41)	159.5(43.4)
	Not Eligible for choice	2	7.3	8.3	8.1	9.1	18(13.9)	30.7(20.2)
16	All	8	36.7	41.4	35.6	40.4	65.9(55)	76.6(58.3)
	Eligible for choice	8	0	0	0	0	106.2(44.6)	126.6(46.9)
	Not Eligible for choice	8	41.2	45.5	40.1	44.5	16.7(10.6)	26.1(15.4)
17	All	3	53	61.7	52.1	60.3	52.9(44.5)	62.4(48.8)

VISN	Choice Eligibility	N	40 miles	60 min.	40 miles	60 min.	Miles	Minutes
	Eligible for choice	3	0	0	0	0	103.7(37.9)	125.4(43.1)
	Not Eligible for choice	3	58.1	66.9	57.3	65.6	21.4(10.4)	30.9(13.6)
18	All	3	23.2	23.7	24.2	24.8	102.3(60.8)	108.1(60.7)
	Eligible for choice	3	0	0	0	0	129.7(58.5)	151.5(57.9)
	Not Eligible for choice	3	25.7	26.1	26.9	27.4	12(7.8)	20.3(11.9)
19	All	2	33.3	37	31.6	34.8	55.4(57.5)	65.4(61.3)
	Eligible for choice	2	0	0	0	0	142.8(51)	161.2(51.4)
	Not Eligible for choice	2	39.6	43.8	37.8	41.6	16.7(10.2)	26.9(14.2)
20	All	3	39.6	45.9	37.7	43.5	53.1(52.3)	64.4(59.1)
	Eligible for choice	3	0	0	0	0	105.9(41.1)	134.2(48.3)
	Not Eligible for choice	3	45.6	52.4	43.5	49.7	18(10.4)	27.2(14.3)
21	All	3	36.6	40.9	34.8	38.7	58(56.3)	71.5(62.5)
	Eligible for choice	3	0	0	0	0	126.3(53.8)	157.9(52.1)
	Not Eligible for choice	3	38	42.5	36.3	40.3	18.2(9.6)	28.5(13.3)
22	All	4	66	71.6	64.3	70.3	46.4(63.5)	51.5(62.7)
	Eligible for choice	4	0	0	0	0	105.5(43.4)	130.2(43.3)
	Not Eligible for choice	4	67.9	73.7	66.1	72.3	18.4(8.6)	24(11)
23	All	4	23.7	25.5	22.6	24.3	87.8(59.8)	101.4(64.9)
	Eligible for choice	4	0	0	0	0	113.4(44.9)	140.4(53)
	Not Eligible for choice	4	30.2	31.3	29	30.1	15(9.5)	22.4(12.7)

Appendix F.2.2. Services for Populations with Colon Cancer

Table F-18 Geographic Access to VA facilities providing primary care

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
All	All	895	91.8	92.1	91.4	91.6	15.8(16.1)	24.5(23)
	Eligible for choice	895	0	0	0	0	58.3(21.4)	83.2(31.7)
	Not Eligible for choice	839	99	97.8	99	97.6	12.3(9.3)	19.1(12.9)
1	All	50	96.2	96.2	95.8	95.8	12(11.1)	18.9(16.5)

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
	Eligible for choice	50	0	0	0	0	52.9(12.6)	76.2(22)
	Not Eligible for choice	47	100	98.9	100	98.9	10.7(8)	16.5(11.3)
2	All	33	97.4	95.2	97.6	95.3	12.5(10.7)	21.8(17.8)
	Eligible for choice	33	0	0	0	0	48.3(7.1)	75.4(19.2)
	Not Eligible for choice	32	100	97.2	100	97.3	11.5(9)	19(13.4)
3	All	35	99.9	99.9	99.9	99.9	6.3(5.1)	11(8)
	Eligible for choice	35	0	0	0	0	42.4(1.2)	65.7(9.8)
	Not Eligible for choice	32	100	100	100	100	6.2(5)	11(7.8)
4	All	55	98.1	98.3	98	98.2	12.3(9.3)	19.6(13.5)
	Eligible for choice	55	0	0	0	0	45.2(5.3)	64.5(13.2)
	Not Eligible for choice	51	100	99.4	100	99.4	11.7(8.3)	18.5(11.6)
5	All	21	98.9	99.5	99	99.4	13(9.9)	20.4(13.6)
	Eligible for choice	21	0	0	0	0	43.4(3.8)	55.6(11)
	Not Eligible for choice	20	100	99.8	100	99.8	12.7(9.4)	19.9(12.9)
6	All	28	81.8	84.1	81.7	84.1	23.1(16)	34.4(23.4)
	Eligible for choice	28	0	0	0	0	49.5(10)	72(20.2)
	Not Eligible for choice	28	89.4	89.2	89.8	89.5	17.9(10.7)	26.5(14.4)
7	All	48	90.8	90.7	90.6	90.3	19(15.9)	30.2(22.8)
	Eligible for choice	48	0	0	0	0	51.1(10)	73.9(16.9)
	Not Eligible for choice	47	99.2	97.1	99.1	96.9	14.5(10)	23.1(14.2)
8	All	57	98.4	97.9	98.3	97.8	12(9.1)	19.7(14)
	Eligible for choice	57	0	0	0	0	50.5(8.2)	76.7(12.5)
	Not Eligible for choice	54	100	99.4	100	99.3	11.4(7.7)	18.4(11.2)
9	All	45	88	88.8	88.1	88.8	21.1(16)	32.3(23.2)
	Eligible for choice	45	0	0	0	0	51.6(9.6)	74(16)
	Not Eligible for choice	42	99.9	97.7	99.9	97.6	16.4(10.7)	24.6(15)
10	All	33	98.4	98	98.4	98	11.7(9.5)	18.9(13.9)

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
	Eligible for choice	33	0	0	0	0	43.3(1.8)	60.2(7.8)
	Not Eligible for choice	33	99.1	98.5	99.1	98.5	11.2(8.7)	17.9(12.4)
11	All	36	92.6	93.9	92.6	93.8	17.4(12.7)	26.3(17.6)
	Eligible for choice	36	0	0	0	0	48.1(7.5)	64.5(12.9)
	Not Eligible for choice	36	99.4	98	99.3	97.9	15.3(9.9)	23.1(13.9)
12	All	38	94.2	93.9	93.6	93.1	12.2(11.6)	19.4(17.2)
	Eligible for choice	38	0	0	0	0	51.8(12.2)	79.6(19.8)
	Not Eligible for choice	38	98.6	97.7	98.4	97.3	10.6(8.5)	16.8(11.8)
15	All	57	89.8	89.5	89.4	88.9	18.8(17.4)	28.7(24.9)
	Eligible for choice	57	0	0	0	0	55.8(13.9)	79(21.6)
	Not Eligible for choice	50	100	97.7	100	97.4	13.8(10.4)	20.8(14.4)
16	All	66	88.4	89.3	88	88.8	19.6(15.7)	29.4(22.5)
	Eligible for choice	66	0	0	0	0	51(11.1)	73.1(19.4)
	Not Eligible for choice	65	99.3	97.1	99.2	96.9	15.3(10.5)	22.6(14)
17	All	30	91.1	91.4	90.9	91.1	20(17.8)	29(24.6)
	Eligible for choice	30	0	0	0	0	60.5(24.7)	85.2(34.5)
	Not Eligible for choice	25	100	98.7	100	98.7	15.7(9.6)	22.6(12.5)
18	All	47	90.4	90.3	90.1	90	17.9(22.3)	28.7(32.5)
	Eligible for choice	47	0	0	0	0	67.9(27)	99(42.5)
	Not Eligible for choice	42	100	98.7	100	98.7	10.9(8.3)	18.2(11.6)
19	All	42	83.9	85.2	83.2	84.4	24.7(32.4)	35.3(42.4)
	Eligible for choice	42	0	0	0	0	81.8(33.2)	107.7(46.3)
	Not Eligible for choice	34	99.7	98.3	99.7	98.2	11.3(8.9)	17.7(11.9)
20	All	38	87	87.9	86.7	87.5	19.5(21)	29.7(31)
	Eligible for choice	38	0	0	0	0	65.1(23.7)	95.6(39.9)
	Not Eligible for choice	36	100	98.1	100	98	13.1(9.8)	19.9(12.8)
21	All	41	95.2	94.5	94.8	94.2	13.2(13.2)	21.2(19.7)

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
	Eligible for choice	41	0	0	0	0	63.5(25.6)	97.2(32.9)
	Not Eligible for choice	39	98.8	98.1	98.8	98	11.2(8.1)	18(11.8)
22	All	35	97.2	97.4	97.3	97.5	9.5(10.1)	15(14.5)
	Eligible for choice	35	0	0	0	0	63.2(29.7)	92.5(43.6)
	Not Eligible for choice	35	100	99.8	100	99.8	8.6(6)	13.5(8.1)
23	All	60	77	76.9	76.4	76.1	25.7(24.8)	39.1(35.3)
	Eligible for choice	60	0	0	0	0	63(21.8)	90.9(31.9)
	Not Eligible for choice	53	98.2	95.1	98.1	94.8	14.5(10.9)	22.1(15.3)

Table F-19 Geographic Access to VA Facilities providing colonoscopy

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
All	All	167	58	63.5	56.6	62.2	40(38.8)	50.3(44.9)
	Eligible for choice	167	0	0	0	0	93.1(39.8)	118.5(46.1)
	Not Eligible for choice	165	62.5	68	61.4	66.8	16.2(10.4)	25(14.9)
1	All	8	62.1	72.7	61.6	71.8	34.2(27.2)	41.8(30.9)
	Eligible for choice	8	0	0	0	0	96.5(42.7)	118.2(47)
	Not Eligible for choice	8	64.6	75.1	64.3	74.4	19.2(11.6)	28.7(15.4)
2	All	3	45.4	53.2	45.5	53.3	47(36.9)	56.9(42.6)
	Eligible for choice	3	0	0	0	0	109.4(32.9	136.3(41.5)
	Not Eligible for choice	3	46.6	54.6	46.6	54.5	15.3(11.2)	26.6(17.5)
3	All	7	88.4	91.8	87.3	90.9	15.3(14.5)	21.1(17.1)
	Eligible for choice	7	0	0	0	0	92.2(5.4)	118.4(5)

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
	Not Eligible for choice	7	88.4	91.9	87.4	91	12.3(9.3)	18.5(12.3)
4	All	8	61.3	73.6	61.3	73.5	31.5(23.5)	41(28.6)
	Eligible for choice	8	0	0	0	0	63(20.4)	83.9(28.4)
	Not Eligible for choice	8	62.5	74.6	62.5	74.6	17.6(11.2)	29.1(16.9)
5	All	3	82.7	85.1	80.5	83	24(22.7)	33(29.7)
	Eligible for choice	3	0	0	0	0	52.6(12.5)	64.8(17.9)
	Not Eligible for choice	3	83.6	85.5	81.3	83.5	16.6(10.6)	24(13.9)
6	All	9	57	64	56.2	63.2	43.6(34.2)	56.2(41.4)
	Eligible for choice	9	0	0	0	0	67(22.1)	91.1(31.1)
	Not Eligible for choice	9	62.4	68.8	61.8	68.3	20(10.7)	30.7(15)
7	All	8	47.6	52.6	47.6	52.6	50(34.7)	63.6(42.4)
	Eligible for choice	8	0	0	0	0	74.9(22.8)	97.3(29.6)
	Not Eligible for choice	8	52	56.8	52.1	56.9	18.2(11)	28.5(15.8)
8	All	13	68	71.7	67.7	71.5	32.1(29.7)	41.6(33.7)
	Eligible for choice	13	0	0	0	0	95.8(37.9)	125.1(40.3
	Not Eligible for choice	12	69	72.7	68.8	72.6	16.3(10)	25.8(14.8)
9	All	6	34.6	41.5	35.4	42	74.5(52.1)	85.6(54.4)
	Eligible for choice	6	0	0	0	0	108.3(37.3)	130.9(38.2)
	Not Eligible for choice	6	39.3	47	40.2	47.4	16.4(10.5)	27.4(16.5)
10	All	5	64.8	71.5	63.4	70.3	30(23.8)	38.5(27.6)
	Eligible for choice	5	0	0	0	0	53(8.1)	76.4(13.7)
	Not Eligible for choice	5	65.3	71.9	63.9	70.8	16.2(10.9)	25.2(14.8)
11	All	6	42.5	48.8	41.1	47.2	53.5(43.9)	62.7(47.2)
	Eligible for choice	6	0	0	0	0	88.5(38.4)	106.8(45.7
	Not Eligible for choice	6	45.6	51.5	44.1	49.8	17.6(10.8)	26.8(15.5)
12	All	6	59.4	64.8	56.6	61.8	35.2(36.6)	44(44.5)

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
	Eligible for choice	6	0	0	0	0	92.4(32.2)	129.8(46.3)
	Not Eligible for choice	6	62.1	67.7	59.5	64.9	15.7(10.5)	22.2(13.9)
15	All	8	53	57.1	51	55	46.8(41.5)	59.5(50.6)
	Eligible for choice	8	0	0	0	0	95.1(37)	122.7(45.7)
	Not Eligible for choice	8	59.1	62.9	57.1	60.9	16.3(10.3)	23.8(14.7)
16	All	16	48.2	53.4	46.5	51.8	48(38.3)	61.5(47.2)
	Eligible for choice	16	0	0	0	0	83.7(29.3)	108.7(38.6)
	Not Eligible for choice	16	54.1	58.7	52.5	57.2	16.5(10.8)	26.2(15.5)
17	All	6	62.8	69.1	62.2	68.4	46.3(41.1)	56.3(47.1)
	Eligible for choice	6	0	0	0	0	91.5(32.2)	115.2(40.2
	Not Eligible for choice	6	69	74.7	68.5	74.2	19.1(10)	27.6(13.8)
18	All	6	63	64.8	62.7	64.5	49.2(55.8)	61.3(61.9)
	Eligible for choice	6	0	0	0	0	121.2(52)	149.4(54.2
	Not Eligible for choice	6	69.6	71.5	69.6	71.4	15.6(9.1)	24.4(12.7)
19	All	9	45	50.6	45.2	50.5	54.8(53.3)	65.4(58.1)
	Eligible for choice	9	0	0	0	0	123.2(51.6	145.1(54.8)
	Not Eligible for choice	8	53.4	59.2	54.2	59.5	15.8(10.4)	26.7(15.2)
20	All	10	58.1	62.5	57.3	61.6	40.2(40.4)	52.7(50)
	Eligible for choice	10	0	0	0	0	91.4(35.2)	123.3(47.2)
	Not Eligible for choice	10	66.8	70.8	66.1	70	15.9(9.5)	25(13.9)
21	All	9	62.9	65.4	62.3	65	28(25.8)	40.1(33.6)
	Eligible for choice	9	0	0	0	0	88.1(44)	124.2(53.1
	Not Eligible for choice	9	65.3	67.8	64.8	67.7	16.5(9.6)	26.2(13.7)
22	All	11	79.3	85.5	78.4	85	23.8(28.2)	29.5(31.9)
	Eligible for choice	11	0	0	0	0	93.7(33.9)	120.1(40.5
	Not Eligible for choice	11	81.6	88	80.6	87.4	13.9(9)	19.9(12.2)
23	All	10	41.1	44.5	39.8	43.1	59(49.2)	73.8(57.5)

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
	Eligible for choice	10	0	0	0	0	97.7(40.5)	125.1(46.9
	Not Eligible for choice	10	52.4	55.2	51.2	53.9	15.2(10.3)	23.7(14.8)

Table F-20 Geographic Access to VA Facilities providing CT scans

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
All	All	175	60	65.7	58.8	64.5	38.3(36.6)	48.6(43.1)
	Eligible for choice	175	0	0	0	0	89(39)	114.6(46)
	Not Eligible for choice	174	64.7	70.2	63.7	69.1	16.6(10.5)	25.3(14.7)
1	All	7	59	70.4	58.7	69.6	35.5(27.9)	43.1(31.6)
	Eligible for choice	7	0	0	0	0	97.8(42.2)	119.5(46.2
	Not Eligible for choice	7	61.3	72.6	61.3	72.2	19.2(11.6)	28.9(15.6)
2	All	5	62.5	70.3	63.5	71.2	36.7(32.5)	47.1(36.8)
	Eligible for choice	5	0	0	0	0	97.4(36.2)	122.1(45.5
	Not Eligible for choice	5	64.2	72	65.1	72.8	18.5(11.7)	29.8(17)
3	All	6	86.9	91.6	86	90.7	15.9(15)	21.7(17.5)
	Eligible for choice	6	0	0	0	0	92.2(5.4)	118.4(5)
	Not Eligible for choice	6	87	91.7	86.1	90.8	12.5(9.5)	19(12.8)
4	All	10	62.2	73	62.3	73.1	31(23.5)	40.3(28.6)
	Eligible for choice	10	0	0	0	0	63.1(20.4)	83.9(28.4)
	Not Eligible for choice	10	63.5	73.9	63.6	74.1	17(11)	27.8(16.5)
5	All	4	82.7	85.1	80.5	83	23.7(22.7)	32.8(29.7)
	Eligible for choice	4	0	0	0	0	52.2(12.3)	64.8(17.9)

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VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
	Not Eligible for choice	4	83.6	85.5	81.3	83.5	16.2(10.4)	23.7(13.7)
6	All	9	57	64	56.2	63.2	43.5(34.1)	56.2(41.3)
	Eligible for choice	9	0	0	0	0	66.9(22)	91(31)
	Not Eligible for choice	9	62.4	68.8	61.8	68.3	20(10.7)	30.7(15)
7	All	9	46.9	51.3	47.1	51.4	49.7(33.8)	64(41.5)
	Eligible for choice	9	0	0	0	0	69.3(19.7)	93.2(28.5)
	Not Eligible for choice	9	51.2	54.9	51.5	55.2	18.3(10.9)	28(15.3)
8	All	15	72.7	76.1	72.6	76.1	28.4(25.1)	37.9(29.6)
	Eligible for choice	15	0	0	0	0	69.6(23.5)	100.9(31.6
	Not Eligible for choice	14	73.8	77.2	73.9	77.3	16.2(10)	25.5(14.7)
9	All	8	45.5	53.7	45.6	53.6	59.7(50)	71.5(53.6)
	Eligible for choice	8	0	0	0	0	92.8(38.6)	116(42.3)
	Not Eligible for choice	8	51.7	59.9	51.8	59.7	16.8(10.5)	27.3(16)
10	All	6	67.3	74.4	66	73.3	28.3(23.3)	36.3(27)
	Eligible for choice	6	0	0	0	0	53(8.1)	76.4(13.7)
	Not Eligible for choice	6	67.8	74.9	66.5	73.8	15.6(10.9)	24.3(15)
11	All	8	49.6	55.3	48.7	54.1	46.3(37.6)	56.6(42.5)
	Eligible for choice	8	0	0	0	0	83.8(37.8)	102.1(44.4
	Not Eligible for choice	8	53.3	58.2	52.2	56.9	18.3(11)	27.5(15.6)
12	All	7	61.2	67.9	58.6	65.2	33(33)	42.2(42.3)
	Eligible for choice	7	0	0	0	0	86.1(32.3)	125.3(49.2
	Not Eligible for choice	7	64	70.8	61.6	68.4	15.8(10.6)	22.6(14.2)
15	All	9	56.6	61.4	54.9	59.7	40.2(35.5)	52.3(44.7)
	Eligible for choice	9	0	0	0	0	84.2(32.6)	110.9(41.8
	Not Eligible for choice	9	63	67.4	61.4	65.8	16.2(10.3)	24.1(15)
16	All	17	52.5	58.2	51.3	57.2	43.3(34.5)	56.3(43.2)
	Eligible for choice	17	0	0	0	0	79.5(29.3)	103.7(38.8

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
	Not Eligible for choice	17	58.9	63.4	57.9	62.5	16.7(10.9)	26.1(15.6)
17	All	5	55.2	64.1	54.7	63	48.9(41.9)	59.2(46.8)
	Eligible for choice	5	0	0	0	0	91.2(37.8)	117.6(43.7
	Not Eligible for choice	5	60.6	69.5	60.2	68.4	20.7(10.5)	30.6(14)
18	All	7	63.5	66.2	63.3	66	45.9(48.4)	58.5(56.1)
	Eligible for choice	7	0	0	0	0	106.5(41.7	135.1(50.4
	Not Eligible for choice	7	70.2	73	70.3	72.9	15.6(9.2)	24.8(13.1)
19	All	7	43.2	48.9	43.3	48.6	56.1(54.2)	66.4(58.7)
	Eligible for choice	7	0	0	0	0	127.7(50.4	150(54.4)
	Not Eligible for choice	7	51.4	57.2	51.9	57.3	15.9(10.4)	26.9(15.2)
20	All	8	60.1	64.2	58.8	62.9	45.5(46.8)	57.7(55.3)
	Eligible for choice	8	0	0	0	0	101.2(38.9	131.2(47.6
	Not Eligible for choice	8	69	72.7	67.8	71.5	16.2(9.4)	25.1(13.7)
21	All	8	66.5	69	64.3	66.9	30.7(28.8)	41.9(37.1)
	Eligible for choice	8	0	0	0	0	89.9(44.1)	125.5(53.3
	Not Eligible for choice	8	69.1	71.5	67	69.6	16.2(9.5)	24.8(13.1)
22	All	9	79	84.7	78.1	84.1	27.2(28.6)	33.2(33.8)
	Eligible for choice	9	0	0	0	0	96.4(35)	123.6(42.6
	Not Eligible for choice	9	81.3	87.1	80.3	86.5	17.1(9.1)	22.7(11.3)
23	All	11	43.1	45.4	42.1	44.2	57.7(48.7)	72.6(57.5)
	Eligible for choice	11	0	0	0	0	94.2(39.2)	122.1(46.3
	Not Eligible for choice	11	55	56.2	54.1	55.2	15(10.4)	22.7(14.2)

Table F-21 Geographic Access to VA Facilities providing Surgical Services

VISN	Choice Eligibility	Hospitals with the service	Enrollees	Users	Mean (SD) drive distance and time to closest facility with the service

		(N)	(%)		(%)			
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
All	All	130	54.3	60.4	52.9	59	42.4(39.8)	52.5(45.8)
	Eligible for choice	130	0	0	0	0	94.9(39.8)	119.8(46)
	Not Eligible for choice	130	58.6	64.6	57.3	63.3	16.9(10.5)	25.7(14.8)
1	All	7	58.9	70.2	58.7	69.5	35.5(27.9)	43.2(31.7)
	Eligible for choice	7	0	0	0	0	97.8(42.2)	119.5(46.2
	Not Eligible for choice	7	61.2	72.5	61.3	72.1	19.1(11.6)	29(15.7)
2	All	3	44.3	51.9	44.5	52	47.8(37)	57.6(42.7)
	Eligible for choice	3	0	0	0	0	109.7(32.8	136.5(41.4
	Not Eligible for choice	3	45.5	53.2	45.6	53.3	15.1(11.2)	26.5(17.7)
3	All	5	80.5	85.9	79.1	84.5	17.6(17.8)	23.3(20.2)
	Eligible for choice	5	0	0	0	0	92.2(5.4)	118.4(5)
	Not Eligible for choice	5	80.6	86	79.2	84.6	12.2(9.4)	18.9(13)
4	All	7	58	68.2	57.6	67.8	34.5(27.5)	44.4(32.9)
	Eligible for choice	7	0	0	0	0	69.7(25)	91.7(33.6)
	Not Eligible for choice	7	59.2	69.1	58.8	68.7	17.4(11)	28.2(16.5)
5	All	3	82.7	85.1	80.5	83	24.2(23.3)	33.1(29.9)
	Eligible for choice	3	0	0	0	0	53.4(13.7)	66.2(19.3)
	Not Eligible for choice	3	83.6	85.5	81.3	83.5	16.6(10.6)	24(13.9)
6	All	8	51.7	61.1	50.7	60.2	47.1(33.3)	59.5(40.4)
	Eligible for choice	8	0	0	0	0	67.3(22)	91.4(30.9)
	Not Eligible for choice	8	56.6	65.8	55.6	65	20.9(11.1)	33.2(15.8)
7	All	7	43.9	48.5	43.9	48.5	54.1(36.5)	67.8(44)
	Eligible for choice	7	0	0	0	0	77.2(23)	100.2(30.6
	Not Eligible for choice	7	47.9	52.4	48	52.5	18.2(10.7)	28.5(15.7)
8	All	10	63.2	68.8	62.4	68.2	34.3(29.4)	43.4(33.5)
	Eligible for choice	10	0	0	0	0	95.6(37.7)	124.6(39.3
	Not Eligible for choice	10	64.2	69.8	63.5	69.3	18.2(10.9)	27.4(15)
9	All	7	43.4	50.7	44	51.1	56(41.8)	67.9(47)
	Eligible for choice	7	0	0	0	0	92.9(29.6)	115.1(32.8
	Not Eligible for choice	7	49.2	57	49.9	57.4	16(10.3)	26(16.1)

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
10	All	4	62.4	69.2	60.8	67.9	30.8(24.2)	39.5(28.6)
	Eligible for choice	4	0	0	0	0	54.9(8.9)	78(14)
	Not Eligible for choice	4	62.9	69.7	61.3	68.3	16.2(10.9)	25.1(14.8)
11	All	6	42.5	48.8	41.1	47.2	53.5(43.9)	62.7(47.2)
	Eligible for choice	6	0	0	0	0	88.5(38.4)	106.8(45.7
	Not Eligible for choice	6	45.6	51.5	44.1	49.8	17.6(10.8)	26.8(15.5)
12	All	6	59.4	64.8	56.6	61.8	35.3(37)	44.2(45.1)
	Eligible for choice	6	0	0	0	0	92.8(33)	130.2(47.6
	Not Eligible for choice	6	62.1	67.7	59.5	64.9	15.7(10.5)	22.2(13.9)
15	All	7	51.2	55.6	49	53.3	49.4(44)	61.7(53.2)
	Eligible for choice	7	0	0	0	0	98.7(38.5)	125.8(47.2
	Not Eligible for choice	7	57.1	61.3	54.8	59	16.1(10.2)	23.6(14.6)
16	All	10	40.5	45.4	39.5	44.5	55.5(44.1)	68(50.9)
	Eligible for choice	10	0	0	0	0	87.5(30.8)	112.3(40.5
	Not Eligible for choice	10	45.5	49.8	44.6	49	16.4(10.7)	25.8(15.5)
17	All	4	56.3	65.9	55.9	65.2	50.6(41.4)	60.8(47.1)
	Eligible for choice	4	0	0	0	0	100(33.3)	123.1(40.1
	Not Eligible for choice	4	61.7	71.5	61.5	70.9	21.5(10.5)	31.4(13.8)
18	All	4	51.4	52.6	50	51.4	55.2(62.6)	66.7(66.9)
	Eligible for choice	4	0	0	0	0	121.4(53.1	148.1(54.7
	Not Eligible for choice	4	56.8	58.1	55.6	56.9	15.9(9.2)	24.3(12.5)
19	All	6	42.4	47.9	42.2	47.3	56.8(54.9)	67(59.2)
	Eligible for choice	6	0	0	0	0	128.8(50.1	150.9(54)
	Not Eligible for choice	6	50.4	56.2	50.6	56	15.9(10.4)	27(15.2)
20	All	6	50.8	58.1	49.7	56.5	50.5(48)	61.9(56.1)
	Eligible for choice	6	0	0	0	0	103.8(38.6	133.4(47.5
	Not Eligible for choice	6	58.4	65.8	57.3	64.2	17.5(10.5)	26.7(14.5)

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
21	All	6	55.5	57.6	54.2	56.5	34.6(34.8)	45.8(40.1)
	Eligible for choice	6	0	0	0	0	105.3(52.8	136.3(52.3
	Not Eligible for choice	6	57.7	59.8	56.4	58.8	16.7(9.5)	25.7(13.1)
22	All	5	79	84.7	78.1	84.1	27.7(28.4)	33.8(33.6)
	Eligible for choice	5	0	0	0	0	97.4(35)	124.5(42.8
	Not Eligible for choice	5	81.3	87.1	80.3	86.5	17.6(8.7)	23.4(10.9)
23	All	9	39.4	42.7	38.1	41.4	62.1(51.3)	76.7(59.2)
	Eligible for choice	9	0	0	0	0	98.9(41)	125.8(47.2
	Not Eligible for choice	9	50.2	53	49	51.7	15.3(10.3)	23.9(14.9)

Table F-22 Geographic Access to VA Facilities providing Oncology Services

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
All	All	168	55.3	61.2	53.7	59.5	42.1(41.1)	52.4(47.2)
	Eligible for choice	168	0	0	0	0	96.5(41.2)	122.1(46.9
	Not Eligible for choice	163	59.7	65.4	58.1	63.9	16.4(10.5)	25.2(14.8)
1	All	9	65.3	73	64.9	72.2	32.3(26.6)	40.6(30.8)
	Eligible for choice	9	0	0	0	0	94.1(42.9)	117.7(46.3
	Not Eligible for choice	9	67.9	75.3	67.7	74.9	18.7(11.5)	27.8(15.4)
2	All	14	58.4	64.4	57.6	63.7	36.4(32.3)	45.8(37.3)
	Eligible for choice	14	0	0	0	0	72.4(34.3)	100.6(40.2
	Not Eligible for choice	13	60	65.7	59.1	64.9	13.9(11.2)	23.9(17)
3	All	6	87.4	91.8	86.5	90.9	15.8(14.6)	21.6(17.3)
	Eligible for choice	6	0	0	0	0	83.2(21.1)	114.6(3.6)
	Not Eligible for choice	6	87.4	91.8	86.5	90.9	12.5(9.5)	19(12.8)
4	All	12	64.8	72.1	64.6	71.7	30.9(25.6)	40.9(31.3)
	Eligible for choice	12	0	0	0	0	68.6(25.5)	89.3(33.2)
	Not Eligible for choice	12	66.1	73	65.9	72.7	16.9(10.9)	26.7(16.1)
5	All	3	82.7	85.2	80.5	83.1	23.8(22.4)	32.9(29.5)
	Eligible for choice	3	0	0	0	0	51.3(11.5)	64.6(18.5)
	Not Eligible for choice	3	83.6	85.6	81.3	83.6	16.6(10.6)	24(13.9)
6	All	7	43.2	52.5	42.4	51.8	52.3(38)	64.7(44.9)
	Eligible for choice	7	0	0	0	0	70.1(25.6)	94.4(34.7)
	Not Eligible for choice	7	47.2	56.4	46.6	55.9	21(11.1)	33.2(15.8)
7	All	5	39.8	43.9	39.8	43.9	63.4(44.2)	77.4(51.8)
	Eligible for choice	5	0	0	0	0	97(36.2)	122.6(42.9
	Not Eligible for choice	5	43.5	47.5	43.6	47.6	18.3(10.5)	28.2(15.3)
8	All	8	52.9	59.6	52	58.9	43.2(39.8)	52.9(44)
	Eligible for choice	8	0	0	0	0	123.6(49.6)	151.3(48.9)

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
	Not Eligible for choice	7	53.8	60.5	52.8	59.9	18.1(11)	27.1(15.2)
9	All	6	34.6	41.6	35.4	42.1	74.9(52.8)	85.6(54.7)
	Eligible for choice	6	0	0	0	0	108.1(38.4	130.2(38.9)
	Not Eligible for choice	6	39.3	47	40.2	47.4	16.4(10.5)	27.4(16.5)
10	All	4	64.6	73.7	63.2	72.5	29.3(22.5)	38.2(27.4)
	Eligible for choice	4	0	0	0	0	54.9(8.9)	78(14)
	Not Eligible for choice	4	65.1	74.1	63.6	73	16.6(11.1)	26.2(15.3)
11	All	7	43	47.8	41.5	46.2	55.3(48.1)	64.4(50.2)
	Eligible for choice	7	0	0	0	0	100.3(40.7	117(44.6)
	Not Eligible for choice	7	46.1	50.6	44.5	48.9	15.7(10.1)	25.2(15.1)
12	All	6	59.4	64.8	56.6	61.8	35.2(36.7)	44(44.5)
	Eligible for choice	6	0	0	0	0	92.9(31.9)	130.1(46.1)
	Not Eligible for choice	6	62.1	67.7	59.5	64.9	15.7(10.5)	22.2(13.9)
15	All	7	54.2	59.5	52.2	57.6	45.3(42.3)	57.3(52)
	Eligible for choice	7	0	0	0	0	96.9(39)	124.8(49.6)
	Not Eligible for choice	7	60.4	65.4	58.4	63.5	16.2(10.3)	24.2(15)
16	All	18	49.9	55	48.3	53.4	45.9(37.3)	59.7(46.4)
	Eligible for choice	18	0	0	0	0	83.1(29.3)	108(38.4)
	Not Eligible for choice	18	56.1	60.5	54.4	58.9	16.6(10.8)	26.2(15.6)
17	All	3	53.3	62.6	52.4	61.2	50.6(42.6)	60.7(47.4)
	Eligible for choice	3	0	0	0	0	97(37.9)	121.8(43.4)
	Not Eligible for choice	3	58.5	67.9	57.7	66.6	21.5(10.5)	31.3(13.8)
18	All	9	63	65.1	62.3	64.5	47.8(54.3)	61.5(63.1)
	Eligible for choice	9	0	0	0	0	106.4(45.6	138.5(53.3
	Not Eligible for choice	8	69.7	71.7	69.1	71.2	15.2(9.5)	23.9(13.2)
19	All	7	40.7	46.4	40.1	45.4	56.9(55.4)	67.6(60.1)
	Eligible for choice	7	0	0	0	0	132.4(51.6	151.7(53.5

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
	Not Eligible for choice	6	48.4	54.2	48	53.4	16.2(10.3)	27.3(15.1)
20	All	5	48	56	47	54.5	50(50.3)	61.4(57.2)
	Eligible for choice	5	0	0	0	0	100.4(39.3	129.6(47.1)
	Not Eligible for choice	5	55.2	63.3	54.3	62	17.3(10.5)	26.7(14.6)
21	All	9	65	67.8	62.2	65.4	31.3(33.1)	42.7(38.9)
	Eligible for choice	9	0	0	0	0	106.7(60)	139.7(57.7
	Not Eligible for choice	8	67.5	70.4	64.8	68	16(9.3)	25.3(13.5)
22	All	10	79.3	85.5	78.4	85	25.6(27.8)	31.8(33.1)
	Eligible for choice	10	0	0	0	0	94(34.1)	121.1(41.8)
	Not Eligible for choice	10	81.6	88	80.6	87.4	16(9.2)	22.1(11.8)
23	All	13	45.2	47.4	44.1	46.3	54.9(46.6)	70.1(56.2)
	Eligible for choice	13	0	0	0	0	93.2(38.4)	121.9(46)
	Not Eligible for choice	13	57.6	58.8	56.7	57.8	14.5(10.2)	22.2(14)

Table F-23 Geographic Access to VA Facilities providing Palliative/Hospice Care

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
All	All	138	52.3	58.1	50.8	56.6	45.1(44.6)	55.2(49.8)
	Eligible for choice	138	0	0	0	0	100.1(42.7	124.7(47.5)
	Not Eligible for choice	137	56.4	62.2	55	60.8	16.6(10.4)	25.4(14.8)
1	All	9	61.1	71.1	60.8	70.3	33.8(28)	41.6(31.7)
	Eligible for choice	9	0	0	0	0	97.5(42.1)	119.2(46.2)
	Not Eligible for choice	9	63.5	73.3	63.5	72.8	17.7(11.5)	27.6(15.8)

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
2	All	5	59.7	65.5	60.7	66.3	36.7(35.6)	47.4(41.8)
	Eligible for choice	5	0	0	0	0	106.8(31.4	134.8(40.3)
	Not Eligible for choice	5	61.3	67.2	62.2	67.9	14.4(10.8)	24.5(16.6)
3	All	6	82	86.2	80.4	84.8	16.9(17.4)	22.8(19.9)
	Eligible for choice	6	0	0	0	0	92.2(5.4)	118.4(5)
	Not Eligible for choice	6	82	86.2	80.5	84.8	12.1(9.1)	18.4(12.4)
4	All	8	60.4	71.2	60.2	70.9	33.3(26.6)	43.1(32.1)
	Eligible for choice	8	0	0	0	0	69.6(25.1)	91.6(33.6)
	Not Eligible for choice	8	61.6	72.2	61.4	71.9	17.5(11)	28.5(16.5)
5	All	3	82.7	85.1	80.5	83	24.2(23.3)	33.1(29.9)
	Eligible for choice	3	0	0	0	0	53.4(13.7)	66.2(19.3)
	Not Eligible for choice	3	83.6	85.5	81.3	83.5	16.6(10.6)	24(13.9)
6	All	8	44.7	53.5	44.3	53.1	51.3(38.1)	64(45)
	Eligible for choice	8	0	0	0	0	70(25.6)	94.3(34.8)
	Not Eligible for choice	8	48.9	57.5	48.6	57.2	21.1(11.1)	33.2(15.7)
7	All	5	40.7	45	40.8	45.1	62.3(45.2)	76.5(52.6)
	Eligible for choice	5	0	0	0	0	100.2(39.5	124.7(45)
	Not Eligible for choice	5	44.5	48.7	44.7	48.9	18.8(10.8)	29(15.6)
8	All	8	52.9	59.6	52	58.9	43.3(40.3)	53(44.2)
	Eligible for choice	8	0	0	0	0	123.7(50.6	150.4(48.5
	Not Eligible for choice	7	53.8	60.5	52.8	59.9	18.1(11)	27.1(15.2)
9	All	6	34.6	41.5	35.4	42	75.1(52.8)	85.8(54.7)
	Eligible for choice	6	0	0	0	0	108.8(37.8	130.9(38.2
	Not Eligible for choice	6	39.3	47	40.2	47.4	16.4(10.5)	27.4(16.5)
10	All	5	64.9	73.2	63.6	72.1	29.7(23.6)	38.1(27.2)
	Eligible for choice	5	0	0	0	0	58.2(13.6)	80.2(16.8)
	Not Eligible for choice	5	65.4	73.6	64	72.6	16.3(10.9)	25.9(15.4)

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
11	All	4	35.5	40.6	33.9	38.9	59.1(45.2)	68.5(48.5)
	Eligible for choice	4	0	0	0	0	110.3(41.3	124.5(44.5
	Not Eligible for choice	4	38.1	43	36.3	41.2	17.1(10)	26.3(15.2)
12	All	6	59	67	56.4	64.3	34.9(31.4)	44(40.4)
	Eligible for choice	6	0	0	0	0	87.5(32.2)	126.2(48.8
	Not Eligible for choice	6	61.7	69.9	59.4	67.5	17.7(9.9)	25(13.4)
15	All	9	52.7	56.7	50.3	54.3	48.5(45.8)	60.8(54.5)
	Eligible for choice	9	0	0	0	0	98(39.4)	125.5(48.4
	Not Eligible for choice	9	58.7	62.4	56.2	60.1	14.7(9.8)	22.4(14.5)
16	All	14	42.5	47.1	41.6	46.2	52.7(42.1)	65.4(49.2)
	Eligible for choice	14	0	0	0	0	86.4(32.7)	110.8(40.3
	Not Eligible for choice	14	47.7	51.6	46.9	50.9	16.4(10.6)	25.6(15.3)
17	All	3	53	61.7	52.1	60.4	52.1(43.7)	61.9(48.3)
	Eligible for choice	3	0	0	0	0	100.9(36.9	123.7(42.7
	Not Eligible for choice	3	58.1	67	57.3	65.7	21.4(10.4)	31(13.6)
18	All	8	56.3	56.6	55.6	55.9	50.2(64.3)	61.7(69)
	Eligible for choice	8	0	0	0	0	122.2(55.4	149.2(56.5
	Not Eligible for choice	8	62.3	62.4	61.7	61.9	11.7(7.4)	19.6(10.9)
19	All	5	38.4	44	37.4	42.6	58.6(56.5)	69.6(61.6)
	Eligible for choice	5	0	0	0	0	135.9(50.8	156.4(53.2
	Not Eligible for choice	5	45.7	51.5	44.8	50.2	16.4(10.3)	27.6(15)
20	All	6	52.6	56.6	51.2	55.1	48.5(48.8)	60.2(56.7)
	Eligible for choice	6	0	0	0	0	101.5(39.4	130.6(47.5
	Not Eligible for choice	6	60.5	64	59.1	62.6	16.3(9.3)	25.2(13.6)
21	All	6	55.5	57.6	54.2	56.5	34.6(34.8)	45.8(40.1)
	Eligible for choice	6	0	0	0	0	105.3(52.8	136.3(52.3
	Not Eligible for choice	6	57.7	59.8	56.4	58.8	16.7(9.5)	25.7(13.1)

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%) 40 miles	Enrollees (%) 60 min.	Users (%) 40 miles	Users (%) 60 min.	Mean (SD) drive distance and time to closest facility with the service Miles	Minutes
22	All	5	66.3	72.5	64.6	71.2	44.2(62.6)	50.1(62.7)
	Eligible for choice	5	0	0	0	0	99(38.4)	126.6(41.9
	Not Eligible for choice	5	68.2	74.6	66.4	73.2	17.2(8.9)	23.3(11.7)
23	All	9	39.4	42.7	38.1	41.4	61.6(50.8)	75.9(58.5)
	Eligible for choice	9	0	0	0	0	98.4(40.7)	125.2(47.1
	Not Eligible for choice	9	50.2	53	49	51.7	15.3(10.3)	23.9(14.9)

Appendix F.2.3 Services for Populations with Diabetes

Table F-24 Geographic Access to VA Facilities with Primary Care

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%) 40 miles	Enrollees (%) 60 min.	Users (%) 40 miles	Users (%) 60 min.	Mean (SD) drive distance and time to closest facility with the service Miles	Minutes
All	All	895	91.8	92.1	91.4	91.6	15.8(16.1)	24.5(23)
	Eligible for choice	895	0	0	0	0	58.3(21.4)	83.2(31.7)
	Not Eligible for choice	839	99	97.8	99	97.6	12.3(9.3)	19.1(12.9)
1	All	50	96.2	96.2	95.8	95.8	12(11.1)	18.9(16.5)
	Eligible for choice	50	0	0	0	0	52.9(12.6)	76.2(22)
	Not Eligible for choice	47	100	98.9	100	98.9	10.7(8)	16.5(11.3)
2	All	33	97.4	95.2	97.6	95.3	12.5(10.7)	21.8(17.8)
	Eligible for choice	33	0	0	0	0	48.3(7.1)	75.4(19.2)
	Not Eligible for choice	32	100	97.2	100	97.3	11.5(9)	19(13.4)
3	All	35	99.9	99.9	99.9	99.9	6.3(5.1)	11(8)
	Eligible for choice	35	0	0	0	0	42.4(1.2)	65.7(9.8)
	Not Eligible for choice	32	100	100	100	100	6.2(5)	11(7.8)

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%) 40 miles	Enrollees (%) 60 min.	Users (%) 40 miles	Users (%) 60 min.	Mean (SD) drive distance and time to closest facility with the service Miles	Mean (SD) drive distance and time to closest facility with the service Minutes
4	All	55	98.1	98.3	98	98.2	12.3(9.3)	19.6(13.5)
	Eligible for choice	55	0	0	0	0	45.2(5.3)	64.5(13.2)
	Not Eligible for choice	51	100	99.4	100	99.4	11.7(8.3)	18.5(11.6)
5	All	21	98.9	99.5	99	99.4	13(9.9)	20.4(13.6)
	Eligible for choice	21	0	0	0	0	43.4(3.8)	55.6(11)
	Not Eligible for choice	20	100	99.8	100	99.8	12.7(9.4)	19.9(12.9)
6	All	28	81.8	84.1	81.7	84.1	23.1(16)	34.4(23.4)
	Eligible for choice	28	0	0	0	0	49.5(10)	72(20.2)
	Not Eligible for choice	28	89.4	89.2	89.8	89.5	17.9(10.7)	26.5(14.4)
7	All	48	90.8	90.7	90.6	90.3	19(15.9)	30.2(22.8)
	Eligible for choice	48	0	0	0	0	51.1(10)	73.9(16.9)
	Not Eligible for choice	47	99.2	97.1	99.1	96.9	14.5(10)	23.1(14.2)
8	All	57	98.4	97.9	98.3	97.8	12(9.1)	19.7(14)
	Eligible for choice	57	0	0	0	0	50.5(8.2)	76.7(12.5)
	Not Eligible for choice	54	100	99.4	100	99.3	11.4(7.7)	18.4(11.2)
9	All	45	88	88.8	88.1	88.8	21.1(16)	32.3(23.2)
	Eligible for choice	45	0	0	0	0	51.6(9.6)	74(16)
	Not Eligible for choice	42	99.9	97.7	99.9	97.6	16.4(10.7)	24.6(15)
10	All	33	98.4	98	98.4	98	11.7(9.5)	18.9(13.9)
	Eligible for choice	33	0	0	0	0	43.3(1.8)	60.2(7.8)
	Not Eligible for choice	33	99.1	98.5	99.1	98.5	11.2(8.7)	17.9(12.4)
11	All	36	92.6	93.9	92.6	93.8	17.4(12.7)	26.3(17.6)
	Eligible for choice	36	0	0	0	0	48.1(7.5)	64.5(12.9)
	Not Eligible for choice	36	99.4	98	99.3	97.9	15.3(9.9)	23.1(13.9)
12	All	38	94.2	93.9	93.6	93.1	12.2(11.6)	19.4(17.2)
	Eligible for choice	38	0	0	0	0	51.8(12.2)	79.6(19.8)
	Not Eligible for choice	38	98.6	97.7	98.4	97.3	10.6(8.5)	16.8(11.8)

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
15	All	57	89.8	89.5	89.4	88.9	18.8(17.4)	28.7(24.9)
	Eligible for choice	57	0	0	0	0	55.8(13.9)	79(21.6)
	Not Eligible for choice	50	100	97.7	100	97.4	13.8(10.4)	20.8(14.4)
16	All	66	88.4	89.3	88	88.8	19.6(15.7)	29.4(22.5)
	Eligible for choice	66	0	0	0	0	51(11.1)	73.1(19.4)
	Not Eligible for choice	65	99.3	97.1	99.2	96.9	15.3(10.5)	22.6(14)
17	All	30	91.1	91.4	90.9	91.1	20(17.8)	29(24.6)
	Eligible for choice	30	0	0	0	0	60.5(24.7)	85.2(34.5)
	Not Eligible for choice	25	100	98.7	100	98.7	15.7(9.6)	22.6(12.5)
18	All	47	90.4	90.3	90.1	90	17.9(22.3)	28.7(32.5)
	Eligible for choice	47	0	0	0	0	67.9(27)	99(42.5)
	Not Eligible for choice	42	100	98.7	100	98.7	10.9(8.3)	18.2(11.6)
19	All	42	83.9	85.2	83.2	84.4	24.7(32.4)	35.3(42.4)
	Eligible for choice	42	0	0	0	0	81.8(33.2)	107.7(46.3
	Not Eligible for choice	34	99.7	98.3	99.7	98.2	11.3(8.9)	17.7(11.9)
20	All	38	87	87.9	86.7	87.5	19.5(21)	29.7(31)
	Eligible for choice	38	0	0	0	0	65.1(23.7)	95.6(39.9)
	Not Eligible for choice	36	100	98.1	100	98	13.1(9.8)	19.9(12.8)
21	All	41	95.2	94.5	94.8	94.2	13.2(13.2)	21.2(19.7)
	Eligible for choice	41	0	0	0	0	63.5(25.6)	97.2(32.9)
	Not Eligible for choice	39	98.8	98.1	98.8	98	11.2(8.1)	18(11.8)
22	All	35	97.2	97.4	97.3	97.5	9.5(10.1)	15(14.5)
	Eligible for choice	35	0	0	0	0	63.2(29.7)	92.5(43.6)
	Not Eligible for choice	35	100	99.8	100	99.8	8.6(6)	13.5(8.1)
23	All	60	77	76.9	76.4	76.1	25.7(24.8)	39.1(35.3)
	Eligible for choice	60	0	0	0	0	63(21.8)	90.9(31.9)
	Not Eligible for choice	53	98.2	95.1	98.1	94.8	14.5(10.9)	22.1(15.3)

Table F-25 Geographic Access to VA Facilities with a specialty or endocrinology clinic

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
All	All	379	72.2	76	71.3	75.1	29.8(32.7)	40.1(39.7)
	Eligible for choice	379	0	0	0	0	79.5(36.5)	105.6(43.9
	Not Eligible for choice	373	77.9	81.1	77.2	80.4	14.4(10)	22.4(14.3)
1	All	26	86.8	89.6	86.1	88.7	20.2(22.2)	27.8(26.6)
	Eligible for choice	26	0	0	0	0	73.6(33.7)	96.7(38.5)
	Not Eligible for choice	26	90.2	92.4	89.9	91.8	14.2(10.2)	21.4(13.6)
2	All	8	69.5	72.3	70.6	73.1	30.9(33.2)	42.2(39.5)
	Eligible for choice	8	0	0	0	0	91.3(35.6)	125.2(42.9
	Not Eligible for choice	8	71.4	74.2	72.4	74.9	14.5(10.4)	23.8(15.4)
3	All	20	98.8	99.2	98.6	99.1	8.5(7.4)	13.8(10)
	Eligible for choice	20	0	0	0	0	42.4(1.2)	65.7(9.8)
	Not Eligible for choice	20	98.9	99.2	98.7	99.1	8.2(6.1)	13.5(8.7)
4	All	19	78.8	85.4	79.6	86	23.3(19.4)	32.6(24.8)
	Eligible for choice	19	0	0	0	0	51.7(12.4)	72.6(19.6)
	Not Eligible for choice	19	80.4	86.5	81.2	87.1	15.6(10.2)	25.5(15.6)
5	All	10	91.6	92	91.5	91.8	19.1(18)	27.7(25.7)
	Eligible for choice	10	0	0	0	0	46(6.4)	57.3(14.9)
	Not Eligible for choice	9	92.6	92.3	92.4	92.2	15.4(10)	22.2(12.8)
6	All	18	70.2	75.6	69.7	75.2	31.5(22.5)	43.6(30.5)
	Eligible for choice	18	0	0	0	0	54.1(13.4)	77.4(23.7)
	Not Eligible for choice	18	76.7	80.3	76.6	80.2	18.6(11.4)	28.9(16)
7	All	10	52	56.2	52	56.1	45.3(31.2)	59.1(38.3)
	Eligible for choice	10	0	0	0	0	66.6(18.8)	91.8(28.3)
	Not Eligible for choice	10	56.8	60.3	56.9	60.3	18.4(11.3)	28.1(15.8)
8	All	37	91.5	95.9	91.8	95.9	16.7(12.8)	25.5(17.4)

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
	Eligible for choice	37	0	0	0	0	51.9(10.1)	79.9(15.2)
	Not Eligible for choice	36	92.9	97.3	93.4	97.4	14.2(9.7)	23.6(14.5)
9	All	11	47.7	56.1	47.8	55.8	48.8(36.9)	64.7(46.6)
	Eligible for choice	11	0	0	0	0	81.5(28.4)	108.7(37.5
	Not Eligible for choice	11	54.2	62.5	54.2	62.2	16.5(10.8)	27.1(16.4)
10	All	24	94.5	96	94.4	95.9	14.5(11.9)	21.8(15.9)
	Eligible for choice	24	0	0	0	0	46.2(4.3)	63.8(9.6)
	Not Eligible for choice	24	95.2	96.5	95	96.4	12.9(9.7)	20.1(13.5)
11	All	7	47.9	53.5	47.4	52.9	49.7(41.7)	60.6(46.8)
	Eligible for choice	7	0	0	0	0	89.4(45.2)	105.9(49.5
	Not Eligible for choice	7	51.4	56.5	50.8	55.9	18.4(10.8)	28.4(16.1)
12	All	13	66.7	69.2	63.9	66.2	27.1(30.7)	36.9(39.3)
	Eligible for choice	13	0	0	0	0	73.8(24.7)	110(36.8)
	Not Eligible for choice	13	69.8	72.2	67.2	69.4	12.4(9.8)	19.1(13.2)
15	All	11	60.5	65.4	59	63.9	37.9(34.7)	49.6(43.2)
	Eligible for choice	11	0	0	0	0	82.1(37.5)	109.1(47.2
	Not Eligible for choice	11	67.4	71.7	66	70.4	16.5(10.5)	24.5(15.3)
16	All	30	65.1	69.3	63.7	68	34.9(31.2)	46.8(39.5)
	Eligible for choice	30	0	0	0	0	67.7(25.5)	90.7(34.4)
	Not Eligible for choice	30	73	75.3	71.8	74	15.9(10.7)	24(14.4)
17	All	7	71.2	75.3	70.4	74.5	40(40)	50.9(46.5)
	Eligible for choice	7	0	0	0	0	86(33.4)	111.7(40.9
	Not Eligible for choice	7	78.2	81.6	77.4	80.9	18.5(9.9)	26.6(13.2)
18	All	20	73.8	75.9	73.7	75.7	31.8(40.1)	45(51.1)
	Eligible for choice	20	0	0	0	0	96(39.9)	126.9(50.1
	Not Eligible for choice	19	81.7	83.4	81.8	83.4	11.7(8)	20.4(12.6)
19	All	18	70.8	71.2	68.7	69.1	40.2(51.4)	51.4(57.6)

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
	Eligible for choice	18	0	0	0	0	109.5(49.7	134.7(53.3
	Not Eligible for choice	18	84.1	83.2	82.3	81.4	12.2(8.6)	19.2(11.7)
20	All	16	68.2	72.2	67.5	71.3	40.5(45.3)	52.4(53.2)
	Eligible for choice	16	0	0	0	0	95.3(38.3)	126.3(47.4
	Not Eligible for choice	16	78.4	82	77.8	81.2	15.5(9.4)	24.3(13.7)
21	All	30	89	88.9	88.4	88.5	17.1(17.2)	26.7(24.7)
	Eligible for choice	30	0	0	0	0	66.1(26.6)	101.1(36.5
	Not Eligible for choice	29	92.3	92.3	92	92.1	12.7(8.4)	20.4(12.5)
22	All	11	79.3	85.6	78.4	85.1	23.4(27.2)	29.3(31.4)
	Eligible for choice	11	0	0	0	0	92.6(31.5)	123.6(43.7
	Not Eligible for choice	11	81.6	88.1	80.6	87.4	13.9(9)	20(12.2)
23	All	33	58.9	61.4	57.5	59.9	40.5(42)	54.5(50.1)
	Eligible for choice	33	0	0	0	0	79.4(37.2)	106.5(42.9
	Not Eligible for choice	31	75.1	75.9	73.9	74.6	13.9(10.5)	22.2(15.2)

Table F-26 Geographic Access to VA Facilities with a podiatry clinic

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
All	All	323	70.3	74.6	69.1	73.4	30.7(33.2)	40.8(40)
	Eligible for choice	323	0	0	0	0	81.9(38.4)	107.4(45)
	Not Eligible for choice	314	75.8	79.6	74.8	78.6	14.8(10)	23(14.3)
1	All	12	68.7	79.3	68.1	78.3	28.4(25)	36.4(29.8)
	Eligible for choice	12	0	0	0	0	88.5(45.4)	113.8(49.4)
	Not Eligible for	12	71.4	81.7	71.1	81.1	16.5(11)	26.2(15.8)

	choice							
2	All	10	80.2	83	80.9	83.5	22.8(20.2)	33.7(27.4)
	Eligible for choice	10	0	0	0	0	63.9(16.8)	97(32.1)
	Not Eligible for choice	10	82.4	85.1	82.9	85.4	15.1(10.7)	24.2(15.4)
3	All	18	98.5	99.1	98.5	99.2	10.2(8.5)	15.8(11.2)
	Eligible for choice	18	0	0	0	0	56.5(25.6)	81.2(36.6)
	Not Eligible for choice	17	98.5	99.2	98.6	99.2	9.8(7.5)	15.5(10.2)
4	All	32	90.2	92.7	89.6	92.2	16.6(14.1)	24.7(18.7)
	Eligible for choice	32	0	0	0	0	49.9(12.6)	70.2(19.2)
	Not Eligible for choice	32	92	93.9	91.4	93.5	13.6(9)	21.3(13)
5	All	12	93	93.7	92.8	93.6	16.8(13.7)	24.8(18.2)
	Eligible for choice	12	0	0	0	0	44.3(4.2)	55.6(11)
	Not Eligible for choice	12	94.1	94	93.8	93.9	14.5(9.8)	21.8(13.1)
6	All	12	62.6	67.2	61.7	66.2	37.4(29.3)	49.7(36)
	Eligible for choice	12	0	0	0	0	58.3(18.4)	82.5(26.2)
	Not Eligible for choice	12	68.4	71.8	67.8	71	19.6(10.7)	28.9(14.4)
7	All	13	55.2	58.8	55.1	58.7	45.4(33.6)	58.9(40.3)
	Eligible for choice	13	0	0	0	0	66(17)	89.2(23.5)
	Not Eligible for choice	13	60.3	63.4	60.3	63.3	18.1(10.9)	27.5(15.2)
8	All	21	77.5	87.6	78.2	87.6	22.8(19)	31.8(23.9)
	Eligible for choice	21	0	0	0	0	61.6(19)	89.8(25)
	Not Eligible for choice	20	78.7	89	79.5	89	15.5(9.6)	26.3(15.3)
9	All	8	43.8	51.5	44.5	51.9	55.3(41.5)	67.2(46.7)
	Eligible for choice	8	0	0	0	0	91.6(30.1)	113.9(33.8)
	Not Eligible for choice	8	49.8	57.7	50.5	58.1	16(10.4)	26(16.2)
10	All	31	98.1	97.5	98.1	97.4	12(9.7)	19.3(14.2)
	Eligible for choice	31	0	0	0	0	44.3(3.6)	61(8.6)
	Not Eligible for choice	30	98.8	97.9	98.8	97.8	11.4(8.7)	18.2(12.3)
11	All	10	59.4	66.1	58.5	65	36.9(30.2)	46.6(35)
	Eligible for choice	10	0	0	0	0	62.3(26.5)	77.7(30.2)
	Not Eligible for choice	10	63.7	69	62.8	67.9	18.6(11.1)	27.9(15.6)
12	All	11	75.4	80.4	73.6	78.4	23.7(25.9)	32.9(35.6)
	Eligible for choice	11	0	0	0	0	72.6(30.5)	108.1(47.6)

VISN	Choice Eligibility	Hospitals with the	Enrollees		Users		Mean (SD) drive distance and time to closest facility	
	Not Eligible for choice	11	78.9	83.9	77.4	82.3	14.5(10.5)	21.5(14.2)
15	All	9	54	58.6	52	56.6	42.2(37.4)	54.7(46.5)
	Eligible for choice	9	0	0	0	0	88.8(35.5)	117.1(45.5)
	Not Eligible for choice	9	60.2	64.5	58.2	62.6	16(10.4)	24.1(15.2)
16	All	23	61.4	65.2	60	64	35.9(32.8)	48.2(41.8)
	Eligible for choice	23	0	0	0	0	71.4(28.4)	93.8(36.8)
	Not Eligible for choice	23	69	70.9	67.7	69.7	15.4(10.2)	23.2(13.9)
17	All	13	80.9	83.5	80.5	82.9	27.5(25.1)	38.1(33.2)
	Eligible for choice	13	0	0	0	0	70.9(28.6)	96.3(36.5)
	Not Eligible for choice	13	88.8	90.4	88.6	90.1	17.6(10.1)	25.3(13.3)
18	All	10	68.9	70.5	68.7	70.2	46.3(52.2)	60.5(62)
	Eligible for choice	10	0	0	0	0	104.3(46.3	138.7(54.9
	Not Eligible for choice	10	76.3	77.7	76.2	77.6	15.4(9.4)	24.2(13.1)
19	All	20	68.3	70.5	67	69.1	44.5(53.2)	54.9(57.6)
	Eligible for choice	20	0	0	0	0	117.5(52.5)	141.5(53.3)
	Not Eligible for choice	15	81.1	82.7	80.3	81.7	14.5(10.1)	23.4(14.1)
20	All	14	66.5	71.2	65.5	70.2	40.9(45.6)	53(53.8)
	Eligible for choice	14	0	0	0	0	95.4(39.4)	125.8(47.8)
	Not Eligible for choice	14	76.4	80.6	75.6	79.7	15.3(9.7)	24.2(14.1)
21	All	18	75.5	78.3	73.8	76.9	21.7(22.2)	31.6(29.9)
	Eligible for choice	18	0	0	0	0	74.1(35.8)	108.9(44.3)
	Not Eligible for choice	17	78.4	81.2	76.9	80	12.9(9.2)	21.3(14.6)
22	All	14	83.9	87.8	83	87.2	21.2(24.5)	27.5(29.2)
	Eligible for choice	14	0	0	0	0	82.3(34.9)	108.2(40.1)
	Not Eligible for choice	14	86.3	90.2	85.4	89.5	14(8.7)	20(11.4)
23	All	12	43.9	46.1	42.9	45	56.1(47.9)	71.5(57)
	Eligible for choice	12	0	0	0	0	93.7(41)	120.5(46.5
	Not Eligible for choice	12	55.9	57.2	55.2	56.3	15.1(10.4)	23.1(14.5)

Table F-27 Geographic Access to VA Facilities with an ophthalmology clinic

VISN	Choice Eligibility	Hospitals with the	Enrollees	Users	Mean (SD) drive distance and time to closest facility

		service (N)	(%)		(%)		with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
All	All	169	53.8	59.1	52.9	58.2	43.9(41)	54(46.5)
	Eligible for choice	169	0	0	0	0	92.8(38.9)	118.1(45.3)
	Not Eligible for choice	167	58.1	63.2	57.3	62.4	15.8(10.6)	24.7(15.1)
1	All	8	63.7	73.3	63.4	72.6	32.1(27.7)	40.5(32.1)
	Eligible for choice	8	0	0	0	0	97.8(42.2)	119.5(46.2)
	Not Eligible for choice	8	66.2	75.6	66.2	75.3	17.9(11.3)	27.2(15.5)
2	All	6	63.6	70.3	64.7	71.3	34.6(34.1)	43.9(38.5)
	Eligible for choice	6	0	0	0	0	97.7(36.3)	122.3(45.5)
	Not Eligible for choice	6	65.3	72	66.3	72.9	14.8(10.9)	25.2(16.7)
3	All	7	81.8	86.4	80.3	85	15.9(17.6)	21.5(20.2)
	Eligible for choice	7	0	0	0	0	82.9(2.8)	111.4(10.7)
	Not Eligible for choice	7	81.8	86.5	80.4	85.1	10.9(9.4)	17.2(12.9)
4	All	10	58.5	65.8	57.2	64.5	33.4(30.6)	42.7(34.7)
	Eligible for choice	10	0	0	0	0	76.4(33.3)	94.3(39.7)
	Not Eligible for choice	10	59.7	66.6	58.3	65.4	15(10.1)	24.9(15.4)
5	All	10	2	4.5	2.3	4.7	102.3(25.5)	107.3(27.7)
	Eligible for choice	.	0	0	0	0	124.7(37.8)	131.2(32.1)
	Not Eligible for choice	.	2.1	4.5	2.4	4.8	28.9(8.4)	47.2(10.3)
6	All	10	51.4	57.4	49.6	56.1	48.9(33.5)	60.5(36.9)
	Eligible for choice	10	0	0	0	0	68.2(27.5)	91.8(33.7)
	Not Eligible for choice	10	56.2	61.3	54.4	60.1	20.8(11.2)	33.1(16)
7	All	12	54.1	59.2	53.7	58.7	43.8(31.3)	57.7(39.2)
	Eligible for choice	12	0	0	0	0	72.3(22)	97.4(28.4)
	Not Eligible for choice	12	59.2	63.8	58.8	63.5	18.1(11)	28.3(15.6)
8	All	15	70	74.5	69.9	74.5	27.7(25.3)	37.3(30.1)
	Eligible for choice	15	0	0	0	0	80.9(28.3)	112.4(33.3)
	Not Eligible for choice	14	71.2	75.6	71	75.6	16.3(10.1)	25.6(14.7)
9	All	6	37.8	45	38.3	45.1	61.8(43)	73.6(48.3)

	Eligible for choice	6	0	0	0	0	99.6(33.1)	122.6(36)
	Not Eligible for choice	6	43	50.7	43.5	50.8	16(10)	26.3(16.1)
10	All	5	64.9	73.2	63.6	72.1	29.8(24)	38.2(27.5)
	Eligible for choice	5	0	0	0	0	58.2(13.6)	80.2(16.8)
	Not Eligible for choice	5	65.4	73.6	64	72.6	16.2(10.9)	25.9(15.4)
11	All	3	25.8	34.5	25.2	33.4	70.4(44.1)	79.2(45)
	Eligible for choice	3	0	0	0	0	109.5(43.7)	122.6(46.1)
	Not Eligible for choice	3	27.7	36.5	27	35.3	24.2(11.8)	37.7(15)
12	All	6	59.4	64.8	56.6	61.8	35(36.2)	43.6(44.2)
	Eligible for choice	6	0	0	0	0	92.9(32.9)	130.2(47.6)
	Not Eligible for choice	6	62.1	67.7	59.5	64.9	15.7(10.5)	22.2(13.9)
15	All	7	51.2	55.6	49	53.3	49.5(44)	62(53.7)
	Eligible for choice	7	0	0	0	0	99(38)	127.2(48.3)
	Not Eligible for choice	7	57.1	61.3	54.8	59	16.1(10.2)	23.6(14.6)
16	All	17	52	55.4	49.6	53.1	47.3(40.1)	60(47.6)
	Eligible for choice	17	0	0	0	0	82.4(30.5)	106.2(37.8)
	Not Eligible for choice	17	58.3	60.9	56	58.6	15.6(10.4)	23.7(14.3)
17	All	5	57.8	68	57.7	67.5	47.1(37.6)	57.6(43.4)
	Eligible for choice	5	0	0	0	0	87.2(29.2)	111.5(37.8)
	Not Eligible for choice	5	63.5	73.7	63.5	73.3	21.6(10.5)	31.6(13.9)
18	All	7	36.9	39	38.9	41	75.1(48.3)	90.6(54.6)
	Eligible for choice	7	0	0	0	0	105.1(43.2)	134.1(51.6)
	Not Eligible for choice	7	40.8	42.8	43.2	45	12.1(8)	22.2(13.8)
19	All	4	27	30.3	26.4	29.3	58(56.7)	70.2(61.9)
	Eligible for choice	4	0	0	0	0	123.1(48.8)	142.7(53)
	Not Eligible for choice	4	32.1	35.4	31.6	34.6	14.7(9.3)	25.4(14.5)
20	All	8	58.5	62.4	57	60.9	46.2(46.8)	57.5(53.7)
	Eligible for choice	8	0	0	0	0	100.3(39.4)	130.8(48.3)
	Not Eligible for choice	8	67.2	70.7	65.7	69.2	16.1(9.4)	25.1(13.7)
21	All	10	58.5	61.8	57.7	61.2	30.4(30.2)	40.8(38.7)
	Eligible for choice	10	0	0	0	0	93.1(44.2)	128.1(52.4)
	Not Eligible for choice	9	60.7	64.1	60	63.7	14.6(9.9)	22.6(14.1)

	All	13	82.5	86.3	81.9	86	23.1(28.3)	29.4(33.7)
22	Eligible for choice	13	0	0	0	0	94(35.1)	122(43.1)
	Not Eligible for choice	13	84.9	88.8	84.2	88.4	13.7(8.9)	19.5(11.8)
	All	10	40.6	42.3	39.5	41.1	67.7(56.7)	82.5(63.9)
23	Eligible for choice	10	0	0	0	0	102.3(44.1)	130.6(51.1)
	Not Eligible for choice	10	51.8	52.5	50.8	51.4	14.5(10.1)	21.9(13.6)

Appendix F.2.4. Services for Populations with Traumatic Brain Injury

Table F-28 Geographic Access to VA Facilities with a Polytrauma support clinic team

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
All	All	88	36.9	42.7	35.9	41.4	59.7(50)	69.4(54)
	Eligible for choice	88	0	0	0	0	106.2(44.3)	130.2(48.2)
	Not Eligible for choice	88	39.9	45.7	38.9	44.5	18.4(10.9)	28.3(15.4)
1	All	7	64.8	75.9	64.5	75.2	34.5(25.1)	43(29.2)
	Eligible for choice	7	0	0	0	0	97.8(42.2)	119.5(46.2)
	Not Eligible for choice	7	67.3	78.4	67.3	78	22.2(10.2)	31.8(13.7)
2	All	4	49.9	54.8	49.9	54.7	48.9(39.4)	59.8(43)
	Eligible for choice	4	0	0	0	0	106.1(45.5)	130.9(53.8)
	Not Eligible for choice	4	51.2	56.1	51.1	55.9	19.4(11.5)	30.3(16.5)
3	All	7	86.9	90.7	85.8	89.6	16.2(15)	22.7(18.2)
	Eligible for choice	7	0	0	0	0	93.9(6.8)	121.6(3)
	Not Eligible for choice	7	87	90.7	85.9	89.7	12.9(9.1)	19.7(12.8)
4	All	8	52.5	69.5	53.3	69.7	39.4(26.6)	48.8(29.8)
	Eligible for choice	8	0	0	0	0	74.9(32.4)	93.2(39.2)
	Not Eligible for choice	8	53.5	70.5	54.3	70.7	21.9(11.9)	35.1(15.7)
5	All	2	53.2	70.3	57.7	72.3	40(24.4)	47.9(29.8)
	Eligible for choice	2	0	0	0	0	71.2(14.1)	84.1(14.3)
	Not Eligible for	2	53.8	71	58.3	73	22.6(12.7)	35.3(16.3)

	choice							
6	All	4	30.3	37.5	28.7	36.1	65.1(39.5)	76.9(45.2)
	Eligible for choice	4	0	0	0	0	79(29.8)	103.4(38.5)
	Not Eligible for choice	4	33.1	40.1	31.5	38.8	22.7(10.7)	35.4(15.2)
7	All	5	36	39.6	35.7	39.2	68.5(47.8)	81.1(53.9)
	Eligible for choice	5	0	0	0	0	108.3(42.8)	130.6(46.7)
	Not Eligible for choice	5	39.4	42.8	39.1	42.4	18.4(10.5)	27.9(14.9)
8	All	5	32.1	36.4	31.3	35.7	61.1(47.1)	72.3(50.2)
	Eligible for choice	5	0	0	0	0	124.4(50.1)	151.6(47.7)
	Not Eligible for choice	4	32.6	36.9	31.9	36.3	20.6(11.3)	29.1(15.3)
9	All	6	37.6	44.9	38.1	45	62.3(43.5)	74.1(48.7)
	Eligible for choice	6	0	0	0	0	100.1(33)	123.1(35.8)
	Not Eligible for choice	6	42.7	50.5	43.2	50.7	15.9(9.9)	26.2(16.1)
10	All	2	27.7	31.3	26.9	30.6	73.1(41.7)	79.5(41.7)
	Eligible for choice	2	0	0	0	0	62(21.1)	88.2(26.9)
	Not Eligible for choice	2	27.9	31.5	27.1	30.7	15.7(10.3)	25.7(15.5)
11	All	4	26.9	30.9	25.7	29.6	65.4(45.9)	74.3(47.8)
	Eligible for choice	4	0	0	0	0	108.9(43.5)	122.4(46.1)
	Not Eligible for choice	4	28.9	32.9	27.5	31.4	18.6(10.6)	28.1(16)
12	All	5	58.2	66.2	55.6	63.4	34.2(35.2)	41.1(40.2)
	Eligible for choice	5	0	0	0	0	97.3(45.1)	125.4(49.6)
	Not Eligible for choice	5	60.9	69.1	58.4	66.5	16.5(10.7)	23.6(14.4)
15	All	3	24.6	27.1	24.6	27.1	90.9(56.9)	100.2(60.3)
	Eligible for choice	3	0	0	0	0	119.4(39.1)	143(42.3)
	Not Eligible for choice	3	27.4	30.1	27.5	30.2	15.6(10)	23(14.9)
16	All	8	23.1	26.4	23.6	27.1	81.3(50.3)	99.4(61.3)
	Eligible for choice	8	0	0	0	0	93.1(36.6)	119.5(47.4)
	Not Eligible for choice	8	25.9	28.5	26.6	29.4	16.4(11.1)	28(16.8)
17	All	1	9.8	12.2	10.6	12.9	124.5(39.2)	129.2(39.8)
	Eligible for choice	1	0	0	0	0	129.7(43.3)	160(42.7)
	Not Eligible for choice	1	10.8	12.9	11.6	13.7	27.3(11.9)	40.6(14.9)
18	All	2	37.1	38	35.4	36.2	59.9(61.3)	70(64.1)
	Eligible for choice	2	0	0	0	0	137.1(54)	164.4(51.9)

	Not Eligible for choice	2	41.1	41.9	39.3	40.1	17.1(9.3)	25.7(12.3)
19	All	1	12.3	14.4	11.9	13.8	65.1(65)	72.3(65.6)
	Eligible for choice	1	0	0	0	0	150.6(55)	165.9(50)
	Not Eligible for choice	1	14.6	17.1	14.2	16.5	19.6(11.6)	31.3(15.4)
20	All	2	19.8	22.5	21.1	23.8	112.3(74.1)	117.1(71.9)
	Eligible for choice	2	0	0	0	0	119.8(47.9)	141.3(52.2)
	Not Eligible for choice	2	22.8	24.8	24.4	26.5	14.6(8.8)	24(13.9)
21	All	2	29.6	37.9	28.1	35.7	65.4(56.3)	78.7(62)
	Eligible for choice	2	0	0	0	0	134.7(57.8)	163.6(52.8)
	Not Eligible for choice	2	30.7	39.3	29.2	37.2	19.8(10.6)	34.2(15.2)
22	All	4	74.1	82.3	73.5	82	34.9(33.6)	40.6(36.1)
	Eligible for choice	4	0	0	0	0	103.9(41.3)	130.3(47.3)
	Not Eligible for choice	4	76.3	84.7	75.5	84.3	20.8(9.5)	28.2(11.8)
23	All	6	21.8	24.8	21.5	24.4	78.9(46.5)	93.5(54.3)
	Eligible for choice	6	0	0	0	0	105.7(41.6)	132.7(46.7)
	Not Eligible for choice	6	27.9	30.6	27.7	30.4	15.1(11.9)	25.8(17.8)

Table F-29 Geographic Access to a hospital with a polytrauma network site

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
All	All	23	20.8	24.7	19.2	22.8	86.8(66.8)	93.9(67.6)
	Eligible for choice	23	0	0	0	0	136.9(53)	156.9(52.2)
	Not Eligible for choice	23	22.4	26.5	20.8	24.6	19.3(10.4)	28.5(14.3)
1	All	1	22	36.4	20.7	35.1	70.1(51.4)	75.8(51.9)
	Eligible for choice	1	0	0	0	0	205.4(28.9)	208.4(26.7)
	Not Eligible for choice	1	22.9	37.8	21.6	36.6	20.5(11.2)	35.1(14.8)
2	All	1	11.9	15.6	12.9	16.7	104.4(50.2)	110.3(49.9)
	Eligible for choice	1	0	0	0	0	130.4(25)	161.4(37.2)

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
	Not Eligible for choice	1	12.2	16	13.2	17.1	14.8(12.5)	30.1(19.9)
3	All	1	65	78	63.5	76.5	28.1(20.4)	32.7(22.3)
	Eligible for choice	1	0	0	0	0	102.6(12.6)	127.7(20.4)
	Not Eligible for choice	1	65.1	78	63.5	76.5	18.7(9.5)	25.8(13.3)
4	All	1	23.4	27.4	21.8	25.6	86.3(59.8)	92.6(60.5)
	Eligible for choice	1	0	0	0	0	147.2(44.1)	157.6(48.4)
	Not Eligible for choice	1	23.8	27.9	22.2	26.1	17.9(11)	26.2(15)
5	All	1	55.3	69	49.2	64.3	38.7(32.3)	47.7(36.4)
	Eligible for choice	1	0	0	0	0	71.9(41.1)	83.2(42.2)
	Not Eligible for choice	1	55.9	69.2	49.7	64.6	19.8(11.5)	31.9(15.8)
6	All	1	7.3	9.1	7.2	8.7	146.9(64.7)	151.4(63.1)
	Eligible for choice	1	0	0	0	0	139.5(60.9)	155(57.3)
	Not Eligible for choice	1	7.9	9.9	7.9	9.4	14.5(9.3)	26.2(16.1)
7	All	1	5.1	5.1	5.6	5.7	138.3(45.8)	155.1(46.5)
	Eligible for choice	1	0	0	0	0	137.5(60.3)	166.9(55.2)
	Not Eligible for choice	1	5.5	5.5	6.1	6.2	14.1(10.7)	24.2(15.8)
8	All	2	23.2	24.4	23.3	24.6	89.9(70.4)	96.9(68.5)
	Eligible for choice	2	0	0	0	0	163.4(45.3)	189.3(39.8)
	Not Eligible for choice	2	23.5	24.8	23.7	25	20.1(11.5)	30.2(16.1)
9	All	1	5.7	6.2	5.9	6.4	133.4(66.2)	145.5(67.5)
	Eligible for choice	1	0	0	0	0	142.3(50.7)	166.3(49.6)
	Not Eligible for choice	1	6.5	6.9	6.7	7.1	16.5(12.5)	26.4(17)
10	All	1	20.5	24.8	20.2	24.6	87.6(53.1)	92.4(52)
	Eligible for choice	1	0	0	0	0	128.1(29.1)	144.9(27.3)
	Not Eligible for choice	1	20.6	24.9	20.3	24.8	17.3(11.9)	27.4(15.6)
11	All	1	11.5	13.3	11.5	13.3	143.9(60.6)	144.5(56.2)
	Eligible for choice	1	0	0	0	0	141(46.7)	147.3(46)

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
	Not Eligible for choice	1	12.3	13.9	12.4	14	14.6(9.9)	25.3(15.4)
12	All	1	35.1	43.5	31.8	39.9	64.2(58.3)	68.1(59.1)
	Eligible for choice	1	0	0	0	0	162.8(45.5)	177.4(48.5)
	Not Eligible for choice	1	36.7	45.5	33.4	41.9	19.7(9.4)	27.1(12.8)
15	All	1	18.5	20.3	15.9	17.4	95.7(70.5)	113.3(77)
	Eligible for choice	1	0	0	0	0	130.8(55.3)	152.2(55.8)
	Not Eligible for choice	1	20.6	22.6	17.8	19.5	21.1(9.7)	29(12.4)
16	All	1	13.5	14.4	12.3	13.2	105.2(85.6)	111.8(83.2)
	Eligible for choice	1	0	0	0	0	147.3(55.8)	167.4(52.1)
	Not Eligible for choice	1	15.1	16.1	13.9	14.9	18.9(9.6)	26.6(12.4)
17	All	2	43.2	49.4	41.5	47.4	61.6(49.4)	70.3(52.7)
	Eligible for choice	2	0	0	0	0	110.7(36.9)	131.8(43.4)
	Not Eligible for choice	2	47.4	54	45.7	51.8	20.9(10.1)	29.9(13.1)
18	All	1	11.7	12.1	11.8	12.3	111.1(54.6)	114.9(54.1)
	Eligible for choice	1	0	0	0	0	153.6(58.1)	170.1(49.9)
	Not Eligible for choice	1	12.9	13.3	13.2	13.6	12.3(6.8)	21(11.9)
19	All	1	21	22.6	19.7	21	49.9(50.2)	61.1(56.3)
	Eligible for choice	1	0	0	0	0	135.9(44.7)	154.6(50.3)
	Not Eligible for choice	1	24.9	26.7	23.6	25.1	15.1(9)	24.2(12.6)
20	All	1	19.2	23.3	16.7	20.3	97.9(75.9)	102.6(72.6)
	Eligible for choice	1	0	0	0	0	125.7(47.5)	153.5(47.9)
	Not Eligible for choice	1	22	26.8	19.2	23.4	21(10.5)	29.7(14.3)
21	All	1	15.6	19.1	15	18.3	85.8(58.6)	95.3(62.3)
	Eligible for choice	1	0	0	0	0	155.9(38.5)	183.6(37)
	Not Eligible for choice	1	16.2	19.8	15.6	19	24.3(10.5)	34.6(12.9)
22	All	1	26.5	34.3	24.8	32.3	58(46.3)	60.8(46.7)
	Eligible for choice	1	0	0	0	0	146(39.5)	166(36.1)

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
	Not Eligible for choice	1	27.2	35.3	25.5	33.2	21.3(9.4)	29.1(13)
23	All	1	15.3	16.4	14.2	15.3	93.8(75.9)	112.1(80.7)
	Eligible for choice	1	0	0	0	0	131.6(57.2)	154.1(56.8)
	Not Eligible for choice	1	19.5	20.5	18.3	19.3	15.9(8.6)	23.3(11.7)

Table F-30 Geographic Access to VA Facilities with a Polytrauma rehabilitation center

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
All	All	5	4.4	4.7	4.4	4.7	118.2(70.3)	126.3(69.8)
	Eligible for choice	5	0	0	0	0	133.8(52.6)	155.1(52.4)
	Not Eligible for choice	5	4.7	5	4.8	5.1	20.2(10.8)	29.8(14.4)
1	All	NA	NA	NA	NA	NA	NA	NA
	Eligible for choice	NA	NA	NA	NA	NA	NA	NA
	Not Eligible for choice	NA	NA	NA	NA	NA	NA	NA
2	All	NA	NA	NA	NA	NA	NA	NA
	Eligible for choice	NA	NA	NA	NA	NA	NA	NA
	Not Eligible for choice	NA	NA	NA	NA	NA	NA	NA
3	All	NA	NA	NA	NA	NA	NA	NA
	Eligible for choice	NA	NA	NA	NA	NA	NA	NA
	Not Eligible for choice	NA	NA	NA	NA	NA	NA	NA
4	All	NA	0	0	0	0	222.1(13.2)	223.3(12.5)
	Eligible for choice	NA	0	0	0	0	217.5(20.9)	233.3(2.6)
	Not Eligible for choice	NA	NA	NA	NA	NA	NA	NA

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
5	All	NA	0	0	0	0	135.9(28.5)	138.2(29.7)
	Eligible for choice	NA	0	0	0	0	136.6(49.3)	154.2(46.2)
	Not Eligible for choice	NA	NA	NA	NA	NA	NA	NA
6	All	1	7.3	8	7.2	7.9	131.8(67.7)	137.6(66.3)
	Eligible for choice	1	0	0	0	0	133.1(58.5)	148.1(54.5)
	Not Eligible for choice	1	7.9	8.7	7.9	8.6	14.5(9.3)	24(14.7)
7	All	NA	NA	NA	NA	NA	NA	NA
	Eligible for choice	NA	NA	NA	NA	NA	NA	NA
	Not Eligible for choice	NA	NA	NA	NA	NA	NA	NA
8	All	1	17.6	18	17.6	17.8	106.7(70.9)	113.7(68.1)
	Eligible for choice	1	0	0	0	0	163.4(45.3)	189.3(39.8)
	Not Eligible for choice	1	17.9	18.2	17.8	18.1	24(10.7)	34.9(14.7)
9	All	NA	NA	NA	NA	NA	NA	NA
	Eligible for choice	NA	NA	NA	NA	NA	NA	NA
	Not Eligible for choice	NA	NA	NA	NA	NA	NA	NA
10	All	NA	NA	NA	NA	NA	NA	NA
	Eligible for choice	NA	NA	NA	NA	NA	NA	NA
	Not Eligible for choice	NA	NA	NA	NA	NA	NA	NA
11	All	NA	NA	NA	NA	NA	NA	NA
	Eligible for choice	NA	NA	NA	NA	NA	NA	NA
	Not Eligible for choice	NA	NA	NA	NA	NA	NA	NA
12	All	NA	0	0	0	0	179.3(28.4)	199.1(29.3)
	Eligible for choice	NA	0	0	0	0	151.7(30.4)	170.6(46.6)
	Not Eligible for choice	NA	NA	NA	NA	NA	NA	NA
15	All	NA	NA	NA	NA	NA	NA	NA
	Eligible for choice	NA	NA	NA	NA	NA	NA	NA
	Not Eligible for choice	NA	NA	NA	NA	NA	NA	NA

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
16	All	NA	0	0	0	0	209.1(15.2)	203.7(15.3)
	Eligible for choice	NA	0	0	0	0	166.2(24.7)	184.9(32.4)
	Not Eligible for choice	NA	NA	NA	NA	NA	NA	NA
17	All	1	19.9	20.8	19.8	20.7	93.3(64)	102.2(67.8)
	Eligible for choice	1	0	0	0	0	132.8(46.7)	156.6(48.6)
	Not Eligible for choice	1	21.9	22.8	21.8	22.8	14.8(8.9)	22.7(12.7)
18	All	NA	0	0	0	0	202.1(2.2)	233(2.8)
	Eligible for choice	NA	NA	NA	NA	NA	NA	NA
	Not Eligible for choice	NA	NA	NA	NA	NA	NA	NA
19	All	NA	NA	NA	NA	NA	NA	NA
	Eligible for choice	NA	NA	NA	NA	NA	NA	NA
	Not Eligible for choice	NA	NA	NA	NA	NA	NA	NA
20	All	NA	NA	NA	NA	NA	NA	NA
	Eligible for choice	NA	NA	NA	NA	NA	NA	NA
	Not Eligible for choice	NA	NA	NA	NA	NA	NA	NA
21	All	1	15.6	19.1	15	18.3	83.3(57.5)	92.8(61.5)
	Eligible for choice	1	0	0	0	0	155.6(38.9)	184.5(37.2)
	Not Eligible for choice	1	16.2	19.8	15.6	19	24.3(10.5)	34.6(12.9)
22	All	NA	0	0	0	0	191.8(13.4)	219.7(13.8)
	Eligible for choice	NA	0	0	0	0	188.2(25.1)	216.6(13)
	Not Eligible for choice	NA	NA	NA	NA	NA	NA	NA
23	All	1	15.3	16.4	14.2	15.3	76.3(70.8)	97.6(80.2)
	Eligible for choice	1	0	0	0	0	120.6(53.1)	144.8(55)
	Not Eligible for choice	1	19.5	20.5	18.3	19.3	15.9(8.6)	23.3(11.7)

Table F-31 Geographic Access to VA Facilities providing TBI Specialty Care

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
All	All	207	62	67.5	60.6	66.1	36.6(36.8)	46.9(43.2)
	Eligible for choice	207	0	0	0	0	89.3(39.4)	115.1(46.1
	Not Eligible for choice	203	66.9	72.2	65.6	70.9	15.9(10.4)	24.5(14.7)
1	All	9	67.9	76.7	67.6	75.9	30.4(27.1)	38.5(31.4)
	Eligible for choice	9	0	0	0	0	97.8(42.2)	119.5(46.2)
	Not Eligible for choice	9	70.6	79.2	70.6	78.7	17.8(11.2)	26.7(15.2)
2	All	8	70.3	74.6	71.4	75.5	30.4(32.6)	40.7(37.6)
	Eligible for choice	8	0	0	0	0	87.5(37.5)	117.6(46.9)
	Not Eligible for choice	8	72.2	76.4	73.2	77.2	14.7(10.5)	24.3(15.5)
3	All	10	96.6	98.1	96.4	97.9	11.6(10.5)	17.2(13)
	Eligible for choice	10	0	0	0	0	56.5(25.6)	81.2(36.6)
	Not Eligible for choice	10	96.7	98.1	96.5	98	10.8(8.6)	16.4(11.2)
4	All	11	64.8	76.3	65	76.4	29.8(22.7)	39.1(27.9)
	Eligible for choice	11	0	0	0	0	62.8(20.4)	83.7(28.4)
	Not Eligible for choice	11	66.1	77.3	66.3	77.5	17.1(11)	28.2(16.6)
5	All	7	86.6	88.9	85.6	88	21.1(19.9)	30.1(27.3)
	Eligible for choice	7	0	0	0	0	46.8(7.6)	58.2(15.4)
	Not Eligible for choice	7	87.5	89.1	86.5	88.3	15.7(10.5)	23.2(13.9)
6	All	8	51.7	61.1	50.7	60.2	47(33.2)	59.4(40.3)
	Eligible for choice	8	0	0	0	0	67.1(22)	91.1(30.9)
	Not Eligible for choice	8	56.6	65.8	55.6	65	20.9(11.1)	33.2(15.8)
7	All	13	53.1	57.2	53.4	57.5	44.6(34)	58.6(42)
	Eligible for choice	13	0	0	0	0	69.2(20.6)	93.6(28.3)
	Not Eligible for choice	13	58	61.5	58.4	61.9	17.5(10.8)	27.1(15.3)
8	All	15	66	70.4	65.5	70.1	31.1(30.1)	40.4(34.1)
	Eligible for choice	15	0	0	0	0	69.8(23.9)	100.9(32.1

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
	Not Eligible for choice	14	67.1	71.5	66.6	71.2	15.6(9.7)	24.5(14.3)
9	All	7	34.7	41.7	35.4	42.2	73.5(51.3)	84.8(53.9)
	Eligible for choice	7	0	0	0	0	106.8(37.4)	130(38.9)
	Not Eligible for choice	7	39.4	47	40.2	47.5	16.3(10.5)	27.2(16.5)
10	All	6	64.9	73.2	63.6	72.1	29.4(23)	38.1(27.1)
	Eligible for choice	6	0	0	0	0	53(8.1)	76.4(13.7)
	Not Eligible for choice	5	65.4	73.6	64	72.6	16.3(10.9)	25.9(15.4)
11	All	9	54.9	61.2	54	60.1	41.4(34.7)	50.8(38.6)
	Eligible for choice	9	0	0	0	0	74.8(32.8)	89.7(34.5)
	Not Eligible for choice	9	58.9	64.4	58	63.2	18.4(11.1)	27.6(15.6)
12	All	8	64.1	69.5	61.4	66.7	31.5(32.9)	41(42.3)
	Eligible for choice	8	0	0	0	0	83.7(33.6)	123.1(50.8)
	Not Eligible for choice	8	67	72.5	64.5	70	15.2(10)	22(13.7)
15	All	10	57	61.8	55.3	60.1	40.8(37.8)	53.3(47.5)
	Eligible for choice	10	0	0	0	0	91.3(36.9)	119.8(47.1)
	Not Eligible for choice	10	63.5	67.9	61.8	66.3	15.8(10.4)	23.7(15.2)
16	All	16	51.9	55.7	50.2	54.1	44.4(37.7)	57.6(46.6)
	Eligible for choice	16	0	0	0	0	81.1(29.7)	105.6(38.3
	Not Eligible for choice	16	58.2	61.2	56.6	59.7	15.6(10.4)	23.7(14.3)
17	All	6	63.9	70.8	63.2	69.7	43.2(41.9)	54.4(47.2)
	Eligible for choice	6	0	0	0	0	88.2(38.8)	115.7(44)
	Not Eligible for choice	6	70.2	76.8	69.6	75.8	20.3(10.4)	29.6(13.4)
18	All	8	65.9	68.8	65.8	68.7	42(46.2)	54.4(54.3)
	Eligible for choice	8	0	0	0	0	102.2(41.7	130.7(51.1)
	Not Eligible for choice	8	72.9	75.6	73.1	75.7	15.4(9.3)	24.5(13.3)
19	All	9	58.8	63.3	56.2	60.8	50.7(56.9)	61.5(62.1)
	Eligible for choice	9	0	0	0	0	128.6(51.4	152.4(54)

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
	Not Eligible for choice	9	69.8	74.4	67.3	72	14.7(10)	24.6(14.3)
20	All	11	65.3	70	64.6	69.2	40.6(45)	52.5(52.6)
	Eligible for choice	11	0	0	0	0	96.1(40.2)	126.4(48.7
	Not Eligible for choice	11	75.1	79.2	74.6	78.6	15.3(9.7)	24.3(14.1)
21	All	12	68.8	72.3	66.6	70.4	27.3(26.3)	38.9(35.4)
	Eligible for choice	12	0	0	0	0	87.3(43.1)	123.3(53.7
	Not Eligible for choice	10	71.4	75	69.4	73.3	15.3(9.5)	24.7(14.2)
22	All	12	83.2	89.7	82.3	89.2	21.3(19.2)	26.9(21.8)
	Eligible for choice	12	0	0	0	0	81.7(34.8)	106.9(39.7)
	Not Eligible for choice	12	85.6	92.2	84.6	91.6	15.9(9.3)	22.1(12)
23	All	12	44.1	46.4	43	45.2	57.2(47.5)	72.5(57.4)
	Eligible for choice	12	0	0	0	0	94.4(38.5)	122.9(46.6)
	Not Eligible for choice	12	56.2	57.5	55.2	56.3	14.9(10.4)	22.5(14.2)

Appendix F.2.5: Services for Post-Traumatic Stress Disorder (PTSD)

Table F-32 Geographic Access to VA Facilities providing Domiciliary Mental Rehabilitative Treatment Program

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
All	All	45	17.5	22	16.9	21.2	88(57.7)	98.5(60.7)
	Eligible for choice	45	0	0	0	0	125.2(49.8)	149.3(50.9)
	Not Eligible for choice	43	18.9	23.5	18.3	22.8	23.3(11.5)	35.2(14.7)
1	All	3	41.7	55	41.1	53.9	55.1(47.6)	61.2(48)
	Eligible for choice	3	0	0	0	0	180.6(36.2)	185(35.9)

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
	Not Eligible for choice	3	43.4	57.1	42.9	56.3	25.2(9.6)	35.4(13.2)
2	All	1	18	29.5	18.8	30.7	94(50.3)	102.2(51.6)
	Eligible for choice	1	0	0	0	0	158(31.2)	183.5(26.6)
	Not Eligible for choice	1	18.4	30.3	19.2	31.4	33.4(7.6)	43.2(8.3)
3	All	3	74.8	88.9	74.3	87.8	34.9(12.9)	42.1(14.1)
	Eligible for choice	3	0	0	0	0	100.1(12.2)	127(4.1)
	Not Eligible for choice	3	74.9	88.9	74.4	87.9	29.4(8.7)	39.4(9.5)
4	All	1	14.3	25.5	14.2	24.9	86.1(48.2)	97.6(48.9)
	Eligible for choice	1	0	0	0	0	125.3(52.3)	145.2(51.7)
	Not Eligible for choice	1	14.5	26	14.5	25.4	30.1(8.4)	46.2(9.6)
5	All	1	10	11.2	12.4	13.7	78.3(22.1)	95(26.5)
	Eligible for choice	1	0	0	0	0	77.5(18.3)	96.3(18.5)
	Not Eligible for choice	1	10.1	11.3	12.5	13.9	28.5(9.8)	42.2(13)
6	All	3	23.6	29.2	22.3	28.2	82.6(49)	95.4(54.6)
	Eligible for choice	3	0	0	0	0	101.4(41.8)	127.6(45.3)
	Not Eligible for choice	3	25.8	31.7	24.5	30.7	22.4(10.8)	36.3(15.8)
7	All	4	6.5	9	6.6	9.4	117(48.6)	130.8(49.7)
	Eligible for choice	4	0	0	0	0	110.4(49.6)	134.5(48.5)
	Not Eligible for choice	4	7.1	9.5	7.2	9.9	16.9(12.3)	35.2(19.1)
8	All	3	21.8	26.5	20.8	25.3	77.2(57.9)	89.9(63.6)
	Eligible for choice	3	0	0	0	0	120(29.9)	167(39.9)
	Not Eligible for choice	2	22.2	26.9	21.1	25.7	20.7(11.3)	31(15.9)
9	All	2	14.2	15.5	14.3	15.6	123.9(69.9)	134(70)
	Eligible for choice	2	0	0	0	0	128.8(48.3)	150.2(51.7)
	Not Eligible for choice	2	16.2	17	16.2	17.1	15.8(10.7)	23(14.7)
10	All	4	47.9	53.8	46.7	52.8	47.6(39.4)	55.1(41.4)

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
	Eligible for choice	4	0	0	0	0	62.2(15.2)	85.5(18.3)
	Not Eligible for choice	3	48.3	54.1	47.1	53.1	16.4(11)	25.4(14.8)
11	All	1	3.3	4	3.3	4.1	120(40.7)	128.1(38.8)
	Eligible for choice	1	0	0	0	0	133.3(47.6)	144.6(46.1)
	Not Eligible for choice	1	3.5	4.1	3.6	4.1	22.2(10.3)	36.7(15.3)
12	All	3	30	48.5	29.1	46.4	53.9(34.3)	59.9(38.6)
	Eligible for choice	3	0	0	0	0	112(40.8)	142.6(44.1)
	Not Eligible for choice	3	31.4	50.6	30.6	48.6	23.2(12.3)	36.8(15.2)
15	All	1	3.5	4.4	3.8	4.6	125.9(58.7)	133.4(62.3)
	Eligible for choice	1	0	0	0	0	150.8(49.4)	172.5(49.4)
	Not Eligible for choice	1	3.9	4.6	4.2	4.9	16.5(13.6)	29.3(19.9)
16	All	4	9.5	10.6	9.7	10.9	133.4(63.2)	153.7(69.1)
	Eligible for choice	4	0	0	0	0	125.6(48)	154.9(54.2)
	Not Eligible for choice	4	10.6	11.6	10.9	12	15.3(10.9)	25.8(15.8)
17	All	3	12.8	14.7	13.9	15.7	94.1(38.5)	107.4(39.9)
	Eligible for choice	3	0	0	0	0	104.7(47.7)	136.9(47.4)
	Not Eligible for choice	3	14	15.6	15.3	16.7	21.8(12.9)	35.7(18.3)
18	All	NA	0	0	0	0	229.2(15.8)	224.3(12.9)
	Eligible for choice	NA	0	0	0	0	226.1(19.9)	228.6(14.8)
	Not Eligible for choice	NA	NA	NA	NA	NA	NA	NA
19	All	2	21.8	23.6	20.7	22.4	56.7(53.8)	68.5(60.7)
	Eligible for choice	2	0	0	0	0	133.8(42.5)	155.3(49.7)
	Not Eligible for choice	2	25.9	27.7	24.9	26.4	15.1(9)	24.1(12.6)
20	All	2	18.1	22.5	17	20.9	91.8(53.3)	98.5(53.9)
	Eligible for choice	2	0	0	0	0	136.4(49)	160.4(45.9)
	Not Eligible for choice	2	20.8	25.8	19.6	24.1	23.2(10.6)	39.2(14.2)

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
21	All	2	24	27.4	22	25.2	78.5(59)	88.9(64)
	Eligible for choice	2	0	0	0	0	157.8(35.6)	180.7(35.4)
	Not Eligible for choice	2	24.9	28.5	22.9	26.2	21.7(11.1)	31.5(14)
22	All	NA	0	0	0	0	191.8(13.4)	219.7(13.8)
	Eligible for choice	NA	0	0	0	0	188.2(25.1)	216.6(13)
	Not Eligible for choice	NA	NA	NA	NA	NA	NA	NA
23	All	2	4.7	4.9	4.6	4.8	145(50.2)	151.2(48.3)
	Eligible for choice	2	0	0	0	0	143.9(49.6)	168.3(51.3)
	Not Eligible for choice	2	6	6.1	5.9	6	14.3(12.1)	22.3(15.2)

Table F-33 Geographic Access to VA Facilities providing Mental Health Services

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
All	All	848	90.4	91.1	90.1	90.6	16.4(17.3)	25.3(24.3)
	Eligible for choice	848	0	0	0	0	59.6(23.2)	84.7(33.7)
	Not Eligible for choice	810	97.6	96.7	97.5	96.6	12.4(9.4)	19.3(13.1)
1	All	47	96.1	96	95.7	95.6	12.3(11.3)	19.2(16.7)
	Eligible for choice	47	0	0	0	0	52.9(12.6)	76.2(22)
	Not Eligible for choice	46	99.9	98.8	99.9	98.8	10.9(8.2)	16.8(11.5)
2	All	33	97.4	95.2	97.6	95.3	12.5(10.7)	21.8(17.8)
	Eligible for choice	33	0	0	0	0	48.3(7.1)	75.4(19.2)
	Not Eligible for choice	32	100	97.2	100	97.3	11.5(9.1)	19(13.4)
3	All	34	99.9	99.9	99.9	99.9	6.3(5.2)	11.1(8)

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
	Eligible for choice	34	0	0	0	0	42.4(1.2)	65.7(9.8)
	Not Eligible for choice	33	100	100	100	100	6.3(5.1)	11(7.9)
4	All	49	97.1	97.4	96.9	97.2	12.7(10.1)	20(14.4)
	Eligible for choice	49	0	0	0	0	46.7(8.6)	66.2(17.4)
	Not Eligible for choice	47	99	98.6	98.9	98.4	11.8(8.4)	18.6(11.7)
5	All	19	96.8	97.1	97.4	97.6	14.1(10.7)	21.4(15)
	Eligible for choice	19	0	0	0	0	43.5(3.9)	55.6(11)
	Not Eligible for choice	18	97.9	97.4	98.4	98	13.4(9.8)	20.3(13.1)
6	All	27	80.7	83.1	80.6	83.1	23.9(17.4)	35.4(25.1)
	Eligible for choice	27	0	0	0	0	51(11.2)	73.8(21.5)
	Not Eligible for choice	27	88.2	88.2	88.6	88.5	17.7(10.7)	26.4(14.4)
7	All	43	86.1	86.6	85.6	86	20.8(17.9)	32.4(25.4)
	Eligible for choice	43	0	0	0	0	52.1(10.5)	74.7(17.5)
	Not Eligible for choice	43	94.1	92.7	93.7	92.2	14.6(10)	23.1(14.2)
8	All	54	95	97.1	95.4	97.1	13.3(10.6)	21.2(15.1)
	Eligible for choice	54	0	0	0	0	50.7(8.4)	77(12.7)
	Not Eligible for choice	51	96.5	98.6	97	98.6	12(8.4)	19.8(12.5)
9	All	43	85.8	87.2	85.9	87.2	21.8(16.9)	33.2(24.2)
	Eligible for choice	43	0	0	0	0	52(9.8)	74.3(16.3)
	Not Eligible for choice	41	97.5	95.9	97.4	95.8	16.2(11)	24.4(15.4)
10	All	38	99.2	99	99.3	99	10.8(8.5)	17.8(12.8)
	Eligible for choice	38	0	0	0	0	43.3(1.8)	60.2(7.8)
	Not Eligible for choice	37	100	99.4	100	99.4	10.5(8.1)	17.2(11.9)
11	All	38	93.2	94.3	93.2	94.2	17.2(12.5)	26.1(17.4)
	Eligible for choice	38	0	0	0	0	47.7(7.4)	63.9(12.6)
	Not Eligible for choice	38	100	98.3	100	98.2	15.3(9.9)	23.1(13.8)

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
12	All	39	95.6	94.9	95.1	94.3	11.9(11)	19.1(16.6)
	Eligible for choice	39	0	0	0	0	50.9(10.2)	78.7(17.7)
	Not Eligible for choice	39	100	98.7	100	98.5	10.6(8.5)	16.8(11.9)
15	All	50	88.3	88.4	87.9	87.6	20.7(22.4)	31.1(30.9)
	Eligible for choice	50	0	0	0	0	63.8(30.8)	89.1(41.1)
	Not Eligible for choice	45	98.3	96.5	98.3	96.2	14.2(10.6)	21.2(14.7)
16	All	67	88.3	89.2	87.9	88.8	19.7(16)	29.6(22.9)
	Eligible for choice	67	0	0	0	0	51.6(13.3)	73.7(21.8)
	Not Eligible for choice	65	99.1	97	99.1	96.8	15.3(10.4)	22.6(14)
17	All	20	86.7	87.7	86.2	87.2	22.8(20.2)	32.8(28.3)
	Eligible for choice	20	0	0	0	0	63.2(24.9)	88.5(34.8)
	Not Eligible for choice	20	95.1	94.8	94.9	94.5	16.3(9.8)	23.4(12.8)
18	All	42	90.1	90	89.8	89.7	18.3(23)	29.2(33.4)
	Eligible for choice	42	0	0	0	0	68.9(27.7)	100.3(43.5
	Not Eligible for choice	41	99.7	98.4	99.7	98.4	10.9(8.3)	18.2(11.6)
19	All	37	81.9	83.3	80.9	82.3	26.7(35.9)	37.5(45.9)
	Eligible for choice	37	0	0	0	0	84.1(35.6)	110.4(49.2)
	Not Eligible for choice	30	97.3	96	96.9	95.6	11.3(8.9)	17.7(11.8)
20	All	37	87	87.9	86.7	87.5	19.5(21)	29.7(31)
	Eligible for choice	37	0	0	0	0	65.1(23.7)	95.6(39.9)
	Not Eligible for choice	36	100	98.1	100	98	13.1(9.8)	19.9(12.8)
21	All	40	95.2	93.8	94.7	93.3	13.1(13.4)	21.2(20.5)
	Eligible for choice	40	0	0	0	0	64(26.1)	98.5(34.8)
	Not Eligible for choice	38	98.8	97.3	98.6	97.1	11.2(8)	17.7(11.5)
22	All	32	94.6	95.8	94.7	95.9	10.7(12.2)	16.3(16.6)
	Eligible for choice	32	0	0	0	0	64.8(30.1)	94.9(44.5)
	Not Eligible for	32	97.3	98.1	97.4	98.1	8.8(6.4)	14.1(9.3)

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
	choice							
23	All	59	75.9	76.1	75.3	75.3	26.3(25.4)	39.7(35.9)
	Eligible for choice	59	0	0	0	0	63.6(22)	91.6(32.2)
	Not Eligible for choice	51	96.8	94.1	96.7	93.7	14.3(10.9)	22(15.3)

Table F-34 Geographic Access to VA Facilities providing psychotherapy

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
All	All	672	84.7	86.6	84.1	85.9	20.3(22.2)	29.6(29.2)
	Eligible for choice	672	0	0	0	0	64.4(28.1)	89.9(37.3)
	Not Eligible for choice	649	91.4	92	91.1	91.6	13.2(9.8)	20.5(13.7)
1	All	36	88.9	90	88.1	89.1	16.4(21.2)	23.8(26.3)
	Eligible for choice	36	0	0	0	0	82.6(45.4)	106(49.6)
	Not Eligible for choice	36	92.4	92.9	92	92.4	11.5(8.8)	17.9(12.8)
2	All	27	93.5	92.3	93.7	92.5	15.1(14.9)	25(22.1)
	Eligible for choice	27	0	0	0	0	50.2(9.4)	76.8(20.7)
	Not Eligible for choice	26	96	94.3	96	94.3	12.4(9.9)	20.3(14.5)
3	All	28	99.8	99.6	99.7	99.6	6.7(5.7)	11.6(8.8)
	Eligible for choice	28	0	0	0	0	47.5(9.9)	75.5(26.6)
	Not Eligible for choice	28	99.8	99.7	99.8	99.7	6.6(5.4)	11.4(8.2)
4	All	31	88.8	92.7	88.2	92.2	16.5(14.3)	24.4(18.6)
	Eligible for choice	31	0	0	0	0	48.3(9.3)	68.7(18.8)
	Not Eligible for	30	90.6	93.8	90	93.3	13(9.2)	21.1(13.5)

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
	choice							
5	All	14	96	98.1	95.3	97.6	14.9(11.1)	22.8(14.7)
	Eligible for choice	14	0	0	0	0	44.1(4.7)	55.8(11)
	Not Eligible for choice	14	97	98.4	96.3	98	13.9(9.4)	21.9(13.2)
6	All	24	78.9	82	78.8	81.9	24.7(17.9)	36.3(25.6)
	Eligible for choice	24	0	0	0	0	51.7(11.7)	74.7(22)
	Not Eligible for choice	24	86.3	87.1	86.5	87.3	17.9(10.8)	26.8(14.5)
7	All	38	82.2	83.1	81.7	82.5	23.6(21.1)	35.3(27.9)
	Eligible for choice	38	0	0	0	0	55.1(14.6)	78.2(21.4)
	Not Eligible for choice	38	89.8	88.9	89.4	88.5	15(10.1)	23.8(14.5)
8	All	36	86.5	91.5	86.3	91	20.1(19.8)	28.2(22.8)
	Eligible for choice	36	0	0	0	0	51.1(8.7)	77.2(12.8)
	Not Eligible for choice	34	87.8	92.9	87.8	92.4	13.6(8.9)	22.2(13.1)
9	All	27	63.4	67.5	63.9	67.8	36(28.6)	50.6(37)
	Eligible for choice	27	0	0	0	0	60.1(18.9)	85.5(24.8)
	Not Eligible for choice	26	72	74.6	72.5	74.9	16.8(11)	26.1(15.9)
10	All	32	95.5	95.9	95.3	95.7	12.2(10.8)	19.7(15.7)
	Eligible for choice	32	0	0	0	0	44.9(3.9)	63.1(9.7)
	Not Eligible for choice	31	96.2	96.4	96	96.2	10.9(8.5)	17.9(12.7)
11	All	31	86.2	89.9	86.2	89.6	21.3(15.2)	30.1(19.8)
	Eligible for choice	31	0	0	0	0	49.3(9.6)	65(13.8)
	Not Eligible for choice	31	92.5	93.7	92.5	93.4	17.2(11)	25.3(14.9)
12	All	29	91.9	92.9	91.6	92.4	16.7(13.7)	24(18.4)
	Eligible for choice	29	0	0	0	0	50.9(10.2)	78.7(17.7)
	Not Eligible for choice	29	96.1	96.6	96.4	96.6	14.3(10)	21(13.4)
15	All	40	80.8	82.7	80.1	81.8	24.9(24.7)	35.7(33.6)
	Eligible for choice	40	0	0	0	0	67.6(31.8)	93(41.7)

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
	Not Eligible for choice	35	90	90.2	89.6	89.7	15.3(10.8)	22.8(15.1)
16	All	58	83.9	85.2	83	84.3	22.7(21.2)	33.1(28.4)
	Eligible for choice	58	0	0	0	0	55.6(17.7)	78(25.6)
	Not Eligible for choice	56	94.1	92.5	93.6	91.9	15.1(10.3)	22.5(13.9)
17	All	17	82.4	85.1	82	84.6	25.3(23)	35.6(30.9)
	Eligible for choice	17	0	0	0	0	66.5(26.8)	91.7(35.6)
	Not Eligible for choice	17	90.5	92.2	90.3	91.9	16.7(10.1)	24.6(13.4)
18	All	32	84.4	84.1	84.3	84	24(31.5)	35.8(42.1)
	Eligible for choice	32	0	0	0	0	78.9(31.5)	112.3(47.5
	Not Eligible for choice	32	93.3	92.3	93.6	92.5	11(8.1)	18.3(11.4)
19	All	29	78.5	80.7	77.6	79.7	31(39.5)	41.3(46.8)
	Eligible for choice	29	0	0	0	0	90(42.3)	114.5(50.2
	Not Eligible for choice	26	93.3	93.4	92.9	92.8	12.3(9.6)	20.2(13.8)
20	All	32	83.8	84.9	83.1	84.2	22.6(26.2)	33.3(36.2)
	Eligible for choice	32	0	0	0	0	70(28.4)	100.2(45)
	Not Eligible for choice	31	96.3	94.9	95.9	94.4	13.4(9.9)	20.3(13)
21	All	34	91.5	90.2	90.7	89.3	16(16.5)	24.5(23.5)
	Eligible for choice	34	0	0	0	0	71.6(33.8)	105.2(40.7)
	Not Eligible for choice	32	95	93.5	94.5	93	12.5(8.8)	19(12.3)
22	All	27	87.6	89	87.5	88.9	15.6(23.6)	22.1(30.4)
	Eligible for choice	27	0	0	0	0	73.9(28.1)	104.4(39.3
	Not Eligible for choice	27	90.1	91.5	90	91.3	8.9(6.1)	14.2(9.4)
23	All	50	72.2	72.6	71.5	71.7	29.4(29.9)	43.3(40.4)
	Eligible for choice	50	0	0	0	0	67.8(27.4)	96(36.6)
	Not Eligible for choice	46	92.1	89.8	91.9	89.3	14.2(10.8)	22(15.2)

Appendix F.2.6: Services for Substance Use Disorder (SUD)

Table F-35 Geographic Access to VA Facilities providing Residential treatment for SUD

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
All	All	64	29.2	34.6	28	33.3	73.9(58.7)	83.2(61.2)
	Eligible for choice	64	0	0	0	0	121.2(49.3)	144.1(51.1)
	Not Eligible for choice	61	31.5	37.1	30.3	35.9	19(10.7)	29.1(15.3)
1	All	3	30.7	42	29.8	41	57.7(41.2)	66.7(44.1)
	Eligible for choice	3	0	0	0	0	112.7(58.9)	124.5(59.8)
	Not Eligible for choice	3	31.9	43.3	31.1	42.4	19.7(12.6)	32.3(16.9)
2	All	1	19.5	20.7	20.2	21.4	97.9(55.3)	106.4(56.7)
	Eligible for choice	1	0	0	0	0	149.5(22)	178.9(27.2)
	Not Eligible for choice	1	20.1	21.2	20.7	21.9	13.6(10.3)	21.6(15.5)
3	All	4	84.9	89.5	84	88.5	21(14.8)	26.9(17.5)
	Eligible for choice	4	0	0	0	0	93.9(6.8)	121.6(3)
	Not Eligible for choice	4	85	89.5	84	88.6	17.2(8.8)	23.5(11.8)
4	All	4	35	49.1	34.9	48.6	51.8(32)	62.6(35.1)
	Eligible for choice	4	0	0	0	0	92.4(46.8)	111.8(51.8)
	Not Eligible for choice	4	35.7	49.7	35.7	49.2	23.5(11.1)	38.6(14.5)
5	All	2	18.1	32.8	21.1	38	65.9(23.2)	77.5(28.2)
	Eligible for choice	2	0	0	0	0	73.3(18.5)	92.1(14)
	Not Eligible for choice	2	18.3	33.1	21.3	38.4	28.8(10.2)	45.5(10.6)
6	All	5	34.7	41.3	33.9	40.9	66.9(47.7)	79.3(53.5)
	Eligible for choice	5	0	0	0	0	86.7(37.3)	109.6(40.9)
	Not Eligible for choice	5	38	44.8	37.3	44.5	20.4(11.1)	33.1(16.3)
7	All	2	2.6	4.9	3	5.4	123.9(44)	138.6(46.3)
	Eligible for choice	2	0	0	0	0	126.8(47.3)	150.4(44.5)
	Not Eligible for choice	2	2.8	5.3	3.3	5.9	18.6(13.6)	42.7(17.7)
8	All	5	24.7	30.5	23.9	29.8	67.6(47.6)	78.5(50.2)

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
	Eligible for choice	5	0	0	0	0	114.6(41.5)	148.1(38.8)
	Not Eligible for choice	3	25.1	31	24.3	30.3	20.6(11.5)	31.2(16.2)
9	All	3	23.7	26.6	23.8	26.7	106(69.4)	114.3(69.3)
	Eligible for choice	3	0	0	0	0	123.8(45.8)	142.9(48.8)
	Not Eligible for choice	3	26.9	29.7	27	29.7	15.3(10.1)	22.7(14.7)
10	All	4	48	55.7	46.9	54.7	45.7(37.2)	53.4(39.5)
	Eligible for choice	4	0	0	0	0	59.4(12.4)	85.3(18.1)
	Not Eligible for choice	3	48.4	56	47.2	55	16.4(11.1)	26.4(15.5)
11	All	2	7.5	8.6	7.9	9	105.4(38.5)	114.6(37)
	Eligible for choice	2	0	0	0	0	121.9(43.6)	134.4(44.9)
	Not Eligible for choice	2	8	9	8.5	9.4	25.3(10.9)	40.6(15.1)
12	All	5	54.7	65.8	52	63	34.6(35.2)	41.3(40.2)
	Eligible for choice	5	0	0	0	0	98(44.7)	125.8(49.4)
	Not Eligible for choice	5	57.2	68.7	54.6	66	16.3(11)	23.9(15)
15	All	2	34.7	38.6	31.8	35.4	80.7(63.8)	90(67.5)
	Eligible for choice	2	0	0	0	0	128.7(43.8)	153.3(48.5)
	Not Eligible for choice	2	38.7	43	35.6	39.6	18.8(9.7)	26.3(13.4)
16	All	2	5.2	5.6	5.3	5.8	153.1(59.1)	162.5(56)
	Eligible for choice	2	0	0	0	0	143.1(51)	167.9(52.9)
	Not Eligible for choice	2	5.8	6	5.9	6.1	14.9(10.5)	24.4(14.9)
17	All	3	45.4	51.3	43.9	49.5	61.3(51.4)	69.8(54.1)
	Eligible for choice	3	0	0	0	0	105.2(39)	127.7(43.8)
	Not Eligible for choice	3	49.8	56	48.4	54.1	21.1(10.2)	30.2(13.2)
18	All	3	48.8	50	47.2	48.5	47.7(60.4)	57.7(62.6)
	Eligible for choice	3	0	0	0	0	134.6(57.2)	156.9(54.4)
	Not Eligible for choice	3	54	55.3	52.4	53.7	16.3(9.1)	24.8(12.3)
19	All	2	13.1	15.4	13	15.1	71.2(66.7)	79.9(68.9)

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
	Eligible for choice	2	0	0	0	0	148.4(55.9)	166.4(51.9)
	Not Eligible for choice	2	15.6	18	15.5	17.8	19.4(11.7)	31.1(15.4)
20	All	6	42.1	49.4	42.1	48.9	61.1(50.2)	73.8(60.1)
	Eligible for choice	6	0	0	0	0	103.7(36.6)	136.9(48)
	Not Eligible for choice	6	48.4	55.5	48.5	55.1	18.9(10.5)	31.2(16.1)
21	All	1	15.6	19.1	15	18.3	86.4(59.1)	97.1(63.6)
	Eligible for choice	1	0	0	0	0	158.1(35.3)	180.1(35.2)
	Not Eligible for choice	1	16.2	19.8	15.6	19	24.3(10.5)	34.6(12.9)
22	All	2	47.5	56.8	45.5	54.5	43(36.5)	46.7(38.5)
	Eligible for choice	2	0	0	0	0	131.6(29.1)	153.8(33.8)
	Not Eligible for choice	2	48.9	58.4	46.8	56	20.8(9.2)	28.6(13)
23	All	3	12.8	14.6	11.8	13.7	122.9(64.8)	130.5(63.2)
	Eligible for choice	3	0	0	0	0	133.2(54)	157.1(53.9)
	Not Eligible for choice	3	16.3	18.1	15.2	17.1	12.8(10.5)	23.5(17.1)

Table F-36 Geographic Access to VA Facilities providing Methadone

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
All	All	347	68.9	73.1	67.5	71.6	32.5(35.3)	42.5(41.8)
	Eligible for choice	347	0	0	0	0	81.5(37.5)	108(45.9)
	Not Eligible for choice	334	74.4	77.9	73.2	76.7	14.8(10.1)	22.8(14.2)
1	All	17	76.7	83.2	76.4	82.4	25.1(24.6)	32.8(29)
	Eligible for choice	17	0	0	0	0	85.3(44.4)	108.1(48.9)

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%) 40 miles	Enrollees (%) 60 min.	Users (%) 40 miles	Users (%) 60 min.	Mean (SD) drive distance and time to closest facility with the service Miles	Mean (SD) drive distance and time to closest facility with the service Minutes
	Not Eligible for choice	16	79.7	85.8	79.8	85.4	16.2(11.2)	24(15)
2	All	9	74.1	77.8	75.2	78.7	28.5(31.2)	39(36.6)
	Eligible for choice	9	0	0	0	0	85.4(38.1)	116(47)
	Not Eligible for choice	9	76	79.7	77.1	80.5	15.2(10.8)	24.8(16)
3	All	9	90.5	93.8	89.5	93	13.9(12.4)	19.9(15.1)
	Eligible for choice	9	0	0	0	0	51.8(13.3)	77.2(25.2)
	Not Eligible for choice	9	90.5	93.9	89.5	93.1	11.7(8.6)	18.1(12)
4	All	23	78.8	84.3	77.6	83	22(23.4)	29.9(26.6)
	Eligible for choice	23	0	0	0	0	62.6(25.2)	83.4(31.9)
	Not Eligible for choice	23	80.4	85.4	79.2	84.2	13.2(9)	21.8(13.7)
5	All	6	86.3	89	84.8	87.6	21.1(19.2)	29.3(23.2)
	Eligible for choice	6	0	0	0	0	52.7(18.7)	65.2(21.4)
	Not Eligible for choice	6	87.3	89.4	85.7	88.1	16(10.4)	23.8(13.9)
6	All	14	67.5	72.9	66.4	71.9	33.5(23.2)	46.2(30.3)
	Eligible for choice	14	0	0	0	0	59.6(16.3)	83.6(24.6)
	Not Eligible for choice	14	73.8	78.1	73	77.3	19.1(10.7)	29.7(15.2)
7	All	20	63.2	66.7	63.6	66.9	36.7(28.7)	49.2(35.2)
	Eligible for choice	20	0	0	0	0	61.8(16.8)	83.8(23.3)
	Not Eligible for choice	20	69	71.4	69.6	71.8	17.3(10.6)	26.4(14.9)
8	All	24	76.1	82.5	75.9	82	27.6(27.5)	36(31.1)
	Eligible for choice	24	0	0	0	0	74.7(24)	104.1(28.2)
	Not Eligible for choice	22	77.3	83.7	77.2	83.3	14.8(9.2)	23.9(13.9)
9	All	10	46.6	54.7	46.7	54.6	51.9(40.2)	66.3(48.7)
	Eligible for choice	10	0	0	0	0	89.5(33.9)	114.3(40.1
	Not Eligible for choice	10	52.9	61.1	53	61	16.7(10.6)	27.1(16)
10	All	31	92.9	93.9	92.9	93.9	13.9(13.5)	21.4(18.1)
	Eligible for choice	31	0	0	0	0	51.1(9.7)	70.7(13.2)

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
	Not Eligible for choice	30	93.6	94.5	93.6	94.5	11.1(8.6)	18.1(12.5)
11	All	8	48	52.5	46.4	50.7	46.2(37.8)	56.8(43)
	Eligible for choice	8	0	0	0	0	83.3(36.6)	101.2(42.5)
	Not Eligible for choice	8	51.5	55.4	49.8	53.4	17.6(10.7)	26(14.8)
12	All	19	74.4	77.6	72.9	76	24.5(22.8)	32.5(28.5)
	Eligible for choice	19	0	0	0	0	58.7(17.9)	90(27.6)
	Not Eligible for choice	19	77.8	80.9	76.6	79.5	14.9(10)	21.6(13.8)
15	All	8	49.4	52.9	46.9	50.3	51.2(45.2)	63.1(52.6)
	Eligible for choice	8	0	0	0	0	88.5(33.9)	116.1(43.4
	Not Eligible for choice	7	55	58	52.4	55.5	15.6(10.3)	22.7(14.4)
16	All	25	62.3	66.7	60.7	65.2	37.8(34.6)	49.6(41.9)
	Eligible for choice	25	0	0	0	0	75.9(31.5)	99.3(38.7)
	Not Eligible for choice	25	69.9	72.7	68.5	71.2	15.8(10.6)	24.2(14.8)
17	All	16	81.1	83	80.4	82.5	29.4(31.5)	39.7(37.7)
	Eligible for choice	16	0	0	0	0	70.5(30.6)	96.3(39.4)
	Not Eligible for choice	16	89	89.7	88.5	89.4	16.7(9.7)	24.1(12.9)
18	All	19	70.9	71.3	69.9	70.2	33.2(43.2)	45.2(51.2)
	Eligible for choice	19	0	0	0	0	90.3(43)	120.3(52.3)
	Not Eligible for choice	18	78.5	78.1	77.5	77.1	14.7(9.7)	22.5(13.1)
19	All	28	77.9	79.5	76.5	78.1	31.3(39.5)	43.3(50.2)
	Eligible for choice	28	0	0	0	0	90.3(37.9)	118(52.9)
	Not Eligible for choice	23	92.6	91.7	91.7	90.8	12.8(9.1)	19.8(12.1)
20	All	24	74.2	77.7	72.8	76.2	28.3(30.8)	40.6(43)
	Eligible for choice	24	0	0	0	0	77(30.8)	110.4(48.1
	Not Eligible for choice	23	85.3	87.4	84	86	14.2(9.6)	22.2(13.4)
21	All	14	62.1	67.3	59.4	64.8	35.2(34.2)	45.1(41.3)
	Eligible for choice	14	0	0	0	0	95.1(46.6)	132.6(54)

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
	Not Eligible for choice	13	64.5	69.8	61.9	67.5	15.6(11.1)	24.5(15.4)
22	All	13	79.3	85.8	78.4	85.3	22.7(27.1)	28.8(32.9)
	Eligible for choice	13	0	0	0	0	84.7(31.8)	114.1(44.9)
	Not Eligible for choice	13	81.6	88.1	80.6	87.5	13.2(9)	19.3(12.4)
23	All	10	36.2	37.3	35.4	36.4	77.2(64.6)	93.4(71.5)
	Eligible for choice	10	0	0	0	0	106.5(49)	137.1(52.9
	Not Eligible for choice	10	46.2	46.6	45.5	45.8	14.8(9.8)	22.4(13.9)

Table F-37 Geographic Access to VA Facilities providing Outpatient specialty care for SUD

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
All	All	549	81.8	84.5	81.3	83.9	22.5(23.5)	31.9(30.5)
	Eligible for choice	549	0	0	0	0	66.8(29.5)	92.2(38.9)
	Not Eligible for choice	534	88.3	89.9	88.1	89.5	14.2(10)	21.7(13.9)
1	All	29	89.8	93.8	89.5	93.2	19.4(13.7)	27.1(18.4)
	Eligible for choice	29	0	0	0	0	53.8(13.5)	77.5(24.7)
	Not Eligible for choice	29	93.3	96.4	93.4	96.3	16.3(9.7)	24.1(13.4)
2	All	10	77.9	81.7	79	82.5	24.9(24.3)	36.1(31.5)
	Eligible for choice	10	0	0	0	0	73.5(22.1)	106.3(34)
	Not Eligible for choice	10	80	83.7	81	84.4	15.5(11)	25.5(16.3)
3	All	11	90.7	94	89.8	93.2	13.4(12.8)	18.7(15.6)
	Eligible for choice	11	0	0	0	0	51.8(13.3)	77.2(25.2)
	Not Eligible for choice	11	90.8	94.1	89.8	93.3	11.2(9.1)	16.9(12.6)

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
4	All	35	93	95.1	93.1	95.1	16.7(13)	24.4(17)
	Eligible for choice	35	0	0	0	0	47.3(6.9)	67.7(14.8)
	Not Eligible for choice	34	94.8	96.3	95	96.3	14.4(9.6)	22(13.4)
5	All	14	96.9	98.3	96.5	97.9	15(11.3)	22.4(14.8)
	Eligible for choice	14	0	0	0	0	44.2(4.1)	55.6(11)
	Not Eligible for choice	14	98	98.6	97.5	98.2	14(9.8)	21.3(13.1)
6	All	22	76.9	80.8	76.9	80.8	25.7(18.3)	37.3(25.9)
	Eligible for choice	22	0	0	0	0	51.9(11.5)	74.9(22)
	Not Eligible for choice	22	84.1	85.9	84.5	86	18.2(10.9)	27.2(14.6)
7	All	23	70.9	74.7	70.5	74.2	31.1(23.5)	43(30.1)
	Eligible for choice	23	0	0	0	0	58(13.6)	79.7(20)
	Not Eligible for choice	23	77.4	80.1	77.2	79.7	17.1(10.9)	26.2(15.1)
8	All	39	90	94.2	90.4	94.2	16.7(13.2)	25.1(17.8)
	Eligible for choice	39	0	0	0	0	51.4(8.6)	77.4(12.7)
	Not Eligible for choice	36	91.4	95.6	91.9	95.7	14(8.9)	22.3(13)
9	All	24	66.5	72.4	66.9	72.5	31.8(25.6)	44.5(33.7)
	Eligible for choice	24	0	0	0	0	59.7(14.4)	83.4(22.6)
	Not Eligible for choice	24	75.5	79.8	75.9	79.9	15.9(10.8)	25.2(16)
10	All	28	94	94.5	93.7	94.2	13.3(11.9)	20.8(16.8)
	Eligible for choice	28	0	0	0	0	44.4(3.7)	61(8.6)
	Not Eligible for choice	27	94.8	94.9	94.4	94.6	11.6(9.2)	18.5(13)
11	All	26	79.8	83.1	79.6	82.7	25.2(20.9)	33.8(24.2)
	Eligible for choice	26	0	0	0	0	51.6(11.9)	68(17.3)
	Not Eligible for choice	26	85.7	86.7	85.3	86.3	17.2(10.8)	25.1(14.8)
12	All	30	92.3	92.8	92	92.2	15.3(13.3)	22.6(18.3)
	Eligible for choice	30	0	0	0	0	51.4(10.2)	79.4(17.2)
	Not Eligible for choice	30	96.6	96.6	96.7	96.5	13(9.5)	19.6(12.9)

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
15	All	24	67	70	65.9	68.7	32.6(30)	44.4(39.2)
	Eligible for choice	24	0	0	0	0	73.7(33.6)	99.4(42.1)
	Not Eligible for choice	21	74.6	76.3	73.7	75.3	15.9(10.6)	23.2(14.7)
16	All	53	82.7	84.4	82.1	83.8	22.8(20.2)	33.1(26.8)
	Eligible for choice	53	0	0	0	0	55.9(20.6)	77.7(27.2)
	Not Eligible for choice	52	92.8	91.9	92.6	91.5	15.3(10.4)	22.9(14.1)
17	All	12	76.1	79.4	75.6	78.9	32(30)	43.3(38.1)
	Eligible for choice	12	0	0	0	0	70.4(28.2)	96.4(37.5)
	Not Eligible for choice	12	83.5	85.9	83.2	85.6	18.2(10)	26.1(13.4)
18	All	24	78.6	80.4	78.5	80.3	28.1(38.7)	39.7(48.6)
	Eligible for choice	24	0	0	0	0	92.4(40.5)	122.2(50.9
	Not Eligible for choice	24	87	88.3	87.1	88.4	10.9(7.8)	19.1(12.2)
19	All	26	76.8	79.1	75.8	78	33.1(39.7)	44.6(48.8)
	Eligible for choice	26	0	0	0	0	93(40.6)	120(52.7)
	Not Eligible for choice	23	91.3	91.6	90.9	91	13.2(9.6)	21.6(13.6)
20	All	30	83.1	84.6	82.5	83.9	22.6(24.7)	33.6(35.8)
	Eligible for choice	30	0	0	0	0	69.1(26.4)	100.2(43.9
	Not Eligible for choice	29	95.5	94.5	95.2	94.1	13.8(9.9)	20.8(13)
21	All	32	91.2	90.6	90.7	90.2	15.5(16.2)	24.1(23.3)
	Eligible for choice	32	0	0	0	0	69(34.3)	103.4(40.9
	Not Eligible for choice	31	94.7	94	94.5	93.9	12.2(8.9)	19.2(12.8)
22	All	23	87.7	90.4	87.5	90.3	16.2(22.2)	22.4(27.8)
	Eligible for choice	23	0	0	0	0	73.3(32.9)	102.4(44.4
	Not Eligible for choice	23	90.3	92.9	90	92.6	10.6(7.4)	16.2(10.4)
23	All	34	62.6	64.3	62	63.5	36.7(35.5)	51.3(45.6)
	Eligible for choice	34	0	0	0	0	74.3(31.7)	103(40.2)
	Not Eligible for choice	33	79.9	79.7	79.7	79.3	14.8(10.9)	22.8(15.3)

Table F-38 Geographic Access to VA Facilities providing Inpatient detoxification for SUD

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%) 40 miles	Enrollees (%) 60 min.	Users (%) 40 miles	Users (%) 60 min.	Mean (SD) drive distance and time to closest facility with the service — Miles	Mean (SD) drive distance and time to closest facility with the service — Minutes
All	All	146	52.4	57.9	51	56.5	44.2(40.7)	54.4(46.4)
	Eligible for choice	146	0	0	0	0	94.1(39.9)	119.3(46.3
	Not Eligible for choice	145	56.6	61.9	55.3	60.6	16.6(10.5)	25.4(14.8)
1	All	10	67.5	77.3	67.1	76.5	30.7(26.2)	38.9(30.6)
	Eligible for choice	10	0	0	0	0	97.5(42.1)	119.2(46.2
	Not Eligible for choice	10	70.2	79.9	70.1	79.4	18.3(11.5)	27.7(15.4)
2	All	4	50.5	58.6	50.8	58.9	42.8(34)	51.8(37.7)
	Eligible for choice	4	0	0	0	0	97.4(36.2)	122.1(45.5
	Not Eligible for choice	4	51.8	60	52.1	60.2	16.1(11.5)	27.5(17.5)
3	All	8	88.5	91.8	87.5	90.9	15(14.3)	20.9(17)
	Eligible for choice	8	0	0	0	0	92.2(5.4)	118.4(5)
	Not Eligible for choice	8	88.6	91.9	87.5	91	12(9)	18.3(12.1)
4	All	9	62.1	73.9	62.1	73.9	30.9(23.3)	40.3(28.4)
	Eligible for choice	9	0	0	0	0	63(20.4)	83.9(28.4)
	Not Eligible for choice	9	63.3	75	63.3	75	17.2(11)	28.5(16.7)
5	All	3	73.4	75.7	69	71.1	27.1(27.2)	35.9(33.2)
	Eligible for choice	3	0	0	0	0	54.9(15.4)	66.4(19.6)
	Not Eligible for choice	3	74.3	76	69.7	71.5	15.4(9.9)	22.8(13.3)
6	All	8	51.7	61.1	50.7	60.2	47.1(33.3)	59.5(40.4)
	Eligible for choice	8	0	0	0	0	67.3(22)	91.4(30.9)
	Not Eligible for choice	8	56.6	65.8	55.6	65	20.9(11.1)	33.2(15.8)
7	All	10	45.9	49.9	46.1	50	51.4(35.5)	65.6(43.2)
	Eligible for choice	10	0	0	0	0	73.3(21.4)	96.5(28.7)
	Not Eligible for choice	10	50.1	53.7	50.4	53.9	17.9(10.7)	27.6(15.3)
8	All	7	44.6	48.5	44.1	48.1	49.3(40)	57.8(43)
	Eligible for choice	7	0	0	0	0	96.9(35.6)	126.4(38.7)

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
	Not Eligible for choice	7	45.3	49.2	44.8	48.8	18.2(11.1)	26.5(15)
9	All	7	43.4	50.7	44	51.1	55.8(41.6)	67.8(46.8)
	Eligible for choice	7	0	0	0	0	92.7(29.4)	115.1(32.7)
	Not Eligible for choice	7	49.2	57	49.9	57.4	16(10.3)	26(16.1)
10	All	4	52.2	58.8	51.3	58.1	37(26.7)	47.5(31.5)
	Eligible for choice	4	0	0	0	0	55(12.1)	79.5(16.8)
	Not Eligible for choice	4	52.6	59.2	51.7	58.4	17(11.3)	26.6(15.6)
11	All	8	49.6	55.3	48.7	54.1	46.4(37.7)	56.7(42.6)
	Eligible for choice	8	0	0	0	0	84(37.8)	102.4(44.5)
	Not Eligible for choice	8	53.3	58.2	52.2	56.9	18.3(11)	27.5(15.6)
12	All	7	61.2	67.9	58.6	65.2	33(33)	42.2(42.3)
	Eligible for choice	7	0	0	0	0	86.1(32.3)	125.3(49.2
	Not Eligible for choice	7	64	70.8	61.6	68.4	15.8(10.6)	22.6(14.2)
15	All	9	53.5	57.6	51.4	55.5	46.3(41.6)	58.8(50.6)
	Eligible for choice	9	0	0	0	0	95(37.1)	122.5(45.6)
	Not Eligible for choice	9	59.6	63.4	57.5	61.4	15.8(10.3)	23.4(14.9)
16	All	10	36.7	40.9	36	40.4	63.8(45.7)	77(51.9)
	Eligible for choice	10	0	0	0	0	88.1(31.3)	113.2(41.5)
	Not Eligible for choice	10	41.2	44.8	40.6	44.4	17.4(10.5)	27.3(15)
17	All	3	30.5	33.7	31.3	34.3	89.4(45.4)	96.4(47.5)
	Eligible for choice	3	0	0	0	0	110.7(40.5	137.8(44.2)
	Not Eligible for choice	3	33.5	36.4	34.4	37.2	16.1(10.4)	26.3(15.8)
18	All	6	55	57	54.4	56.4	50.2(54)	62.9(60.5)
	Eligible for choice	6	0	0	0	0	110.5(46.1)	137.9(51.5)
	Not Eligible for choice	6	60.9	62.8	60.4	62.2	15.7(9.3)	24.6(13)
19	All	6	41	46.5	40.6	45.8	58.7(55.6)	69.1(60.2)
	Eligible for choice	6	0	0	0	0	131.5(49.5	154(53.6)

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
	Not Eligible for choice	6	48.7	54.5	48.7	54.1	16.1(10.3)	27.2(15.1)
20	All	6	52.6	56.6	51.2	55.1	48.5(48.8)	60.2(56.7)
	Eligible for choice	6	0	0	0	0	101.5(39.4	130.6(47.5
	Not Eligible for choice	6	60.5	64	59.1	62.6	16.3(9.3)	25.2(13.6)
21	All	7	58.4	62.9	56.2	60.5	35.2(34.1)	46.8(39.7)
	Eligible for choice	7	0	0	0	0	105.6(52.6	136.6(52.1)
	Not Eligible for choice	6	60.6	65.3	58.5	63	16.9(10)	26.7(14.2)
22	All	5	79	84.7	78.1	84.1	27.7(28.4)	33.8(33.6)
	Eligible for choice	5	0	0	0	0	97.4(35)	124.5(42.8)
	Not Eligible for choice	5	81.3	87.1	80.3	86.5	17.6(8.7)	23.4(10.9)
23	All	9	39.4	42.7	38.1	41.4	61.7(51)	76(58.6)
	Eligible for choice	9	0	0	0	0	98.6(41)	125.2(47.1)
	Not Eligible for choice	9	50.2	53	49	51.7	15.3(10.3)	23.9(14.9)

Appendix F.2.7: Gynecological Surgery Services

Table F-39 Geographic Access to VA Facilities providing Gynecological surgery services

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
All	All	98	48.4	54.4	46.6	52.5	46.8(43.9)	56.2(48.8)
	Eligible for choice	98	0	0	0	0	104.4(44.5	127.6(47.8
	Not Eligible for choice	98	52.3	58.3	50.5	56.5	16.7(10.4)	25.5(14.7)
1	All	5	49.7	62.7	49.3	61.9	43.6(39)	51.7(43.3)
	Eligible for choice	5	0	0	0	0	139.7(55.6	164.2(47.6

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
	Not Eligible for choice	5	51.6	65	51.4	64.5	19(11.8)	29.5(16.1)
2	All	3	44.3	51.9	44.5	52	48.4(38.4)	58(43.6)
	Eligible for choice	3	0	0	0	0	110(33.5)	137.8(43.6
	Not Eligible for choice	3	45.5	53.2	45.6	53.3	15.1(11.2)	26.5(17.7)
3	All	5	80.5	85.9	79.1	84.5	17.6(17.8)	23.3(20.2)
	Eligible for choice	5	0	0	0	0	92.2(5.4)	118.4(5)
	Not Eligible for choice	5	80.6	86	79.2	84.6	12.2(9.4)	18.9(13)
4	All	5	46.9	55.4	45.4	53.9	40.7(31.8)	49.9(36.2)
	Eligible for choice	5	0	0	0	0	77.4(33.8)	99(40.7)
	Not Eligible for choice	5	47.8	56	46.4	54.5	16.4(10.7)	26.5(15.9)
5	All	2	73.4	75.7	69	71.1	28.1(28.8)	36.7(34.3)
	Eligible for choice	2	0	0	0	0	61.5(26.9)	72.6(28.2)
	Not Eligible for choice	2	74.3	76	69.7	71.5	15.8(10.2)	23.1(13.5)
6	All	7	50	59	48.5	57.7	49(34.8)	61.3(41.7)
	Eligible for choice	7	0	0	0	0	70(24.6)	93.7(33.4)
	Not Eligible for choice	7	54.6	63.5	53.3	62.3	20.9(11.1)	33.2(15.8)
7	All	6	40.8	45.1	40.9	45.3	60.1(42.4)	72.9(48.6)
	Eligible for choice	6	0	0	0	0	89.4(34.8)	111.8(39.3)
	Not Eligible for choice	6	44.5	48.7	44.8	49.1	18.4(10.6)	28.7(15.6)
8	All	7	52.9	59.6	52	58.9	43(39.7)	52.8(43.9)
	Eligible for choice	7	0	0	0	0	109.8(45.7	143.1(44.6)
	Not Eligible for choice	7	53.8	60.5	52.8	59.9	18.1(11)	27.1(15.2)
9	All	6	37.6	44.9	38.1	45	62.4(43.6)	74.2(48.9)
	Eligible for choice	6	0	0	0	0	100.2(33.2	123.1(35.9
	Not Eligible for choice	6	42.7	50.5	43.2	50.7	15.9(9.9)	26.2(16.1)
10	All	3	50.9	62.9	50.8	62.5	36.1(26.9)	44.4(30.7)
	Eligible for choice	3	0	0	0	0	86(24.6)	104.9(29.3)

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
	Not Eligible for choice	3	51.3	63.4	51.2	62.9	16.3(11.1)	27.6(16.3)
11	All	4	34.2	39.5	32.6	37.8	63.4(49)	71.3(50.7)
	Eligible for choice	4	0	0	0	0	108(45.1)	121(47.4)
	Not Eligible for choice	4	36.7	41.8	35	40	17.1(10.2)	26.2(15.3)
12	All	5	58.5	63.9	55.4	60.6	35.3(39.7)	41.9(43.3)
	Eligible for choice	5	0	0	0	0	106.9(43.9	131.2(46.2)
	Not Eligible for choice	5	61.2	66.7	58.3	63.6	15.7(10.5)	22.2(13.9)
15	All	3	40.6	44.2	37.4	40.8	64.8(53.1)	75.1(60.2)
	Eligible for choice	3	0	0	0	0	110.5(39)	133.7(45.3)
	Not Eligible for choice	3	45.3	48.8	41.9	45.3	15.9(9.7)	22.8(13.7)
16	All	8	37.4	40.7	35.9	39.3	62.7(48.5)	73.9(53.5)
	Eligible for choice	8	0	0	0	0	98.8(37.7)	120.2(42.7)
	Not Eligible for choice	8	41.9	44.8	40.5	43.4	16(10.3)	23.9(14)
17	All	3	53	61.7	52.1	60.3	52.7(44.3)	62.3(48.8)
	Eligible for choice	3	0	0	0	0	103.4(37.7)	125.6(43.4)
	Not Eligible for choice	3	58.1	66.9	57.3	65.6	21.4(10.4)	30.9(13.6)
18	All	2	39.8	41	37.7	38.9	47.6(59.9)	58(63.3)
	Eligible for choice	2	0	0	0	0	147.3(58.)3	171.9(48.6)
	Not Eligible for choice	2	44.1	45.3	41.8	43.1	16.8(9.1)	25.3(12.4)
19	All	5	40.1	45.5	39.5	44.5	55.8(54.4)	65.9(58.6)
	Eligible for choice	5	0	0	0	0	131.4(50.3)	153.3(53.7)
	Not Eligible for choice	5	47.7	53.5	47.4	52.8	16.2(10.3)	27.3(15.1)
20	All	3	39	45.7	37.8	44.1	53.6(54.8)	62.9(58.5)
	Eligible for choice	3	0	0	0	0	114.6(46.5)	137.6(48.7)
	Not Eligible for choice	3	44.8	51.6	43.6	49.9	18.1(10.3)	27.2(14.4)
21	All	6	55.5	57.6	54.2	56.5	34.2(34.1)	45.4(39.7)
	Eligible for choice	6	0	0	0	0	99.3(53.8)	135(55.9)

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
	Not Eligible for choice	6	57.7	59.8	56.4	58.8	16.7(9.5)	25.7(13.1)
22	All	5	79	84.7	78.1	84.1	27.7(28.4)	33.8(33.6)
	Eligible for choice	5	0	0	0	0	97.4(35)	124.5(42.8)
	Not Eligible for choice	5	81.3	87.1	80.3	86.5	17.6(8.7)	23.4(10.9)
23	All	5	30.3	33	28.9	31.6	75.2(58.3)	88.8(64)
	Eligible for choice	5	0	0	0	0	114.4(48)	141.7(50.3)
	Not Eligible for choice	5	38.6	41.3	37.2	39.8	15.4(9.8)	24.1(14.7)

Appendix F.3 Access to Non-VA Hospital Types by VISN

This section contains tables showing access to non-VA hospital types for enrollees and health care users, for the 40-mile driving distance and 60-minute drive time, by both all enrollees and users and those who are eligible for VA Choice because they live outside the 40-mile boundary. These tables show such access for all non-VA hospitals (Table F-40), for teaching hospitals (Table F-41), and academic hospitals (Table F-42).

All three tables also show the mean driving distance (in miles) and driving time (in minutes), along with the standard deviation for each. The mean driving distance is defined as the mean distance along the existing road network (as opposed to straight-line distance) for all enrollees in that VISN to the hospital nearest where they live. For all enrollees and those who are eligible for Choice, we used a cutoff of 240 miles or 240 minutes, meaning that we took the mean distance to the nearest hospital within 240 miles and the mean driving time to the nearest hospital within a 240-minute drive. For enrollees who are not eligible for Choice (because they already live within 40 miles of a VA medical facility), we used a cutoff of 40 miles, assuming that since they were already 40 miles or less from a VA medical facility they would be unwilling to travel a longer distance. The driving time cutoff remained at 240 minutes.

In many cases the standard deviation is larger than the mean distance or driving time. This suggests that the distribution of mean distances and driving times skews to the right, meaning that a few enrollees live quite far from the nearest hospital. This would tend to be the case in more rural areas.

Tables F-43 and F-44 show the distribution of differences in drive times to VA vs. non-VA facilities across the population of VA enrollees. Mean differences (in minutes) are reported, as are 25th, 50th, and 75th percentiles. Also shown are the proportions of enrollees for whom VA facilities are less than 15 or 30 additional minutes of drive time, as compared to non-VA facilities. Tables F-46 and F-47 are similar, except that F-46 shows the differences between any VA facility vs. any non-VA facility, whereas F-47

shows the differences between the nearest VA facility with interventional cardiology capability vs. the nearest non-VA facility with interventional cardiology.

Data in Tables F40–F55 are RAND estimates derived from the VA Planning Systems Support Group (PSSG) Enrollee file and the American Hospital Association's 2011 Annual Survey of Hospitals.

Table F-40 Access to Any Non-VA Hospital

VISN	Choice Eligibility	Hospitals (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest non-VA hospital	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
All	All	6300	99.7	99.4	99.7	99.4	5.8(6.3)	11.2(11.3)
	Eligible for choice	6300	96.2	94.4	96.2	94.2	12.5(13)	23.6(23.4)
	Not Eligible for choice	6300	100	99.8	100	99.8	5.3(5.1)	10.2(9.1)
1	All	255	99.9	99.8	99.9	99.8	5.4(5.4)	10.2(9.6)
	Eligible for choice	255	98	95.4	98	95.2	14.8(11.4)	28.4(21.5)
	Not Eligible for choice	255	100	100	100	100	5.1(4.8)	9.6(8.3)
2	All	103	99.9	99.9	99.9	99.9	7.5(6.9)	14.1(12.2)
	Eligible for choice	103	94.3	94.3	94.5	94.5	15.4(14.2)	30.4(26.9)
	Not Eligible for choice	103	100	100	100	100	7.3(6.4)	13.7(11.2)
3	All	191	100	100	100	100	2.8(2.8)	5.7(5.1)
	Eligible for choice	191	100	100	100	100	18.9(7.7)	35.3(12.4)
	Not Eligible for choice	191	100	100	100	100	2.8(2.7)	5.6(5)
4	All	306	100	100	100	100	5.4(5.2)	10.3(9)
	Eligible for choice	306	100	99.5	100	99.4	14.4(8.2)	25.3(13.8)
	Not Eligible for choice	306	100	100	100	100	5.2(4.9)	10(8.6)
5	All	111	100	100	100	100	5(4.4)	9.7(7.7)
	Eligible for choice	111	100	100	100	100	9.1(5.6)	17.2(9.5)
	Not Eligible for choice	111	100	100	100	100	4.9(4.3)	9.6(7.6)
6	All	251	99.8	99.8	99.8	99.7	7.8(6.4)	14.7(11)
	Eligible for choice	251	98.4	97.6	98.4	97.6	12.3(8.9)	22.8(15.4)
	Not Eligible for choice	251	100	100	100	100	7.4(5.9)	13.8(10.1)
7	All	351	100	99.9	100	99.9	7.4(5.9)	14(10.1)
	Eligible for choice	351	99.8	99.8	99.8	99.8	10.3(7.9)	19.4(13.5)
	Not Eligible for choice	351	100	99.9	100	99.9	7(5.5)	13.4(9.4)
8	All	314	99.9	99.7	99.8	99.6	5.4(4.7)	10.7(8.8)
	Eligible for choice	314	90.4	88	89.5	86.9	11.7(11.1	21.5(19.2)
	Not Eligible for choice	314	100	99.9	100	99.9	5.3(4.4)	10.5(8.4)

VISN	Choice Eligibility	Hospitals (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest non-VA hospital	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
9	All	341	99.9	99.9	99.9	99.9	7.4(6.1)	14.4(11.1)
	Eligible for choice	341	99.3	99.2	99.2	99.2	10.1(7.1)	20.1(13.4)
	Not Eligible for choice	341	100	100	100	100	7(5.9)	13.5(10.5)
10	All	199	100	100	100	100	5.1(4.4)	10(8)
	Eligible for choice	199	100	100	100	100	10.1(3.8)	19.6(8)
	Not Eligible for choice	199	100	100	100	100	5.1(4.4)	9.9(8)
11	All	341	100	99.8	100	99.8	5.9(5.5)	11.4(9.9)
	Eligible for choice	341	100	98.8	100	98.6	9.3(7.4)	18.1(14.1)
	Not Eligible for choice	341	100	99.9	100	99.9	5.7(5.3)	11(9.4)
12	All	268	99.8	99.6	99.8	99.6	4.6(5.1)	9.1(9.2)
	Eligible for choice	268	96	92.9	95.7	92.5	13.3(11.1	25.5(20)
	Not Eligible for choice	268	100	100	100	99.9	4.3(4.5)	8.6(8.2)
15	All	352	99.7	98.7	99.7	98.5	6.8(7.1)	12.9(12.4)
	Eligible for choice	352	97.5	93.3	97.4	92.8	10.5(10.1	19.9(17.7)
	Not Eligible for choice	352	100	99.3	100	99.2	6.3(6.4)	12(11.2)
16	All	761	100	99.8	100	99.8	6(6.1)	11.8(10.8)
	Eligible for choice	761	99.8	99.1	99.8	99	10.2(8.9)	19.4(16.2)
	Not Eligible for choice	761	100	99.9	100	99.9	5.5(5.4)	10.9(9.5)
17	All	341	99.8	99.8	99.8	99.8	6(6.4)	11.2(10.4)
	Eligible for choice	341	97.9	97.8	97.8	97.6	12.2(11.8	21.4(18.2)
	Not Eligible for choice	341	100	100	100	100	5.3(5.1)	10.1(8.5)
18	All	280	98.5	97.7	98.4	97.5	7.2(10.1)	13.7(17.5)
	Eligible for choice	280	84.6	82.2	84.2	82	18.4(20.1	33.3(35.3)
	Not Eligible for choice	280	99.9	99.3	99.9	99.3	5.6(6.3)	11(10.7)
19	All	267	98.6	97.8	98.4	97.6	7.1(10.2)	13.5(18.2)
	Eligible for choice	267	91.1	87.4	90.7	86.7	15.5(18.6	28.7(33.3)
	Not Eligible for choice	267	100	99.7	100	99.7	5.1(5.2)	9.9(9.1)
20	All	236	98.8	97.8	98.9	97.8	7.1(9.5)	14(17.8)
	Eligible for choice	236	90.8	86.6	91.5	87	16(19.7)	31.3(37.2)
	Not Eligible for choice	236	100	99.5	100	99.5	5.7(5.5)	11.3(10)
21	All	228	99.7	99.1	99.6	99	5(6)	10(11.3)
	Eligible for choice	228	92.4	86.2	92.3	86.1	17.9(16.3	35.9(31.9)
	Not Eligible for choice	228	99.9	99.5	99.9	99.5	4.6(4.7)	9.1(8.7)

VISN	Choice Eligibility	Hospitals (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest non-VA hospital	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
22	All	272	99.7	99.5	99.6	99.5	3.7(4.5)	7.4(8.3)
	Eligible for choice	272	88.1	87.1	86.4	85.2	17.7(17.6	33.5(33.6)
	Not Eligible for choice	272	100	99.9	100	99.9	3.5(3.4)	7(6.1)
23	All	532	99.7	98.9	99.7	98.8	7.1(7.6)	13.7(13.9)
	Eligible for choice	532	98.6	96.3	98.5	96.2	10.8(10.9	21.1(19.9)
	Not Eligible for choice	532	100	99.6	100	99.5	6.1(6)	11.7(10.7)

Table F-41 Access to Teaching Hospitals

VISN	Choice Eligibility	Teaching Hospitals (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest teaching hospital	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
All	All	1132	77.4	80	76	78.7	21.6(27.5)	31(35.4)
	Eligible for choice	1132	14.9	21.6	14.4	20.8	66.4(34.2)	91.4(43.8)
	Not Eligible for choice	1132	82.3	84.6	81.1	83.5	10.8(10)	26.5(30.3)
1	All	75	85.8	89.8	84.8	88.8	16.3(21.4)	23.4(27.5)
	Eligible for choice	75	4.6	18.8	4.5	17.4	70.4(32.5)	96.4(40.9)
	Not Eligible for choice	75	88.9	92.6	88.4	91.9	10.4(9.8)	20.9(23.2)
2	All	26	74.3	78.4	74.7	78.9	24.8(25.1)	36.3(33)
	Eligible for choice	26	22.8	15.7	21.7	15	65.1(31.3)	100.6(40.9)
	Not Eligible for choice	26	75.6	80.1	76.1	80.5	14(12.3)	34.6(31)
3	All	93	97.5	97.8	97.3	97.6	5.7(8.8)	9.7(12.8)
	Eligible for choice	93	0	0	0	0	54.2(16.2)	88.1(25.4)
	Not Eligible for choice	93	97.6	97.8	97.3	97.6	4.9(6.6)	9.7(12.6)
4	All	74	85.2	88.6	84.8	88.5	16.4(18.7)	24.4(24.9)
	Eligible for choice	74	51	56.6	47.7	53.5	41.6(15.2)	61.3(25.2)
	Not Eligible for choice	74	85.8	89.3	85.5	89.2	10.6(10.3)	23.7(24.4)
5	All	45	90.2	89.9	88.6	88.5	14(19)	21.8(26.8)
	Eligible for choice	45	83	88.5	78.2	84.5	27.3(9.2)	42.6(15.8)
	Not Eligible for choice	45	90.3	89.9	88.7	88.6	9.5(9)	21.5(26.8)

VISN	Choice Eligibility	Teaching Hospitals (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest teaching hospital	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
6	All	46	75.8	78	74.4	77.2	24.8(22.5)	36.3(30.8)
	Eligible for choice	46	26.4	38.6	25.1	37.8	48.2(18.8)	70.7(28.2)
	Not Eligible for choice	46	80.5	81.7	79.3	81	14.3(11.1)	32.6(28.7)
7	All	55	77.3	80.7	76.7	80.1	25.6(22.1)	37.3(30.1)
	Eligible for choice	55	32.7	39.3	32.5	38.2	44.4(19.2)	65.7(28)
	Not Eligible for choice	55	81.4	84.5	80.8	84.1	14.3(11.1)	33.8(28.5)
8	All	60	80.4	83.6	79.9	83.2	20.6(23.8)	29.1(28.6)
	Eligible for choice	60	22.8	23.6	23.6	24.4	49(25.1)	73.8(35)
	Not Eligible for choice	60	81.3	84.5	80.8	84.2	11.9(9.4)	28.3(27.9)
9	All	56	72.1	76.4	71.5	75.7	27.2(23.2)	39.3(31.2)
	Eligible for choice	56	15.3	22.8	14.9	22.5	54.2(17.9)	75.7(24)
	Not Eligible for choice	56	79.8	83.6	79.2	82.9	14.3(11.3)	33.6(28.3)
10	All	36	84.1	87.9	83.1	87.2	17(17.7)	24.5(22.5)
	Eligible for choice	36	44.5	49.1	45.1	50.6	37.4(16.7)	57.2(23.9)
	Not Eligible for choice	36	84.4	88.2	83.4	87.4	11.6(10.1)	24.3(22.3)
11	All	68	82.6	85.1	81.8	84.3	18.3(20.1)	27.7(27.7)
	Eligible for choice	68	27.9	47.2	26.7	45.3	48.3(18.8)	63.6(24.9)
	Not Eligible for choice	68	86.6	87.8	85.8	87.1	11.5(10.2)	25.4(26.2)
12	All	67	83.7	85.6	82.1	84.1	15.6(21.7)	23.8(30.2)
	Eligible for choice	67	4.1	8	3.9	7.7	65.5(25.1)	101.1(39.9
	Not Eligible for choice	67	87.3	89.2	86.1	88.1	9.5(9.8)	21.3(26.4)
15	All	42	67	70	65.2	68.1	30.3(30.6)	42.3(40.1)
	Eligible for choice	42	18.2	19.7	18.6	19.5	63.6(24.5)	88.1(33.5)
	Not Eligible for choice	42	72.6	75.7	70.7	73.9	12(10.3)	36.1(36.8)
16	All	86	70	72	67.9	70	28(30.2)	39.6(39.7)
	Eligible for choice	86	16.3	24.2	15.8	23.4	64(30)	87(39.9)
	Not Eligible for choice	86	76.6	77.8	74.6	76	11.3(10.1)	33.6(35.4)
17	All	41	85.1	85.8	84.4	85.1	23.5(29.7)	32.6(36.7)
	Eligible for choice	41	18.1	23	18.4	23.2	67.6(32.8)	93.1(42.2)
	Not Eligible for choice	41	91.7	92	91.1	91.3	12.2(9.3)	26.2(29.5)
18	All	43	68.8	71.4	68	70.6	33.4(44.6)	45.1(54.7)
	Eligible for choice	43	7.2	12.2	6.5	11.7	85.8(39.5)	115.4(52.9)
	Not Eligible for choice	43	75.3	77.6	74.7	77.1	9.8(8.4)	35.8(47.7)

VISN	Choice Eligibility	Teaching Hospitals (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest teaching hospital	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
19	All	22	47.6	56.9	46.4	54.2	42.7(50.5)	53.1(57.6)
	Eligible for choice	22	0.8	5.8	0.7	5.5	111.3(44.9	135.1(53.5)
	Not Eligible for choice	22	56.4	66.5	55.4	63.8	13(11.3)	37.2(42.9)
20	All	33	65.5	66.9	63.7	65	32.1(36.6)	44.9(47.6)
	Eligible for choice	33	4.3	10.6	4.5	10.5	80(30.7)	111.4(46.2)
	Not Eligible for choice	33	74.7	75.3	72.8	73.3	11.7(9.1)	36.1(40.2)
21	All	48	82	82.2	80.6	80.8	16.6(23.4)	25.4(33)
	Eligible for choice	48	3.7	3.9	3.4	3.5	77.7(41.5)	113.3(50.1)
	Not Eligible for choice	48	85	85.2	83.8	84	10.1(9.3)	22.8(28.4)
22	All	51	87.9	90.3	87.1	89.7	13.3(20.2)	18.8(24)
	Eligible for choice	51	3.4	5	3.1	5	79.7(34.8)	105.7(39.9)
	Not Eligible for choice	51	90.4	92.8	89.5	92.1	8.2(7.7)	17.3(20.7)
23	All	65	64.3	66	62.6	64.3	33(36.4)	47.4(48.6)
	Eligible for choice	65	7.2	13.3	7	12.9	72.6(32.1)	100.9(41.6)
	Not Eligible for choice	65	80	80.5	78.4	78.9	10.6(10.7)	32.4(38.9)

Table F-42 Access to Academic Hospitals

VISN	Choice Eligibility	Academic Hospitals (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest academic hospital	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
All	All	247	50.1	54.7	47.7	52.5	43.5(46.5)	52.9(51.4)
	Eligible for choice	247	2.8	7.3	2.5	6.8	97.2(46.5)	121.7(50.3)
	Not Eligible for choice	247	53.8	58.5	51.5	56.3	14.2(10.4)	48.4(48.2)
1	All	26	71.5	80.3	70.5	79.2	26(28.9)	32.9(33.4)
	Eligible for choice	26	3	12.6	2.6	11.2	104.7(53.3	128.2(58.5)
	Not Eligible for choice	26	74.2	83	73.5	82.2	14.6(10.9)	29.9(27.4)
2	All	5	54.6	58.1	54	57.4	40.5(35.5)	53.2(41.9)
	Eligible for choice	5	18.9	11.8	18	11.3	74.3(46.4)	112.3(54.1)
	Not Eligible for choice	5	55.6	59.3	54.9	58.5	16.2(11.7)	51.6(40.3)
3	All	43	93.1	96.1	92.5	95.8	10.1(13.1)	14.7(16.2)

VISN	Choice Eligibility	Academic Hospitals (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest academic hospital	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
	Eligible for choice	43	0	0	0	0	66.1(7.1)	96.4(18.3)
	Not Eligible for choice	43	93.1	96.2	92.6	95.9	8.3(9.3)	14.7(16.1)
4	All	20	63.6	70	62.5	69	30.6(28.5)	40.1(33.5)
4	Eligible for choice	20	22.2	22.4	20.2	20.4	61.7(25.1)	85.5(32.4)
	Not Eligible for choice	20	64.4	70.9	63.3	69.9	14.5(10.9)	39.3(32.9)
5	All	8	76.1	77.8	71.5	73.4	22.5(24.5)	30.6(30.8)
5	Eligible for choice	8	36.8	54.9	29.2	44.4	50.2(19)	61(22.7)
	Not Eligible for choice	8	76.6	78	71.9	73.7	12.8(9.6)	30.2(30.7)
6	All	10	51.5	55.9	49.8	54.2	42.1(35.2)	55.5(43.6)
6	Eligible for choice	10	11.3	20.4	10.6	20	64.9(27.4)	90.2(37)
	Not Eligible for choice	10	55.3	59.2	53.7	57.6	17.8(10.9)	51.8(42.6)
7	All	8	29.9	33.1	30.4	33.8	73.6(42.2)	88.9(48.4)
7	Eligible for choice	8	2.8	8.1	2.8	7.9	80.2(27.1)	109.6(35.2
	Not Eligible for choice	8	32.4	35.4	33	36.3	16.4(10.6)	86.3(49.2)
8	All	8	38.1	43.8	36.1	42	53.8(43.4)	61.6(45.3)
8	Eligible for choice	8	0	0	0	0	93.1(33.9)	131.2(41.4)
	Not Eligible for choice	8	38.7	44.5	36.7	42.7	17.4(10.2)	60.2(44.3)
9	All	6	40.7	48.2	40.3	47.4	58.8(45.8)	71.5(52.5)
9	Eligible for choice	6	1.6	4.9	1.6	5.1	89.6(29.4)	112.2(35.6)
	Not Eligible for choice	6	46	54.1	45.5	53.1	16.3(10.5)	65.2(51.9)
10	All	9	70.2	79.8	68.9	78.9	25.1(21.9)	32.8(26.3)
10	Eligible for choice	9	0	10.4	0	10.5	59.3(13.2)	80.5(16.1)
	Not Eligible for choice	9	70.8	80.3	69.4	79.4	14.4(10.3)	32.5(26)
11	All	23	47.4	54.3	45.1	52	44.5(44.2)	52.7(47.2)
11	Eligible for choice	23	8.2	25.8	7.6	23.9	79.3(42.6)	91.6(43.8)
	Not Eligible for choice	23	50.2	56.3	47.9	54	11.9(9.4)	50.2(46.4)
12	All	15	60	65.5	56.9	62.2	31.9(39.4)	38.7(43.1)
12	Eligible for choice	15	0.5	2.4	0.5	2.4	103.8(42.9)	129.3(46.4)
	Not Eligible for choice	15	62.8	68.4	59.8	65.3	12.9(10.7)	36.7(40.8)
15	All	6	41.8	45.1	38.8	42	66.5(55)	76.6(60.7)
15	Eligible for choice	6	0.7	3.6	0.6	2.9	117.3(48.3)	142(52.7)
	Not Eligible for choice	6	46.5	49.8	43.3	46.6	16.3(10.3)	68.9(56.8)
16	All	10	30.7	33.2	28.9	31.4	78.3(66.9)	90.4(69.4)

VISN	Choice Eligibility	Academic Hospitals (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest academic hospital	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
	Eligible for choice	10	0.2	5.5	0.2	5.5	110.6(51.5)	136.6(54.1)
	Not Eligible for choice	10	34.4	36.6	32.6	34.7	15.5(10.3)	84.8(69)
17	All	7	69.2	71.3	67.7	69.8	40.6(44.8)	49.6(49.8)
	Eligible for choice	7	5.8	8.6	5.8	8.3	94.3(37.9)	116.9(44.2)
	Not Eligible for choice	7	75.4	77.4	73.9	76	16.2(9.6)	42.3(44.7)
18	All	7	40	42.5	38.5	41	59.9(56.3)	71.7(62.3)
	Eligible for choice	7	0	2.9	0	2.9	115.9(47.3)	143.1(52)
	Not Eligible for choice	7	44.2	46.7	42.7	45.2	14.5(8.9)	63.5(58)
19	All	2	13	14.6	12.5	14	61.7(64.5)	67.6(65.5)
	Eligible for choice	2	0	0.1	0	0.1	151.1(56.7	164.7(51.8
	Not Eligible for choice	2	15.4	17.4	15	16.8	19(12)	44.1(42.9)
20	All	9	45.8	48.7	43.9	46.8	48.6(55.4)	59.1(58.7)
	Eligible for choice	9	0.7	6.7	0.7	6.4	108.1(48.9)	132.2(49.9)
	Not Eligible for choice	9	52.5	55	50.5	53	15.5(9.2)	50.5(53.4)
21	All	8	50.5	55.8	48.8	54.1	35.6(41.5)	44.2(45.4)
	Eligible for choice	8	0	0	0	0	108.8(54.8)	140.4(47.9)
	Not Eligible for choice	8	52.4	57.9	50.8	56.3	13.7(10.2)	42(42.9)
22	All	11	77.4	84.5	76.4	84	25.5(29.4)	31.9(34.7)
	Eligible for choice	11	0	0.6	0	0.6	96.8(35.1)	123.6(43)
	Not Eligible for choice	11	79.7	86.9	78.6	86.3	14.6(9.4)	30.3(32.4)
23	All	6	31.3	35.3	29.1	33.1	65.8(59)	77.2(63.8)
	Eligible for choice	6	1	4.1	1	3.8	107.9(50.5	133(53.9)
	Not Eligible for choice	6	39.7	43.9	37.1	41.4	14.6(10.2)	66.9(60)

Table F-43 Distribution of enrollee-level drive time differences between VA vs. non-VA facilities

VISN	Distribution of differences across population of enrolled Veterans					
	Mean difference in minutes (SD)	25th Percentile difference (minutes)	50th Percentile difference (minutes)	75th Percentile difference (minutes)	Proportion of beneficiaries with <15 minute difference	Proportion of beneficiaries with <30 minute difference
Overall	13.0 (19.2)	1.7	7.0	17.1	71.8%	87.2%
1	9.7 (13.3)	1.4	6.0	13.6	78.0%	93.4%

VISN	Distribution of differences across population of enrolled Veterans					
	Mean difference in minutes (SD)	25th Percentile difference (minutes)	50th Percentile difference (minutes)	75th Percentile difference (minutes)	Proportion of beneficiaries with <15 minute difference	Proportion of beneficiaries with <30 minute difference
2	7.7 (13.5)	0.3	2.4	9.5	81.5%	91.9%
3	5.4 (6.2)	1.3	4.5	8.1	94.1%	99.1%
4	9.3 (11.2)	1.8	5.9	14.4	76.4%	93.9%
5	9.7 (11.4)	1.7	6.5	15.5	74.4%	93.5%
6	14.9 (16.3)	3.0	8.8	24.7	62.8%	82.8%
7	13.7 (17.6)	1.7	7.5	19.1	67.8%	84.5%
8	8.6 (11.0)	1.2	6.2	12.5	80.7%	96.5%
9	16.7 (19.4)	2.0	10.3	26.3	59.0%	79.3%
10	7.9 (10.8)	1.0	4.8	11.3	83.4%	94.5%
11	15.6 (15.5)	3.6	11.0	24.6	59.1%	81.5%
12	11.3 (14.8)	2.5	6.8	14.6	75.7%	90.0%
15	14.0 (20.0)	1.2	6.4	19.1	69.2%	83.2%
16	16.7 (18.2)	3.5	10.7	23.9	60.7%	81.0%
17	16.3 (21.2)	1.9	10.0	23.6	62.2%	81.7%
18	11.8 (22.5)	0.2	5.2	13.2	78.1%	90.0%
19	18.8 (34.0)	1.3	5.3	17.9	70.8%	82.2%
20	17.0 (30.3)	1.3	7.4	19.2	69.7%	84.1%
21	10.8 (17.4)	1.6	6.3	14.3	76.3%	91.9%
22	7.8 (14.0)	1.7	5.2	9.5	89.0%	95.8%
23	24.1 (30.0)	2.9	10.6	38.9	57.5%	68.7%

Table F-44 Distribution of enrollee-level drive time differences between VA facilities with interventional cardiology vs. non-VA facilities with interventional cardiology

VISN	Distribution of differences across population of enrolled Veterans					
	Mean difference in minutes (SD)	25th Percentile difference (minutes)	50th Percentile (minutes)	75th Percentile (minutes)	Proportion of beneficiaries with <15 minute difference	Proportion of beneficiaries with <30 minute difference
Overall	55.3 (57.0)	10.9	34.2	85.7	31.2%	46.9%
1	54.8 (50.0)	20.4	38.1	73.6	17.1%	36.1%
2	29.4 (36.8)	1.5	9.1	54.6	55.7%	62.4%
3	18.7 (15.5)	8.3	17.1	23.2	43.2%	86.7%
4	50.2 (38.4)	16.6	46.7	74.3	22.9%	39.3%
5	21.4 (26.4)	7.1	12.6	27.0	56.3%	83.1%
6	53.9 (40.5)	13.6	56.0	85.4	25.6%	35.6%
7	51.9 (48.8)	11.4	41.7	83.9	30.2%	44.6%
8	50.9 (43.5)	11.3	38.4	85.9	29.8%	44.6%
9	61.9 (53.9)	6.3	50.3	115.5	32.4%	40.7%
10	40.5 (35.9)	7.8	32.2	68.9	33.2%	48.8%
11	63.6 (50.2)	17.4	56.2	94.9	21.7%	33.7%
12	43.8 (45.3)	9.5	27.1	66.7	33.7%	54.3%
15	49.0 (51.8)	9.7	26.0	85.4	34.4%	53.9%
16	66.4 (57.5)	14.6	54.7	106.4	25.4%	36.4%
17	60.1 (60.7)	11.0	35.9	93.4	30.1%	43.7%
18	80.5 (85.7)	9.6	31.8	162.8	33.8%	47.9%
19	79.3 (75.8)	13.2	57.6	110.0	28.0%	35.4%
20	93.7 (86.6)	15.8	49.4	190.9	24.4%	37.8%
21	69.6 (75.3)	14.4	37.7	102.4	26.4%	45.3%

	Distribution of differences across population of enrolled Veterans					
VISN	Mean difference in minutes (SD)	25th Percentile difference (minutes)	50th Percentile difference (minutes)	75th Percentile difference (minutes)	Proportion of beneficiaries with <15 minute difference	Proportion of beneficiaries with <30 minute difference
22	23.6 (31.4)	7.8	15.0	25.1	50.0%	79.3%
23	67.8 (59.4)	11.7	57.4	103.4	29.7%	36.9%

Appendix F.4: Access to Non-VA Services by VISN

Tables F-45 to F-55 are similar to those in Appendix F.2, except they show access to services at non-VA facilities, and they break out access by whether enrollees and users are eligible for the VA Choice program. These do not exactly match the tables in Appendix F.2 because comparable information was not always available. Information is provided for EDs (Table F-45), interventional cardiology (Table F-46), coronary care units (Table F-47), diagnostic cardiac catheterization (Table F-48), cardiac surgery (Table F-49), surgery (Table F-50), chemotherapy (Table F-51), oncology (Table F-52), palliative care (Table F-53), inpatient palliative care (Table F-54), and hospice care (Table F-55).

All tables show the mean driving distance (in miles) and driving time (in minutes), along with the standard deviation for each. The mean driving distance is defined as the mean distance along the existing road network (as opposed to straight-line distance) for all enrollees in that VISN to the hospital nearest where they live. For all enrollees and those who are eligible for Choice, we used a cutoff of 240 miles or 240 minutes, meaning that we took the mean distance to the nearest hospital within 240 miles and the mean driving time to the nearest hospital within a 240-minute drive. For enrollees who are not eligible for Choice (because they already live within 40 miles of a VA medical facility), we used a cutoff of 40 miles, assuming that since they were already 40 miles or less from a VA medical facility they would be unwilling to travel a longer distance. The driving time cutoff remained at 240 minutes.

In many cases the standard deviation is larger than the mean distance or driving time. This suggests that the distribution of mean distances and driving times skews to the right, meaning that a few enrollees live quite far from the nearest hospital. This would tend to be the case in more rural areas.

Table F-45 Access to Emergency Department within 40 mile and 60 minute driving distances

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
All	All	3907	99.1	98.8	99.1	98.6	7.3(8)	13.4(13.4)
	Eligible for choice	3907	92.2	89.8	92.1	89.5	16.2(16.1	29.1(27.3)
	Not Eligible for choice	3907	99.7	99.5	99.7	99.4	6.6(6.3)	12.2(10.8)
1	All	153	99.8	99.7	99.7	99.6	7(6.5)	12.3(10.6)
	Eligible for choice	153	96.1	94.5	96	94.3	16.2(13.3	29.8(22.5)
	Not Eligible for choice	153	99.9	99.9	99.9	99.9	6.6(5.8)	11.7(9.4)
2	All	66	99.5	98.7	99.5	98.7	9.3(8.7)	16.7(14.7)
	Eligible for choice	66	94.3	86	94.5	87	20(15.4)	37.7(28.4)
	Not Eligible for choice	66	99.6	99	99.6	99	8.9(8)	16.2(13.8)
3	All	119	100	100	100	100	3.5(3.6)	6.8(6.2)
	Eligible for choice	119	100	100	100	100	18.9(7.7)	35.3(12.4)
	Not Eligible for choice	119	100	100	100	100	3.5(3.6)	6.7(6.2)
4	All	181	100	100	100	100	6.5(5.8)	11.9(9.7)
	Eligible for choice	181	100	99.5	100	99.4	15.3(8.8)	26.3(14.2)
	Not Eligible for choice	181	100	100	100	100	6.3(5.7)	11.6(9.4)
5	All	76	100	100	100	100	5.8(5.3)	10.8(8.4)
	Eligible for choice	76	100	100	100	100	11.8(4.9)	21(7.4)
	Not Eligible for choice	76	100	100	100	100	5.7(5.2)	10.7(8.4)
6	All	160	99.6	99.1	99.6	99.1	9.2(7.9)	16.8(13.1)
	Eligible for choice	160	97.6	96.1	97.8	96.2	14.5(10.1	26.3(16.9)
	Not Eligible for choice	160	99.8	99.4	99.8	99.4	8.5(7.1)	15.7(12.2)
7	All	194	99.8	99.3	99.8	99.2	9.6(8.1)	17.3(13.1)
	Eligible for choice	194	98.5	95.1	98.5	94.9	14.7(11.5	26.3(18.8)
	Not Eligible for choice	194	99.9	99.7	99.9	99.6	9(7.3)	16.2(11.8)
8	All	138	99.4	99	99.4	98.9	8.3(7.3)	14.9(12.1)
	Eligible for choice	138	87.5	79.6	86.3	78	18.6(13.9	31.5(22.5)

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
	Not Eligible for choice	138	99.6	99.3	99.6	99.3	8(6.6)	14.6(11.6)
9	All	192	99.6	99.3	99.6	99.2	10.4(8.6)	18.6(14.2)
	Eligible for choice	192	98.2	96.5	98.2	96.5	13.9(9.8)	26.1(17)
	Not Eligible for choice	192	99.8	99.6	99.8	99.6	9.8(8.2)	17.4(13.4)
10	All	117	100	100	100	100	6.3(5.5)	11.6(9.3)
	Eligible for choice	117	100	100	100	100	10.2(3.8)	19.7(8)
	Not Eligible for choice	117	100	100	100	100	6.3(5.5)	11.6(9.2)
11	All	217	99.4	99.1	99.4	99	7.1(6.8)	13.2(11.4)
	Eligible for choice	217	98.8	97	98.6	96.6	11.6(9.4)	21.4(15.9)
	Not Eligible for choice	217	99.5	99.2	99.4	99.1	6.7(6.1)	12.7(10.8)
12	All	192	99.6	99.3	99.6	99.2	5.1(5.4)	10(9.7)
	Eligible for choice	192	91.7	87.6	91.3	87	14.7(12.6	27.8(22.9)
	Not Eligible for choice	192	100	99.9	100	99.9	4.8(4.7)	9.5(8.3)
15	All	268	99.7	98.6	99.7	98.4	7.5(7.5)	14.1(12.9)
	Eligible for choice	268	97.5	93.2	97.4	92.7	11.4(10.7)	21.2(18.5)
	Not Eligible for choice	268	100	99.2	100	99.1	7(6.8)	13.1(11.7)
16	All	436	99.7	99.4	99.7	99.3	7.6(7.4)	14(12.4)
	Eligible for choice	436	98	95.9	98	95.7	13.5(11.4)	24.3(19.2)
	Not Eligible for choice	436	99.9	99.8	99.9	99.8	6.8(6.1)	12.7(10.5)
17	All	236	99.8	99.8	99.8	99.8	6.5(6.6)	11.9(10.7)
	Eligible for choice	236	97.9	97.8	97.8	97.6	12.8(11.9	22.3(18.5)
	Not Eligible for choice	236	100	100	100	100	5.8(5.4)	10.8(8.8)
18	All	159	96.3	95.6	96.1	95.3	9.6(13.1)	17.1(21.8)
	Eligible for choice	159	73.5	72.5	73.4	72.4	24.7(25.3	42.6(43.8)
	Not Eligible for choice	159	98.8	98	98.6	97.9	7(7.1)	13.5(13)
19	All	182	97.1	96.8	96.9	96.5	9.1(12.4)	16.1(20.1)
	Eligible for choice	182	83.5	82.6	83.3	82	20.7(21.3	35.5(35.2)

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
	Not Eligible for choice	182	99.6	99.5	99.5	99.4	6.3(6.4)	11.6(10.1)
20	All	165	96.9	97	97.1	97	8.9(11.2)	16.3(19.3)
	Eligible for choice	165	84.4	81.3	85.6	82	18.7(21.1	34.9(38.6)
	Not Eligible for choice	165	98.7	99.3	98.9	99.3	7.1(7)	13.5(12)
21	All	130	97.5	96.3	97.3	96	7(8.8)	12.8(14.7)
	Eligible for choice	130	73.8	59.4	73.5	59.1	30.7(20.8)	53.3(34.2)
	Not Eligible for choice	130	98.4	97.7	98.3	97.5	6.1(6.4)	11.5(11.5)
22	All	145	99.6	99.4	99.6	99.4	4.8(5.7)	9(9.5)
	Eligible for choice	145	86.2	85.1	84.4	83.9	21.9(25.8)	38.7(42.2)
	Not Eligible for choice	145	100	99.8	100	99.8	4.5(3.9)	8.4(6.5)
23	All	381	97.6	96.7	97.4	96.5	9.3(11.1)	17.1(18.6)
	Eligible for choice	381	90.6	88.4	90.3	88.2	16.1(16.5)	29.1(27.6)
	Not Eligible for choice	381	99.5	99	99.4	98.9	7.3(7.4)	13.7(13.4)

Table F-46 Access to Interventional Cardiology (PCI) within 40 mile and 60 minute driving distances

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
All	All	1560	90	90.3	89.3	89.6	14(19.5)	22.1(27)
	Eligible for choice	1560	32.1	36.5	31.4	35.6	52.4(31.4)	75.9(42.8)
	Not Eligible for choice	1560	94.6	94.5	94.1	94.1	8.9(8.8)	18.1(20.4)
1	All	52	89.5	91.7	88.7	90.7	14.6(20.1)	21.9(26.1)
	Eligible for choice	52	16.6	27.4	16.3	25.8	65.7(33.7)	91.8(41.5)
	Not Eligible for choice	52	92.3	94.2	91.9	93.5	9.9(9.2)	19.6(21.8)

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
2	All	23	85.6	85.9	85.8	86.2	19.2(21.1)	29(28)
	Eligible for choice	23	25.9	22.3	24.3	21	54.9(27.3)	84.5(35)
	Not Eligible for choice	23	87.2	87.6	87.3	87.8	13.4(11.3)	27.5(26.2)
3	All	67	98.9	99.2	98.9	99.1	5.1(6.2)	9.1(9.3)
	Eligible for choice	67	42.7	42.7	42.3	42.3	46.6(24)	71.8(39.5)
	Not Eligible for choice	67	99	99.2	99	99.2	4.8(5)	9(9.2)
4	All	91	96	96.5	95.5	96.1	10.8(11.5)	17.6(16.6)
	Eligible for choice	91	58.3	57	54.9	54	34.3(17.7)	52.7(28.8)
	Not Eligible for choice	91	96.7	97.3	96.4	97	9.4(8.9)	17(15.6)
5	All	40	97.4	96.7	97.5	96.8	8.1(8.8)	14.3(13.7)
	Eligible for choice	40	79.6	80.1	74.5	74.8	23.9(13.2)	38(20.7)
	Not Eligible for choice	40	97.6	96.9	97.8	97	7.4(7.2)	14(13.4)
6	All	72	91	91.2	90.5	90.9	16(15.9)	25.6(22.9)
	Eligible for choice	72	57.1	61.3	57.2	61.7	36.9(19.2)	56.1(28.5)
	Not Eligible for choice	72	94.2	94	93.8	93.8	11.3(9.7)	22.3(19.5)
7	All	79	90.9	91.6	90.4	91.1	16.8(16.2)	26.8(23.2)
	Eligible for choice	79	58.3	60	57.3	58.6	34.3(19.6)	52.5(29)
	Not Eligible for choice	79	93.9	94.5	93.5	94.2	12.1(9.8)	23.6(20.2)
8	All	82	95.3	96.1	94.9	95.8	12.2(14.1)	19.7(19.9)
	Eligible for choice	82	22	15.3	20.8	13.9	49.4(18)	75(25.4)
	Not Eligible for choice	82	96.4	97.4	96.1	97.2	9.7(8.1)	18.8(18.4)
9	All	70	86.9	86.8	87.1	87	18.9(16.2)	30(24)
	Eligible for choice	70	52.3	54.4	52.4	54.5	37.7(14.2)	57.4(21.1)
	Not Eligible for choice	70	91.7	91.2	91.8	91.3	13.3(11)	25.7(21.5)
10	All	58	97.7	97.8	97.6	97.7	10.1(9.9)	16.5(14.4)
	Eligible for choice	58	15.5	49.8	14	47.7	43.1(4.7)	60.8(9.9)
	Not Eligible for choice	58	98.3	98.2	98.2	98	9.4(8.8)	16.2(13.9)

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
11	All	94	93.5	93.4	93.2	93.1	12.7(13.6)	20.7(19.9)
	Eligible for choice	94	55.8	62	53.7	60.4	34.1(18.6)	49.6(24.9)
	Not Eligible for choice	94	96.3	95.8	96.1	95.5	10.1(9.8)	18.8(18)
12	All	107	89.9	90	88.6	88.8	10(17.1)	16.8(25.2)
	Eligible for choice	107	24.4	23.1	23.6	22.2	56.7(24.9)	89.4(38.7)
	Not Eligible for choice	107	92.9	93.1	92	92.2	6.1(7.1)	14.5(20.9)
15	All	86	89.1	87.7	88.6	87	16.7(18.5)	26.5(26.6)
	Eligible for choice	86	38.6	36.5	38.7	36.3	45.5(21.1)	66.6(29)
	Not Eligible for choice	86	94.9	93.5	94.5	93	10.6(10.6)	21.1(21.1)
16	All	161	89.9	89.9	89.4	89.3	14.7(16.4)	23.6(23.8)
	Eligible for choice	161	40.9	46.9	41	46.5	41.2(18.2)	60.8(26.7)
	Not Eligible for choice	161	95.9	95.1	95.6	94.7	9.6(9.3)	18.9(18.6)
17	All	92	92.4	92.4	91.9	91.9	13(18.6)	20.6(25.8)
	Eligible for choice	92	35.6	39.9	35.1	39.4	51.7(30.3)	74.6(40.8)
	Not Eligible for choice	92	97.9	97.5	97.6	97.1	8.1(8.2)	14.9(14.9)
18	All	57	85.1	84.6	84.8	84.2	20.6(31.9)	30.7(42.6)
	Eligible for choice	57	15	15.9	14.6	15.6	71.1(36.8)	99.8(50.7)
	Not Eligible for choice	57	92.6	91.9	92.5	91.8	7.7(7.6)	21.2(31)
19	All	54	80.2	81	78.7	79.4	25.1(40.3)	35(50.4)
	Eligible for choice	54	17	25.8	16.1	24.3	75.3(46.7)	101.3(61.9
	Not Eligible for choice	54	92.1	91.4	91.1	90.4	7.3(7.4)	20.5(32.9)
20	All	55	82.6	84.1	81.8	83.2	18.8(25.2)	29.1(35.8)
	Eligible for choice	55	13.4	21.8	13.5	21.7	64.4(28.4)	94.9(43.4)
	Not Eligible for choice	55	92.9	93.4	92.3	92.7	9.4(8.7)	20.1(23)
21	All	65	88.1	87.3	87	86.2	11.3(17.1)	18.4(24.6)
	Eligible for choice	65	4.8	8.5	4.4	8.7	69.8(37.7)	102.8(46)
	Not Eligible for choice	65	91.2	90.3	90.4	89.4	7.7(8)	15.9(18.5)

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
22	All	80	96.2	96.3	96.2	96.2	7.2(9.8)	12.2(14.2)
	Eligible for choice	80	11.8	19.1	12.4	20.1	54.3(20.2)	83.3(36.8)
	Not Eligible for choice	80	98.7	98.5	98.6	98.4	6(5.4)	10.9(9.7)
23	All	75	69.2	70.6	67.7	69.2	28.9(33.2)	42.4(45.7)
	Eligible for choice	75	11.5	16.9	11	16.4	68.2(32)	96.1(43.2)
	Not Eligible for choice	75	85.1	85.4	83.9	84.2	10.2(10.6)	27.3(33.4)

Table F-47 Access to Coronary Care Unit within 40 mile and 60 minute driving distances

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
All	All	1027	84.1	85.6	83.1	84.7	18.3(23.7)	27.2(31.2)
	Eligible for choice	1027	26.3	31.1	26	30.6	58.8(34.9)	82.8(45)
	Not Eligible for choice	1027	88.6	89.9	87.9	89.2	10.8(9.7)	23.1(25.4)
1	All	43	90.8	91.7	89.6	90.6	15.3(19.7)	22.6(25.8)
	Eligible for choice	43	5	19.5	4.7	18	69.7(32.5)	96(41.3)
	Not Eligible for choice	43	94.1	94.5	93.3	93.8	11.2(9.2)	20.2(21.1)
2	All	27	91	89.7	91.4	90	15.9(14.7)	26(22.7)
	Eligible for choice	27	45.5	41.5	48.2	43.5	41.9(19.9)	71.8(34.4)
	Not Eligible for choice	27	92.2	90.9	92.4	91.1	13.1(10.7)	24.8(21)
3	All	73	99.8	99.9	99.8	99.9	5.2(6.3)	9.2(9.3)
	Eligible for choice	73	100	42.7	100	42.3	32.6(0.6)	53.2(7.6)
	Not Eligible for choice	73	99.8	99.9	99.8	99.9	5.2(6.2)	9.2(9.3)
4	All	70	93.4	96.1	92.6	95.6	12.7(12.4)	20(17.3)

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
	Eligible for choice	70	68.5	64.2	66.6	62	31.4(16.4)	50(27.5)
	Not Eligible for choice	70	93.9	96.7	93.1	96.3	10.8(9.6)	19.5(16.6)
5	All	29	96.8	95.9	96.8	95.9	12.1(11.1)	18.5(16)
	Eligible for choice	29	71.9	76	66.1	70.8	34.6(7.7)	47(15.2)
	Not Eligible for choice	29	97	96.2	97.1	96.2	11.2(9.7)	18.2(15.7)
6	All	45	85.5	88.2	85.3	87.9	19.7(17.4)	29.8(24)
	Eligible for choice	45	43.3	54.7	43.1	54.8	41.2(17.6)	60.8(26)
	Not Eligible for choice	45	89.5	91.3	89.4	91.1	13.5(10.6)	26.5(21.2)
7	All	55	85.7	86.9	85	86.4	21.1(18.9)	32.1(26.1)
	Eligible for choice	55	36.7	42.8	35.3	41.2	45.6(21)	66.3(29.1)
	Not Eligible for choice	55	90.2	90.9	89.8	90.6	14.1(10.7)	27.9(22.4)
8	All	61	92	93.2	91.3	92.7	14.1(13.7)	22.1(19.4)
	Eligible for choice	61	24.5	18.7	22.7	16.8	44.9(21)	69(30.6)
	Not Eligible for choice	61	93	94.4	92.5	93.9	11.2(9.3)	21.3(18.1)
9	All	49	76.5	81.5	76.6	81.4	25.2(22.4)	36.8(30.3)
	Eligible for choice	49	29.5	36	29.7	36.4	50.9(23)	72.3(29.5)
	Not Eligible for choice	49	82.8	87.7	82.9	87.5	14.6(11.1)	31.3(26.4)
10	All	43	96.9	97	96.7	96.9	12(11.2)	18.9(15.9)
	Eligible for choice	43	10.4	41.5	9.4	39.9	44.7(3.7)	63.3(9.7)
	Not Eligible for choice	43	97.5	97.4	97.3	97.3	11.2(10)	18.6(15.5)
11	All	61	89.3	89.8	88.7	89.3	15.5(16.1)	24.4(22.9)
	Eligible for choice	61	63.9	71.6	62.6	70.4	29.4(17.9)	43.8(25.3)
	Not Eligible for choice	61	91.2	91.2	90.6	90.6	11.7(10.5)	23.1(22.2)
12	All	37	79.8	82	78	80.1	16.8(21.2)	24.8(28.4)
	Eligible for choice	37	10.8	10	10.1	9.3	67.3(21.5)	99.3(32)
	Not Eligible for choice	37	83	85.4	81.5	83.8	9.9(9.6)	22.4(24.8)
15	All	31	64.1	66.4	62.6	64.8	31.4(30.8)	43.2(40.2)

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
	Eligible for choice	31	15.7	21.1	16.5	20.9	69.1(36)	94.7(46.7)
	Not Eligible for choice	31	69.6	71.5	68	70	13.2(10.9)	36.3(33.8)
16	All	89	78.2	80.1	78.1	79.8	20.9(21.6)	31.3(29.9)
	Eligible for choice	89	33.1	38.1	33.3	38	46.4(23.3)	67.3(32)
	Not Eligible for choice	89	83.7	85.2	83.8	85.1	11.7(10.3)	26.7(26.2)
17	All	38	86	86.6	85.3	85.9	23.2(29.3)	32.2(36.2)
	Eligible for choice	38	23.4	25.9	23.1	25.4	63.4(33.5)	86.6(42.8)
	Not Eligible for choice	38	92.2	92.6	91.5	92	12.4(9.6)	26.5(30.1)
18	All	36	75.5	75.9	75.3	75.8	31.9(45.4)	43.4(56)
	Eligible for choice	36	3	7.2	3.1	7.3	92.7(41.8)	122.9(56.2
	Not Eligible for choice	36	83.2	83.2	83.2	83.3	9.2(7.9)	32.9(46.8)
19	All	24	68.1	72.7	65.6	70.4	35.1(45.2)	45.4(53)
	Eligible for choice	24	9.2	15.7	9.6	15.6	91.1(47.5)	114.1(54.4)
	Not Eligible for choice	24	79.2	83.4	76.7	81.3	11.3(8.7)	30.5(39.1)
20	All	34	71.8	72.8	71.3	72.2	25.7(31.9)	37.8(44.8)
	Eligible for choice	34	19	25.5	19.7	25.9	64.6(35.3)	95.1(51.4)
	Not Eligible for choice	34	79.7	79.8	79.2	79.3	11.3(9)	30(37.6)
21	All	50	89.9	89.1	89	88.1	13.8(18.3)	22.1(27)
	Eligible for choice	50	3.9	8.8	4	9	72.5(38.5)	107.7(48.4)
	Not Eligible for choice	50	93.1	92.1	92.6	91.4	9.9(9.4)	19.5(21.2)
22	All	68	92.3	94.8	92.1	94.7	9.2(14.4)	14.4(18.2)
	Eligible for choice	68	8.8	9.7	9.3	10.1	69.8(31.5)	94.8(39.7)
	Not Eligible for choice	68	94.8	97.2	94.5	97.1	6.7(6.1)	13(14.1)
23	All	64	65.4	67	64.2	65.6	31.6(30.9)	45.3(42.1)
	Eligible for choice	64	26.7	27.2	26.7	27	59.2(30.6)	86.6(42.4)
	Not Eligible for choice	64	76	77.9	74.9	76.7	11.8(10.8)	33.8(34.1)

Table F-48 Access to Diagnostic Cardiac Catheterization within 40 mile and 60 minute driving distances

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%) 40 miles	Enrollees (%) 60 min.	Users (%) 40 miles	Users (%) 60 min.	Mean (SD) drive distance and time to closest facility with the service — Miles	Mean (SD) drive distance and time to closest facility with the service — Minutes
All	All	1814	92	91.9	91.3	91.3	12.7(18)	20.5(25.4)
All	Eligible for choice	1814	40.2	43.3	39.5	42.4	48(30.5)	70.8(42.4)
All	Not Eligible for choice	1814	96	95.7	95.6	95.3	8.4(8.4)	16.7(18.8)
1	All	72	93.3	93.8	92.5	92.9	11.8(14.8)	18.6(21.1)
1	Eligible for choice	72	17.4	29.3	17.2	27.7	58(21.4)	83.3(31.4)
1	Not Eligible for choice	72	96.3	96.3	95.9	95.8	8.9(8.2)	16.4(16.7)
2	All	28	91.9	91.1	91.8	91.1	15.6(14.1)	25(21.4)
2	Eligible for choice	28	25.9	22.3	24.3	21	45(15.3)	74.9(26.2)
2	Not Eligible for choice	28	93.6	92.9	93.4	92.8	13.1(11.1)	23.7(19.6)
3	All	81	99	99.2	99	99.1	4.6(5.9)	8.4(9)
3	Eligible for choice	81	42.7	42.7	42.3	42.3	33.9(33.7)	58(51.5)
3	Not Eligible for choice	81	99	99.2	99	99.2	4.3(4.7)	8.3(8.9)
4	All	114	98.4	98	98.2	97.8	9(9.4)	15.5(14.4)
4	Eligible for choice	114	66	65.1	63.4	62.3	31.7(15.7)	49.4(26.2)
4	Not Eligible for choice	114	99	98.7	98.9	98.5	8.3(8.1)	14.9(13.4)
5	All	52	99	98.3	98.7	98	7.5(8.1)	13.2(12.4)
5	Eligible for choice	52	79.6	80.1	74.5	74.8	23.9(13.2)	38(20.7)
5	Not Eligible for choice	52	99.2	98.5	98.9	98.2	7.1(7.1)	12.9(12)
6	All	88	92.6	92.6	92.3	92.3	14.4(14.7)	23.7(21.5)
6	Eligible for choice	88	65.8	69	65.9	69.3	32(16.9)	49.6(24.4)
6	Not Eligible for choice	88	95.1	94.8	94.9	94.6	10.3(9.1)	20.9(19.1)
7	All	101	94.7	94.9	94.3	94.6	14.2(13.7)	23.5(20.4)
7	Eligible for choice	101	68.1	72.3	67.2	71.3	30.6(19.6)	47.2(28.5)
7	Not Eligible for choice	101	97.2	97	96.9	96.8	11.1(9.1)	20.6(17)
8	All	96	95.8	96.3	95.4	96	11.3(13.4)	18.6(19.2)
8	Eligible for choice	96	27.5	23.2	26.2	21.7	42.9(21.8)	66.2(31.3)

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
	Not Eligible for choice	96	96.8	97.5	96.6	97.3	9.1(7.6)	17.8(17.9)
9	All	85	91.8	91.3	91.9	91.3	16.8(14.4)	27.2(21.7)
	Eligible for choice	85	74	71.9	74	71.8	31.2(14.4)	49.2(21.4)
	Not Eligible for choice	85	94.2	93.9	94.3	93.9	12.7(10.7)	23.8(19.6)
10	All	79	99.2	98.6	99.1	98.5	8.4(8.4)	14.4(12.8)
	Eligible for choice	79	69.1	69.2	67.7	67.4	27.9(14.3)	47.7(19.3)
	Not Eligible for choice	79	99.4	98.9	99.3	98.8	8.1(7.8)	14.2(12.5)
11	All	112	96.4	95.8	96.2	95.5	11.1(11.7)	18.7(17.6)
	Eligible for choice	112	75.7	76.2	74.5	75.1	27(17.9)	41.4(24.7)
	Not Eligible for choice	112	97.9	97.2	97.7	97	9.4(9.3)	17.2(16)
12	All	110	90.6	91	89.4	89.7	9.7(16.9)	16.4(24.9)
	Eligible for choice	110	27.4	27.9	26.7	27.3	56.2(25.2)	88.2(39.3)
	Not Eligible for choice	110	93.5	93.9	92.6	93	5.9(6.8)	14.1(20.5)
15	All	92	90.7	89	90.3	88.4	15.7(17.4)	25.3(25.4)
	Eligible for choice	92	43	42	43.1	41.6	42.8(21)	63.5(29.2)
	Not Eligible for choice	92	96.1	94.4	95.9	94	10.4(10.5)	20.1(19.9)
16	All	176	92.1	91.8	91.7	91.3	13.6(15.1)	22.3(22.3)
	Eligible for choice	176	50.7	54.7	50.8	54.3	37.3(18.8)	56.3(27.7)
	Not Eligible for choice	176	97.2	96.3	96.9	96	9.5(9.1)	18(17.2)
17	All	103	95.6	95.3	95.4	95.1	11(14)	18.1(20.1)
	Eligible for choice	103	57.8	59.5	57.4	59.2	38.3(20.5)	57(28.1)
	Not Eligible for choice	103	99.3	98.8	99.2	98.7	7.6(7.6)	14(13.6)
18	All	59	85.4	84.8	84.9	84.3	19.7(31.2)	29.8(41.9)
	Eligible for choice	59	14.4	17.3	14	17	71.2(36.7)	100.9(51.1
	Not Eligible for choice	59	92.9	92	92.7	91.7	7.7(7.6)	20(29.1)
19	All	59	81.4	82.2	79.9	80.7	23.5(38.4)	33.1(48.1)
	Eligible for choice	59	19.6	28.5	18.6	26.8	70.3(45)	95.5(60.2)

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
	Not Eligible for choice	59	93	92.3	92.1	91.4	7.1(7.2)	19.4(31.4)
20	All	63	83.8	84.9	83.1	84.1	17.5(24.1)	27.7(35.3)
	Eligible for choice	63	15.3	20.1	15.2	19.7	63.2(27.6)	94.8(43)
	Not Eligible for choice	63	94	94.6	93.5	94	8.8(8.5)	18.6(21.6)
21	All	75	90.6	89.9	89.7	89	10.6(16.2)	17.8(24.4)
	Eligible for choice	75	5.3	8.5	5	8.7	66.5(29.8)	100.5(42.1)
	Not Eligible for choice	75	93.8	93	93.2	92.3	7.3(7.3)	15.2(18.4)
22	All	91	96.4	96.3	96.3	96.3	6.8(9.7)	11.6(14.3)
	Eligible for choice	91	15.3	19.1	15.8	20.1	55.2(21.1)	85.1(38.1)
	Not Eligible for choice	91	98.7	98.6	98.6	98.4	5.6(5)	10.3(9.5)
23	All	78	70	71.3	68.6	69.9	28(32)	41.5(44.5)
	Eligible for choice	78	14.9	19.3	14.5	18.9	65.1(30.3)	92.9(41.9)
	Not Eligible for choice	78	85.2	85.6	84	84.4	10.1(10.4)	27(33)

Table F-49 Access to Cardiac Surgery within 40 mile and 60 minute driving distances

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
All	All	1125	85.6	86.8	84.7	85.9	16.9(22.3)	25.6(29.9)
	Eligible for choice	1125	20.7	27.5	20.2	26.6	60.1(33.1)	84.2(43.3)
	Not Eligible for choice	1125	90.7	91.4	90.1	90.9	10.1(9.4)	21.2(23.3)
1	All	40	88.7	91.4	87.7	90.4	16.4(20.1)	23.8(26.1)
	Eligible for choice	40	5	18.5	4.7	17	69.6(32.5)	95.9(41.2)
	Not Eligible for choice	40	92	94.3	91.4	93.7	11.8(10)	21.4(21.6)

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VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
2	All	14	78.4	80.2	78.5	80.4	22.6(24.4)	33.6(32.5)
	Eligible for choice	14	25.9	22.3	24.3	21	61.5(30.6)	95.3(42.5)
	Not Eligible for choice	14	79.8	81.7	79.9	81.8	13.9(11.5)	32(30.5)
3	All	38	97.9	98.4	97.7	98.3	7.3(8.5)	12.1(11.9)
	Eligible for choice	38	0	0	0	0	56.9(15.1)	82.9(29.9)
	Not Eligible for choice	38	98	98.5	97.8	98.3	6.8(6.7)	12(11.8)
4	All	73	91.7	93.7	90.8	93	13(14.2)	20.3(19.3)
	Eligible for choice	73	49.7	47.4	46.8	43.9	39.2(20.8)	58.2(30.8)
	Not Eligible for choice	73	92.5	94.6	91.7	94	10.2(9.5)	19.6(18.4)
5	All	18	90.7	93.5	90.2	93.4	14.6(13.7)	21.3(18.4)
	Eligible for choice	18	61.6	69.1	53.5	61.9	37.2(10.2)	48.6(16.2)
	Not Eligible for choice	18	91.1	93.8	90.6	93.7	12(10.1)	21(18.2)
6	All	44	86.1	86.9	85.1	86.2	19.8(18.6)	30.1(25.4)
	Eligible for choice	44	38.6	48	38	47.6	44.2(18.4)	65.7(26.9)
	Not Eligible for choice	44	90.5	90.5	89.8	89.9	13.5(10.6)	26.3(22.1)
7	All	54	85.1	87.3	84.6	86.8	21.2(19.5)	31.6(26.2)
	Eligible for choice	54	29.3	38.4	29.7	37.9	49(19.7)	68.9(27.1)
	Not Eligible for choice	54	90.3	91.8	89.8	91.4	13.7(10.5)	27(22)
8	All	56	94.1	94.8	93.7	94.4	14.2(15.4)	22.4(21.6)
	Eligible for choice	56	8.6	3.5	8.3	3.2	56.1(17.1)	85.1(23)
	Not Eligible for choice	56	95.5	96.2	95.1	95.9	11.1(8.8)	21.4(19.9)
9	All	44	75.9	81.6	76.1	81.5	23.8(18.7)	35.1(26)
	Eligible for choice	44	37.5	43.3	37.4	43.2	42.4(15.6)	62.4(22)
	Not Eligible for choice	44	81.1	86.8	81.3	86.6	15.2(11.5)	30.9(24)
10	All	48	97.6	97.4	97.5	97.3	10.8(10.3)	17.4(14.9)
	Eligible for choice	48	20.2	50.5	21.1	49.5	42.3(6.7)	60.1(10.3)
	Not Eligible for choice	48	98.2	97.8	98.1	97.7	10.1(9.2)	17.1(14.5)

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
11	All	71	91.3	91.5	90.8	91	14.8(15.8)	23.3(22.6)
	Eligible for choice	71	49.4	60.5	47	58.8	35.5(20.6)	50.4(27.4)
	Not Eligible for choice	71	94.3	93.8	93.9	93.4	11.3(10)	21.6(21.1)
12	All	80	87.5	88.3	86.1	86.9	11.6(18.4)	18.9(26.6)
	Eligible for choice	80	16.6	16	15.7	15.2	59.3(23.9)	92.1(37.5)
	Not Eligible for choice	80	90.8	91.6	89.8	90.6	7.1(8.1)	16.6(22.6)
15	All	58	78.9	78.7	78.5	78.1	21.7(22.2)	32.4(30.6)
	Eligible for choice	58	20.1	22.4	20.6	22.1	52.9(20.6)	75.7(29.1)
	Not Eligible for choice	58	85.6	85.2	85.3	84.7	11.8(11)	26.6(25.8)
16	All	124	82.8	83.9	82.7	83.7	18.2(20.6)	28(28.6)
	Eligible for choice	124	29.7	37.8	30.1	37.8	47.3(20.2)	67.9(27.6)
	Not Eligible for choice	124	89.3	89.6	89.4	89.5	10.2(9.7)	22.9(24.4)
17	All	76	90.2	90.4	89.7	89.8	14.6(20.2)	22.6(27.6)
	Eligible for choice	76	22.1	27.9	22	27.4	57.5(29.7)	80.6(40.1)
	Not Eligible for choice	76	96.9	96.5	96.5	96.1	8.8(8.7)	16.5(16.7)
18	All	42	79.4	80.3	79	80	24.2(35)	34.7(45.2)
	Eligible for choice	42	8.1	12.9	7.6	12.3	80.4(38.7)	108.4(52.4
	Not Eligible for choice	42	87	87.5	86.9	87.5	8.5(7.8)	24.6(33.1)
19	All	36	75.5	76.4	73.3	74.2	30.2(44.4)	40.4(52.9)
	Eligible for choice	36	8.8	17.5	8.1	16.2	87.9(46)	113.8(57.3
	Not Eligible for choice	36	88.1	87.5	86.3	85.7	8.7(7.6)	24.5(35.7)
20	All	36	73.4	74.7	73	74.3	23.1(30.5)	34(41.4)
	Eligible for choice	36	8.2	16.3	7.9	15.8	71.3(33.6)	102(47.7)
	Not Eligible for choice	36	83.1	83.5	83	83.3	10.1(8.2)	24.7(30.3)
21	All	53	88	87.1	87	86.1	12.4(17.3)	19.8(25)
	Eligible for choice	53	4.1	8.4	4	8.6	72.1(38.2)	105.6(46.5
	Not Eligible for choice	53	91.2	90.1	90.4	89.3	8.8(8.3)	17.3(18.8)

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%) 40 miles	Enrollees (%) 60 min.	Users (%) 40 miles	Users (%) 60 min.	Mean (SD) drive distance and time to closest facility with the service Miles	Mean (SD) drive distance and time to closest facility with the service Minutes
22	All	73	96.2	96.2	96.1	96.2	7.6(10.6)	12.6(14.8)
	Eligible for choice	73	10.2	17.5	10.7	18.3	60.6(26)	87.7(37.8)
	Not Eligible for choice	73	98.7	98.5	98.6	98.4	6.4(5.7)	11.4(10)
23	All	47	61.2	63.9	59.5	62.2	35.5(38.5)	49.9(50.7)
	Eligible for choice	47	5.1	11.2	4.9	10.7	78.7(35)	107.1(45)
	Not Eligible for choice	47	76.7	78.4	75	76.9	10.8(10.6)	34(39.4)

Table F-50 Access to Surgery within 40 mile and 60 minute driving distances

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%) 40 miles	Enrollees (%) 60 min.	Users (%) 40 miles	Users (%) 60 min.	Mean (SD) drive distance and time to closest facility with the service Miles	Mean (SD) drive distance and time to closest facility with the service Minutes
All	All	4022	99.2	98.8	99.1	98.7	7.3(8)	13.3(13.4)
	Eligible for choice	4022	92.4	89.9	92.3	89.6	16.1(16)	28.9(27.3)
	Not Eligible for choice	4022	99.7	99.5	99.7	99.4	6.5(6.3)	12.1(10.7)
1	All	156	99.8	99.7	99.7	99.6	6.9(6.5)	12.2(10.6)
	Eligible for choice	156	96.1	94.5	96	94.3	16.2(13.3	29.8(22.5)
	Not Eligible for choice	156	99.9	99.9	99.9	99.9	6.6(5.8)	11.6(9.4)
2	All	69	99.5	98.7	99.5	98.7	9.3(8.7)	16.7(14.7)
	Eligible for choice	69	94.3	86	94.5	87	20(15.4)	37.7(28.4)
	Not Eligible for choice	69	99.6	99	99.6	99	8.9(8)	16.2(13.8)
3	All	123	100	100	100	100	3.5(3.6)	6.7(6.2)
	Eligible for choice	123	100	100	100	100	18.9(7.7)	35.3(12.4)
	Not Eligible for choice	123	100	100	100	100	3.5(3.6)	6.7(6.2)
4	All	193	100	100	100	100	6.4(5.8)	11.8(9.7)
	Eligible for choice	193	100	99.5	100	99.4	15.3(8.8)	26.3(14.2)

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
	Not Eligible for choice	193	100	100	100	100	6.2(5.7)	11.5(9.4)
5	All	78	100	100	100	100	5.8(5.3)	10.8(8.4)
	Eligible for choice	78	100	100	100	100	11.8(4.9)	21(7.4)
	Not Eligible for choice	78	100	100	100	100	5.7(5.2)	10.7(8.4)
6	All	163	99.6	99.1	99.6	99.1	9.2(7.9)	16.8(13.1)
	Eligible for choice	163	97.6	96.1	97.8	96.2	14.5(10.1	26.3(16.9)
	Not Eligible for choice	163	99.8	99.4	99.8	99.4	8.5(7.1)	15.7(12.2)
7	All	204	99.8	99.4	99.8	99.3	9.6(8.1)	17.2(13.1)
	Eligible for choice	204	98.5	95.1	98.5	94.9	14.7(11.5)	26.3(18.8)
	Not Eligible for choice	204	100	99.8	100	99.7	8.9(7.3)	16.1(11.7)
8	All	144	99.4	99	99.4	98.9	8.1(7.2)	14.7(12)
	Eligible for choice	144	87.5	79.6	86.3	78	18.6(13.9)	31.5(22.5)
	Not Eligible for choice	144	99.6	99.3	99.6	99.3	7.8(6.5)	14.4(11.5)
9	All	198	99.6	99.3	99.6	99.2	10.3(8.6)	18.5(14.2)
	Eligible for choice	198	98.2	96.5	98.2	96.5	13.6(9.9)	25.7(17.2)
	Not Eligible for choice	198	99.8	99.6	99.8	99.6	9.7(8.2)	17.4(13.4)
10	All	121	100	100	100	100	6.2(5.4)	11.5(9.2)
	Eligible for choice	121	100	100	100	100	10.2(3.8)	19.7(8)
	Not Eligible for choice	121	100	100	100	100	6.2(5.4)	11.5(9.1)
11	All	228	99.4	99.1	99.4	99	7(6.7)	13(11.3)
	Eligible for choice	228	98.8	97	98.6	96.6	11.2(9.2)	21(15.9)
	Not Eligible for choice	228	99.5	99.3	99.4	99.2	6.6(6)	12.5(10.7)
12	All	193	99.6	99.3	99.6	99.2	5.2(5.4)	10.1(9.7)
	Eligible for choice	193	91.7	87.6	91.3	87	14.7(12.6	27.8(22.9)
	Not Eligible for choice	193	100	99.9	100	99.9	4.8(4.7)	9.5(8.3)
15	All	281	99.7	98.6	99.7	98.4	7.5(7.5)	14(13)
	Eligible for choice	281	97.5	93.2	97.4	92.7	11.4(10.7)	21.2(18.5)

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%) 40 miles	Enrollees (%) 60 min.	Users (%) 40 miles	Users (%) 60 min.	Mean (SD) drive distance and time to closest facility with the service Miles	Mean (SD) drive distance and time to closest facility with the service Minutes
	Not Eligible for choice	281	100	99.2	100	99.1	6.9(6.8)	13(11.7)
16	All	453	99.7	99.4	99.7	99.3	7.4(7.2)	13.8(12.2)
16	Eligible for choice	453	98	96.1	98	95.9	13.2(11.4)	23.9(19.1)
16	Not Eligible for choice	453	99.9	99.8	99.9	99.8	6.6(6)	12.5(10.3)
17	All	228	99.8	99.8	99.8	99.8	6.5(6.6)	11.9(10.6)
17	Eligible for choice	228	97.9	97.8	97.8	97.6	12.8(11.9	22.3(18.5)
17	Not Eligible for choice	228	100	100	100	100	5.8(5.4)	10.8(8.8)
18	All	165	96.3	95.4	96.1	95.1	9.5(13.2)	17(22)
18	Eligible for choice	165	73.5	71.6	73.4	71.6	24.8(25.3	42.8(44)
18	Not Eligible for choice	165	98.8	97.9	98.6	97.7	6.9(7.2)	13.4(13.1)
19	All	187	97.4	96.9	97.2	96.6	8.9(12.1)	15.9(19.9)
19	Eligible for choice	187	85.9	83.1	85.4	82.4	19.8(20.8	34.6(35.1)
19	Not Eligible for choice	187	99.6	99.5	99.5	99.4	6.2(6.4)	11.5(10.1)
20	All	162	96.9	97	97.1	97	9(11.3)	16.3(19.3)
20	Eligible for choice	162	84.4	81.3	85.6	82	18.9(21.1	35.2(38.6)
20	Not Eligible for choice	162	98.7	99.3	98.9	99.3	7.1(7.1)	13.5(12.1)
21	All	141	97.6	96.6	97.4	96.4	6.7(8.5)	12.5(14.4)
21	Eligible for choice	141	73.8	64.8	73.5	64	29.8(21.2)	51.7(34.7)
21	Not Eligible for choice	141	98.5	97.8	98.4	97.7	5.9(6.1)	11.2(11.2)
22	All	154	99.6	99.4	99.6	99.4	4.7(5.6)	8.9(9.5)
22	Eligible for choice	154	86.2	85.1	84.4	83.9	21.7(24.9	38.7(42.1)
22	Not Eligible for choice	154	100	99.8	100	99.8	4.4(3.9)	8.4(6.5)
23	All	381	97.5	96.7	97.3	96.5	9.4(11.1)	17.1(18.7)
23	Eligible for choice	381	90.6	88.4	90.3	88.1	16.1(16.5	29.2(27.7)
23	Not Eligible for choice	381	99.4	99	99.4	98.9	7.3(7.3)	13.7(13.4)

Table F-51 Access to Chemotherapy within 40 mile and 60 minute driving distances

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
All	All	2389	94.9	94.7	94.6	94.4	10.6(13.8)	17.8(20.3)
	Eligible for choice	2389	60.2	61.1	60.2	60.9	34.1(26.5)	52.8(38.1)
	Not Eligible for choice	2389	97.6	97.4	97.5	97.2	8(8)	15.1(15.3)
1	All	126	99.1	99	98.9	98.8	7.9(7.9)	13.6(12.3)
	Eligible for choice	126	76.9	76.3	76.2	75.7	24(19.5)	39.9(27.7)
	Not Eligible for choice	126	99.9	99.9	99.9	99.8	7.4(6.5)	12.7(10.3)
2	All	47	97.7	96.6	97.9	96.8	11.8(10.8)	20.2(17.5)
	Eligible for choice	47	76	69.8	76.4	71.2	29.5(15.7)	53.6(29)
	Not Eligible for choice	47	98.3	97.4	98.5	97.4	10.9(9.6)	19.3(16.2)
3	All	109	100	100	100	100	3.7(3.8)	7.1(6.4)
	Eligible for choice	109	100	100	100	100	18.9(7.7)	35.3(12.4)
	Not Eligible for choice	109	100	100	100	100	3.7(3.8)	7(6.4)
4	All	132	99.5	99.4	99.4	99.3	8.4(8.4)	14.5(12.8)
	Eligible for choice	132	89	84.3	87.9	82.8	22.3(14.2)	35.8(22.7)
	Not Eligible for choice	132	99.7	99.7	99.7	99.7	8.1(7.9)	14.1(12.2)
5	All	64	99.2	98.9	98.9	98.4	6.6(6.9)	12(10.6)
	Eligible for choice	64	94.7	94.7	93	92.5	15.2(10.2)	25.7(13.8)
	Not Eligible for choice	64	99.3	98.9	99	98.5	6.3(6.1)	11.8(10.4)
6	All	112	97.2	96.4	97.1	96.4	11.5(10.8)	19.9(16.7)
	Eligible for choice	112	84.1	84.7	84.2	84.6	22(14.4)	36.1(21.5)
	Not Eligible for choice	112	98.4	97.5	98.4	97.5	9.9(8.6)	18.2(15.1)
7	All	94	93.6	93.1	93.4	92.8	14.9(14)	24.6(21)
	Eligible for choice	94	59.7	64.1	59.3	63.4	32.8(19.8)	50.1(28.9)
	Not Eligible for choice	94	96.7	95.7	96.6	95.6	11.5(9.4)	21.4(17.5)
8	All	103	95.6	95.5	95.2	95.1	11.1(12.5)	18.8(18.8)
	Eligible for choice	103	33.3	27.2	31.5	25.6	37.9(16.2)	59.8(24.7)

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
	Not Eligible for choice	103	96.6	96.6	96.3	96.3	9(8)	18.1(17.9)
9	All	92	89.8	91.1	90.3	91.3	16.5(14.3)	26.6(21.1)
	Eligible for choice	92	75.8	73.3	75.8	73.2	29(14.1)	47.2(21.7)
	Not Eligible for choice	92	91.7	93.5	92.2	93.7	12.5(10.3)	23.4(19.1)
10	All	94	100	99.7	100	99.7	7.4(6.7)	13(10.7)
	Eligible for choice	94	100	100	100	100	11.3(6.2)	21.9(11.7)
	Not Eligible for choice	94	100	99.7	100	99.7	7.4(6.7)	13(10.7)
11	All	167	98.6	98.4	98.5	98.2	8.7(8.9)	15.4(13.8)
	Eligible for choice	167	91	90.3	90.2	89.3	16.4(15.3)	27.3(21.6)
	Not Eligible for choice	167	99.1	99	99.1	98.9	7.9(7.4)	14.6(12.7)
12	All	150	98.7	97.6	98.5	97.3	6.2(7.3)	11.6(12.3)
	Eligible for choice	150	73.2	65.8	72.6	65	23.9(15.3)	42.2(25.1)
	Not Eligible for choice	150	99.9	99	99.9	99	5.6(6)	10.7(10.3)
15	All	134	97.1	95.4	96.8	94.9	11.8(12)	20.1(18.6)
	Eligible for choice	134	77.4	72.7	76.4	71.2	24(16.7)	39.1(25.4)
	Not Eligible for choice	134	99.3	98	99.3	97.7	9.8(9.4)	17.5(15.9)
16	All	168	92.6	92.6	92.1	92.1	13.9(14.4)	22.6(21.2)
	Eligible for choice	168	55.9	60.1	55.9	59.9	33.7(17.8)	51.8(26.3)
	Not Eligible for choice	168	97.1	96.6	96.7	96.2	10.2(9.5)	18.8(17.2)
17	All	75	91.7	91.4	91.4	91.1	14(18.5)	22.1(25.8)
	Eligible for choice	75	24.6	29.3	24.9	29.1	55(27.3)	77.9(37.3)
	Not Eligible for choice	75	98.2	97.5	98.1	97.3	9.1(8.8)	16.2(15)
18	All	61	84.1	84.6	83.6	84.3	19.6(29.8)	29.6(40.1)
	Eligible for choice	61	9.2	14.7	9	14.6	70(31.9)	99.1(45.2)
	Not Eligible for choice	61	92	92.1	91.9	92	7.8(7.5)	19.9(28)
19	All	108	90.2	90.4	89.5	89.7	14.1(21.4)	22.3(29.6)
	Eligible for choice	108	53.1	57.1	52.1	56	36.4(32.1)	54.5(45.8)

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
	Not Eligible for choice	108	97.1	96.6	96.9	96.3	7.2(7.5)	14.7(17.2)
20	All	98	90.4	91.1	90.6	91.1	13.1(17.4)	21.8(26.8)
	Eligible for choice	98	49.4	53.7	50.2	54	37.6(30.2)	60.6(48.5)
	Not Eligible for choice	98	96.6	96.7	96.8	96.7	8.7(8.4)	16(14.8)
21	All	95	95	94	94.5	93.5	9(12.3)	15.6(19.1)
	Eligible for choice	95	26.7	25.2	25.7	24.7	53.9(24.3)	82.8(34.4)
	Not Eligible for choice	95	97.6	96.6	97.4	96.3	7.2(7.5)	13.5(13.9)
22	All	105	95.5	96.4	95.5	96.4	6.6(10.4)	11.5(15.1)
	Eligible for choice	105	24.2	25.7	25.2	27	56.6(29)	83.9(43.2)
	Not Eligible for choice	105	97.6	98.4	97.5	98.3	5.1(4.8)	10.2(10)
23	All	255	93.1	92.7	92.8	92.4	13.1(16.5)	22.4(25.9)
	Eligible for choice	255	77	74.6	76.8	74.3	26.2(24.8)	43.5(38.3)
	Not Eligible for choice	255	97.5	97.7	97.4	97.5	8.4(8.4)	16.4(16.9)

Table F-52 Access to Oncology within 40 mile and 60 minute driving distances

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
All	All	2382	94.8	94.7	94.5	94.3	10.6(14.2)	17.8(20.9)
	Eligible for choice	2382	59.1	59.9	59.1	59.7	36.2(28.4)	55.6(40.2)
	Not Eligible for choice	2382	97.6	97.4	97.4	97.2	7.9(7.9)	15(15.2)
1	All	133	98.8	98.7	98.6	98.5	7.8(8.8)	13.4(13.7)
	Eligible for choice	133	77.4	76.3	76.6	75.7	24.4(20.6)	40.3(28.8)
	Not Eligible for choice	133	99.6	99.6	99.6	99.5	7(6.3)	12.5(11.9)

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
2	All	47	97.8	97	98	97.1	11.7(10.7)	20.2(17.4)
	Eligible for choice	47	76	69.8	76.4	71.2	29.5(15.7)	53.6(29)
	Not Eligible for choice	47	98.4	97.7	98.6	97.7	10.9(9.6)	19.3(16.1)
3	All	118	100	100	100	100	3.5(3.7)	6.8(6.3)
	Eligible for choice	118	100	100	100	100	18.9(7.7)	35.3(12.4)
	Not Eligible for choice	118	100	100	100	100	3.5(3.7)	6.8(6.2)
4	All	139	99.4	99	99.3	98.9	7.8(7.9)	13.8(12.5)
	Eligible for choice	139	86.5	77	85.1	74.7	24.9(14.8)	40.2(24.4)
	Not Eligible for choice	139	99.7	99.4	99.6	99.3	7.4(7.1)	13.4(11.7)
5	All	64	99.2	98.9	98.9	98.4	6.7(7)	12(10.7)
	Eligible for choice	64	94.7	94.7	93	92.5	15(9.9)	25.7(13.8)
	Not Eligible for choice	64	99.3	98.9	99	98.5	6.4(6.1)	11.9(10.5)
6	All	114	96.4	96.2	96.3	96.1	12(11.4)	20.4(17.1)
	Eligible for choice	114	82.3	83.5	82.1	83.3	22.9(14.7)	37.3(21.4)
	Not Eligible for choice	114	97.7	97.4	97.7	97.4	10(8.8)	18.6(15.5)
7	All	96	93.4	93.7	93.2	93.4	14.6(13.7)	24(20.5)
	Eligible for choice	96	64.5	70.4	64	69.6	30.3(19.6)	46.7(28.8)
	Not Eligible for choice	96	96.1	95.8	96	95.7	11.3(9.1)	21.2(17.2)
8	All	105	95.6	95.3	95.2	94.9	11(12.4)	18.7(18.8)
	Eligible for choice	105	30	22.2	28.3	20.7	39.7(16.3)	61.9(24.3)
	Not Eligible for choice	105	96.6	96.5	96.3	96.1	8.9(7.7)	18(17.8)
9	All	97	90	91.4	90.4	91.5	16.3(14.6)	26.3(21.3)
	Eligible for choice	97	81.2	78.1	80.9	78	27.7(14.9)	44.9(22.2)
	Not Eligible for choice	97	91.2	93.1	91.7	93.3	12.2(10.2)	23.5(19.7)
10	All	96	100	99.9	100	99.9	7.2(6.5)	12.8(10.5)
	Eligible for choice	96	100	100	100	100	11.6(6.4)	22.3(11.9)
	Not Eligible for choice	96	100	99.9	100	99.9	7.2(6.5)	12.8(10.4)

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
11	All	167	98.5	98.2	98.3	98	8.7(9.1)	15.4(14.1)
	Eligible for choice	167	89.7	89.7	88.9	88.7	17.3(15.9)	28.2(22.3)
	Not Eligible for choice	167	99.1	98.8	99	98.7	7.8(7.4)	14.5(12.9)
12	All	148	98.2	97.6	97.9	97.3	6.5(8)	12(13)
	Eligible for choice	148	81.5	75.8	81.3	75.4	22.3(15.4)	40(26.6)
	Not Eligible for choice	148	98.9	98.6	98.8	98.4	5.8(6.4)	11.1(11.3)
15	All	130	96.4	94.9	96.2	94.5	12.2(13.1)	20.6(19.9)
	Eligible for choice	130	73.3	68.9	72.7	67.8	27.5(19.7)	43.7(28.6)
	Not Eligible for choice	130	99	97.9	98.9	97.6	9.7(9.6)	17.5(16.1)
16	All	177	93.1	92.8	92.7	92.3	13.6(14.4)	22.2(21.4)
	Eligible for choice	177	58.3	58.9	58.6	58.9	33.7(18.2)	52.5(27.5)
	Not Eligible for choice	177	97.3	96.9	97	96.6	10(9.5)	18.4(17)
17	All	94	94.5	94.3	94.4	94.2	12.1(17.3)	19.6(24.2)
	Eligible for choice	94	47.5	49.9	48	50.2	48.1(31.5)	69.2(42.2)
	Not Eligible for choice	94	99.1	98.7	99.1	98.6	8(7.8)	14.3(13.2)
18	All	60	85.5	85.3	85.1	85.1	18.6(27.4)	28.5(37.5)
	Eligible for choice	60	12.6	15.9	12.9	16.3	69.4(32.5)	98.1(46.1)
	Not Eligible for choice	60	93.2	92.7	93.1	92.6	8.2(7.8)	18.9(23.4)
19	All	94	88.4	88.9	87.6	88.1	16.5(27)	24.9(35.5)
	Eligible for choice	94	41.2	46.8	40.5	45.8	48.1(40.7)	68.1(54.4)
	Not Eligible for choice	94	97.2	96.8	96.9	96.5	7.3(7.7)	14.9(18.4)
20	All	92	90.6	91.3	90.6	91	13.2(18.4)	21.9(27.5)
	Eligible for choice	92	43	47.3	44	48	42.2(31.4)	65.9(48.2)
	Not Eligible for choice	92	97.7	97.9	97.7	97.6	8.2(8.2)	15.7(15)
21	All	98	94.6	93.9	94.1	93.3	9.1(13.4)	15.8(20.5)
	Eligible for choice	98	25.7	30	24.4	29	54.1(29.9)	83.4(41.1)
	Not Eligible for choice	98	97.2	96.3	97	96	7.1(7.5)	13.6(15.2)

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
22	All	109	95.4	96.2	95.4	96.2	6.6(10)	11.4(15.1)
	Eligible for choice	109	17.8	19.8	18.4	20.8	55(23.7)	85.2(41.7)
	Not Eligible for choice	109	97.7	98.4	97.5	98.3	5.1(4.8)	10.1(9.9)
23	All	204	89.7	89.4	89.4	88.9	15.5(20.1)	25.7(30.4)
	Eligible for choice	204	63.9	63.2	63.7	62.8	35.2(29.3)	55.6(43.3)
	Not Eligible for choice	204	96.9	96.7	96.7	96.4	8.8(8.9)	17.4(18.4)

Table F-53 Access to Palliative care within 40 mile and 60 minute driving distances

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
All	All	1664	88.9	89.1	88.2	88.4	14.3(19.1)	22.5(26.4)
	Eligible for choice	1664	45.8	47	45.7	46.7	44.7(30.3)	66.9(41.9)
	Not Eligible for choice	1664	92.3	92.4	91.8	91.8	9.3(9)	19.1(21.2)
1	All	100	96.6	95.1	96.5	95	10(10.6)	16.8(17.2)
	Eligible for choice	100	70.2	67.9	69.3	66.9	29.1(20.5)	49.9(34.4)
	Not Eligible for choice	100	97.7	96.2	97.7	96.2	8.7(8.1)	15.6(15.1)
2	All	36	89.7	89.4	89.7	89.6	15.2(14.9)	24.5(22.1)
	Eligible for choice	36	48.2	44.7	46.5	43.3	36.4(19.8)	61.8(31.7)
	Not Eligible for choice	36	90.8	90.6	90.8	90.7	11.9(10.8)	23.5(20.9)
3	All	106	99.7	99.7	99.6	99.7	4(4.6)	7.5(7.3)
	Eligible for choice	106	100	100	100	100	18.9(7.7)	35.3(12.4)
	Not Eligible for choice	106	99.7	99.7	99.6	99.7	3.9(4.2)	7.4(7.3)
4	All	99	96.7	97.1	96.6	96.9	10.7(11.1)	17.5(15.8)
	Eligible for choice	99	58.3	60.2	57.9	58.9	32.5(17.1)	49.8(25.5)

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
	Not Eligible for choice	99	97.5	97.8	97.4	97.7	9.5(9)	16.9(15)
5	All	57	97.3	97.4	96.5	96.6	7.8(9.2)	13.5(12.9)
	Eligible for choice	57	80.5	91.3	74.8	88.7	20.3(12.6)	31.7(17)
	Not Eligible for choice	57	97.5	97.5	96.7	96.7	6.8(6.6)	13.2(12.7)
6	All	66	90.3	89.9	89.8	89.6	16.6(15.6)	26.3(22.5)
	Eligible for choice	66	58.4	60.3	58.4	60.7	35(18.5)	53.3(27)
	Not Eligible for choice	66	93.3	92.7	92.9	92.4	12.3(10.3)	23.4(19.8)
7	All	65	85.4	86.2	84.7	85.7	21(18.6)	32(25.7)
	Eligible for choice	65	46.1	47.4	45.3	46.4	40.7(21.4)	60.8(30.7)
	Not Eligible for choice	65	89	89.8	88.4	89.5	13.9(10.5)	28.5(22.6)
8	All	62	83.1	84.1	81.7	82.8	13(13.4)	21.1(19.7)
	Eligible for choice	62	21	18.9	18.9	17.3	48(17.2)	73.1(25)
	Not Eligible for choice	62	84	85.1	82.8	83.9	10.6(8.9)	20.1(18.1)
9	All	68	81	82.4	80.6	82.1	21.8(19)	33.4(27)
	Eligible for choice	68	55.6	54.1	55	53.3	37.4(19.8)	57.5(26.8)
	Not Eligible for choice	68	84.4	86.3	84.1	85.9	13.7(10.8)	29.7(25.1)
10	All	62	98.9	98.6	98.8	98.4	9.5(8.7)	15.9(13.1)
	Eligible for choice	62	77.2	78.3	74.1	75.4	27.5(11.8)	44.7(17)
	Not Eligible for choice	62	99.1	98.7	99	98.6	9.1(8)	15.7(12.8)
11	All	99	92.5	92.6	92.1	92.2	13(14.7)	21.2(21.6)
	Eligible for choice	99	76.1	75.3	75.5	74.4	26.2(18.7)	40.5(27)
	Not Eligible for choice	99	93.7	93.9	93.3	93.5	9.9(9.4)	19.9(20.6)
12	All	106	95.6	95.2	95	94.6	8.9(12.8)	15.1(18.3)
	Eligible for choice	106	83.6	76.9	83.2	76.2	24.5(19.6)	42.8(31.6)
	Not Eligible for choice	106	96.1	96.1	95.6	95.6	6.9(7)	14.2(17)
15	All	90	91.4	89.8	90.9	89.1	16.6(19)	26.6(27.6)
	Eligible for choice	90	54.4	52.5	54.9	52.5	43.7(30.1)	65.6(42.1)

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%) 40 miles	Enrollees (%) 60 min.	Users (%) 40 miles	Users (%) 60 min.	Mean (SD) drive distance and time to closest facility with the service Miles	Mean (SD) drive distance and time to closest facility with the service Minutes
	Not Eligible for choice	90	95.6	94	95.2	93.5	11.2(10.5)	21.3(19.9)
16	All	99	82.4	83.2	81.9	82.7	20.1(21.2)	30.5(28.7)
16	Eligible for choice	99	30.4	35.6	30.9	35.9	47.5(20.7)	69.4(29.2)
16	Not Eligible for choice	99	88.8	89.1	88.4	88.7	11.5(9.9)	25.5(24.5)
17	All	53	88	87.7	87.9	87.5	21.4(29.2)	31.3(36.9)
17	Eligible for choice	53	46.7	45.6	46.7	45.5	46.2(27.8)	67.1(37.1)
17	Not Eligible for choice	53	92.1	91.8	92	91.7	11.3(8.9)	27.5(34.8)
18	All	45	81.7	82.6	81.3	82.3	21.5(28.6)	32.2(38.8)
18	Eligible for choice	45	14.6	18.3	13.9	17.7	69.1(35.7)	98.4(49)
18	Not Eligible for choice	45	88.8	89.4	88.8	89.4	9.8(8.6)	23(26.2)
19	All	66	77.1	77.8	74.9	75.5	27.1(41.3)	37.6(50.5)
19	Eligible for choice	66	24.5	31.6	24.3	31	67.7(45.3)	93.4(57.3)
19	Not Eligible for choice	66	87	86.5	84.9	84.4	7.9(7.6)	24.9(38.9)
20	All	79	84.2	84.6	84.5	84.8	14.1(19.2)	23.2(29.5)
20	Eligible for choice	79	36	40.4	36.3	40.1	46.2(32.1)	73.1(50.4)
20	Not Eligible for choice	79	91.4	91.2	91.8	91.6	8.5(8)	15.8(14)
21	All	89	93.4	92.6	92.9	92.1	10.3(15.1)	17.3(22.7)
21	Eligible for choice	89	38.8	38.7	38.5	38.5	55.4(41.4)	85.6(53.2)
21	Not Eligible for choice	89	95.5	94.7	95.1	94.3	7.9(8.1)	15.1(17)
22	All	88	95	96	94.9	95.8	7.8(11.8)	12.9(16.4)
22	Eligible for choice	88	23.4	28.8	21.8	27.4	58.1(33.3)	85.8(48.5)
22	Not Eligible for choice	88	97.1	97.9	97	97.8	6(5.6)	11.6(11.5)
23	All	129	84.1	83	83.7	82.6	20(23.7)	31.9(34.7)
23	Eligible for choice	129	57.2	55.2	56.8	54.6	39.9(27.6)	62.6(41.7)
23	Not Eligible for choice	129	91.5	90.6	91.4	90.5	10.7(10.3)	23.2(26.7)

Table F-54 Access to Inpatient Palliative care within 40 mile and 60 minute driving distances

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
All	All	459	64.6	68.9	63	67.3	30.4(32.8)	41(40.5)
	Eligible for choice	459	17.1	20.5	17	20.1	70.7(37.9)	97.5(47.6)
	Not Eligible for choice	459	68.3	72.7	66.9	71.2	13.7(10.6)	36.8(36.7)
1	All	30	85.4	87	84.9	86.4	20.1(17.1)	28.8(23)
	Eligible for choice	30	43.6	45.9	42	44.3	48.6(33.5)	70.3(44.1)
	Not Eligible for choice	30	87.1	88.6	86.8	88.2	15.2(10.1)	27.4(20.5)
2	All	13	71	77.6	71.7	78.4	27(25.5)	36.6(31.2)
	Eligible for choice	13	0	6.4	0	6.1	73.5(22.2)	101.6(29.9)
	Not Eligible for choice	13	72.9	79.5	73.5	80.1	14.1(11.3)	34.8(29.3)
3	All	41	98.3	98.9	98.3	98.9	6.8(7.9)	11.2(11)
	Eligible for choice	41	42.7	42.7	42.3	42.3	50.1(30.1)	72.7(41.1)
	Not Eligible for choice	41	98.4	98.9	98.4	98.9	6.4(6.6)	11.2(10.9)
4	All	20	72.3	82.2	71.3	81.4	26(19)	34.8(22.3)
	Eligible for choice	20	30.5	45	29.9	43	45.2(18.1)	65.7(23.3)
	Not Eligible for choice	20	73.2	83	72.1	82.1	17.2(11.6)	34.3(21.9)
5	All	13	89.2	90	87.3	88.4	15.9(15.7)	23.4(20.7)
	Eligible for choice	13	56.6	65.7	45.8	57	38.6(14.8)	51.1(20.7)
	Not Eligible for choice	13	89.6	90.2	87.8	88.7	12.2(9.1)	23.1(20.5)
6	All	20	64.3	69.7	63.6	69.2	32.7(24.8)	45.7(34.4)
	Eligible for choice	20	29.7	32.5	29.4	32.5	50.5(22.8)	74.7(33.2)
	Not Eligible for choice	20	67.5	73.2	66.9	72.8	16.4(10.8)	42.6(33.1)
7	All	13	49.3	53.3	48.7	52.7	44.6(33.4)	57.9(40.4)
	Eligible for choice	13	8.5	12.7	8.2	12	67(25.5)	92.7(33.9)
	Not Eligible for choice	13	53.1	57.1	52.6	56.6	17.8(11.2)	53.6(39.1)
8	All	20	53.7	58.3	51.6	56.1	35.4(34.9)	45.6(40.3)
	Eligible for choice	20	0	0	0	0	82.5(29.9)	117.1(35.1)

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
	Not Eligible for choice	20	54.6	59.2	52.4	57.1	13.5(9.9)	44.1(39.1)
9	All	18	56	62.4	55.6	61.8	38.3(30.2)	51.2(38.5)
	Eligible for choice	18	18.2	19.3	17.6	18.7	65.2(29)	88.9(38.3)
	Not Eligible for choice	18	61.1	68.3	60.8	67.6	16.9(10.7)	45.4(35.1)
10	All	28	95.1	95.2	94.8	94.9	14.3(11.7)	22(16.5)
	Eligible for choice	28	62.2	71.9	57.7	67.9	32.5(10.6)	51.5(13.1)
	Not Eligible for choice	28	95.4	95.4	95.1	95.1	13.1(9.9)	21.8(16.3)
11	All	31	67.4	76.2	66.2	75.2	29.3(29.1)	39.2(34.7)
	Eligible for choice	31	41.3	53	40.9	51.6	49.6(33.5)	64.8(38.5)
	Not Eligible for choice	31	69.3	77.9	68	76.9	15(11.2)	37.6(33.8)
12	All	25	81.7	86	80.7	84.8	19.8(20.6)	28.6(28.7)
	Eligible for choice	25	51.8	45.9	52	45.7	47.1(33.5)	74.8(49.3)
	Not Eligible for choice	25	83.1	87.8	82.2	86.8	14.1(11.4)	27.1(26.5)
15	All	20	59.8	62.2	58.8	60.8	38.3(31.3)	51.9(41)
	Eligible for choice	20	14.5	10.7	15.3	11.6	74(25.8)	101.3(31.4
	Not Eligible for choice	20	65	68.1	63.9	66.6	16.6(10.9)	45.2(37.5)
16	All	30	48.5	51	47.6	50	45.6(43.3)	58.8(50.9)
	Eligible for choice	30	13.5	18.2	13.6	18.2	80(41.6)	106.2(49.2
	Not Eligible for choice	30	52.8	55	51.9	54.1	14(10.6)	52.8(47.9)
17	All	6	34.4	42.6	34	41.5	60.6(44.5)	75.5(52.8)
	Eligible for choice	6	14.4	16.2	14.6	16.2	81.2(41.5)	110.1(49.9
	Not Eligible for choice	6	36.4	45.2	35.9	44.1	23(11.8)	72.3(51.9)
18	All	16	68	69.3	67	68.3	36.6(41.7)	51.1(53.7)
	Eligible for choice	16	13.1	15	12.8	14.8	81.8(40.2)	114.1(54.4
	Not Eligible for choice	16	73.8	75.1	72.9	74.2	13.5(8.7)	42.4(47.4)
19	All	16	45.9	54.5	44.6	52.1	46(48)	57.4(56.9)
	Eligible for choice	16	10.4	14.6	10.1	13.7	103.3(53.7)	124.9(62.1)

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
	Not Eligible for choice	16	52.6	62	51.5	59.7	14(11)	44.5(45.6)
20	All	25	63.4	67.4	62.2	66.3	29(30.2)	41.6(42.6)
	Eligible for choice	25	12.4	19.3	13.2	19.8	65.6(31.5)	97.4(46.8)
	Not Eligible for choice	25	71.1	74.6	69.7	73.5	12.8(9.5)	33.9(35.6)
21	All	21	73.8	75.1	72.2	73.2	23.7(29.3)	33.1(36.9)
	Eligible for choice	21	11	7.3	10.3	7	83.1(46.7)	121(54.3)
	Not Eligible for choice	21	76.2	77.7	74.7	75.9	13(10)	30.6(33)
22	All	21	81.6	86.1	80.4	85.2	19.9(25.4)	25.9(29.2)
	Eligible for choice	21	2.5	9.5	2.5	10.1	79.3(27.5)	114.3(40.3)
	Not Eligible for choice	21	83.9	88.3	82.6	87.3	11.3(8.8)	24.4(26.6)
23	All	32	52.7	54.8	51.1	53.1	42.1(39.1)	58.2(51.1)
	Eligible for choice	32	13.5	16.9	13.3	16.4	70.2(34.4)	100.9(46.7)
	Not Eligible for choice	32	63.5	65.2	61.9	63.6	13.6(10.7)	46.7(45.9)

Table F-55 Access to Hospice care within 40 mile and 60 minute driving distances

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
All	All	962	77.2	79.9	76.2	78.9	22.7(25)	32.4(32.3)
	Eligible for choice	962	41.3	42	41.4	41.7	49.4(32)	72.7(43.5)
	Not Eligible for choice	962	80	82.9	79.1	82	12.8(10.5)	29.4(29.1)
1	All	49	88	89.6	87.6	89.2	16.1(15.9)	23.8(21.8)
	Eligible for choice	49	39.5	45.4	38.6	44.1	46.2(18.4)	68.1(26.8)
	Not Eligible for choice	49	89.9	91.4	89.7	91.2	11.7(9.5)	22.3(20)
2	All	17	75.2	79.8	75.7	80.2	24.3(21.7)	35.3(30.1)

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
	Eligible for choice	17	12.3	13.2	12.7	14	60.9(16.3)	95.6(29.1)
	Not Eligible for choice	17	76.9	81.6	77.2	81.8	14.4(11.6)	33.7(28.4)
3	All	47	98	98.5	97.8	98.4	6.6(7.7)	11.3(11.1)
	Eligible for choice	47	42.7	42.7	42.3	42.3	33.9(33.7)	58.5(52.3)
	Not Eligible for choice	47	98	98.5	97.9	98.4	6.1(6.4)	11.3(11)
4	All	55	94	93.4	94.1	93.6	15.9(13.6)	24.7(19.7)
	Eligible for choice	55	72.3	58.9	69.9	55.5	34.7(16.8)	53.1(25.4)
	Not Eligible for choice	55	94.4	94.1	94.6	94.4	13.8(10.6)	24.2(19.2)
5	All	24	88.2	89.8	85.3	87.2	13(14.2)	20.4(19.1)
	Eligible for choice	24	80.7	84.4	76.8	79.8	27.2(13.5)	38.8(16.5)
	Not Eligible for choice	24	88.3	89.9	85.4	87.2	9.7(8.4)	20.2(19)
6	All	43	76.6	78.9	76.1	78.6	26.9(26.1)	38.7(35.2)
	Eligible for choice	43	60	60.9	60.6	61.2	38.5(23.1)	59.4(35.5)
	Not Eligible for choice	43	78.1	80.6	77.7	80.3	15.4(11)	36.4(34.5)
7	All	34	71.8	73.9	70.5	72.7	31.8(27.6)	44.7(35.3)
	Eligible for choice	34	38.7	39.8	37.4	38	45.1(23.7)	67.8(34.5)
	Not Eligible for choice	34	74.9	77.1	73.6	76	16.4(10.7)	41.8(34.4)
8	All	24	58.2	61.5	56.8	60.1	34.7(31.8)	45.8(37.7)
	Eligible for choice	24	15.3	14.5	14	13.3	66(35.1)	96.5(48.9)
	Not Eligible for choice	24	58.9	62.3	57.6	60.9	14.5(10.2)	45(36.9)
9	All	37	69.1	76.4	69.1	76.1	30.3(22.2)	43(29.7)
	Eligible for choice	37	36.1	34.9	35.5	34.2	51.6(24.2)	74.3(32)
	Not Eligible for choice	37	73.6	82	73.7	81.7	18.2(11.8)	38.2(26.2)
10	All	46	97.8	97.2	97.6	97	11.6(9.9)	18.7(14.7)
	Eligible for choice	46	77.2	79	74.1	77.2	24.5(12.6)	42.4(17.2)
	Not Eligible for choice	46	97.9	97.3	97.8	97.2	11(8.9)	18.5(14.6)
11	All	68	89.3	90.1	88.9	89.6	17.5(16.3)	27.1(23.1)

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%) 40 miles	Enrollees (%) 60 min.	Users (%) 40 miles	Users (%) 60 min.	Mean (SD) drive distance and time to closest facility with the service — Miles	Mean (SD) drive distance and time to closest facility with the service — Minutes
	Eligible for choice	68	67.5	71.8	68.1	71	30.9(19)	45.9(24.9)
	Not Eligible for choice	68	91	91.4	90.4	90.9	13.7(11)	25.8(22.4)
12	All	55	81.7	87.3	80.3	86.1	17.7(16.7)	26.3(23)
	Eligible for choice	55	61.4	53.7	60.4	52.9	31.3(22.5)	54.2(38.9)
	Not Eligible for choice	55	82.7	88.8	81.3	87.8	12.9(11.4)	25.4(21.8)
15	All	52	79.1	79	78.3	78	24(20.3)	35.3(27.9)
	Eligible for choice	52	52.2	49.7	53.2	50	39.3(20.3)	60.1(28.1)
	Not Eligible for choice	52	82.1	82.3	81.3	81.3	14.9(11.3)	32(26.2)
16	All	47	59.8	63.3	59.9	63.2	34.4(29.8)	46(36.7)
	Eligible for choice	47	23.1	27.2	23.3	27.6	55.3(24.1)	79.4(33.1)
	Not Eligible for choice	47	64.2	67.7	64.6	67.7	14(10.5)	41.7(34.9)
17	All	25	69	79.9	68.9	79.6	30.9(27.3)	41.2(35.3)
	Eligible for choice	25	42.6	38	41.8	37.2	49.4(27.5)	70.6(35.2)
	Not Eligible for choice	25	71.6	84	71.7	83.9	18(11.8)	38.1(33.9)
18	All	35	69.5	73.9	69.2	73.1	36.1(37.6)	49.1(47.8)
	Eligible for choice	35	17.5	19.2	17.5	19.4	64.8(37.1)	96.2(53.7)
	Not Eligible for choice	35	75.1	79.8	74.9	79	16.2(12)	42.7(43.1)
19	All	50	59.3	62.1	59.6	61.9	38(43.8)	48.6(52.3)
	Eligible for choice	50	21.9	26.9	22.5	27.3	78.9(45.5)	105(57)
	Not Eligible for choice	50	66.3	68.7	67	68.8	11.7(10.1)	36(41.8)
20	All	47	78.3	81.8	77.9	81.5	21.3(20.7)	31.4(30)
	Eligible for choice	47	38	45.8	39.3	46.8	46.5(30.7)	70.9(47.9)
	Not Eligible for choice	47	84.3	87.2	83.8	86.8	13.7(10)	25.6(20.9)
21	All	38	79.2	79.7	77.9	78.7	18.5(20.8)	28.4(30)
	Eligible for choice	38	20.1	19.3	21.4	20.8	64.3(40.8)	97.1(49.7)
	Not Eligible for choice	38	81.4	82	80.3	81.1	11.2(10)	26.3(26.5)
22	All	30	88.6	90.4	88	89.8	15(19.2)	21.1(23.7)

VISN	Choice Eligibility	Hospitals with the service (N)	Enrollees (%)		Users (%)		Mean (SD) drive distance and time to closest facility with the service	
			40 miles	60 min.	40 miles	60 min.	Miles	Minutes
	Eligible for choice	30	33.7	33.1	31.4	30.6	66.3(41.9)	93.4(55.2)
	Not Eligible for choice	30	90.2	92.1	89.6	91.5	9.8(8.1)	19.8(20.5)
23	All	139	86.8	86.2	86.1	85.4	19(22.4)	30.2(32.3)
	Eligible for choice	139	61.1	57.4	60.5	56.7	39.5(31.4)	61.1(44)
	Not Eligible for choice	139	93.9	94.1	93.4	93.6	11(10.1)	21.5(21.3)

Appendix F.5 Access to Non-VA Specialists

This section, Tables F-56 to F-67, provides more limited information for non-VA physician services from our analysis of the SK&A physician database. For each service, the tables show the mean distance in miles and the mean travel time in minutes for all enrollees, enrollees eligible for Choice, and enrollees not eligible for Choice. The percent of enrollees and users with access is not included. The physician services include cardiologists (Table F-56), endocrinologists (Table F-57), gastroenterologists (Table F-58), general surgeons (Table F-59), hematologists-oncologists (Table F-60), mental health providers (psychologists and psychiatrists((Table F-61), neurosurgeons (Table F-62), neurologists (Table F-63), obstetricians and gynecologists (Table F-64), physical medicine and rehabilitation specialists (Table F-65), primary care physicians (Table F-66), and thoracic surgeons (Table F-67).

All tables show the mean driving distance (in miles) and driving time (in minutes), along with the standard deviation for each. The mean driving distance is defined as the mean distance along the existing road network (as opposed to straight-line distance) for all enrollees in that VISN to the hospital nearest where they live. For these analyses we used a cutoff of 40 miles, meaning that we took the mean driving distance and mean drive time to the nearest non-VA providing within 40 miles.

In some cases the standard deviation is larger than the mean distance or driving time. This suggests that the distribution of mean distances and driving times skews to the right, meaning that a few enrollees live quite far from the nearest physician office. This would tend to be the case in more rural areas.

Data in Tables F56-F67 are RAND estimates derived from the VA Planning Systems Support Group (PSSG) Enrollee file and the SK&A Office-Based Physician, Nurse Practitioner, and Physician Assistant Database.

Table F-56 Access to Cardiologists

VISN	All Enrollees		Eligible for Choice		Not Eligible for Choice	
	Mean (sd) distance in miles	**Mean (sd) time in minutes**	**Mean (sd) distance in miles**	**Mean (sd) time in minutes**	**Mean (sd) distance in miles**	**Mean (sd) time in minutes**
Overall	8.7(8.5)	12.9(9.4)	19.1(10.7)	22.9(11.1)	8.4(8.2)	12.6(9.2)
1	8(8)	11.8(8.8)	18.5(10.8)	20.3(9.8)	7.9(7.9)	11.7(8.7)
2	11.6(9.6)	16.3(10.5)	20.9(11.6)	27.6(12)	11.5(9.5)	16.2(10.4)
3	3.1(3.7)	6.1(5.9)	18.5(10)	26.4(3.7)	3.1(3.6)	6.1(5.9)
4	8.7(8.2)	13.3(9.7)	17.6(11.2)	22.9(10.1)	8.6(8.1)	13.3(9.7)
5	7.4(7.5)	11.8(8.7)	14(8.9)	19.9(8.3)	7.3(7.5)	11.7(8.7)
6	12.4(9.4)	18(10)	16.7(9.3)	23.5(10.6)	12.1(9.3)	17.6(9.9)
7	12.1(9.4)	17.2(9.6)	20.6(10.5)	24(10.2)	11.5(8.9)	16.8(9.4)
8	7.4(6.9)	12.4(8.2)	15.7(11.2)	17.9(11.9)	7.3(6.7)	12.3(8.1)
9	12.6(9.7)	17.2(10.2)	19.5(9.9)	24.8(9.9)	11.9(9.3)	16.6(10)
10	8(7.4)	12.7(8.9)	17(7)	26.2(7.8)	8(7.3)	12.7(8.9)
11	10(8.8)	14.8(10.2)	16.1(10.2)	20.9(11.8)	9.7(8.6)	14.5(10.1)
12	7.3(8.2)	10.9(8.9)	21.2(9.8)	22.7(12.7)	7.2(8)	10.8(8.8)
15	11.8(10.5)	14.8(10)	19.4(11)	23.4(11.7)	11.4(10.3)	14.4(9.8)
16	10.4(9.3)	14.7(9.7)	21.2(10.8)	23.8(11.5)	9.7(8.8)	14.4(9.4)
17	9.2(8.4)	13.7(8.9)	21.2(10.8)	24.5(11.2)	8.6(7.7)	13.3(8.5)
18	8.2(8)	12.9(8.5)	13.5(12.6)	14.9(10.4)	8.1(7.8)	12.9(8.5)
19	8.6(8)	13.2(8.8)	15.7(12.4)	16.4(11.3)	8.1(7.4)	13.1(8.6)
20	9.6(8.5)	14.4(9.2)	18.4(10.4)	22.6(10.8)	9.2(8.3)	14.2(9)
21	7.2(7.3)	11.1(8.1)	21(8)	29.1(7.4)	7.1(7.2)	11(8)
22	5.6(5.5)	9.7(6.7)	15.9(10.1)	23.1(10.4)	5.5(5.4)	9.7(6.6)
23	11.9(10.4)	14.8(10.3)	23.2(10.3)	25.8(10.8)	10.9(9.7)	14.2(9.9)

Table F-57 Access to Endocrinologists

VISN	All Enrollees		Eligible for Choice		Not Eligible for Choice	
	Mean (sd) distance in miles	Mean (sd) time in minutes	Mean (sd) distance in miles	Mean (sd) time in minutes	Mean (sd) distance in miles	Mean (sd) time in minutes
Overall	9.8(9)	13.8(9.2)	24.2(11.2)	24.2(10.9)	9.6(8.8)	13.7(9.2)
1	8.9(8.2)	13(9.1)	36.2(5.2)	0(0)	8.8(8.1)	13(9.1)
2	13(10.3)	16.2(10.4)	14.4(7.4)	19.1(13.4)	13(10.3)	16.2(10.4)
3	4.5(5.1)	8(7)	18.5(10)	26.4(3.7)	4.5(5.1)	8(7)
4	10.7(9.4)	15(9.9)	22.9(11)	24.5(7.8)	10.6(9.3)	14.9(9.9)
5	8.2(7.6)	13(8.6)	16.3(7.9)	24.1(7.8)	8.1(7.6)	12.9(8.6)
6	14.3(10.5)	18.4(9.8)	20.7(12.8)	20.2(11.7)	14(10.3)	18.3(9.7)
7	13.8(10.2)	17.9(9.8)	21.3(11.5)	19.7(9.7)	13.6(10.1)	17.9(9.8)
8	8.9(7.5)	14.1(8.4)	24.4(12.6)	10.7(4.6)	8.8(7.4)	14.1(8.4)
9	15(11.4)	17.2(10.3)	24.2(9.8)	27.7(9.4)	14.5(11.2)	16.8(10.2)
10	10.4(9.1)	14.5(9.4)	30.2(9.9)	28.1(0.7)	10.3(9)	14.5(9.4)
11	11.7(9.7)	15.5(9.5)	26.8(11.2)	26.1(12.5)	11.3(9.4)	15.3(9.4)
12	8.1(8.2)	12(8.8)	26.6(8.5)	30.1(13.6)	8.1(8.1)	12(8.7)
15	11.8(9.9)	14.9(9)	28.6(12)	21.4(17.2)	11.5(9.7)	14.9(8.9)
16	11.1(9.4)	15.4(9.3)	25.5(10.7)	24.3(9.2)	10.8(9.1)	15.3(9.3)
17	10.8(9)	15.3(9.4)	25.5(10.9)	23.2(12.9)	10.5(8.7)	15.2(9.4)
18	9.3(7.3)	15(8.5)	16.2(13.1)	19.9(11.4)	9.3(7.2)	15(8.4)
19	9.8(8.7)	14.4(8.9)	17.3(12.5)	18.3(12)	9.7(8.6)	14.3(8.9)
20	10.3(9)	15.1(9.3)	23.1(8.5)	29.1(5.7)	10.1(8.9)	14.9(9.2)
21	9.3(8.4)	13(8.8)	27.9(8.7)	29.7(10.4)	9.2(8.3)	13(8.8)
22	6.9(6)	11.3(7)	28.8(11.2)	33.7(5.5)	6.9(5.9)	11.3(6.9)
23	10.3(9.4)	13.7(9.2)	28.7(6.8)	33(5.4)	9.8(8.9)	13.6(9)

Table F-58 Access to Gastroenterologists

VISN	All Enrollees		Eligible for Choice		Not Eligible for Choice	
	Mean (sd) distance in miles	Mean (sd) time in minutes	Mean (sd) distance in miles	Mean (sd) time in minutes	Mean (sd) distance in miles	Mean (sd) time in minutes
Overall	9.2(8.8)	13.2(9.4)	20.3(11)	22.6(10.9)	8.9(8.6)	13.1(9.3)
1	8.2(8)	12(8.7)	21.3(10.1)	23.5(10.2)	8(7.8)	11.9(8.6)
2	12.6(9.9)	17.2(10.8)	22.3(9)	30(9.9)	12.5(9.9)	17.2(10.7)
3	3.6(4.3)	6.8(6.4)	18.5(10)	26.4(3.7)	3.6(4.3)	6.7(6.4)
4	10(9)	14.5(10.1)	21.5(11)	25.9(10.8)	9.9(8.9)	14.4(10.1)
5	7.8(7.8)	12.4(9)	13.3(9.3)	18.8(9.2)	7.8(7.8)	12.3(9)
6	13(10.1)	17.5(10.2)	18.1(10.5)	22.1(11)	12.6(10)	17.3(10.2)
7	12.3(9.7)	16.9(9.7)	19.5(10.5)	23.5(10.6)	11.9(9.5)	16.6(9.5)
8	7.8(7)	13(8.3)	23.5(9.6)	23.7(11.8)	7.7(6.7)	12.9(8.3)
9	13.1(10.1)	17.2(10.2)	21.2(9.8)	25.7(9.8)	12.4(9.8)	16.7(10.1)
10	9.6(8.5)	14(9.3)	23.9(11.7)	24.5(6.9)	9.5(8.5)	13.9(9.3)
11	11.8(10.1)	15.4(10)	19(11.7)	21(12.1)	11.5(9.9)	15.2(9.9)
12	7.2(7.6)	11.2(8.6)	24.6(8.2)	28.1(10.6)	7.1(7.4)	11.1(8.6)
15	11.3(10.3)	14.5(9.8)	28.6(9)	30.1(6.9)	11(10)	14.4(9.7)
16	10.9(9.3)	15.3(9.4)	22(11.1)	20.8(8.7)	10.4(8.9)	15.2(9.4)
17	9.5(8.6)	13.8(8.9)	22.7(9.9)	25.2(10.6)	9.1(8.3)	13.6(8.8)
18	7.9(7.2)	13.2(8.2)	13.8(12.9)	15.5(7.3)	7.9(7.2)	13.2(8.2)
19	8.8(8.5)	13.4(9.1)	15.3(13)	15.9(11.2)	8.4(8.1)	13.3(9)
20	9.7(8.9)	14.4(9.3)	16.2(10.4)	20(10.4)	9.5(8.8)	14.3(9.2)
21	7.8(7.6)	11.7(8.6)	23.1(8)	31.8(6.2)	7.7(7.4)	11.7(8.5)
22	6.6(6.4)	10.7(7.1)	19.2(13.8)	21.2(12.5)	6.5(6.3)	10.6(7.1)
23	12.3(10.8)	14.8(10.3)	23.2(10.3)	24.8(11.6)	11.7(10.5)	14.5(10.1)

Table F-59 Access to General Surgeons

VISN	All Enrollees		Eligible for Choice		Not Eligible for Choice	
	Mean (sd) distance in miles	Mean (sd) time in minutes	Mean (sd) distance in miles	VISN	Mean (sd) distance in miles	Mean (sd) time in minutes
Overall	8.7(8.5)	12.9(9.4)	18.4(10.7)	22.3(11.3)	8.3(8.1)	12.6(9.2)
1	8.1(8)	11.9(8.9)	18.4(9.2)	23.7(10.3)	7.9(7.8)	11.8(8.8)
2	11.2(9.6)	15.7(10.8)	20.7(10.8)	27.2(11.5)	11.1(9.6)	15.5(10.7)
3	3.8(4.6)	7(6.6)	18.5(10)	26.4(3.7)	3.8(4.6)	7(6.6)
4	8(7.7)	12.7(9.4)	17.4(10)	23.3(9.7)	7.9(7.6)	12.7(9.4)
5	7.5(7.4)	12(8.6)	14.1(8.5)	19(6.1)	7.4(7.4)	11.9(8.6)
6	12.4(9.2)	17.9(10)	17.5(9.6)	23.5(10.3)	12(9.1)	17.5(9.9)
7	11.9(8.9)	17.5(9.9)	18(9.8)	23.2(10.2)	11.3(8.6)	17.1(9.7)
8	7.5(6.7)	12.7(8.5)	17.1(9.5)	23.2(11.5)	7.4(6.6)	12.6(8.4)
9	12.6(9.8)	17.1(10.4)	18.5(10)	23.8(10.2)	11.9(9.5)	16.5(10.2)
10	8.1(7.6)	12.7(9)	20.1(8.5)	25.4(6.3)	8.1(7.6)	12.6(9)
11	9.5(8.5)	14.2(10)	15(9.9)	20.4(11.4)	9.2(8.4)	13.9(9.8)
12	7(7.5)	11(8.8)	19.3(10.5)	23.3(12.7)	6.8(7.2)	10.9(8.7)
15	11.6(10.3)	14.9(10.2)	20(11)	23.3(12.1)	11(10)	14.4(9.9)
16	10.8(9.4)	15(9.7)	20.9(10.3)	23.7(10.9)	10(8.9)	14.6(9.5)
17	9(8.4)	13.2(8.8)	20.9(11)	22.8(12.1)	8.2(7.6)	12.8(8.5)
18	8.3(8)	13(8.7)	14.4(13.2)	15.1(13)	8(7.6)	13(8.5)
19	8.8(8.7)	12.9(9.1)	17(12.8)	17.4(11.6)	7.9(7.7)	12.5(8.8)
20	9.9(9.3)	14.3(9.3)	15.7(10.5)	21.2(11.3)	9.5(9)	13.9(9.1)
21	7.4(7.4)	11.2(8.3)	20.9(9.1)	28.3(9.8)	7.2(7.2)	11.1(8.2)
22	5.5(5.4)	9.5(6.7)	15.6(12.3)	20(12.6)	5.4(5.3)	9.5(6.6)
23	11.6(10.4)	14.4(10.6)	20.5(10.6)	23.5(11.9)	10.3(9.8)	13.6(10.1)

Table F-60 Access to Hematologists-Oncologists

VISN	All Enrollees		Eligible for Choice		Not Eligible for Choice	
	Mean (sd) distance in miles	Mean (sd) time in minutes	Mean (sd) distance in miles	Mean (sd) time in minutes	Mean (sd) distance in miles	Mean (sd) time in minutes
Overall	9.7(8.8)	13.9(9.4)	19.6(10.9)	22.6(11)	9.4(8.6)	13.8(9.3)
1	8.8(8)	12.9(8.9)	21.3(10.4)	23.5(10.3)	8.6(7.8)	12.9(8.8)
2	13(10.2)	16.7(10.5)	22.6(9.1)	30.8(5.9)	13(10.2)	16.6(10.4)
3	4.5(5)	7.9(6.9)	18.5(10)	26.4(3.7)	4.4(5)	7.9(6.9)
4	9.8(8.8)	14.4(9.8)	19.9(11.4)	22.5(10.2)	9.7(8.7)	14.3(9.8)
5	8.3(7.4)	13.2(8.6)	13.3(9.3)	18.8(9.2)	8.2(7.3)	13.1(8.5)
6	13.2(9.5)	18.5(9.9)	17.4(9.6)	23(10)	12.9(9.4)	18.2(9.8)
7	12.9(9.2)	18.2(9.7)	19.3(11)	23.8(10.6)	12.5(8.9)	17.9(9.6)
8	8.1(6.9)	13.4(8.2)	22.8(10.2)	21.9(11.4)	8(6.7)	13.4(8.1)
9	14.1(10.3)	18.2(10.4)	20.2(10.6)	23.5(10.7)	13.5(10)	17.8(10.2)
10	9.9(8.5)	14.4(9.3)	20.1(8.2)	27(8.5)	9.8(8.4)	14.4(9.3)
11	11.6(9.3)	16.2(10)	17.3(9.9)	22.2(11.6)	11.4(9.2)	15.9(9.8)
12	7.7(7.7)	11.9(8.8)	20.6(10.7)	21.6(11.7)	7.6(7.5)	11.9(8.8)
15	13(10.7)	15.9(10.3)	19.6(11.7)	21.8(13)	12.6(10.5)	15.7(10.1)
16	11.4(9.7)	15.4(9.5)	22.3(10.5)	23.2(9.7)	10.9(9.3)	15.2(9.4)
17	10.9(9.1)	15.5(9.6)	21.1(11.3)	23.5(11.9)	10.4(8.8)	15.3(9.5)
18	8.9(7.7)	14.4(8.5)	10.7(11.9)	13.6(10.5)	8.9(7.6)	14.4(8.5)
19	9.4(8.2)	14.3(9.2)	14(11.2)	17.2(9.8)	9.2(8)	14.2(9.2)
20	10(8.9)	14.5(9.1)	18(11.1)	22.4(12)	9.6(8.6)	14.2(8.8)
21	8.4(8)	12.3(8.8)	23.8(8.1)	32.2(8.1)	8.3(7.9)	12.3(8.7)
22	6.6(6.6)	10.7(7.1)	16.8(11.5)	23.4(12.3)	6.6(6.5)	10.6(7)
23	12.6(10.6)	15.1(10.3)	23.4(11.1)	23.6(11.8)	11.5(9.9)	14.6(10)

Table F-61 Access to Mental Health Providers (Psychologists and Psychiatrists)

VISN	All Enrollees		Eligible for Choice		Not Eligible for Choice	
	Mean (sd) distance in miles	Mean (sd) time in minutes	Mean (sd) distance in miles	Mean (sd) time in minutes	Mean (sd) distance in miles	Mean (sd) time in minutes
Overall	7.7(8.2)	11.6(9.3)	18.5(10.6)	22.5(11.2)	7.2(7.8)	11.3(9)
1	6.4(6.9)	10.4(8.4)	16.6(10.3)	21.4(11.2)	6.2(6.6)	10.2(8.3)
2	9.3(8.3)	14.2(10.6)	18.4(7.5)	28.6(9.5)	9.1(8.3)	14(10.5)
3	3(3.6)	5.9(5.7)	14.5(3.1)	30.1(6.9)	3(3.6)	5.9(5.7)
4	7.3(7.6)	11.7(9.4)	17.1(9.3)	23(10)	7.2(7.5)	11.6(9.3)
5	6.2(6.9)	10.4(8.2)	12.2(7.5)	19(8.2)	6.2(6.8)	10.4(8.2)
6	11(9.2)	15.9(9.9)	18.4(9.3)	24.1(10.4)	10.3(8.9)	15.4(9.6)
7	10.6(9.2)	15.5(10)	19.3(10.5)	23.9(10.2)	9.8(8.7)	15(9.7)
8	6.7(6.5)	11.5(8.2)	21.8(9.7)	25(10.3)	6.5(6.3)	11.5(8.1)
9	11.7(9.7)	16.4(10.6)	19.4(9.7)	25(10.3)	10.8(9.2)	15.7(10.3)
10	7.5(7.7)	11.7(9)	21.4(9.2)	22.8(5.4)	7.4(7.6)	11.7(9)
11	8.6(8.7)	12.7(10)	15.3(10.1)	21.1(11.8)	8.3(8.5)	12.4(9.7)
12	6.1(6.9)	9.9(8.7)	18.5(9.6)	25.3(12.2)	5.9(6.7)	9.7(8.5)
15	11.3(10.5)	14(10.4)	20.1(10.1)	25(12.1)	10.7(10.3)	13.4(10)
16	10.1(9.5)	14.1(9.9)	19.5(10.8)	22.4(10.3)	9.3(9)	13.7(9.6)
17	8.7(8.6)	12.7(9)	21.2(11.7)	22.1(12.5)	8(7.9)	12.4(8.7)
18	7.1(7.6)	11.5(8.7)	13.1(12.4)	14.2(11.1)	6.9(7.4)	11.4(8.6)
19	7(7.8)	11(8.4)	13.1(11.8)	15.4(10.6)	6.5(7.1)	10.7(8.2)
20	8.1(8.3)	12.5(9)	16.7(11)	20.2(11.4)	7.6(7.8)	12.1(8.7)
21	5.7(6.4)	9.6(8)	19.6(10.3)	26.3(9.9)	5.5(6.1)	9.4(7.9)
22	4.4(4.8)	8.2(6.3)	18.6(10.2)	24.6(12)	4.3(4.6)	8.1(6.2)
23	10.7(10.3)	13.6(10.7)	20.7(10.7)	23.3(11.7)	9.5(9.6)	12.9(10.3)

Table F-62 Access to Neurosurgeons

VISN	All Enrollees		Eligible for Choice		Not Eligible for Choice	
	Mean (sd) distance in miles	Mean (sd) time in minutes	Mean (sd) distance in miles	Mean (sd) time in minutes	Mean (sd) distance in miles	Mean (sd) time in minutes
Overall	11(9.2)	15.1(9.4)	23.6(11.3)	24(10.8)	10.8(9.1)	15(9.3)
1	11.4(9)	15.6(9.5)	27.9(4.7)	35.4(0.7)	11.4(8.9)	15.6(9.5)
2	12.8(10.5)	15.9(10.2)	26.6(11.9)	28.6(.)	12.8(10.5)	15.9(10.2)
3	7.1(6.8)	10.8(7.6)	36.8(0.9)		7.1(6.8)	10.8(7.6)
4	11.3(9.6)	15.7(10.2)	18.8(11.8)	22.2(11.4)	11.2(9.6)	15.7(10.2)
5	9.8(8.1)	14.5(9.1)	26.4(5.4)	33.1(2)	9.6(8)	14.4(9)
6	15(10.6)	18.8(9.7)	23.3(12.2)	22.8(10.7)	14.8(10.5)	18.7(9.7)
7	14(10.2)	18.2(9.7)	19.6(10.4)	24.2(9.1)	13.9(10.2)	18.1(9.7)
8	9.9(7.6)	15.2(8.5)	30.1(1.9)		9.8(7.6)	15.2(8.5)
9	15.9(10.9)	19.2(10.6)	24(10.7)	26.1(11.6)	15.5(10.7)	19.1(10.5)
10	11.8(9.6)	15.8(9.5)	21(14.5)	28.9(10)	11.8(9.6)	15.8(9.5)
11	12.3(10.2)	16(9.8)	23.3(10.4)	24.7(11.5)	12(10)	15.8(9.7)
12	9.5(8.7)	13.3(9)	22.4(10.8)	21.2(15.3)	9.4(8.7)	13.3(8.9)
15	12(9.8)	15.3(9.2)	22.9(12.4)	23.9(14)	12(9.7)	15.3(9.2)
16	12.1(9.7)	16.6(9.6)	24.1(11.9)	23(10.3)	11.7(9.4)	16.5(9.6)
17	11.9(9.2)	16.5(9.2)	28.8(10.4)	27.7(6.8)	11.7(9.1)	16.4(9.2)
18	10(7.3)	16(8.4)	39.7(0.1)		9.9(7.2)	16(8.4)
19	10.8(9.1)	15.7(9.6)	20.1(13.1)	19.3(10.4)	10.5(8.8)	15.7(9.6)
20	11.4(9.1)	15.9(9.3)	17(10.9)	21.7(11)	11.3(9.1)	15.9(9.3)
21	10.7(9.2)	14.5(9.3)	33(4.1)		10.7(9.2)	14.5(9.3)
22	8(6.7)	12.6(7.7)	35.9(3.1)	35.8(.)	8(6.7)	12.6(7.7)
23	11.5(10.1)	14.1(9.5)	31.1(7.9)	28.7(17.3)	11(9.7)	14(9.4)

Table F-63 Access to Neurologists

VISN	All Enrollees		Eligible for Choice		Not Eligible for Choice	
	Mean (sd) distance in miles	Mean (sd) time in minutes	Mean (sd) distance in miles	Mean (sd) time in minutes	Mean (sd) distance in miles	Mean (sd) time in minutes
Overall	9(8.7)	13(9.3)	20.4(10.9)	23.1(10.9)	8.7(8.4)	12.8(9.1)
1	8(7.7)	12(8.8)	18.8(10.1)	23.3(9.5)	7.9(7.5)	11.9(8.7)
2	12(10.1)	16(10.6)	19.8(7.8)	30.4(10.7)	11.9(10.1)	15.9(10.6)
3	3.9(4.6)	7.1(6.8)	18.5(10)	26.4(3.7)	3.9(4.6)	7.1(6.8)
4	9.7(8.9)	14.1(10)	20.9(11.7)	23.1(10.5)	9.5(8.8)	14(10)
5	7.7(7.6)	12.1(8.4)	15.3(7.5)	21.5(6.1)	7.6(7.6)	12.1(8.4)
6	12.8(10.1)	17.5(10.1)	17.4(10.2)	22.6(11)	12.5(10)	17.2(10)
7	12.4(9.4)	17.4(9.6)	20.5(10.8)	22.7(9.9)	11.9(9.1)	17.2(9.5)
8	7.4(6.8)	12.3(7.8)	24.1(11.2)	17.4(11.5)	7.2(6.6)	12.3(7.8)
9	13(10.4)	16.6(10.1)	21.9(10.5)	25(10.5)	12.2(10)	16.2(9.9)
10	9.6(8.5)	14(9.4)	22.5(8.9)	25.8(6.7)	9.5(8.4)	14(9.3)
11	10.8(9.5)	14.9(9.9)	18(10.5)	22.4(12.1)	10.5(9.3)	14.6(9.7)
12	7.4(7.9)	11.3(8.8)	19.9(8.7)	26.5(10.2)	7.3(7.7)	11.2(8.7)
15	11.4(10.3)	14.2(9.5)	24.6(10.9)	25.4(11.4)	11.1(10)	14(9.4)
16	10.7(9.4)	14.9(9.4)	22(11)	23.5(10.4)	10.2(9.1)	14.7(9.3)
17	9.3(8.4)	13.9(8.7)	24.4(10)	27.1(8.6)	9(8)	13.8(8.6)
18	7.9(7.6)	12.8(8.3)	11.5(11.5)	12.5(7.5)	7.8(7.5)	12.8(8.3)
19	8.1(7.8)	12.6(8.5)	17(12)	18.9(11.6)	7.7(7.4)	12.4(8.3)
20	9.2(8.8)	13.7(9)	17.3(11.8)	19.9(11.8)	9(8.6)	13.5(8.9)
21	7.8(7.8)	11.7(8.4)	25.8(8.8)	30.7(6.5)	7.8(7.7)	11.6(8.4)
22	6(6.2)	9.9(7)	26.5(10.6)	26.9(11.5)	5.9(6.1)	9.9(7)
23	11.2(10)	14.2(10)	25.1(9.6)	27(9.9)	10.4(9.5)	13.9(9.8)

Table F-64 Access to Obstetricians & Gynecologists

VISN	All Enrollees		Eligible for Choice		Not Eligible for Choice	
	Mean (sd) distance in miles	Mean (sd) time in minutes	Mean (sd) distance in miles	Mean (sd) time in minutes	Mean (sd) distance in miles	Mean (sd) time in minutes
Overall	7.9(8.3)	12(9.2)	18.5(11.1)	21.8(11.5)	7.5(7.9)	11.7(9)
1	7.2(7.4)	11.1(8.6)	19.2(9.7)	24.3(9.7)	7(7.1)	10.9(8.4)
2	10.2(9.5)	14.6(10.9)	19.4(9.5)	28.3(10.3)	10.1(9.5)	14.4(10.8)
3	3(3.7)	5.9(5.7)	18.5(10)	26.4(3.7)	3(3.7)	5.9(5.7)
4	7.7(7.6)	12.3(9.3)	16.3(11.1)	19.2(9.4)	7.6(7.5)	12.3(9.3)
5	6.3(6.8)	10.6(8.2)	12.7(8.5)	19.9(9.8)	6.3(6.7)	10.5(8.1)
6	11.1(9.1)	16.5(9.9)	17.4(10.1)	22.6(10.5)	10.6(8.8)	16.1(9.7)
7	11(9.1)	16(9.9)	18(10.3)	22.6(10.5)	10.4(8.7)	15.5(9.7)
8	7.2(6.7)	12.2(8.4)	18.6(10.7)	20.6(13.6)	7.1(6.5)	12.2(8.3)
9	12.2(9.9)	16.4(10.2)	18.6(10)	24(10.5)	11.5(9.6)	15.8(10)
10	7.8(7.2)	12.5(8.9)	15.7(7)	23.3(6.7)	7.7(7.2)	12.4(8.9)
11	8.7(8.4)	13.3(10)	15.7(10.4)	20.5(12)	8.3(8.1)	12.9(9.8)
12	6.2(7.4)	9.8(8.6)	20.2(9.8)	25.8(13.1)	6.1(7.2)	9.7(8.5)
15	11.4(10.6)	14.1(10.2)	20.3(11.9)	22(13.1)	10.8(10.3)	13.8(10)
16	10(9.5)	13.9(9.7)	20.6(11.5)	22(11.4)	9.2(8.9)	13.6(9.4)
17	8.3(8.3)	12.5(8.8)	21.1(11.4)	22.7(12.2)	7.6(7.5)	12.2(8.5)
18	7.1(7.5)	11.7(8.3)	13.8(13.9)	12.1(10)	6.9(7.2)	11.7(8.3)
19	7.9(8.6)	11.7(9)	16.8(13.1)	16.3(11.1)	7(7.5)	11.4(8.7)
20	8.8(8.5)	13.4(9)	16.3(10.6)	21(11.6)	8.3(8)	13(8.7)
21	6.5(6.7)	10.5(8.1)	20(9)	26.7(9.9)	6.3(6.5)	10.3(8)
22	4.4(4.9)	8.2(6.4)	18.5(12.6)	20.4(12.8)	4.3(4.6)	8.2(6.3)
23	11.2(10.5)	13.8(10.5)	21.5(10.9)	23.6(12.2)	10(9.8)	13.2(10)

Table F-65 Access to Physical Medicine & Rehabilitation Specialists

VISN	All Enrollees		Eligible for Choice		Not Eligible for Choice	
	Mean (sd) distance in miles	Mean (sd) time in minutes	Mean (sd) distance in miles	Mean (sd) time in minutes	Mean (sd) distance in miles	Mean (sd) time in minutes
Overall	9.4(8.9)	13.4(9.4)	21.4(11.7)	22.1(11)	9.2(8.7)	13.4(9.3)
1	9.5(8.2)	13.8(9)	21.2(11.4)	23(10.4)	9.4(8.1)	13.7(9)
2	12.7(10.6)	16.1(10.6)	19.5(13.1)	21.7(11.7)	12.7(10.6)	16.1(10.6)
3	4.1(5.3)	7.3(7.2)	19(0.9)	35.3(3.7)	4.1(5.3)	7.3(7.2)
4	9.3(8.8)	13.6(9.8)	19.9(13)	18.8(8.3)	9.3(8.7)	13.6(9.8)
5	7.9(7.3)	12.5(8.3)	20.8(9)	22(3.5)	7.8(7.2)	12.5(8.3)
6	12.8(9.9)	17.3(9.6)	20.2(11.7)	22.4(10.4)	12.4(9.7)	17.1(9.5)
7	12.4(9.9)	16.6(9.7)	21.3(12.1)	20.4(9.6)	12.1(9.8)	16.5(9.7)
8	8.5(7.4)	13.8(8.6)	22.8(10.8)	19.4(11.4)	8.4(7.3)	13.8(8.6)
9	14.2(10.1)	18.4(9.9)	24.7(9.5)	28.2(8.2)	13.6(9.8)	18.1(9.8)
10	9.6(8.3)	14.1(9.3)	23.1(9.5)	23.3(7)	9.5(8.3)	14(9.3)
11	10.9(9.8)	14.8(10)	18.1(11.6)	20.7(12.2)	10.7(9.7)	14.6(9.9)
12	8.2(8.5)	11.8(8.9)	25.9(9.3)	26.2(11.5)	8(8.4)	11.7(8.9)
15	11.6(10.2)	14.4(9)	28.6(12.1)	23.4(14.2)	11.4(10)	14.3(9)
16	11.4(9.6)	16(9.8)	21.9(12)	23.1(9.8)	11.1(9.4)	15.9(9.8)
17	10(8.7)	14.5(9.1)	26.5(9.6)	26.2(10.2)	9.7(8.4)	14.4(9)
18	8.6(7.4)	14.3(8.7)	36.3(.)	--	8.6(7.4)	14.3(8.7)
19	8.5(8.6)	12.3(8.6)	15.6(12.6)	16.2(11.1)	8.1(8.1)	12.2(8.4)
20	9.9(8.9)	14.4(9.4)	20.8(7.2)	27.7(8.5)	9.6(8.8)	14.2(9.3)
21	8.8(8.7)	12.1(8.8)	25.3(8.9)	31.8(4.8)	8.7(8.6)	12.1(8.8)
22	7.3(6.7)	11.5(7.6)	37.3(2.4)	39.8(.)	7.2(6.6)	11.5(7.5)
23	11.3(10.3)	14.1(10.1)	25.3(11.7)	19.8(14)	10.8(9.9)	14(10)

Table F-66 Access to Primary Care Physicians

VISN	All Enrollees		Eligible for Choice		Not Eligible for Choice	
	Mean (sd) distance in miles	Mean(sd) time in minutes	Mean (sd) distance in miles	Mean (sd) time in minutes	Mean (sd) distance in miles	Mean (sd) time in minutes
Overall	5.8(6.5)	10.2(8.8)	14.9(9)	21.8(10.7)	5.2(5.9)	9.6(8.2)
1	5(5.2)	9.2(7.7)	14.5(7.5)	23.2(9.5)	4.7(4.8)	8.8(7.3)
2	6.7(6.6)	12.1(9.3)	13.6(6.9)	24.9(10.5)	6.6(6.5)	11.8(9.1)
3	2(2.5)	4.2(4.3)	9.1(5.2)	18.6(9.1)	2(2.5)	4.2(4.3)
4	4.8(5)	9.1(7.6)	12.1(7.6)	20.2(8.4)	4.6(4.8)	9(7.5)
5	4.3(4.6)	8.4(6.8)	10.2(6.4)	18.6(8.9)	4.2(4.6)	8.3(6.7)
6	7.8(6.8)	13.9(9.1)	13.1(7.5)	21.5(9.7)	7.3(6.4)	13.2(8.7)
7	7.9(6.7)	14.2(9.2)	13.7(7.7)	21.8(9.6)	7.2(6.2)	13.4(8.8)
8	4.8(5)	9.3(7.2)	13.4(8.8)	19.2(9.9)	4.6(4.8)	9.2(7.1)
9	9(7.5)	15.2(9.8)	14.1(7.8)	22.6(9.6)	8.2(7.2)	14.2(9.5)
10	5(4.9)	9.8(7.8)	11.8(4.9)	21.7(6.6)	5(4.9)	9.8(7.8)
11	6.1(6.1)	11.4(9.1)	11.2(7.9)	19.3(11.1)	5.8(5.8)	10.9(8.8)
12	4.6(5.6)	8.5(8.2)	15.6(8)	24.6(10)	4.4(5.3)	8.2(7.9)
15	8.6(8.2)	13.7(10.5)	16.8(9.1)	23.5(10.9)	7.7(7.6)	12.8(10)
16	7.6(7.6)	12.7(9.9)	15.7(8.8)	22.6(10.9)	6.7(6.9)	11.7(9.2)
17	6.2(7.2)	10.2(8.4)	16.9(10.2)	21.8(11.2)	5.3(6.1)	9.5(7.6)
18	6.3(7.8)	9.6(8)	16.2(11.7)	17.8(12)	5.4(6.8)	9.1(7.4)
19	6(7.3)	9.7(8.3)	14.5(11.5)	16.2(10.6)	4.8(5.6)	9.1(7.7)
20	6.5(7.1)	11(8.9)	14.4(9.2)	21.2(11.4)	5.7(6.3)	10.1(8.1)
21	4.5(5.3)	8.3(7.4)	15.4(7.8)	23.3(9.8)	4.3(5)	8.1(7.2)
22	3.1(3.8)	6.3(5.4)	14.5(11.1)	18.5(10.3)	3(3.4)	6.2(5.2)
23	9.6(8.9)	14.5(11.4)	17(8.8)	25.1(10.6)	7.9(8)	12.6(10.4)

Table F-67 Access to Thoracic Surgeons

VISN	All Enrollees		Eligible for Choice		Not Eligible for Choice	
	Mean (sd) distance in miles	**Mean (sd) time in minutes**	**Mean (sd) distance in miles**	**Mean (sd) time in minutes**	**Mean (sd) distance in miles**	**Mean (sd) time in minutes**
Overall	11.2(9.3)	15.3(9.4)	24.9(11.1)	25.7(10.5)	11.1(9.2)	15.3(9.4)
1	12.9(9.7)	16.6(9.8)	32.4(7.5)	31.5(0.7)	12.8(9.6)	16.6(9.8)
2	14.6(10.9)	17.3(10.3)	22(15.1)	24.5(10)	14.6(10.9)	17.3(10.3)
3	6.3(6.4)	10.1(7.6)	.(.)	.(.)	6.3(6.4)	10.1(7.6)
4	12(9.7)	16.1(10.3)	19.9(13.6)	17.9(9.7)	11.9(9.7)	16.1(10.3)
5	12(9.9)	15.9(10.1)	29.7(2.6)	34(2.6)	11.9(9.8)	15.8(10.1)
6	15(10.6)	19(9.8)	22.9(11.9)	23.5(11.2)	14.9(10.5)	18.9(9.8)
7	15.1(10.7)	18.9(10.1)	21.6(12)	22.4(10.7)	14.9(10.6)	18.8(10.1)
8	11(8.3)	16.2(8.9)	28.4(.)	.(.)	11(8.3)	16.2(8.9)
9	14.3(10.3)	17.7(9.8)	23.4(10.4)	27.1(10.5)	13.8(10.1)	17.4(9.6)
10	11.6(9.5)	15.6(9.5)	.(.)	.(.)	11.6(9.5)	15.6(9.5)
11	12.8(10.5)	16.1(9.8)	30.9(6.9)	34.4(6)	12.3(10.2)	15.9(9.7)
12	9.4(8.4)	13.8(8.8)	24.9(8.4)	27.2(11.8)	9.3(8.4)	13.8(8.8)
15	11.9(9.6)	15.4(8.9)	24.9(8.7)	32.1(5.7)	11.8(9.5)	15.3(8.9)
16	11.6(9.1)	16.3(9.3)	23(10.8)	23.8(8.3)	11.4(8.9)	16.3(9.3)
17	12.1(9.2)	16.5(9.2)	27.6(13)	15(15.8)	12(9.1)	16.5(9.2)
18	9.8(7.2)	15.7(8.5)	14(12.7)	19.9(11.4)	9.8(7.2)	15.6(8.5)
19	11.4(8.7)	16.6(9.3)	18.1(12.7)	18.6(12.4)	11.3(8.6)	16.6(9.3)
20	11.9(8.3)	16.6(8.8)	20(7.7)	28(5.8)	11.8(8.3)	16.5(8.7)
21	10.8(8.9)	14.5(9.1)	30.2(6.9)	.(.)	10.8(8.9)	14.5(9.1)
22	8.5(6.6)	13.1(7.7)	28.1(10.3)	33.7(5.5)	8.4(6.5)	13.1(7.7)
23	11.8(10)	14.7(9.4)	34.9(3.5)	36.9(.)	11.5(9.7)	14.7(9.4)

Appendix F.6 Veteran Responses to Access Questions

Figure F-1 summarizes Veteran responses over time to survey questions about access. All questions show a significant decline in the proportion of respondents who agree or strongly agree with the statements.

Figure F-1. Responses to Access Questions on VA Survey of Enrollees, 2010–2014.
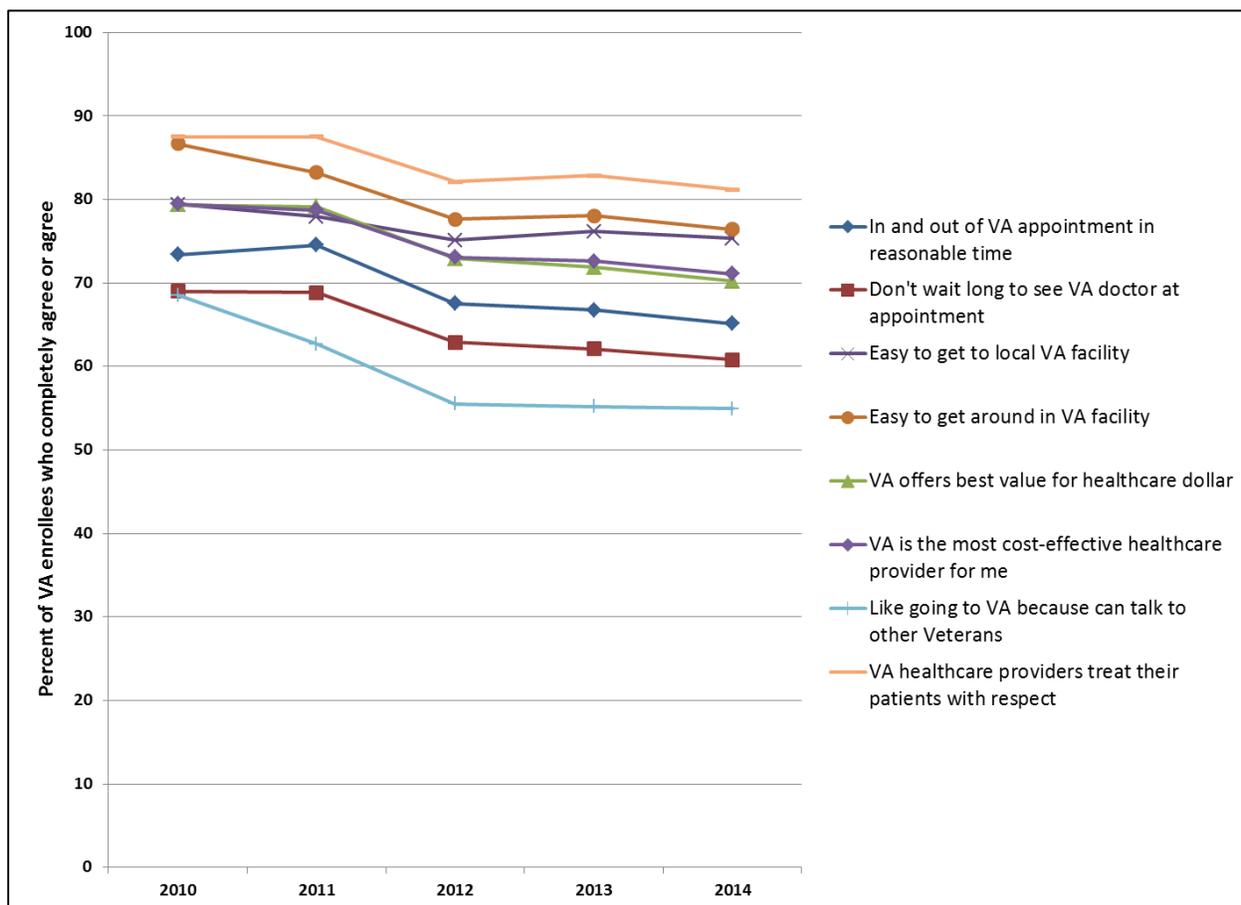
Source: RAND analysis of data from VA Survey of Enrollees, 2010 – 2014.

Appendix F.7 Veteran Wait Times

The tables and figures in this section show wait times for different types of appointments. Table F-68 shows number of appointments completed within 0-14, 15-30, 31-60, and 61 or more days of the preferred date by appointment type for two time periods, the first half of FY 2014 and the first half of FY 2015, while Table F-69 shows average performance and variation in performance of VA facilities with regard to wait times for each of these appointment types, including mean performance of the best-performing facilities, in the first half of FY 2015.

Figure F-2 displays maps of wait time performance at VA facilities across the United States, measured as the percent of appointments of each type that were completed within 30 days of the preferred date. The color coding indicates the facility's performance against a benchmark of the best-performing VA

facilities, and the shape of the icon represents whether wait times improved or worsened from the first half of FY2014 to the first half of FY 2015. Performance benchmarks were calculated as the average proportion of appointments completed within 30 days of preferred date at the best-performing VA facilities, defined as the top 10 percent of facilities with regard to wait time for each appointment type. The performance of each facility was then classified into one of three categories relative to the benchmark: "near the benchmark" (within 0.5 standard deviation above or below the benchmark), "below the benchmark" (>0.5 to 2.0 standard deviation below the benchmark), or "far below the benchmark" (>2.0 standard deviation below the benchmark).

During the first half of FY 2015, for primary care appointments for new (established) patients, the benchmark was 99.95 percent (99.74 percent), and facilities were categorized as near benchmark if the percentage of appointments completed within 30 days of preferred date was above 95.98 percent (98.22 percent); below benchmark if between 84.05 percent and 95.98 percent (93.68 percent and 98.22 percent); and far below benchmark if below 84.05 percent (93.68 percent). The corresponding benchmark was 99.16 percent (98.97 percent) for specialty care appointments for new (established) patients, and thresholds were above 96.90 percent (97.73 percent) for near benchmark, between 90.13 percent and 96.90 percent (94.00 percent and 97.73 percent) for below benchmark, and less than 90.13 percent (94.00 percent) for far below benchmark. The corresponding benchmark was 99.96 percent (99.62 percent), and thresholds for mental health appointments for new (established) patients were above 99.02 percent (98.51 percent) for near benchmark, between 96.21 percent and 99.02 percent (95.19 percent and 98.51 percent) for below benchmark, and less than 96.21 percent (95.19 percent) for far below benchmark.

Changes in wait time performance over time were classified as improved, same, or worsened according to the standardized difference between the first half of FY 2014 and the first half of FY 2015. We calculated the standardized difference as the change over time in wait time performance divided by the standard deviation of the wait time performance for that appointment type across all VA facilities. Changes were deemed worsened if the standardized difference was -0.8 or smaller, same if between -0.8 and 0.8, and improved if 0.8 or greater.

Finally, the last two tables show survey responses about access to timely appointments, care and information. Table F-70 shows the average performance and variation in performance of VA facilities with regard to patient-reported measures of timely appointments, care and information, such as getting responses to medical questions or time spent in the waiting room. Table F-71 reports the percent of survey respondents at VA facilities who reported "always" getting needed appointments as soon as needed for urgent and routine care, by the wait time performance of those facilities for each appointment type.

Table F-68 Number of Appointments Completed Within 0-14, 15-30, 31-60, and 61+ Days of Preferred Date, by Appointment Type, First Half FY2014 and First Half FY2015

Appointment Type	First Half of FY2014				First Half of FY2015			
	0-14 days	15-30 days	31-60 days	61+ days	0-14 days	15-30 days	31-60 days	61+ days
Primary Care – New Patients	301,548	17,019	13,167	9,054	286,586	34,394	19,117	6,718
Primary Care – Established Patients	5,255,453	154,542	74,287	22,978	5,201,950	292,703	144,195	45,167
Specialty Care – New Patients	1,681,236	123,733	61,947	27,857	1,670,772	195,631	93,765	33,039
Specialty Care – Established Patients	6,955,341	260,556	124,571	47,292	7,192,459	421,311	218,015	96,413
Mental Health – New Patients	159,563	7,668	1,521	285	162,696	14,037	3,348	589
Mental Health – Established Patients	2,815,521	70,126	31,082	10,109	2,891,925	117,394	57,077	20,695

Source: RAND analysis of VA wait time data for FY2014 and the first half of FY2015 that were obtained from the VHA Support Service Center (VSSC) by the MITRE Corporation.

Table F-69 Number of Days Waited at VA Facilities, by Appointment Type, First Half FY2015

Appointment Type	Number of Reporting Facilities	Mean	Median	Lowest	Highest	10th Percentile	90th Percentile	Difference between 90th and 10th	Mean of Best Performing* VA Facilities
Primary Care – New Patients	141	6.5	4.8	0.4	40.7	1.2	14.0	12.8	0.9
Primary Care – Established Patients	141	3.8	3.5	0.4	14.8	1.5	6.6	5.1	1.0
Specialty Care – New Patients	141	6.6	5.9	0.3	21.7	2.8	11.3	8.5	2.1
Specialty Care – Established Patients	141	4.5	3.9	0.3	10.8	2.4	7.4	5.0	1.9
Mental Health – New Patients	141	3.5	3.2	0.4	9.5	1.0	6.9	5.9	0.7
Mental Health – Established Patients	141	3.0	2.7	0.5	12.2	1.1	5.4	4.3	0.9

*Mean of average wait time in days for best-performing 10% of VA facilities.

Source: RAND analysis of VA wait time data for FY2014 and the first half of FY2015 that were obtained from the VHA Support Service Center (VSSC) by the MITRE Corporation.

Figure F-2 Maps of Wait Time Performance at VA Facilities across the United States, First Half FY2015 and Change from First Half FY2014 to First Half FY2015

Source: RAND analysis of VA wait time data for FY2014 and the first half of FY2015 that were obtained from the VHA Support Service Center (VSSC) by the MITRE Corporation.

Source: RAND analysis of VA wait time data for FY2014 and the first half of FY2015 that were obtained from the VHA Support Service Center (VSSC) by the MITRE Corporation.

**Specialty Care Appointments Completed
Within 30 Days of Preferred Date for New Patients**
*Colors Represent VA Facility Performance in First Half of FY 2015
Icons Represent Change from First Half of FY 2014 to First Half of FY 2015*

Change from FY 2014 to FY 2015
▲ Improved
● Same
▼ Worsened

FY 2015 Performance
■ Near benchmark
■ Below benchmark
■ Far below benchmark

Alaska

Hawaii

Puerto Rico / VI

Source: RAND analysis of VA wait time data for FY2014 and the first half of FY2015 that were obtained from the VHA Support Service Center (VSSC) by the MITRE Corporation.

Source: RAND analysis of VA wait time data for FY2014 and the first half of FY2015 that were obtained from the VHA Support Service Center (VSSC) by the MITRE Corporation.

**Mental Health Care Appointments Completed
Within 30 Days of Preferred Date for New Patients**
Colors Represent VA Facility Performance in First Half of FY 2015
Icons Represent Change from First Half of FY 2014 to First Half of FY 2015

Change from FY 2014 to FY 2015
▲ Improved
● Same
▼ Worsened

FY 2015 Performance
■ Near benchmark
■ Below benchmark
■ Far below benchmark

Alaska   Hawaii   Puerto Rico / VI

Source: RAND analysis of VA wait time data for FY2014 and the first half of FY2015 that were obtained from the VHA Support Service Center (VSSC) by the MITRE Corporation.

Mental Health Care Appointments Completed Within 30 Days of Preferred Date for Established Patients
Colors Represent VA Facility Performance in First Half of FY 2015
Icons Represent Change from First Half of FY 2014 to First Half of FY 2015

Change from FY 2014 to FY 2015
▲ Improved
● Same
▼ Worsened

FY 2015 Performance
■ Near benchmark
■ Below benchmark
■ Far below benchmark

Alaska   Hawaii   Puerto Rico / VI

Source: RAND analysis of VA wait time data for FY2014 and the first half of FY2015 that were obtained from the VHA Support Service Center (VSSC) by the MITRE Corporation.

Table F-70 Performance on Patient-Reported SHEP PCMH Access Measures by VA Facility, FY2014.

Measure	Number of Reporting Facilities	Mean	Median	Minimum	Maximum	10th Percentile	90th Percentile	Difference between 90th and 10th	Mean of Best Performing VA Facilities*
% reporting that in the last 12 months, when phoned the provider's office to get an appointment for care needed right away, ALWAYS got an appointment as soon as needed	140	45.8	46	21.3	68.5	35.0	57.5	22.6	61.2
% reporting that in the last 12 months, when made an appointment for a check-up or routine care with the provider, ALWAYS got appointment as soon as you needed	141	54.6	55.2	31.2	75.1	43.6	65.1	21.5	68.5
% reporting that in the last 12 months, when phoned this provider's office during regular office hours, ALWAYS got an answer to medical question that same day	141	45.1	45.4	11.2	64.8	35.5	55.6	20.2	59.1
% reporting that in the last 12 months, when phoned this provider's office after regular office hours, ALWAYS got an answer to medical question as soon as needed	140	37.1	37.1	16.4	65.3	24.4	50.3	25.9	54.5

Measure	Number of Reporting Facilities	Mean	Median	Minimum	Maximum	10th Percentile	90th Percentile	Difference between 90th and 10th	Mean of Best Performing VA Facilities*
Wait time includes time spent in the waiting room and exam room. % reporting that in the last 12 months, ALWAYS saw this provider within 15 minutes of appointment time	141	32.6	32.7	16	52.1	21.8	42.9	21.1	46
% reporting that in the last 12 months, ALWAYS able to get the care you needed from this provider's office during evenings, weekends, or holidays	140	21.8	21.2	7.1	48	13.2	30.8	17.6	35.6

*Mean of measure rates for best-performing 10% of VA facilities.

Source: Facility-level patient experience data for VA patients from the Survey of Healthcare Experiences of Patients Primary Care Medical Home in FY2014 were obtained from the VA Office of Performance Measurement.

Table F-71 Percent of Veterans in VA Facilities Responding that They "Always" Got Appointment for Routine or Urgent Care as Soon as Needed on SHEP PCMH FY2014, by Facility Performance on Wait Times in First Half FY2015.

Appointment Type	Percent reporting ALWAYS got <u>routine</u> appointment as soon as needed	Percent reporting ALWAYS got <u>urgent</u> appointment as soon as needed
Primary Care – New Patients		
Wait Times Near Benchmark	57.0	48.9
Wait Times Below Benchmark	51.8	43.0
Wait Times Far Below Benchmark	45.2	36.1
Primary Care – Established Patients		
Wait Times Near Benchmark	58.5	50.0
Wait Times Below Benchmark	52.3	44.2
Wait Times Far Below Benchmark	45.2	36.3
Specialty Care – New Patients		
Wait Times Near Benchmark	56.1	48.1
Wait Times Below Benchmark	54.7	46.4
Wait Times Far Below Benchmark	51.5	42.2

Appointment Type	Percent reporting ALWAYS got <u>routine</u> appointment as soon as needed	Percent reporting ALWAYS got <u>urgent</u> appointment as soon as needed
Specialty Care – Established Patients		
Wait Times Near Benchmark	58.4	50.4
Wait Times Below Benchmark	53.4	44.7
Wait Times Far Below Benchmark	51.0	42.7
Mental Health – New Patients		
Wait Times Near Benchmark	56.4	48.3
Wait Times Below Benchmark	53.2	44.8
Wait Times Far Below Benchmark	51.9	42.9
Mental Health – Established Patients		
Wait Times Near Benchmark	57.5	48.6
Wait Times Below Benchmark	53.6	45.6
Wait Times Far Below Benchmark	47.0	38.7
Notes: During the first half of FY 2015, for primary care appointments for new (established) patients, the benchmark was 99.95 percent (99.74 percent), and facilities were categorized as near benchmark if the percentage of appointments completed within 30 days of preferred date was above 95.98 percent (98.22 percent); below benchmark if between 84.05 percent and 95.98 percent (93.68 percent and 98.22 percent); and far below benchmark if below 84.05 percent (93.68 percent). The corresponding benchmark was 99.16 percent (98.97 percent) for specialty care appointments for new (established) patients, and thresholds were above 96.90 percent (97.73 percent)		

Appointment Type	Percent reporting ALWAYS got <u>routine</u> appointment as soon as needed	Percent reporting ALWAYS got <u>urgent</u> appointment as soon as needed
for near benchmark, between 90.13 percent and 96.90 percent (94.00 percent and 97.73 percent) for below benchmark, and less than 90.13 percent (94.00 percent) for far below benchmark. The corresponding benchmark was 99.96 percent (99.62 percent), and thresholds for mental health appointments for new (established) patients were above 99.02 percent (98.51 percent) for near benchmark, between 96.21 percent and 99.02 percent (95.19 percent and 98.51 percent) for below benchmark, and less than 96.21 percent (95.19 percent) for far below benchmark. Source: Benchmark categories were established by RAND analysis of VA wait time data for the first half of FY2015 that were obtained from the VHA Support Service Center (VSSC) by the MITRE Corporation. Facility-level patient experience data for VA patients from the Survey of Healthcare Experiences of Patients Primary Care Medical Home in FY2014 were obtained from the VA Office of Performance Measurement.		

Appendix G Quality

Appendix G.1 Evidence Table for Quality Review

Author, Year	Quality Dimension(s) [Assessment*]	Data Level	VA Sample [Sample Size]	Years Collected	Data Level	Non-VA Sample [Sample Size]	Years Collected	Conditions	Outcomes	Primary Findings**	Final Grade†
						New articles abstracted for this review					
Bean-Mayberry et al., 2007	Effectiveness [Mixed]	Mult ctrs	VA comprehensive Womens Health Centers [N= 8]	2003	Nat'l	Department of Health and Human Services National Centers of Excellence [N=13]	2003	None	Availability of services	Preventive cancer screening and general reproductive services were uniformly available at all centers, although DHHS centers offered extensive reproductive services on-site more frequently, and VA centers more often had on-site mental health care.	B
Belote et al., 2012	Patient Centeredness [Better]	Nat'l	Veterans at VA-staffed community-based outpatient clinics [N=2838]	2007-2008	Nat'l	Veterans at contract staffed community-based outpatient clinics [N=941]	2007-2008	None	Patient satisfaction, unadjusted	VA had significantly better satisfaction scores for continuity of care (mean % difference = 8.603, p<0.001), education and information (mean % difference = 1.111, p<0.001), emotional support (mean % difference = 0.847, p=0.014), overall coordination of care (mean % difference: 1.682, p<0.001), patient preferences (mean % difference: 1.083, p=0.002). No significant differences for patient access, courtesy, or visit coordination.	B
Berke et al., 2009	Efficiency [Worse]	Nat'l	Veterans in VA Hospitals [N=3,232,196 total patients; sample size not broken down by VA/non-VA]	2000	Nat'l	Medicare-eligible Veterans in non-VA Hospitals [N=3,232,196 total patients; sample size not broken down by VA/non-VA]	2000	None	Difference between length-of-stay and the expected length-of-stay based on DRG weight, for patients 65 or older, adjusted by complexity	VA hospitals had much longer than expected lengths-of-stay when compared to non-VA hospitals (6.5 days vs. 3 days in urban hospitals, 5 vs. 2 days in rural hospitals, and 3 vs. 1 days in highly rural hospitals; no statistical tests).	A

Author, Year	Quality Dimension(s) [Assessment*]	Data Level	VA Sample [Sample Size]	Years Collected	Data Level	Non-VA Sample [Sample Size]	Years Collected	Conditions	Outcomes	Primary Findings**	Final Grade†
Boitano et al., 2012	Safety [Same]	Single ctr	Veterans at a VA hospital [N=322]	2006-2009	Single ctr	Patients at Northwestern Memorial Hospital [N=269]	2006-2009	Vascular Surgery	Post-operative outcomes (morbidity and mortality), risk-adjusted	Multivariate analysis showed that hospital setting was not an independent predictor of complications, major adverse events, or death, suggesting no difference in outcomes between the VA and private sector.	A/B
Bond et al., 2008	Effectiveness [Better]	Nat'l	VA hospitals [N=84]	2006	Nat'l	Non-VA hospitals [N=1041]	2006	None	Clinical pharmacy services offered	Eight of 15 clinical pharmacy services were more commonly provided in VA hospitals. In-service education was higher by 25% (p=0.003), clinical research by 154% (p<0.0001), drug protocol management by 28% (p<0.0001), drug therapy counseling by 80% (p<0.0001), participation on rounds by 38% (p=0.001), and admission drug histories by 310% (p<0.0001).	A
Borzecki et al., 2010	Safety [Better] Effectiveness [Mixed]	Nat'l	IQI-related discharge at VA [N=403828]	2003-2007	Nat'l	HCUP-NIS IQI-related discharges [sample size not reported]	2003-2007	CHF, IHD, Pulm, TIA, Hip fracture, gastrointestinal hemorrhage, Surgical (General,Cardio, Ortho, Oncology, Other)	Inpatient quality indicators	Comparing VA and NIS risk-adjusted rates from 2003 through 2007, slope estimates differed significantly for AMI, acute stroke, hip fracture and pneumonia mortality, hip replacement, and all 3 utilization indicators. AMI, stroke, hip fracture, pneumonia and hip replacement mortality rates, and incidental appendectomy utilization rates declined more rapidly in the VA. Laparascopic cholecystectomy rates rose more steeply, whereas bilateral catheterization rates decreased more slowly, in the VA compared with NIS.	A

Author, Year	Quality Dimension(s) [Assessment*]	Data Level	VA Sample [Sample Size]	Years Collected	Data Level	Non-VA Sample [Sample Size]	Years Collected	Conditions	Outcomes	Primary Findings**	Final Grade†
Chakkera et al., 2005	Safety [Worse] Equity [Same]	Nat'l	VA patients who received pretransplant care in VA or paid by VA [N=1646]	1991-2001	Nat'l	Non-VA patients who did not receive pretransplant care in VA or paid for by VA [N=77715]	1999-2001	Kidney Transplant	Graft and patient survival after kidney transplant, adjusted	African-American race was associated with poorer allograft survival even after adjustment. The relative risk (RR) of graft failure by race was similar among VA users and non-VA users and VA users who received a transplant within and outside the VA. Among all recipients, VA users had a 20% higher risk for graft failure (RR 1.21; 95% CI 1.12-1.30) and 14% higher risk of mortality (RR 1.14; 95% CI 1.07-1.22) compared with non-VA users. There was no interaction of race with VA user status in graft failure (P = 0.32) or patient survival (P = 0.63), no difference in graft (RR for VA users who received a transplant within the VA 0.86; 95% CI 0.68-1.10; P = 0.23) or patient (RR 0.97; 95% CI 0.74-1.26; P = 0.82) survival among VA users who received a transplant within versus outside VA, and interaction of race with VA user status was not significant for graft (P = 0.79) or patient (P = 0.97) survival.	A
Choi et al., 2009	Safety [Same]	Single ctr	VA patients [N=682]	2002-2006	Nat'l	Non-Veteran non-VA patients [N=34572]	2004	Cardio	In-hospital mortality rate after CABG, unadjusted	No significant difference in in-hospital mortality rate for male patients (1.6% versus 2.4%, P=0.20).	B
Fihn et al., 2009	Safety [Same]	Nat'l	VA patients [N=27494]	2000-2005	Nat'l	Medicare patients in private sector hospitals [N=789400]	2000-2005	IHD	Adjusted 30-day mortality following AMI, overall relative odds of death following AMI	From 2000-2005, overall unadjusted 30-day mortality was 16.0% in VA hospitals and 16.2% in private sector hospitals. After adjusting for patient characteristics and hospital effects, the overall relative odds of death were not significantly different for VA or private sector hospitals (OR 1.02, 95% CI 0.96-1.08). No differences were observed in separate analyses using patients discharged during 2000-2001, 2002-2003, and 2004-June 2005, or when non-VA hospitals were restricted to those located within a market that contains a VA hospital.	A

Author, Year	Quality Dimension(s) [Assessment*]	Data Level	VA Sample [Sample Size]	Years Collected	Data Level	Non-VA Sample [Sample Size]	Years Collected	Conditions	Outcomes	Primary Findings**	Final Grade†
French et al., 2012a	Safety [Worse]	Nat'l	Patients in VA database [N=20191]	2007	Nat'l	Patients in Medicare database [N=137726]	2007	Cataract surgery	90-day rates of routine and complex cataract procedures, odds ratios complications	The 90-day overall rate of secondary procedures was greater for patients having cataract surgery through VA (37.2 per 1000 surgeries) than Medicare (18.2 per 1000 surgeries). Adjusted results resulted in significant odds increases of corrective procedures for routine cataract surgeries performed in VA (OR 1.70; 95% CI 1.58–1.82) and for complex cataract surgery (OR 2.68; 95% CI 2.24–3.20).	A
French et al., 2012b	Safety [Better]	Nat'l	Patients in VA database [N=19721]	2007	Nat'l	Patients in Medicare database [N=129302]	2007	Cataract surgery	All-cause mortality following cataract surgery, adjusted	Mortality risk did not differ significantly between the two cohorts at time points within six months following cataract surgery. At 270 and 365 days postoperative, death hazard among the Medicare routine cataract extraction group exceed VA by 13% and 17% (HR 1.13, 95% CI 1.03–1.23; HR 1.17, 95% CI 1.09–1.27). Similar trends of excess mortality at 270 and 365 days were observed for complex cases (HR 1.16, 95% CI 1.06–1.29; HR 1.17, 95% CI 1.08–1.27).	A

Author, Year	Quality Dimension(s) [Assessment*]	Data Level	VA Sample [Sample Size]	Years Collected	Data Level	Non-VA Sample [Sample Size]	Years Collected	Conditions	Outcomes	Primary Findings**	Final Grade†
Gellad et al., 2013	Efficiency [Better]	Nat'l	VA patients [N=510485]	2008	Nat'l	Medicare patients [N=1061095]	2008	DM, high cholesterol	Proportion of patients who filled at least 1 prescription for a brand-name medication (or insulin analogue) for each medication group, adjusted	Medicare used more brand-name drugs than VA (5th to 95th percentile). Percentage of patients using any brand-name: oral hypoglycemics (Medicare: 25.1%-42.4%; VA: 5.1%-21.9%), insulin analogues (Medicare: 68.3%-85.4%; VA: 10.6%-46.9%), statins (Medicare: 41.0%-58.3%; VA: 6.2%-38.2%), ACE inhibitors or ARBs (Medicare: 31.1%-51.1%; VA: 12.7%-31.0%). In each group, the hospital referral region (HRR) at the 95th percentile of brand-name drug use in the VA was lower than the HRR at the 5th percentile in Medicare. Use of brand-name drugs was greater in Medicare than in the VA in 298 of 306 HRRs. Per capita volume of prescriptions filled among users in each medication group, was slightly lower in Medicare than in the VA.	A
Gonzales et al., 2006	Effectiveness [Worse]	Mult ctrs	Patients at VA ED [N=1125]	2003-2004	Mult ctrs	Patients at matched non-VA EDs [N=1138]	2003-2004	Pulmonary	Antibiotic prescribing patterns in ARIs	Clinical setting (VA vs. non-VA) was not independently associated with antibiotic prescribing. In four cities, VA and non-VA EDs were very similar, whereas in others, the two hospital types were far apart. In every case in which the VA and non-VA ED sites were discordant within city, the VA ED sites showed higher adjusted rates of antibiotic treatment.	B
Hausmann et al., 2009	Patient Centeredness [Same]	Nat'l	VA users [N unweighted= 362; N weighted = 140 672]	2004	Nat'l	Veteran VA nonusers [N unweighted= 3058; N weighted= 1406880]	2004	None	Perceived racial discrimination, adjusted for respondent characteristics	Likelihood of reporting perceived discrimination was not significantly different for VA users and nonusers (OR 1.30; 95% CI 0.54-3.13).	A

Author, Year	Quality Dimension(s) [Assessment*]	Data Level	VA Sample [Sample Size]	Years Collected	Data Level	Non-VA Sample [Sample Size]	Years Collected	Conditions	Outcomes	Primary Findings**	Final Grade†
Hynes et al., 2006	Effectiveness [Better]	Mult ctrs	VA hemodialysis patients [N=177]	2001-2003	Mult ctrs	Private sector hemodialysis patients [N=131]	2001-2003	ESRD	Compliance with erythropoietin administration guidelines, adjusted	Erythropoietin was administered predominantly subcutaneously for 52% of patients in VA versus 15% in private-sector facilities (P < 0.0001). For patients dialyzing in VA facilities, hemoglobin levels were 11.55 +/- 1.09 (SD) g/dL (115.5 +/- 10.9 g/L) for the subcutaneous group and 11.38 +/- 1.13 g/dL (113.8 +/- 11.3 g/L) for the intravenous group. For patients dialyzing in private-sector facilities, hemoglobin levels were 12.34 +/- 1.22 g/dL (123.4 +/- 12.2 g/L) for the subcutaneous group and 11.91 +/- 1.03 g/dL (119.1 +/- 10.3 g/L) for the intravenous group. Analysis of variance result indicated a significant difference (P = 0.0002).	B
Hynes et al., 2012	Efficiency [Worse]	Mult cts	VA hemodialysis patients [N=170]	2001-2003	Mult cts	Private sector hemodialysis patients [N=164]	2001-2003	ESRD	Utilization, adjusted	VA dialysis patients had more non-dialysis outpatient visits, emergency room visits, and 30-day supplies of prescriptions (P = 0.02, 0.04, and 0.02, respectively). The overall number of inpatient admissions for acute medical or surgical care was higher for VA than private sector dialysis patients (2.7 vs. 1.9, respectively; P = 0.02), and VA dialysis patients had more hospital days (25.8 vs. 10.7; P < 0.001). However, nonacute admissions and days of care were similar between the dialysis groups.	A

Author, Year	Quality Dimension(s) [Assessment*]	Data Level	VA Sample [Sample Size]	Years Collected	Data Level	Non-VA Sample [Sample Size]	Years Collected	Conditions	Outcomes	Primary Findings**	Final Grade†
Keating et al., 2010	Effectiveness [Better] Equity [Worse]	Nat'l	Male VA patients [N=2913]	2001-2005	Nat'l	Propensity-matched male Medicare patients [N=2913]	2001-2005	Lung cancer, colorectal cancer	End of life indicators (last dose of chemotherapy within 14 days of death, admission to ICU within 30 days of death, more than 1 ER visit within 30 days of death), propensity matched and adjusted for residual differences	Men treated at VA were less likely than men treated in the private sector to receive chemotherapy within 14 days of death (4.6% vs. 7.5%, P < .001) or to be admitted to an ICU within 30 days of death (12.5 vs. 19.7, P < .001), and similarly likely to have more than 1 emergency room visit within 30 days of death (13.1 vs. 14.7, P = .09). Black patients did not differ from white patients in use of chemotherapy within 14 days of death whether they received care from VA (3.6% for blacks, 5.1% for whites, P = .21) or Medicare (6.0% vs. 8.6%, P = .06). Black and white Medicare and VA patients did not differ in rates of ICU admissions at the end of life (P = .67 in VA and .82 in Medicare). Black VA patients were more likely than white patients to have more than 1 ER visit in the last month of life 17.5% vs. 12.9%, P = .03), but this difference was not observed among Medicare patients (16.2% vs. 15.4%, P = .68).	A
Keating et al., 2011	Effectiveness [Better]	Nat'l	VA patients [N=50573]	2001-2005	Nat'l	FFS Medicare patients [N=143504]	2001-2005	Colorectal, lung, or prostate cancer; lymphoma; or multiple myeloma	Process measures to reflect receipt of high-quality cancer care, adjusted with propensity scores	For colon cancer patients, VA had higher rates of diagnosis at earlier stage (p<0.001), resection (p=0.010), but similar rates of adjuvant chemotherapy. For rectal cancer patients, VA had higher rates of diagnosis at earlier stage (p=0.007), but similar rates of resection or adjuvant chemotherapy/radiation. Lung cancer process outcomes were non-significant. Outcomes were mixed for prostate cancer and hematologic cancer patients.	A/B

Author, Year	Quality Dimension(s) [Assessment*]	Data Level	VA Sample [Sample Size]	Years Collected	Data Level	Non-VA Sample [Sample Size]	Years Collected	Conditions	Outcomes	Primary Findings**	Final Grade†
Landrum et al., 2012	Safety [Better]	Nat'l	Males over 65 diagnosed/treated for certain cancers at VA [N=26718]	2001-2005	Nat'l	Males over 65 with certain cancers using Medicare FFS [N=118195]	2001-2005	Colorectal, lung, or prostate cancer; lymphoma; or multiple myeloma	Survival rates (time to all-cause death and time to cancer-attributable death), adjusted using standardized mortality ratio propensity weights.	VA patients had higher survival rates of colon cancer (HR 0.87; 95% CI 0.82-0.93) and non–small-cell lung cancer (HR 0.91; 95% CI 0.88-0.95) and similar survival rates of rectal cancer (HR 1.05; 95% CI 0.95-1.16), small-cell lung cancer (HR 0.99; 95% CI 0.93-1.05), diffuse large–B-cell lymphoma (HR 1.02; 95% CI 0.89-1.18), and multiple myeloma (HR 0.92; 95% CI 0.83-1.03) versus similar FFS Medicare patients.	A
Liu et al., 2008	Effectiveness [Worse] Efficiency [Worse]	Nat'l	Veterans who are primary care users at 76 VA-staffed community clinics [N=17060]	2000-2001	Nat'l	Veterans who are primary care users at 32 non-VA contract community clinics receiving capitation [N=6842]	2000-2001	DM, Pulmonary	Utilization of outpatient services and receipt of primary care services, adjusted	Contract community clinic patients had 4% fewer primary care visits and 16% fewer laboratory visits; there were no significant differences in numbers of visits for specialty care, mental health care, radiology, or inpatient admission. Odds ratios for the proportion of contract and VA-staffed clinic diabetic patients receiving a retinal exam were (OR 0.72, 95% CI 0.55-0.93) and COPD patients receiving a flu shot (OR 0.73, 95% CI 0.55-0.99).	A
Liu et al., 2009	Efficiency [Better]	Mult ctrs	Veterans using VA care [N=303]	2003-2004	Mult ctrs	Veterans using both VA and non-VA care (dual users) [N=247]	2003-2004	Depression	VA and non-VA outpatient utilization for physical and emotional health problems in prior 6 months, adjusted	Dual users had higher odds of any ER visit for physical health (OR=7.41, p<0.001) and emotional health (OR=14.64, p<0.001) and any inpatient admission for physical health (OR=2.34, p<0.01) or emotional health (OR=5.38, p<0.001) than VA-only users.	B

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Author, Year	Quality Dimension(s) [Assessment*]	Data Level	VA Sample [Sample Size]	Years Collected	Data Level	Non-VA Sample [Sample Size]	Years Collected	Conditions	Outcomes	Primary Findings**	Final Grade†
Lu et al., 2010	Effectiveness [Better] Patient Centeredness [Better]	Mult ctrs	Veterans who died in a VA facility [N=520]	NR	Mult ctrs	Veterans who died in a non-VA facility [N=89]	NR	None	Perceptions of the care and services that patients and families received during the patient's last month of life	Patients who died in VA facilities (n = 520) had higher mean satisfaction scores compared to those who died in non-VA facilities (n = 89; 59 versus 51; rank sum test p = 0.002), which persisted after adjusting for medical center (p = 0.004), as was the domain measuring care around the time of death (p = 0.001). Patients who died in the VA were more likely to have had a palliative care consult (67% vs. 21%; p < 0.001). They were also more likely to have died in a dedicated palliative care or hospice unit (47% vs. 16%; p < 0.001). However, patients who died in VA facilities were more likely to die in an ICU (26% vs. 13%; p = 0.01) and less likely to die in a nursing home (0% vs. 26%; p < 0.001).	B
Lynch et al., 2010	Effectiveness [Better]	Nat'l	Veterans who had used VA facilities in the last year [N=1342]	2003	Nat'l	Veterans who had not used VA facilities in the last year [N=3159]	2003	DM, Preventive care	Quality of diabetes care: biannual provider office visits, hemoglobin A1c testing, foot exam, dilated eye exam, aspirin use, and influenza and pneumonia vaccination; adjusted	VA users were more than twice as likely to have received foot exams by a provider (OR 2.59, 95% CI 1.76–3.83), ever had a pneumonia shot (OR 2.30, 95% CI 1.68–3.14), and had a flu shot (OR 2.05, 95% CI 1.44–2.92). In addition, VA users had a 60–70% greater likelihood of having a dilated eye exam (OR 1.68, 95% CI 1.14–2.49), two or more hemoglobin A1c tests (OR 1.65, 95% CI 1.19–2.28), and two or more provider visits (OR 1.61, 95% CI 1.08–2.39) in the previous 12 months.	A

Author, Year	Quality Dimension(s) [Assessment*]	Data Level	VA Sample [Sample Size]	Years Collected	Data Level	Non-VA Sample [Sample Size]	Years Collected	Conditions	Outcomes	Primary Findings**	Final Grade†
McGuire et al., 2011	Patient Centeredness [Same]	Mult ctrs	Veterans in Domiciliary Care for Homeless Veteran (DCHV) Program [N=477]	2002-2005	Mult ctrs	Veterans in one of two community based programs: Grant and Per Diem Program (G&PD) and Health Care for Homeless Veterans (HCHV) [N=526]	2002-2005	Mental health	Perception of program, environment and satisfaction with program, adjusted residential treatment outcomes	No significant differences in overall social climate score between Veterans in each program the three program types. On the subscale addressing support for personal growth DCHV and HCHV program veterans reported higher ratings than veterans in the G&PD programs.There were no differences on the summary score of program satisfaction, but DCHV veterans were more likely to specifically report that they would choose their program again, if offered the choice, than were HCHV veterans. Program type was not significant for any outcomes after correction for multiple outcomes.	B
Mooney et al., 2007	Efficiency [Worse]	One VISN	Female Veterans admitted to VA hospital [N=718]	1998-2000	One VISN/ State	Female Veterans admitted to a private sector hospital [N=904]	1998-2000	None	Mean length of stay, adjusted	Mean length of stay was longer for musculoskeletal admissions (9.4 vs. 5.2 days; p < .001) and when examining all admissions (8.7 vs. 6.0 days; p < .001).	A
Nelson et al., 2011	Effectiveness [Same]	Mult ctrs	VA patients [N=150]	2009	Mult ctrs	Patients at an academic medical center [N=150]	2009	IHD	Appropriate use of stress/rest myocardial perfusion imaging (MPI) studies, unadjusted	The majority of the studies were ordered for appropriate indication (67.3% in VA vs. 74% in academic practice) (P = .272). In VA, non-physicians requested more inappropriate studies than physicians (26.8% vs. 20.1%; P < .048). Within the academic practice non-cardiologists referred more patients for inappropriate indications than cardiologists (23.9% vs. 10.1%; P = .001).	B

Author, Year	Quality Dimension(s) [Assessment*]	Data Level	VA Sample [Sample Size]	Years Collected	Data Level	Non-VA Sample [Sample Size]	Years Collected	Conditions	Outcomes	Primary Findings**	Final Grade†
Parikh et al., 2011	Effectiveness [Same]	Mult VISNs	VA patients [N=378]	2005-2006	Mult VISNs	Medicare patients [N=25534]	2005-2006	ESRD	Method of vascular access for first outpatient dialysis (arteriovenous fistulas [AVF] preferred in guidelines)	Adjusting for patient demographics and comorbidities only, VA patients had greater likelihood of AVF (OR=1.70; 95% CI 1.31-2.20), but after accounting for pre end-stage renal disease care, the significant difference between the presence of AVFs in VA compared to non-VA hemodialysis patients was removed (OR 1.28; 95% CI 0.98–1.66), suggesting that the higher likelihood of starting hemodialysis with an AVF may be mediated by pre-ESRD care within the VA system.	A/B
Richardson et al., 2013	Safety [Worse] Timeliness [Worse]	Nat'l	VA users [N=9308]	2002-2008	Nat'l	Veterans at non-VA hospitals [N=1881]	2002-2008	Orthopedic surgery	Time between hospital admission and surgical repair, 1-year patient mortality	Relative hazards of surgery in non-VA hospitals within 2 days were 2.63 times greater (95% CI 2.47–2.81; p < .001); within 2 to 5 days there was no significant difference between the two hospital types, and more than 5 days after the initial fracture the relative hazards of surgery in non-VA hospitals were 51% smaller (95% CI 0.35–0.68; p<.001). Likelihood of death within 1 year of admission was 21% less for Veterans admitted to non-VA hospitals (RR=0.79; 95% CI 0.71-0.88; p<0.001).	A

Author, Year	Quality Dimension(s) [Assessment*]	Data Level	VA Sample [Sample Size]	Years Collected	Data Level	Non-VA Sample [Sample Size]	Years Collected	Conditions	Outcomes	Primary Findings**	Final Grade†
Rivard et al., 2010	Safety [Worse]	Nat'l	VA hospitals [N=116]	2003-2004	Nat'l	Non-VA hospitals (HCUP-NIS) [N=992]	2003-2003	None	Patient Safety Indicators (PSIs), adjusted	VA had higher composite PSI (VA: 1.118, 95% CI 1.071-1.164, NIS: 0.987, 95% CI 0.977-0.997), higher foreign body left in during procedure (VA: 0.14, 95% CI 0.10-0.17, NIS: 0.09, 95% CI 0.07-0.10), iatrogenic pneumothorax (VA 1.34, 95% CI 1.14-1.53, NIS: 0.78, 95% CI 0.72-0.83), postoperative hemorrhage (VA: 3.00, 95% CI 2.46-3.55, NIS: 2.13, 95% CI 1.98-2.28), postoperative wound dehiscence (VA: 4.80, 95% CI 3.41-6.19, NIS: 1.55, 95% CI 1.19-1.90). NIS had more postoperative sepsis than VA (9.41, 95% CI 7.61-11.21, 12.63, 95% CI 11.15-14.11), with a small overlap of confidence intervals. No significant differences for death in low mortality DRGS, failure to rescue, selected infections due to medical care, accidental puncture or laceration, postoperative physiologic and metabolic derangements, postoperative respiratory failure, postoperative pulmonary embolism/deep vein thrombosis.	A
Rosen et al., 2005	Safety [Mixed]	Nat'l	VA users [N=281423]	2000-2001	Nat'l	Non-VA (HCUP and MedPAR) [sample sizes not reported]	2000-2000	None	PSI rates, risk-adjusted	VA-risk adjusted rates are lower than HCUP-NIS and Medicare event rates for 4 indicators: decubitus ulcer, infection due to medical care, postoperative respiratory failure, and postoperative sepsis. VA PSI event rates were higher than HCUP-NIS and Medicare event rates for 2 indicators: postoperative physiologic and metabolic derangements and technical difficulty with procedure. VA PSI event rates were higher than HCUP-NIS event rates, but lower than Medicare event rates, for the remaining relevant indicators.	A

Author, Year	Quality Dimension(s) [Assessment*]	Data Level	VA Sample [Sample Size]	Years Collected	Data Level	Non-VA Sample [Sample Size]	Years Collected	Conditions	Outcomes	Primary Findings**	Final Grade†
Selim et al., 2010	Safety [Better]	Nat'l	VA users [N=35876]	1999-2003	Nat'l	Medicare Advantage cohort [N=71424]	1999-2003	None	2-year mortality, probability of being alive with the same or better physical health or mental health at 2 years; adjusted	2-year mortality rates were 11.8% and 9.9% for the Medicare and VA, respectively, with a higher hazard for mortality in Medicare compared with VA (HR 1.26; 95% CI 1.23–1.29). Probability of being alive with the same or better physical health at 2 years higher VA compared to Medicare (69.2% vs. 63.6%); same or better mental health at 2 years was also significantly higher at VA than in Medicare (76.1% vs. 69.6%). Propensity score matched analyses had comparable results.	A
Tarlov et al., 2012	Safety [Same]	Nat'l	VA users [N=1465]	1999-2001	Nat'l	Medicare FFS users [N=1042]	1999-2001	Colon cancer	Overall and event-free survival to 36 months, adjusted	Overall survival hazard ratios were similar. Among VA users, hazard ratios were 0.50 (95% CI 0.35–0.71) compared to 0.63 (0.43–0.91) for Medicare users for stage 1, 0.72 (0.52–0.99) and 0.79 (0.57–1.11) for stage 2, and 0.71 (0.53–0.96) and 0.80 (0.59–1.09) for stage 3. Event-free survival hazard ratios were also not significantly different.	A
Trivedi et al., 2011	Effectiveness [Better] Equity [Better]	Nat'l	VA patients [N=293554]	2000-2007	Nat'l	Medicare Advantage (MA) enrollees [N=5768573]	2000-2007	DM, IHD, HTN, Preventive care	Health Employer Data Information Set (HEDIS) or External Peer Review Program (EPRP) indicators	The VA had higher aggregate performance than MA for 10 of 11 measures in the initial year of assessment, and all 12 measures in the final year. Adjusted differences range from 4.3 percentage points (95% CI, 3.2-5.4) for cholesterol testing in CHD to 30.8 percentage points (95% CI, 28.1-33.5) for colorectal cancer screening. In adjusted analyses, the VA had significantly narrower income and educational disparities for 9 of 12 measures.	A/B

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Vaughan-Sarrazin et al., 2007	Safety [Worse]	Nat'l	Male VA users [N=139331]	1996-2002	Nat'l	Male Medicare patients [N=1212729]	1996-2002	Cardio	30, 90, 365 day mortality, adjusted	Adjusted mortality after CABG was higher (p<.001) in VA users compared with nonusers at 30, 90, and 365 days: OR 1.07 (95% CI 1.03-1.11), 1.07 (95% CI 1.04-1.10), and 1.09 (95% CI, 1.06-1.12), respectively. For PCI, adjusted mortality at 30 and 90 days was similar (p>.05), but was higher for VA users at 365 days (OR 1.09; 95 percent CI, 1.06-1.12).	A
Wang et al., 2005	Effectiveness [Better]	Nat'l	VA users [N=3391]	2000	Nat'l	Non-VA users [N=178735]	2000	Overweight/ Obesity	Association between being an obese VA user and weight control advice, adjusted	Obese VA users were twice as likely to have received professional advice to lose weight (OR 2.06; 95% CI 1.64 to 2.59) and as likely to have received professional advice to maintain weight (OR 1.72; 95% CI 0.75 to 3.97).	B
Wang et al., 2013	Safety [Same] Efficiency [Worse]	Mult VISNs	VA dialysis users [N=381]	2007-2008	Mult VISNs	Veterans who received outpatient dialysis exclusively in VA-outsourced settings [N=659]	2007-2008	ESRD	Adjusted all-cause hospitalization at 1 y, adjusted all-cause mortality at 1 y, adjusted	There was no difference in mortality outcomes among veterans who received outpatient dialysis exclusively in VA-outsourced compared to VA dialysis users (OR 0.80, 95% CI 0.48-1.3). Veterans who received outpatient dialysis exclusively in VA-outsourced settings were also less likely to be hospitalized within a year (OR 0.35, 95% CI 0.24-0.51, p<0.001) and, if hospitalized, had shorter length-of-stay (β= −0.37, p<0.05).	A
Weeks et al., 2009	Effectiveness [Better]	Nat'l	VA patients [sample size not reported]	2005-2006	Nat'l	Medicare FFS patients [sample size not reported]	2005-2006	CHF, DM, IHD, Pulm, Preventive care, general anc cardiovascular surgery	Quality measures of outpatient and inpatient care	The VA outperformed Medicare fee-for-service performance in one measure of mammography and two measures of outpatient diabetic management. In addition, in 2005 and 2006, the VA uniformly performed better than hospitals contributing to Hospital Compare.	B
West et al., 2006	Effectiveness [Better]	Nat'l	VA users [N=1928]	2000	Nat'l	Veteran VA non-users and non-Veterans [N=12461]	2000	None	Routine checkup within last 2 years	VA patients reported the higher rates of seeing a doctor for a routine checkup within the past 2 years (91.6% vs. other groups [data not reported]; P < .0001).	B

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Author, Year	Quality Dimension(s) [Assessment*]	Data Level	VA Sample [Sample Size]	Years Collected	Data Level	Non-VA Sample [Sample Size]	Years Collected	Conditions	Outcomes	Primary Findings**	Final Grade†
Articles from previous review (with additional information abstracted as necessary)
Bansal et al., 2005	Effectiveness [Better]	Single ctr	VA patients [N=117]	2002	Nat'l	Registry not further described [sample size not given]	2002	IHD	Use of aspirin, beta blockers, ace inhibitors, heparin, gp2a3b inhibitors among pts with MI	Use of all these agents were higher in the Little Rock VA compared to the rest of Arkansas and the entire US.	B
Barnett et al., 2006	Effectiveness [Better]	Nat'l	VA patients [N=123633]	2002-2003	Nat'l	Medicare HMO patients [N=157517]	2000-2001	Other safety	Use of potentially inappropriate medications among the elderly	Compared with private sector patients, VA patients were less likely to receive any inappropriate medication (21% vs. 29%, P <0.001), and in each classification: always avoid (2% vs. 5%, P <0.001), rarely appropriate (8% vs. 13%, P<0.001), and some indications (15% vs. 17%, P <0.001).	B
Berlowitz et al., 2005	Safety [Mixed]	One VISN	Veterans in VA nursing homes [N=3802]	1997-1999	Lrg geo area	Veterans in contract nursing homes [N=961]	1997-1999	Other medical/ nonsurgical condition	Risk-adjusted rates of pressure ulcer development, functional decline, behavioral decline, and mortality	Veterans in VA nursing homes were significantly (P<.05) less likely to develop a pressure ulcer (OR 0.63), but more likely to experience functional decline (OR1.6) than veterans in community nursing homes. Veterans in VA nursing homes were also less likely to die but more likely to experience behavioral decline, but these differences did not achieve statistical significance after risk adjustment.	A

Author, Year	Quality Dimension(s) [Assessment*]	Data Level	VA Sample [Sample Size]	Years Collected	Data Level	Non-VA Sample [Sample Size]	Years Collected	Conditions	Outcomes	Primary Findings**	Final Grade†
Bilimoria et al., 2007	Safety [Same]	Nat'l	VA patients [N=513]	1985-2004	Nat'l	Academic hospital patients [N=12756] Community hospital patients [N=18299]	1985-2004	General surgical, Surgical Oncology	60-day and 3-year mortality	Unadjusted and adjusted mortality rates at 60 days and 3 years were comparable between VA, academic and community hospital settings for resection of stage I and II pancreatic cancer.	B
Campling et al., 2005	Safety [Worse]	One VISN	Male VA patients [N=862]	1995-1999	Lrg geo	Male non-VA patients [N=27936]	1995-1999	Cancer	Survival following diagnosis of lung cancer	The median survival was 6.3 months for VA patients compared with 7.9 months for patients in the rest of the state, and the 5-year overall survival rate was 12% for VA patients compared with 15% for patients in the rest of the state. The Cox model showed a hazard ratio for VA patients compared with non-VA patients of 1.22 (P< 0.001) after adjusting for age, disease stage, and race.	B
Chi et al., 2006	Effectiveness [Better]	Nat'l	VA users [N=3265]	2003	Nat'l	Veteran non-VA users [N=10677] Non-veterans [N=40331]	2003	Preventive Care	Influenza and pneumococcal vaccination	Among veterans, influenza and vaccination rates higher for VA users compared to non- users. For veterans, VA care was independently associated with influenza vaccination (adjusted OR 1.8, 95% CI1.5-2.2) and pneumococcal vaccination (adjusted OR 2.4, 95% CI 2.0-2.9).	A
Cox et al., 2005	Patient Centeredness [Better]	Mult VISNs	VA patients [N=151]	2000-2003	Mult ctrs	Private practice patients [N=79]	2000-2003	Other medical/ nonsurgical condition	Satisfaction with hearing aid fitting	Three weeks after the fitting, VA patients reported more satisfaction with their hearing aids. On some measures VA patients reported more benefit, but different measures of benefit did not give completely consistent results.	B

Author, Year	Quality Dimension(s) [Assessment*]	Data Level	VA Sample [Sample Size]	Years Collected	Data Level	Non-VA Sample [Sample Size]	Years Collected	Conditions	Outcomes	Primary Findings**	Final Grade†
Fink et al., 2007	Safety [Better]	Nat'l	Female VA patients [N=5157]	2001-2004	Mult. Ctrs	Female private sector patients [N=27467]	2001-2004	General surgical	30 day postoperative morbidity and mortality	Risk adjusted mortality rates are comparable between PS and VA patients, although setting of care did not enter the mortality regression model. Risk adjusted morbidity was higher in the PS compared with the VA OR 0.8 (CI 0.71-0.90).	B
Gill et al., 2007	Effectiveness [Worse]	Nat'l	VA patients [N=7395]	1995-2004	Nat'l	Privately insured patients [N=144651] Medicare/Medicaid patients [N=357345]	1995-2004	Other surgical	Time to treatment	Both VA-insured and Medicare/Medicaid-insured patients were approximately 35% less likely to receive transplants than patients with private insurance (HR 0.65; 95% CI 0.60 to 0.70; P < 0.0001). Most of this difference was explained by the fact that VA patients were less likely to be placed on the wait-list (HR 0.71; 95% CI 0.67 to 0.76), but even listed VA patients received transplants less frequently than those insured privately (HR 0.89; 95% CI 0.82 to 0.96).	A
Glasgow et al., 2007	Safety [Worse]	Nat'l	VA patients [N=377]	2001-2004	Mult. Ctrs	Private sector patients [N=692]	2001-2004	Other surgical	Postoperative outcomes (primarily morbidity and mortality)	Adjusting for case mix differences, postoperative morbidity and mortality rates for pancreatectomy were higher in the VA compared with the PS (OR 1.581, 95% CI 1.084-2.307 and OR 2.533, 95% CI 1.020– 6.290, respectively).	A/B
Hall et al., 2007	Safety [Same]	Nat'l	VA patients [N=2814]	2001-2004	Mult. Ctrs	Private sector patients [N=4268]	2001-2004	General surgical, head and neck	30 day morbidity and mortality; specific adverse event rates, LOS	Overall 30-day morbidity and mortality do not differ significantly in the VA vs. PS in risk adjusted model. Mortality event rate is too low to accurately evaluate, odds ratio for morbidity associated with VA care is 1.25 (95% CI 0.87-1.78).	B

Author, Year	Quality Dimension(s) [Assessment*]	Data Level	VA Sample [Sample Size]	Years Collected	Data Level	Non-VA Sample [Sample Size]	Years Collected	Conditions	Outcomes	Primary Findings**	Final Grade†
Henderson et al., 2007	Safety [Worse]	Nat'l	Male VA patients [N=9409818]	2001-2004	Mult. Ctrs	Male private sector patients [N=18399]	2001-2004	General surgical	30-day postoperative morbidity and mortality	After risk adjustment for patient comorbidities and severity of illness, the odds of mortality at 30days were higher in the VA compared with the PS (OR 1.23, 95% CI). There was no significant difference in morbidity at 30days among the sites.	A/B
Hutter et al., 2007	Safety [Better]	Nat'l	Male VA patients [N=30058]	2001-2004	Mult. Ctrs	Male private sector patients [N=5174]	2001-2004	Vascular	30-day postoperative morbidity and mortality	Risk adjusted mortality was comparable among the two groups, although hospital site/type did not enter the stepwise regression model. Accounting for comorbidities and severity of illness, postoperative morbidity rates were lower in the VA population, OR 0.84 (95% CI 0.78-0.92).	A/B
Jha et al., 2007	Effectiveness [Better]	Nat'l	VHA patients [N=33504-74250]	1995-2003	Nat'l	Representative community sample [sample size not given]	1995-2003	Preventive Care	Vaccination rates	Trends in influenza and pneumonia vaccination rates were significantly different in the VA compared to those reported in the Behavioral Risk Factor Surveillance System (BRFSS) (P < 0.001). Pneumonia hospitalization rates decreased by 50% among elderly VA enrollees but increased among Medicare enrollees by 15% (P for difference in trend < 0.001).	B
Johnson et al., 2007	Safety [Better]	Nat'l	VA patients [N=458]	2001-2004	Mult. Ctrs	Private sector patients [N=3535]	2001-2004	Vascular	30-day postoperative morbidity and mortality	After risk adjustment, no significant difference in 30-day mortality rates among VA and PS female vascular patients. After adjusting for severity of illness, 30-day complication/morbidity rates were significantly lower in the VA compared with the PS (OR 0.60, 95% CI 0.44-0.81).	B

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Keyhani et al., 2007	Effectiveness [Better]	Nat'l	Veterans receiving VHA / VHA and FFS MC/ VHA and MC HMOs [N=171/ 1009/145]	2000-2003	Nat'l	Veterans receiving FFS MC / MC HMO [N=3552/576]	2000-2003	Preventive Care	Self-reported use of influenza vaccination, pneumonia vaccination, serum cholesterol screening	Veterans receiving care through VA reported 10% greater use of influenza vaccination (P<.05), 14% greater use of pneumococcal vaccination (P<.01), and a nonsignificant 6% greater use of serum cholesterol screening (P=.1), than did veterans receiving care through Medicare HMOs. Veterans receiving care through Medicare FFS reported less use of all 4 preventive measures (P<.01) than did veterans receiving care through Medicare HMOs.	B
Krein et al., 2007	Safety [Better]	Nat'l	VA hospitals [N=]	2005	Nat'l	Non-VA hospitals [N=421]	2005	Other medical/ nonsurgical condition	Regular use of specific prevention modalities and a composite measure	Adjusted findings revealed that VA hospitals were significantly more likely to use chlorhexadine gluconate (OR 4.8, 95% CI 1.6-15.0) and/or to use a composite approach (OR 2.1, 95% CI 1.0-4.2) as compared with non-VA hospitals.	B
Lancaster et al., 2007	Safety [Same]	Nat'l	Procedures at VA hospitals [N=237]	2001-2004	Mult. Ctrs	Procedures at university hospitals [N=783]	2001-2004	General surgical	Post-operative morbidity and mortality at 30 days; also evaluated LOS, need for re-operation and occurrence of 18 specific postoperative events	Risk adjusted outcomes suggest that 30-day post-operative morbidity and mortality rates in the VA compared with the PS for hepatic resections do not vary significantly; after risk adjustment, morbidity rates and mortality were comparable in VA and PS. Comparing morbidity of VA with PS, OR was 0.94 (95% CI 0.62-1.42) and Mortality OR was 1.623 (95% CI 0.61-4.32)).	A/B

Author, Year	Quality Dimension(s) [Assessment*]	Data Level	VA Sample [Sample Size]	Years Collected	Data Level	Non-VA Sample [Sample Size]	Years Collected	Conditions	Outcomes	Primary Findings**	Final Grade†
Lautz et al., 2007	Safety [Worse]	Nat'l	VA patients [N=374]	2001-2004	Mult. Ctrs	Private sector patients [N=2064]	2001-2004	Other surgical	30-day postoperative outcomes: morbidity (overall, specific adverse events, number of complications), mortality, LOS	No significant difference in postop morbidity or mortality among women in the VA versus non-VA settings (16.07 vs. 12.02 % p =0.21 and 0.89 vs. 0.42%, p=0.47). Unadjusted and adjusted morbidity rates were higher among men treated at the VA versus non-VA (OR 2.77, 95% CI 1.78-4.31 unadjusted and OR 2.29, 95% CI 1.28-4.10 adjusted). Unadjusted mortality rates significantly higher among men treated at VA versus non-VA (1.91% vs. 0.25% p=0.03).	A/B
Nelson et al., 2005	Effectiveness [Better]	Nat'l	Veterans with some VA care [N=254] Veterans with all VA care [N=281]	2000	Nat'l	Adults with other insurance types [N=10632]	2000	DM	Five self-reported measures of diabetes self-management and preventive care practices	Persons who received care through the VA were more likely to report taking a diabetes education class and HbA1c testing than those covered by private insurance.	B
Neumayer et al., 2007	Safety [Same]	Nat'l	VA patients [N=644]	2001-2004	Mult. Ctrs	Private sector patients [N=3179]	2001-2004	General surgical	30-day postoperative morbidity and mortality, LOS	After adjusting for comorbidities and preoperative factors, there was no significant difference in 30-day morbidity or mortality in female patients at the VA compared with the PS (OR 1.404, 95% CI 0.894-2.204).	B

Author, Year	Quality Dimension(s) [Assessment*]	Data Level	VA Sample [Sample Size]	Years Collected	Data Level	Non-VA Sample [Sample Size]	Years Collected	Conditions	Outcomes	Primary Findings**	Final Grade†
Polsky et al., 2007	Equity [Same]	Nat'l	VA hospitalizations [N=369155]	1995-2001	Lrg geo	Non-VA hospitalizations [N=1509891]	1995-2001	CHF, IHD, Pulmonary Disease, TIA/Stroke	30-day mortality (for white and black males after hospital admission for any of the above conditions)	After risk adjustment, racial (black vs. white) differences in 30-day mortality rates after admission for 6 medical conditions were similar among VA and non-VA care settings.	B
Rehman et al., 2005	Effectiveness [Better]	One VISN	VA patients [N=12366]	2001-2003	Lrg geo	Non-VA patients [N=7734]	2001-2003	HTN	Control of blood pressure below 140/90	Blood pressure control to below 140/90 mmHg was comparable among white hypertensive men at VA (55.6%) and non-VA (54.2%) settings (P=.12). In contrast, BP control was higher among African American hypertensive men at VA (49.4%) compared with non-VA (44.0%) settings (P<.01), even after controlling for age, numerous comorbid conditions, and rural-urban classification. Being in a non-VA site was negatively associated with blood control adjusted OR 0.839 (0.742-0.949).	A

Author, Year	Quality Dimension(s) [Assessment*]	Data Level	VA Sample [Sample Size]	Years Collected	Data Level	Non-VA Sample [Sample Size]	Years Collected	Conditions	Outcomes	Primary Findings**	Final Grade†
Ross et al., 2008	Effectiveness [Better]	Nat'l	Adults receiving care at VAMCs [N=10007]	2000, 2004	Nat'l	Adults receiving care elsewhere [N=393873]	2000, 2004	DM, IHD, HTN, Preventive Care	Self-reported use of 17 recommended health care services including cancer prevention, cardiovascular risk reduction, diabetes management and infection prevention.	VA care was associated with greater use of recommended services in both years of study (6/17 services more used in 2000, 12/17 more used in 2004).	B
Selim et al., 2007	Safety [Better]	Nat'l	VHA patients [N=16725 at baseline and 12177 at follow-up]	1998-2000	Nat'l	Medicare Advantage (MA) Program patients [N=62614 at baseline and 26225 at follow-up]	1998-2000	None	Risk-adjusted 2 year mortality, change in physical and mental health status	Lower risk-adjusted mortality in the VA compared to MA (2 year mortality 7.6% in VA vs. 9.2% in MA); There were no significant differences in the probability of being alive with the same or better physical health except for the South (VA 65.8% vs. MA 62.5%, P = .0014).VA patients had a slightly higher probability than Medicare patients of being alive with the same or better mental health (71.8% vs. 70.1%, P = .002).	B
Selim et al., 2006	Safety [Better]	Nat'l	VHA patients [N=420514]	1999-2004	Nat'l	Medicare Advantage Program [N=584294]	1998-2004	Other medical/ nonsurgical condition	Risk-adjusted mortality	After adjusting for case-mix, the HR for mortality in Medicare was significantly higher than that in VA (HR, 1.404; 95% CI = 1.383–1.426).	B

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Author, Year	Quality Dimension(s) [Assessment*]	Data Level	VA Sample [Sample Size]	Years Collected	Data Level	Non-VA Sample [Sample Size]	Years Collected	Conditions	Outcomes	Primary Findings**	Final Grade†
Selim et al., 2009	Safety [Better]	Nat'l	Medicaid-eligible VHA patients [N=2361]	1999-2000	Nat'l	Medicaid-eligible Medicare Advantage patients [N=1912]	1999-2000	Other medical/ nonsurgical condition	3-year risk adjusted mortality rate	The adjusted HR of mortality in the MA dual enrollees was significantly higher than in VA dual enrollees (HR, 1.260 [95% CI, 1.044–1.520]).	B
Turrentine et al., 2007	Safety [Same]	Nat'l	VA patients [N=178]	2001-2004	Mult. Ctrs	Private sector patients [N=371]	2001-2004	Other surgical	30-day morbidity and mortality	Unadjusted morbidity and mortality rates were higher in VA compared with PS (16.3% vs. 6.7%, p=0.003 and 2.8% vs. 0.4%, p=0.0074). Mortality event rate was too low for adjustment. Adjusting for comorbidities, the 30-day postoperative morbidity ratio in VA versus the PS was no longer significant (adjusted OR 1.33, 95% CI 0.49-3.6 compared with unadjusted OR 2.75, 95% CI: 1.55-4.91).	B
Weeks et al., 2008	Efficiency [Worse]	One VISN	Admissions inside VA system [N=107026]	1998-2000	Lrg geo	Veteran admissions outside VA system [N=159843]	1998-2000	None	Length of stay, readmission within 30 days	Across conditions, the length of stay was longer for VA admissions compared with non-VA admissions. In logistic regression, VA care was not a significant predictor of 30day readmission for veterans <65years old, however for veterans >=65 years of age initial VA admission was associated with a significantly higher odds of readmission within 30 days than non-VA index admission (OR 2.79, 95% CI 1.4-5.6).	B
Weeks et al., 2008	Safety [Mixed]	One VISN	Male VA enrollees receiving care within VA [N=50429]	1998-2000	Lrg geo	Male VA enrollees receiving care outside VA [N=74017]	1998-2000	Patient Safety Indicators (PSIs)	Risk-adjusted rates of non-obstetric patient safety indicators	Rates similar for 9 of 15 PSIs, ulcer, sepsis, iatrogenic infection, postoperative respiratory failure, postoperative metabolic derangement lower in VA, mortality higher in VA for low-risk DRGs.	B

Author, Year	Quality Dimension(s) [Assessment*]	Data Level	VA Sample [Sample Size]	Years Collected	Data Level	Non-VA Sample [Sample Size]	Years Collected	Conditions	Outcomes	Primary Findings**	Final Grade†
Weiss et al., 2006	Safety [Same]	One VISN	VA patients [N=140]	1997-2002	Lrg geo	Private sector patients [N=6949]	1997-2002	Vascular	Perioperative mortality, stroke and cardiac complications	After risk adjustment, having surgery at the VA was not a significant predictor of death (OR 2.98, 95% CI 0.51-17.6), stroke (OR 0.95, 95% CI 0.3-3.4) or cardiac complications (OR 1.07, 95% CI 0.37-3.1).	B

*We assessed each study in the review according to the statistically significant differences in performance on quality of care measures for VA care relative to a non-VA comparison group. If the VA quality of care was shown to be better than quality for non-VA care, the study was classified as "VA better." If VA quality of care was better in some instances and the same in other instances compared to non-VA care in the same study, the study was also classified as "VA better". If multiple quality measures were reported in the study and VA care was better than non-VA on some and worse on others, the study was classified as "mixed." If the quality of care in the VA and non-VA did not differ, the study was classified as "same." If the VA quality of care was shown to be worse than non-VA, the study was classified as "VA worse" (as were studies where the quality of care was worse in some instances and the same in other instances).

**The Primary Findings text has been drawn directly from the reviewed articles, and in some cases may be similar or identical to the article's text.

†Each article was given an overall assessment of quality shown in the Final Grade column. This assessment was based on the following criteria: time frames; samples (both VA and non-VA); quality measurements; outcomes; importance of measures; and statistical methods. Each of these factors was assigned a grade (A, B, or C) based on the data abstraction grading guidelines developed in the original systematic review. The overall assessment was predicated on the global assessment of the article considering the individual components, but was not an average. Thus an article that had, for example, a critical flaw in methodology would be a "C," even if other issues were satisfactory. Articles that received an overall grade of "C" were rejected from the review.

Table abbreviations: Acute myocardial infarction (AMI), confidence interval (CI), chronic obstructive pulmonary disease (COPD), congestive heart failure (CHF), coronary artery bypass graft (CABG), diabetes mellitus (DM), diagnosis-related group (DRG), emergency department (ED), emergency room (ER), end stage renal disease (ESRD), fee-for-service (FFS), hazard ratio (HR), Healthcare Cost and Utilization Project-Nationwide Inpatient Sample (HCUP-NIS), health maintenance organization (HMO), hemoglobin A1c (HbA1c), hypertension (HTN), inpatient quality indicator (IQI), intensive care unit (ICU), ischemic heart disease (IHD), length of stay (LOS), Medicare Advantage (MA), myocardial infarction (MI), not reported (NR), odds ratio (OR), private sector (PS), relative risk (RR), transient ischemic attack (TIA), Veterans Affairs (VA), Veterans Integrated Service Network (VISN).

Appendix G.2 Quality Measure Definitions

Available upon request

Appendix G.3 VA and Non-VA Performance Rates for Quality Measures

Table G-1. Variation in VA Facility-Level Performance on Quality Measures for Outpatient Setting, FY2014

Measure	VA Measure ID	Number of Reporting Facilities	Mean*	Median	Minimum	Maximum	10th Percentile	90th Percentile	Difference between 90th and 10th Percentiles	Mean of Best Performing VA Facilities**
Patient-Centeredness										
Communication (How Well Providers Communicate with Patients)	AdjComm	140	76.5	76.3	64.2	85.6	71.1	82.0	10.9	83.1
Office Staff (Helpful, Courteous, and Respectful Office Staff)	AdjOfficeStaff	140	71.8	72.0	59.0	82.9	65.1	78.5	13.4	80.1
Comprehensiveness (Providers Pay Attention to Your Mental or Emotional Health)	AdjComprehensiveness	140	63.1	63.3	52.9	73.5	56.8	68.6	11.7	70.5
Self-Management Support (Providers Support You in Taking Care of Your Own Health)	AdjSelfManagement	140	56.1	56.0	44.8	63.9	50.4	61.8	11.4	62.6

The views, opinions, and/or findings contained in this report are those of RAND Corporation and should not be construed as an official government position, policy, or decision.

Measure	VA Measure ID	Number of Reporting Facilities	Mean*	Median	Minimum	Maximum	10th Percentile	90th Percentile	Difference between 90th and 10th Percentiles	Mean of Best Performing VA Facilities**
Providers Discuss Medication Decisions	AdjMedDecision	140	62.5	62.4	50.6	72.2	57.8	67.5	9.6	69.0
Patients' Rating of the Provider	OverallRatingOfProvider	140	70.0	70.4	54.6	83.8	63.4	76.5	13.0	78.4
Follow-up on Test Results	CoordinationQ27	140	62.4	62.7	40.3	80.1	54.0	71.3	17.3	74.8
Provider was informed and up-to-date on care received from specialist	CoordinationQ34	140	59.3	59.4	45.5	72.2	52.1	65.4	13.4	68.3
Talked about prescription medicines at each visit	CoordinationQ38	140	83.7	83.9	74.0	91.5	79.0	87.7	8.7	88.9
Provider's office gave information on what to do if care needed on evenings, weekends, or holidays	InformationQ10	140	70.9	70.9	58.3	81.4	64.5	76.5	12.0	78.3
Got reminders from provider's office between visits	InformationQ17	140	79.1	79.1	61.9	87.2	74.9	83.4	8.5	84.9
Effectiveness of Care: Process Measures										
Screening, Prevention and Wellness										
Tobacco Use: Advising Smokers and Tobacco Users to Quit	smg8	140	95.3	96.7	70.9	100.0	89.0	99.8	10.8	99.9

Measure	VA Measure ID	Number of Reporting Facilities	Mean*	Median	Minimum	Maximum	10th Percentile	90th Percentile	Difference between 90th and 10th Percentiles	Mean of Best Performing VA Facilities**
Tobacco Use: Discussing Cessation Strategies	smg9	140	95.3	96.5	78.6	100.0	89.4	99.8	10.4	99.9
Tobacco Use: Discussing Cessation Medications	smg10	140	93.8	95.4	68.8	100.0	87.5	99.5	12.0	99.9
Flu Shots for Adults Ages 50–64	p22h	140	65.0	64.5	45.0	79.0	58.5	74.0	15.5	75.8
Influenza Immunization 18-64 (OP)	p26h	140	57.7	58.0	44.0	79.0	50.0	64.5	14.5	68.4
Flu Shots for Older Adults (65+)	p25h	140	75.5	76.0	57.0	89.0	66.5	83.0	16.5	85.1
Pneumococcal Vaccination Status for Older Adults	p1	140	91.3	91.6	82.9	97.6	87.1	94.7	7.6	95.4
Breast Cancer Screening (50-74)	p31h	140	86.6	87.0	72.0	95.0	81.0	91.0	10.0	91.9
Cervical Cancer Screening (21-64, every three years)	p41h	140	91.7	91.9	81.4	99.4	86.7	96.0	9.3	97.2
Colorectal Cancer Screening (50-75)	p61h	140	81.6	81.4	70.2	93.3	77.1	86.5	9.4	88.9
Chronic Condition Management										
Persistence of Beta-Blocker Treatment After a Heart Attack	ihd20h	134	92.4	100.0	0.0	100.0	80.0	100.0	20.0	100.0
Comprehensive Diabetes Care										

Measure	VA Measure ID	Number of Reporting Facilities	Mean*	Median	Minimum	Maximum	10th Percentile	90th Percentile	Difference between 90th and 10th Percentiles	Mean of Best Performing VA Facilities**
Blood Pressure Control (diagnosis of DM and hypertension, 18-85 years, and <140/90 mm Hg)	dmg27h	140	77.9	78.4	66.8	88.6	71.8	84.3	12.5	85.7
Eye Exams	dmg31h	140	90.1	90.5	76.9	98.1	85.2	94.7	9.5	96.2
HbA1c Screening	c9h	140	98.5	98.6	94.9	100.0	97.3	99.6	2.4	99.8
Poor Glycemic Control (HbA1c >9%)—Lower rates signify better performance	dmg23h	140	19.3	18.8	11.0	30.4	14.9	24.7	9.8	13.5
LDL Cholesterol Screening	dmg32h	140	96.9	97.4	91.5	100.0	93.8	98.9	5.0	99.3
LDL Cholesterol Control (<100 mg/dL)	dmg25h	140	67.4	67.3	51.3	82.3	60.0	75.3	15.3	77.5
Medical Attention for Nephropathy	dmg34h	140	94.8	95.2	86.0	99.3	91.7	98.1	6.3	98.5
Controlling High Blood Pressure (Diagnosis of hypertension, 18-85 years and <140/90)	htn9h	140	75.3	75.4	65.4	83.5	69.3	81.0	11.7	82.1
Cholesterol Management for Patients With Cardiovascular Conditions										
LDL Cholesterol Screening	ihd16h	140	95.7	96.0	87.9	100.0	92.0	98.5	6.6	99.1
LDL Cholesterol Control (<100 mg/dL)	ihd18hn	140	69.7	69.9	50.4	85.7	60.2	76.8	16.6	79.5

Measure	VA Measure ID	Number of Reporting Facilities	Mean*	Median	Minimum	Maximum	10th Percentile	90th Percentile	Difference between 90th and 10th Percentiles	Mean of Best Performing VA Facilities**
Antidepressant Medication Management										
Acute Phase	mdd43h	140	72.4	73.0	50.9	91.3	57.5	85.3	27.8	88.2
Continuation Phase	mdd47h	140	56.8	57.4	35.6	73.8	44.3	68.7	24.4	71.1

*National means based on VA facility-level data may differ from national measure rates in VA publications, which are based on patient-level data.

**Mean of measure rates for best-performing 10% of VA facilities.

Source: VA facility-level data for FY2014 was obtained from the VA Office of Performance Measurement.

Table G-2. Performance on Outpatient Quality Measures, VA Compared to Non-VA, 2013

HEDIS Measure	VA Measure ID	VA Facility-Level Mean, FY2013*	Non-VA Commercial HMO, 2013	Non-VA Medicare HMO, 2013	Non-VA Medicaid HMO, 2013	P-value for Difference Between VA and Commercial HMOs	P-value for Difference Between VA and Medicare HMOs	P-value for Difference Between VA and Medicaid HMOs
Tobacco Use: Advising Smokers and Tobacco Users to Quit	smg8	95.9	77.3	84.6	75.8	<0.001	<0.001	<0.001
Breast Cancer Screening (50-74)	p31h	86.6	74.3	71.3	57.9	<0.001	<0.001	<0.001
Colorectal Cancer Screening (50-75)	p61h	81.4	63.3	64.3	--	<0.001	<0.001	-
Chronic Condition Management								
Persistence of Beta-Blocker Treatment After a Heart Attack	ihd20h	91.7	83.9	90.0	84.2	<0.001	0.25	<0.001
Comprehensive Diabetes Care								
Blood Pressure Control (diagnosis of DM and hypertension, 18-85 years, and <140/90 mm Hg)	dmg27h	78.9	65.0	65.6	60.4	<0.001	<0.001	<0.001
Eye Exams	dmg31h	90.0	55.7	68.5	53.6	<0.001	<0.001	<0.001
HbA1c Screening	c9h	98.5	89.9	92.3	83.8	<0.001	<0.001	<0.001
Poor Glycemic Control (HbA1c >9%)—Lower rates signify better performance	dmg23h	19.0	30.5	25.3	45.6	<0.001	<0.001	<0.001

HEDIS Measure	VA Measure ID	VA Facility-Level Mean, FY2013*	Non-VA Commercial HMO, 2013	Non-VA Medicare HMO, 2013	Non-VA Medicaid HMO, 2013	P-value for Difference Between VA and Commercial HMOs	P-value for Difference Between VA and Medicare HMOs	P-value for Difference Between VA and Medicaid HMOs
LDL Cholesterol Screening	dmg32h	97.1	84.9	88.9	76.0	<0.001	<0.001	<0.001
LDL Cholesterol Control (<100 mg/dL)	dmg25h	68.2	46.7	53.8	33.9	<0.001	<0.001	<0.001
Medical Attention for Nephropathy	dmg34h	95.3	84.5	91.1	79.0	<0.001	<0.001	<0.001
Controlling High Blood Pressure (Diagnosis of hypertension, 18-85 years and <140/90)	htn9h	76.1	64.4	65.5	56.5	<0.001	<0.001	<0.001
Cholesterol Management for Patients With Cardiovascular Conditions								
LDL Cholesterol Screening	ihd16h	96.0	86.7	89.6	81.1	<0.001	<0.001	<0.001
LDL Cholesterol Control (<100 mg/dL)	ihd18hn	69.7	57.5	58.6	40.5	<0.001	<0.001	<0.001
Antidepressant Medication Management								
Acute Phase	mdd43h	70.3	64.4	66.8	50.5	<0.001	<0.001	<0.001
Continuation Phase	mdd47h	53.6	47.4	53.3	35.2	<0.001	0.73	<0.001
*National means based on VA facility-level data may differ from national measure rates in VA publications, which are based on patient-level data. Source: Facility-level data for VA patients for FY2013 was obtained from the VA Office of Performance Measurement. National data for CY2013 for non-VA subgroups of patients (commercial HMO, Medicare HMO, and Medicaid HMO) was obtained from the following report: National Committee for Quality Assurance. 2014. *The State of Health Care Quality 2014.* Available as of March 20, 2015 at www.ncqa.org.								

Table G-3. Variation in VA Facility-Level Performance on Quality Measures for Hospital Inpatient Setting, FY2014

Measure	VA Measure ID	Hospital Compare Measure ID	Number of Reporting Facilities	Mean*	Minimum	Maximum	10th Percentile	90th Percentile	Difference between 90th and 10th Percentiles	Mean of Best Performing VA Hospitals**
Patient-Centeredness†										
Communication with Nurses	COMMNURSE_adj_t		121	74.7	60.7	87.2	67.7	80.9	13.2	82.7
Communication with Doctors	COMMDOC_adj_t		121	76.6	60.7	84.7	72.3	81.6	9.3	82.6
Communication about Medicine	COMMRX_adj_t		117	62.7	51.6	75.0	54.7	69.5	14.8	71.6
Shared Decision Making	SDM_adj_t		121	74.4	60.7	84.4	69.2	79.9	10.7	81.4
Responsiveness of Hospital Staff	NURSESVCS_adj_t		115	61.5	45.3	84.1	51.8	71.2	19.4	74.3
Discharge Information	DSCHRG_adj_t		121	83.5	76.0	92.6	79.2	88.3	9.1	89.7
Pain Management	PAINMGMT_adj_t		115	63.8	52.8	73.0	57.0	70.7	13.7	71.8
Care Transition	CTM_adj_t		121	50.9	40.6	61.0	44.6	56.1	11.5	58.4
Cleanliness of the Hospital Environment	CLEANHOSP_adj_t		121	71.6	52.9	91.1	62.3	81.4	19.1	84.5
Quietness of the Hospital Environment	QUIETHOSP_adj_t		121	58.3	41.1	80.2	47.8	70.8	23.0	73.6
Overall Rating of Hospital	INPTOQ_adj_t		122	63.6	40.6	80.6	53.2	72.3	19.1	76.1
Effectiveness of Care: Process Measures										

Measure	VA Measure ID	Hospital Compare Measure ID	Number of Reporting Facilities	Mean*	Minimum	Maximum	10th Percentile	90th Percentile	Difference between 90th and 10th Percentiles	Mean of Best Performing VA Hospitals**
Acute Myocardial Infarction										
Timing of receipt of primary percutaneous coronary intervention (PCI)	-	AMI-8a	8	85.3	64.0	100.0	64.0	100.0	36.0	100.0
Aspirin prescribed at discharge	-	AMI-2	70	99.4	91.0	100.0	98.0	100.0	2.0	100.0
Statin prescribed at discharge	-	AMI-10	69	99.0	89.0	100.0	97.0	100.0	3.0	100.0
Heart Failure	-									
Discharge instructions	-	HF-1	116	95.9	81.0	100.0	89.0	100.0	11.0	100.0
Evaluation of LVS function	-	HF-2	118	99.8	97.0	100.0	99.0	100.0	1.0	100.0
Medication (ACEI or ARB) for LVSD	-	HF-3	109	96.2	65.0	100.0	91.0	100.0	9.0	100.0
Pneumonia	-									
Initial antibiotic for community-acquired pneumonia (CAP) in immunocompetent patient	-	PN-6	117	94.7	78.0	100.0	89.0	100.0	11.0	100.0
Surgical Care	-									
Prophylactic antibiotic received within one hour prior to surgical incision	-	SCIP-Inf-1a	98	96.3	62.0	100.0	91.0	100.0	9.0	100.0

Measure	VA Measure ID	Hospital Compare Measure ID	Number of Reporting Facilities	Mean*	Minimum	Maximum	10th Percentile	90th Percentile	Difference between 90th and 10th Percentiles	Mean of Best Performing VA Hospitals**
Prophylactic antibiotics discontinued within 24 hours after surgery end time	-	SCIP-Inf-3a	98	97.1	74.0	100.0	94.0	100.0	6.0	100.0
Surgery patients who received appropriate venous thromboembolism prophylaxis within 24 hours prior to surgery to 24 hours after surgery	-	SCIP-VTE-2	98	98.1	88.0	100.0	95.0	100.0	5.0	100.0
Surgery patients on beta-blocker therapy prior to arrival who received a beta-blocker during the perioperative period	-	SCIP-CARD-2	94	96.0	74.0	100.0	90.0	100.0	10.0	100.0
Prophylactic antibiotic selection for surgical patients	-	SCIP-Inf-2a	98	98.2	81.0	100.0	96.0	100.0	4.0	100.0
Cardiac surgery patients with controlled 6 a.m. postoperative blood glucose	-	SCIP-INF-4	38	93.3	82.0	100.0	88.0	98.0	10.0	98.8
Urinary catheter removed on postoperative day 1 (POD 1) or postoperative day 2 (POD 2) with day of surgery being day zero	-	SCIP-INF-9	96	98.0	85.0	100.0	95.0	100.0	5.0	100.0
Surgery patients with perioperative temperature management	-	SCIP-INF-10	95	99.1	93.0	100.0	98.0	100.0	2.0	100.0
Patient Safety										

Measure	VA Measure ID	Hospital Compare Measure ID	Number of Reporting Facilities	Mean*	Minimum	Maximum	10th Percentile	90th Percentile	Difference between 90th and 10th Percentiles	Mean of Best Performing VA Hospitals**
Complication/patient safety for selected indicators (composite) (observed:expected)***	PSI-90-SAFETY		131	0.9	0.4	1.5	0.6	1.1	0.5	0.5
Death rate (per 1,000) among surgical inpatients with serious treatable complications***	PSI-4-SURG-COMP		101	96.5	0.0	286.7	0.0	159.9	159.9	0.0
Iatrogenic pneumothorax (per 1,000)***	PSI-6-IAT-PTX		130	0.4	0.0	2.1	0.0	1.0	1.0	0.0
Postoperative pulmonary embolism or deep vein thrombosis rate (per 1,000)***	PSI-12		124	3.2	0.0	14.6	0.0	6.7	6.7	0.0
Postoperative wound dehiscence (per 1,000)***	PSI-14		113	1.8	0.0	14.2	0.0	5.2	5.2	0.0
Accidental puncture or laceration (per 1,000)***	PSI-15		130	1.6	0.0	5.7	0.0	3.3	3.3	0.0
Outcome Measures										
Readmission										
Acute myocardial infarction (AMI) 30-day all-cause risk-standardized readmission rate***		READM-30-AMI	80	18.6	16.1	21.0	17.4	19.8	2.4	16.9
Heart failure (HF) 30-day all-cause risk-standardized readmission rate***		READM-30-HF	121	23.4	19.0	28.6	21.1	26.3	5.2	20.3

Measure	VA Measure ID	Hospital Compare Measure ID	Number of Reporting Facilities	Mean*	Minimum	Maximum	10th Percentile	90th Percentile	Difference between 90th and 10th Percentiles	Mean of Best Performing VA Hospitals**
Pneumonia (PN) 30-day all-cause risk-standardized readmission rate***		READM-30-PN	121	18.1	14.6	22.1	15.9	20.1	4.2	15.5
Mortality										
Acute myocardial infarction (AMI) 30-day all-cause risk-standardized mortality rate***		MORT-30-AMI	86	14.3	11.5	17.8	13.1	15.5	2.4	12.7
Heart failure (HF) 30-day all-cause risk-standardized mortality rate***		MORT-30-HF	120	10.9	7.4	15.3	9.0	12.9	3.9	8.5
Pneumonia (PN) 30-day all-cause risk-standardized mortality rate***		MORT-30-PN	121	11.6	6.9	16.2	9.3	14.0	4.7	8.8

*National means based on VA facility-level data may differ from national measure rates in VA publications, which are based on patient-level data.

**Mean of measure rates for best-performing 10 percent of VA facilities.
***For this measure, a lower rate indicates better performance.

† To assess variation in inpatient SHEP scores across facilities within VA, we used inpatient SHEP scores that the VA adjusted using VA's internal patient mix adjustment model, which includes the following variables: age, sex, priority group, urban/rural residence, hospital service line (surgical/medical), self-reported health status, self-reported mental health status, education, and race/ethnicity.

Sources: VA facility-level data for patient experience measures for FY2014 was obtained from the VA Office of Performance Measurement. VA facility-level data for patient safety indicator measures for FY2014 was obtained from the VA Inpatient Evaluation Center. VA facility-level data for all other measures was obtained from the CMS Hospital Compare website for Quarter 4 of FY2014.

Table G-4. Comparison of Mean Facility-Level Performance of VA and *Matched Non-VA Facilities* on Measures for Inpatient Setting, FY2014

Measure Name	VA Measure ID	Hospital Compare Measure ID	FY2014 VA Sample Size	FY2014 VA Mean*	FY2014 Matched Non-VA Sample Size	FY2014 Matched Non-VA Mean	P-value for comparison of 2014 VA vs. Non-VA Means (t-test)	Cohen's D Effect Size for FY2014 Difference
Communication with Nurses	COMMNURSE_adj_t	H_COMP_1_A_P	114	74.1	321	77.8	< 0.001	-0.65
Communication with Doctors	COMMDOC_adj_t	H_COMP_2_A_P	114	77.1	321	80.3	< 0.001	-0.59
Communication about Medicine	COMMRX_adj_t	H_COMP_5_A_P	110	65.1	309	63.0	0.001	0.30
Responsiveness of Hospital Staff	NURSESVCS_adj_t	H_COMP_3_A_P	109	63.0	306	64.8	0.024	-0.20
Discharge Information	DSCHRG_adj_t	H_COMP_6_Y_P	113	85.9	318	85.8	0.852	0.02
Pain Management	PAINMGMT_adj_t	H_COMP_4_A_P	108	63.3	304	69.9	< 0.001	-1.11
Care Transition	CTM_adj_t	H_COMP_7_A	114	53.7	320	43.3	< 0.001	1.72
Cleanliness of the Hospital Environment	CLEANHOSP_adj_t	H_CLEAN_HSP_A_P	114	72.8	321	71.2	0.031	0.20
Quietness of the Hospital Environment	QUIETHOSP_adj_t	H_QUIET_HSP_A_P	114	55.4	321	58.9	< 0.001	-0.34
Overall Rating of Hospital	INPTOQ_adj_t	H_HSP_RATING_9_10	114	67.1	321	70.3	< 0.001	-0.35
Timing of receipt of primary percutaneous coronary intervention (PCI)		AMI_8A	8	85.3	17	96.5	0.001	-1.12
Aspirin prescribed at discharge		AMI_2	64	99.6	156	98.9	0.055	0.10
Statin prescribed at	-	AMI_10	64	99.0	156	97.8	0.088	0.09

Measure Name	VA Measure ID	Hospital Compare Measure ID	FY2014 VA Sample Size	FY2014 VA Mean*	FY2014 Matched Non-VA Sample Size	FY2014 Matched Non-VA Mean	P-value for comparison of 2014 VA vs. Non-VA Means (t-test)	Cohen's D Effect Size for FY2014 Difference
discharge								
Discharge instructions	-	HF_1	112	95.8	304	94.5	0.213	0.08
Evaluation of LVS function	-	HF_2	115	99.8	315	98.5	0.043	0.10
Medication (ACEI or ARB) for LVSD	-	HF_3	102	96.3	264	96.8	0.427	-0.06
Initial antibiotic for community-acquired pneumonia (CAP) in immunocompetent patient	-	PN_6	114	94.8	313	95.4	0.396	-0.06
Prophylactic antibiotic received within one hour prior to surgical incision	-	SCIP_INF_1	96	96.3	266	98.5	< 0.001	-0.36
Prophylactic antibiotics discontinued within 24 hours after surgery end time	-	SCIP_INF_3	96	97.1	266	97.8	0.113	-0.11
Surgery patients who received appropriate venous thromboembolism prophylaxis within 24 hours prior to surgery to 24 hours after surgery	-	SCIP_VTE_2	96	98.1	268	98.5	0.127	-0.05
Surgery patients on beta-blocker therapy prior to arrival who received a beta-blocker during the perioperative period	-	SCIP_CARD_2	92	95.9	251	96.8	0.46	-0.10

Measure Name	VA Measure ID	Hospital Compare Measure ID	FY2014 VA Sample Size	FY2014 VA Mean*	FY2014 Matched Non-VA Sample Size	FY2014 Matched Non-VA Mean	P-value for comparison of 2014 VA vs. Non-VA Means (t-test)	Cohen's D Effect Size for FY2014 Difference
Prophylactic antibiotic selection for surgical patients	-	SCIP_INF_2	96	98.2	266	98.8	0.059	-0.12
Cardiac surgery patients with controlled 6 a.m. postoperative blood glucose	-	SCIP_INF_4	28	92.6	57	92.1	0.791	0.10
Urinary catheter removed on postoperative day 1 (POD 1) or postoperative day 2 (POD 2) with day of surgery being day zero	-	SCIP_INF_9	93	98.1	259	97.4	0.173	0.08
Surgery patients with perioperative temperature management		SCIP_INF_10	93	99.1	261	99.8	< 0.001	-0.18
Complication/patient safety for selected indicators (composite)**	PSI-90-SAFETY	PSI_90_SAFETY	118	0.9	316	0.9	0.588	0.00
Complication/patient safety for selected indicators (composite)**	PSI-4-SURG-COMP	PSI_4_SURG_COMP	81	100.6	191	118	< 0.001	-0.94
Iatrogenic pneumothorax**	PSI-6-IAT-PTX	PSI_6_IAT_PTX	117	0.4	311	0.4	0.177	0.00
Postoperative pulmonary embolism or deep vein thrombosis rate**	PSI-12	PSI_12	111	3.3	286	4.6	< 0.001	-0.69
Postoperative wound dehiscence**	PSI-14	PSI_14	100	1.7	258	1.9	0.354	-0.30
Accidental puncture or	PSI-15	PSI_15	117	1.7	311	2.0	0.002	-0.42

Measure Name	VA Measure ID	Hospital Compare Measure ID	FY2014 VA Sample Size	FY2014 VA Mean*	FY2014 Matched Non-VA Sample Size	FY2014 Matched Non-VA Mean	P-value for comparison of 2014 VA vs. Non-VA Means (t-test)	Cohen's D Effect Size for FY2014 Difference
laceration**								
Acute myocardial infarction (AMI) 30-day all-cause risk-standardized readmission rate**		READM_30_AMI	73	18.6	178	17.8	< 0.001	0.52
Heart failure (HF) 30-day all-cause risk-standardized readmission rate**		READM_30_HF	115	23.4	319	22.6	< 0.001	0.40
Pneumonia (PN) 30-day all-cause risk-standardized readmission rate**		READM_30_PN	117	18.1	323	17.5	< 0.001	0.39
Acute myocardial infarction (AMI) 30-day all-cause risk-standardized mortality rate**		MORT_30_AMI	80	14.3	201	14.7	0.066	-0.27
Heart failure (HF) 30-day all-cause risk-standardized mortality rate**		MORT_30_HF	114	11.0	310	11.8	< 0.001	-0.52
Pneumonia (PN) 30-day all-cause risk-standardized mortality rate**		MORT_30_PN	117	11.6	323	11.7	0.482	-0.05

*National means based on VA facility-level data may differ from national measure rates in VA publications, which are based on patient-level data.

**For this measure, a lower rate indicates better performance.

Sources: VA facility-level data for patient experience measures for FY2014 was obtained from the VA Office of Performance Measurement. VA facility-level data for patient safety indicator measures for FY2014 was obtained from the VA Inpatient Evaluation Center. VA facility-level data for all other measures and all non-VA facility-level data for Quarter 4 of FY2014 were obtained from the CMS Hospital Compare website. For patient-centeredness measures derived from the inpatient SHEP and HCAHPS, results for both VA and non-VA facilities are adjusted for patient characteristics, mode of survey administration, and national mean hospital performance using guidance provided by CMS.

Table G-5. Variation in Facility-Level Performance of *Matched Non-VA Hospitals* on Quality Measures for Hospital Inpatient Setting, FY2014

Measure	Hospital Compare Measure ID	Number of Reporting Facilities	Mean*	Median	Minimum	Maximum	10th Percentile	90th Percentile	Difference between 90th and 10th Percentiles	Mean of Best Performing Non-VA Hospitals**
Patient-Centeredness										
Communication with Nurses	H-COMP-1-A-P	350	77.6	78.0	56.0	95.0	72.0	83.0	11.0	85.2
Communication with Doctors	H-COMP-2-A-P	350	80.2	80.0	25.0	100.0	75.0	86.0	11.0	88.2
Communication about Medicine	H-COMP-5-A-P	349	62.8	62.0	43.0	88.0	56.0	69.0	13.0	72.1
Shared Decision Making	N/A									
Responsiveness of Hospital Staff	H-COMP-3-A-P	349	64.6	64.0	40.0	87.0	57.0	74.0	17.0	77.6
Discharge Information	H-COMP-6-Y-P	350	85.7	86.0	27.0	95.0	81.0	90.0	9.0	91.0
Pain Management	H-COMP-4-A-P	350	69.7	70.0	33.0	85.0	64.0	75.0	11.0	76.8
Care Transition	H-COMP-7-A	349	43.4	44.0	20.0	60.0	38.0	49.0	11.0	51.1
Cleanliness of the Hospital Environment	H-CLEAN-HSP-A-P	350	71.1	71.0	52.0	100.0	62.0	79.0	17.0	82.4
Quietness of the Hospital Environment	H-QUIET-HSP-A-P	350	58.9	59.0	0.0	83.0	49.0	69.0	20.0	72.5
Overall Rating of Hospital	H-HSP-RATING-9-10	350	70.0	71.0	40.0	95.0	59.0	78.5	19.5	83.4
Effectiveness of Care: Process Measures										

The views, opinions, and/or findings contained in this report are those of RAND Corporation and should not be construed as an official government position, policy, or decision.

Measure	Hospital Compare Measure ID	Number of Reporting Facilities	Mean*	Median	Minimum	Maximum	10th Percentile	90th Percentile	Difference between 90th and 10th Percentiles	Mean of Best Performing Non-VA Hospitals**
Acute Myocardial Infarction										
Timing of receipt of primary percutaneous coronary intervention (PCI)	AMI-8a	218	95.3	97.0	64.0	100.0	88.0	100.0	12.0	100.0
Aspirin prescribed at discharge	AMI-2	275	98.9	100.0	71.0	100.0	97.0	100.0	3.0	100.0
Statin prescribed at discharge	AMI-10	275	97.9	99.0	57.0	100.0	95.0	100.0	5.0	100.0
Heart Failure										
Discharge instructions	HF-1	332	94.3	97.0	0.0	100.0	87.0	100.0	13.0	100.0
Evaluation of LVS function	HF-2	342	98.7	100.0	42.0	100.0	98.0	100.0	2.0	100.0
Medication (ACEI or ARB) for LVSD	HF-3	301	97.1	99.0	64.0	100.0	91.0	100.0	9.0	100.0
Pneumonia										
Initial antibiotic for community-acquired pneumonia (CAP) in immunocompetent patient	PN-6	346	95.5	97.0	37.0	100.0	91.0	100.0	9.0	100.0
Surgical Care										
Prophylactic antibiotic received within one hour prior to surgical incision	SCIP-Inf-1a	342	98.4	99.0	64.0	100.0	96.0	100.0	4.0	100.0

Measure	Hospital Compare Measure ID	Number of Reporting Facilities	Mean*	Median	Minimum	Maximum	10th Percentile	90th Percentile	Difference between 90th and 10th Percentiles	Mean of Best Performing Non-VA Hospitals**
Prophylactic antibiotics discontinued within 24 hours after surgery end time	SCIP-Inf-3a	342	97.8	99.0	66.0	100.0	95.0	100.0	5.0	100.0
Surgery patients who received appropriate venous thromboembolism prophylaxis within 24 hours prior to surgery to 24 hours after surgery	SCIP-VTE-2	343	98.5	99.0	85.0	100.0	97.0	100.0	3.0	100.0
Surgery patients on beta-blocker therapy prior to arrival who received a beta-blocker during the perioperative period	SCIP-CARD-2	332	96.9	99.0	5.0	100.0	93.0	100.0	7.0	100.0
Prophylactic antibiotic selection for surgical patients	SCIP-Inf-2a	342	98.8	99.0	83.0	100.0	97.0	100.0	3.0	100.0
Cardiac surgery patients with controlled 6 a.m. postoperative blood glucose	SCIP-INF-4	168	94.2	96.0	55.0	100.0	86.0	100.0	14.0	100.0
Urinary catheter removed on postoperative day 1 (POD 1) or postoperative day 2 (POD 2) with day of surgery being day zero	SCIP-INF-9	336	97.3	99.0	64.0	100.0	93.0	100.0	7.0	100.0
Surgery patients with perioperative temperature management	SCIP-INF-10	344	99.8	100.0	92.0	100.0	99.0	100.0	1.0	100.0
Patient Safety										
Complication/patient safety for selected indicators (composite) (observed:expected)***	PSI-90-SAFETY	327	0.9	0.9	0.5	1.9	0.6	1.2	0.6	0.6

Measure	Hospital Compare Measure ID	Number of Reporting Facilities	Mean*	Median	Minimum	Maximum	10th Percentile	90th Percentile	Difference between 90th and 10th Percentiles	Mean of Best Performing Non-VA Hospitals**
Death rate (per 1,000) among surgical inpatients with serious treatable complications***	PSI-4-SURG-COMP	245	118.6	118.7	62.3	186.4	94.4	143.8	49.4	85.6
Iatrogenic pneumothorax (per 1,000) ***	PSI-6-IAT-PTX	325	0.4	0.4	0.2	0.7	0.3	0.5	0.2	0.3
Postoperative pulmonary embolism or deep vein thrombosis rate (per 1,000) ***	PSI-12	311	4.6	4.2	1.4	15.1	2.6	6.9	4.3	2.3
Postoperative wound dehiscence (per 1,000) ***	PSI-14	297	1.9	1.8	0.9	3.6	1.5	2.3	0.8	1.4
Accidental puncture or laceration (per 1,000) ***	PSI-15	325	2.0	1.9	0.6	6.3	1.2	3.1	1.9	0.9
Outcome Measures										
Readmission										
Acute myocardial infarction (AMI) 30-day all-cause risk-standardized readmission rate***	READM-30-AMI	280	17.8	17.8	14.3	21.6	16.4	19.2	2.9	15.8
Heart failure (HF) 30-day all-cause risk-standardized readmission rate***	READM-30-HF	342	22.6	22.6	16.6	29.7	20.3	25.0	4.7	19.3
Pneumonia (PN) 30-day all-cause risk-standardized readmission rate***	READM-30-PN	347	17.5	17.4	14.4	22.2	15.6	19.3	3.7	15.1
Mortality										

Measure	Hospital Compare Measure ID	Number of Reporting Facilities	Mean*	Median	Minimum	Maximum	10th Percentile	90th Percentile	Difference between 90th and 10th Percentiles	Mean of Best Performing Non-VA Hospitals**
Acute myocardial infarction (AMI) all-cause risk-standardized 30-day mortality rate***	MORT-30-AMI	290	14.6	14.6	9.4	20.0	12.9	16.4	3.5	12.3
Heart failure (HF) 30-day all-cause risk-standardized mortality rate***	MORT-30-HF	334	11.8	11.7	7.9	17.1	9.9	13.7	3.8	9.2
Pneumonia (PN) 30-day all-cause risk-standardized mortality rate***	MORT-30-PN	347	11.7	11.5	7.4	21.6	9.5	14.1	4.6	8.9

*These represent national means based on facility-level data.

**Mean of measure rates for best-performing 10 percent of VA facilities.
***For this measure, a lower rate indicates better performance.

Source: Data for matched non-VA facility-level data for Quarter 4 of FY2014 was obtained from the CMS Hospital Compare website.

Table G-6. Comparison of Mean Facility-Level Performance of VA and *All Non-VA Facilities* on Measures for Inpatient Setting, FY2014

Measure	VA Measure ID	VA Facilities			All Non-VA Facilities			P-value for comparison of FY2014 VA vs. Non-VA Means (t-test)
		Hospital Compare Measure ID	Number of Reporting Facilities	FY2014 VA Mean*	Hospital Compare Measure ID	Number of Reporting Facilities	FY2014 Matched Non-VA Mean	
Patient-Centeredness								
Communication with Nurses	COMMNURSE_adj_t		114	74.1	H-COMP-1-A-P	4065	79.1	< 0.001
Communication with Doctors	COMMDOC_adj_t		114	77.1	H-COMP-2-A-P	4065	81.8	< 0.001
Communication about Medicine	COMMRX_adj_t		110	65.1	H-COMP-5-A-P	4058	64.3	0.255
Responsiveness of Hospital Staff	NURSESVCS_adj_t		109	63.0	H-COMP-3-A-P	4063	67.8	< 0.001
Discharge Information	DSCHRG_adj_t		113	85.9	H-COMP-6-Y-P	4063	85.7	0.787
Pain Management	PAINMGMT_adj_t		108	63.3	H-COMP-4-A-P	4058	70.8	< 0.001
Care Transition	CTM_adj_t		114	53.7	H-COMP-7-A	4063	43.5	< 0.001
Cleanliness of the Hospital Environment	CLEANHOSP_adj_t		114	72.8	H-CLEAN-HSP-A-P	4065	73.6	0.325
Quietness of the Hospital Environment	QUIETHOSP_adj_t		114	55.4	H-QUIET-HSP-A-P	4065	61.4	< 0.001

Measure	VA Measure ID	VA Facilities			All Non-VA Facilities			P-value for comparison of FY2014 VA vs. Non-VA Means (t-test)
		Hospital Compare Measure ID	Number of Reporting Facilities	FY2014 VA Mean*	Hospital Compare Measure ID	Number of Reporting Facilities	FY2014 Matched Non-VA Mean	
Overall Rating of Hospital	INPTOQ_adj_t		114	67.1	H-HSP-RATING-9-10	4065	70.8	< 0.001
Effectiveness: Process Measures								
Acute Myocardial Infarction								
Timing of receipt of primary percutaneous coronary intervention (PCI)	-	AMI-8a	8	85.3	AMI-8a	1506	95.5	< 0.001
Aspirin prescribed at discharge	-	AMI-2	64	99.6	AMI-2	2132	98.9	0.051
Statin prescribed at discharge	-	AMI-10	64	99.0	AMI-10	2115	97.6	0.024
Heart Failure	-							
Discharge instructions	-	HF-1	112	95.8	HF-1	3353	93.3	0.017
Evaluation of LVS function	-	HF-2	115	99.8	HF-2	3724	96.4	0.001
Medication (ACEI or ARB) for LVSD	-	HF-3	102	96.3	HF-3	2615	96.5	0.837
Pneumonia	-							
Initial antibiotic for community-acquired pneumonia (CAP) in immunocompetent patient	-	PN-6	114	94.8	PN-6	3834	93.9	0.319
Surgical Care	-							

Measure	VA Measure ID	VA Facilities			All Non-VA Facilities			P-value for comparison of FY2014 VA vs. Non-VA Means (t-test)
		Hospital Compare Measure ID	Number of Reporting Facilities	FY2014 VA Mean*	Hospital Compare Measure ID	Number of Reporting Facilities	FY2014 Matched Non-VA Mean	
Prophylactic antibiotic received within one hour prior to surgical incision	-	SCIP-Inf-1a	96	96.3	SCIP-Inf-1a	3383	98.0	0.001
Prophylactic antibiotics discontinued within 24 hours after surgery end time	-	SCIP-Inf-3a	96	97.1	SCIP-Inf-3a	3376	97.4	0.572
Surgery patients who received appropriate venous thromboembolism prophylaxis within 24 hours prior to surgery to 24 hours after surgery	-	SCIP-VTE-2	96	98.1	SCIP-VTE-2	3434	97.8	0.575
Surgery patients on beta-blocker therapy prior to arrival who received a beta-blocker during the perioperative period	-	SCIP-CARD-2	92	95.9	SCIP-CARD-2	3062	96.9	0.158
Prophylactic antibiotic selection for surgical patients	-	SCIP-Inf-2a	96	98.2	SCIP-Inf-2a	3379	98.4	0.631
Cardiac surgery patients with controlled 6 a.m. postoperative blood glucose	-	SCIP-INF-4	28	92.6	SCIP-INF-4	1029	94.0	0.332
Urinary catheter removed on postoperative day 1 (POD 1) or postoperative day 2 (POD 2) with day of surgery being day zero	-	SCIP-INF-9	93	98.1	SCIP-INF-9	3239	96.8	0.045
Surgery patients with perioperative temperature management	-	SCIP-INF-10	93	99.1	SCIP-INF-10	3419	99.6	0.114
Patient Safety								

Measure	VA Measure ID	VA Facilities			All Non-VA Facilities			P-value for comparison of FY2014 VA vs. Non-VA Means (t-test)
		Hospital Compare Measure ID	Number of Reporting Facilities	FY2014 VA Mean*	Hospital Compare Measure ID	Number of Reporting Facilities	FY2014 Matched Non-VA Mean	
Complication/patient safety for selected indicators (composite)**	PSI-90-SAFETY		118	0.9	PSI-90-SAFETY	3271	0.9	0.248
Complication/patient safety for selected indicators (composite)**	PSI-4-SURG-COMP		81	100.6	PSI-4-SURG-COMP	1856	118.5	< 0.001
Iatrogenic pneumothorax**	PSI-6-IAT-PTX		117	0.4	PSI-6-IAT-PTX	3254	0.4	0.009
Postoperative pulmonary embolism or deep vein thrombosis rate**	PSI-12		111	3.3	PSI-12	3051	4.4	< 0.001
Postoperative wound dehiscence**	PSI-14		100	1.7	PSI-14	2640	1.9	0.004
Accidental puncture or laceration**	PSI-15		117	1.7	PSI-15	3246	1.9	< 0.001
Outcome Measures								
Readmission								
Acute myocardial infarction (AMI) 30-day all-cause risk-standardized readmission rate**		READM-30-AMI	73	18.6	READM-30-AMI	2262	17.8	< 0.001
Heart failure (HF) 30-day all-cause risk-standardized readmission rate**		READM-30-HF	115	23.4	READM-30-HF	3820	22.7	< 0.001
Pneumonia (PN) 30-day all-cause risk-standardized readmission rate**		READM-30-PN	117	18.1	READM-30-PN	4132	17.3	< 0.001
Mortality								

Measure	VA Measure ID	VA Facilities			All Non-VA Facilities			P-value for comparison of FY2014 VA vs. Non-VA Means (t-test)
		Hospital Compare Measure ID	Number of Reporting Facilities	FY2014 VA Mean*	Hospital Compare Measure ID	Number of Reporting Facilities	FY2014 Matched Non-VA Mean	
Acute myocardial infarction (AMI) 30-day all-cause risk-standardized mortality rate**		MORT-30-AMI	80	14.3	MORT-30-AMI	2488	14.8	0.001
Heart failure (HF) 30-day all-cause risk-standardized mortality rate**		MORT-30-HF	114	11.0	MORT-30-HF	3724	12.0	< 0.001
Pneumonia (PN) 30-day mortality all-cause risk-standardized rate**		MORT-30-PN	117	11.6	MORT-30-PN	4116	12.0	0.012

*National means based on VA facility-level data may differ from national measure rates in VA publications, which are based on patient-level data.
**For this measure, a lower rate indicates better performance.

Sources: VA facility-level data for patient experience measures for FY2014 was obtained from the VA Office of Performance Measurement. VA facility-level data for patient safety indicator measures for FY2014 was obtained from the VA Inpatient Evaluation Center. VA facility-level data for all other measures and all non-VA facility-level data for Quarter 4 of FY2014 were obtained from the CMS Hospital Compare website.

Appendix H Projections

Table H-1. Projected Demand and Supply in FY19, Under Supply Scenario Two, By Specialty

VA Specialty	Milliman National RVU/Year Forecast		% RVU/Year Increase from FY14 to FY19	RVU/Provider/Year FY14 Percentiles			National FY14 RVU Capacity if Providers Operated at least at the Following RVU/Provider/Year Percentiles within their Specialties (shading indicates if capacity is sufficient for FY19)		
	FY14	FY19		25th	50th (median)	75th	Prodcutivity Level 1: 25th Percentile	Productivity Level 2: 50th Percentile	Productivity Level 3: 75th Percentile
allergy.and.immunology	80,052	94,709	18%	1,913	2,515	3,741	84,626	93,739	186,881
cardiology	2,458,361	2,841,646	16%	3,576	4,255	5,254	2,516,834	2,650,712	3,426,482
chiropracty	132,684	157,526	19%	1,903	2,547	3,446	136,585	147,577	227,124
critical.care...pulmonary.disease	1,125,446	1,351,647	20%	1,610	2,304	3,446	1,175,606	1,303,273	1,979,495
dermatology	1,131,318	1,456,154	29%	4,878	7,192	9,094	1,179,059	1,319,580	2,144,952
endocrinology	393,177	472,830	20%	1,513	1,881	2,612	417,884	450,568	660,979
gastroenterology	2,231,936	2,777,841	24%	4,323	5,943	7,466	2,307,570	2,607,686	4,135,758
hematology.oncology	791,544	940,054	19%	1,783	2,472	3,190	815,961	900,372	1,288,247
infectious.disease	300,312	307,092	2%	861	1,336	1,826	317,628	361,397	579,989
internal.medicine	12,629,558	14,200,389	12%	2,124	2,326	2,626	12,913,103	13,284,748	15,756,790
nephrology	890,821	1,078,947	21%	1,466	2,643	3,704	910,271	996,913	1,801,782
neurological.surgery	284,916	316,500	11%	2,396	3,458	6,060	293,964	315,597	889,062
neurology	1,103,627	1,358,149	23%	2,009	2,501	3,124	1,174,235	1,290,376	1,928,073
obstetrics...gynecology	201,264	289,813	44%	1,956	2,643	3,237	206,864	229,819	357,279
ophthalmology	2,455,210	3,048,800	24%	5,974	7,674	10,207	2,533,009	2,747,480	4,323,505
optometry	3,007,464	3,623,840	20%	3,805	4,390	5,297	3,070,423	3,202,339	4,304,883
orthopaedic.surgery	1,469,225	1,757,782	20%	4,044	4,912	6,063	1,524,852	1,627,152	2,635,070
otolaryngology	741,631	914,182	23%	3,711	4,720	6,241	764,449	819,828	1,249,250
pain.medicine	137,860	153,928	12%	2,028	2,571	3,249	145,419	156,125	227,201
physical.medicine...rehabilitation	997,135	1,236,369	24%	1,303	1,981	2,556	1,015,150	1,121,175	1,478,384
plastic.surgery	289,755	364,239	26%	3,145	4,138	5,015	307,638	336,580	439,952
podiatry	1,510,056	1,934,881	28%	3,187	4,044	4,879	1,558,557	1,678,621	2,641,304
psychiatry	6,765,438	8,089,661	20%	2,466	2,833	3,291	6,982,331	7,307,580	8,987,955
psychology	6,627,594	8,268,017	25%	1,630	1,765	2,045	6,757,420	6,918,289	8,031,008
rheumatology	300,139	375,624	25%	1,613	2,156	2,986	316,983	354,931	521,420
surgery	1,714,422	1,990,617	16%	2,753	3,561	4,320	1,764,827	1,911,424	2,354,307
thoracic.surgery	409,685	428,621	5%	2,228	3,329	5,813	419,203	451,409	745,370
urology	1,281,601	1,545,369	21%	3,837	5,187	6,396	1,331,997	1,466,598	2,239,703
vascular.surgery	707,639	768,457	9%	3,460	4,716	6,633	728,326	790,869	1,223,258
Total	52,169,870	62,143,684	19%				53,670,775	56,842,756	76,765,464

Sources: Milliman, Inc. August 8, 2014; 2014 VA Enrollee Health Care Projection Model - Base Year 2013 - 2014 Model Documentation & Analysis; Milliman Health Practice Seattle; RAND analyses of VA provider supply; RAND analyses of VA productivity data.

Table H-2 Projected Demand and Supply in FY19, Under Supply Scenario Two, By VISN and Specialty

The table below shows the following:
1.   FY14: # of RVUs forecasted by Milliman for FY14
2.   FY19: # of RVUs forecasted by Milliman for FY19
3.   50th: RVUs at the 50th percentile with forecasted FY19 provider FTEs and under Sensitivity Analysis Productivity Level 2

The cell shading indicates how well Sensitivity Analysis Level 2 50th percentile performs relative to forecasted FY19 RVU demand given the forecast provider FTE change in FY19:
1.   Red: Less than 10% below FY19 RVU
2.   Yellow: Within 10% of FY19 RVU
3.   Green: Exceeds FY19 RVU

Assessment B (Health Care Capabilities) Appendices E–I

VA Specialty	VISN										
	V01	V02	V03	V04	V05	V06	V07	V08	V09	V10	V11
allergy and immunology	FY14: 2,270 FY19: 2,721 50th: 2,717	FY14: 2,895 FY19: 3,618 50th: 2,895	FY14: 2,811 FY19: 3,364 50th: 3,474	No FY14 Data	FY14: 1,922 FY19: 2,281 50th: 1,922	No FY19 Data	FY14: 2,184 FY19: 2,980 50th: 2,381	FY14: 8,805 FY19: 9,928 50th: 12,260	FY14: 2,603 FY19: 3,153 50th: 2,832	FY14: 3,561 FY19: 4,642 50th: 3,732	FY14: 2,050 FY19: 2,503 50th: 2,442
cardiology	FY14: 103,682 FY19: 117,420 50th: 128,160	FY14: 63,314 FY19: 70,767 50th: 63,314	FY14: 75,439 FY19: 81,198 50th: 82,668	FY14: 104,604 FY19: 120,913 50th: 116,079	FY14: 52,652 FY19: 61,604 50th: 63,962	FY14: 140,120 FY19: 170,147 50th: 159,470	FY14: 118,863 FY19: 143,625 50th: 128,228	FY14: 289,186 FY19: 321,632 50th: 294,972	FY14: 142,645 FY19: 168,790 50th: 154,915	FY14: 107,721 FY19: 130,152 50th: 112,965	FY14: 99,369 FY19: 117,080 50th: 106,721
chiropracty	FY14: 7,474 FY19: 9,104 50th: 11,287	FY14: 16,186 FY19: 19,770 50th: 16,186	FY14: 391 FY19: 483 50th: 2,224	FY14: 2,590 FY19: 3,344 50th: 2,590	FY14: 2,303 FY19: 2,841 50th: 2,303	FY14: 1,578 FY19: 1,949 50th: 2,157	FY14: 2,875 FY19: 3,551 50th: 2,875	FY14: 8,749 FY19: 12,662 50th: 12,833	FY14: 2,604 FY19: 3,223 50th: 2,604	FY14: 8,581 FY19: 10,196 50th: 9,184	FY14: 4,569 FY19: 5,848 50th: 5,381
critical care pulmonary disease	FY14: 64,444 FY19: 75,934 50th: 65,661	FY14: 34,466 FY19: 41,843 50th: 34,466	FY14: 74,733 FY19: 83,259 50th: 78,545	FY14: 64,684 FY19: 77,480 50th: 79,117	FY14: 20,577 FY19: 24,465 50th: 28,114	FY14: 68,902 FY19: 87,801 50th: 76,056	FY14: 38,183 FY19: 48,551 50th: 49,207	FY14: 143,554 FY19: 160,759 50th: 151,343	FY14: 48,806 FY19: 58,471 50th: 65,788	FY14: 48,806 FY19: 62,216 50th: 59,821	FY14: 42,153 FY19: 51,742 50th: 44,642
dermatology	FY14: 60,954 FY19: 76,579 50th: 67,947	FY14: 9,685 FY19: 11,200 50th: 9,685	FY14: 61,141 FY19: 73,590 50th: 67,733	FY14: 47,883 FY19: 62,240 50th: 49,025	FY14: 32,366 FY19: 34,424 50th: 42,119	FY14: 37,270 FY19: 51,541 50th: 60,733	FY14: 53,350 FY19: 73,252 50th: 60,690	FY14: 153,963 FY19: 189,978 50th: 157,844	FY14: 54,519 FY19: 73,690 50th: 59,692	FY14: 52,926 FY19: 72,701 50th: 52,926	FY14: 46,855 FY19: 61,999 50th: 51,422
endocrinology	FY14: 15,487 FY19: 17,643 50th: 18,212	FY14: 7,544 FY19: 9,380 50th: 7,834	FY14: 23,005 FY19: 26,913 50th: 23,106	FY14: 24,021 FY19: 28,121 50th: 24,431	FY14: 13,090 FY19: 15,589 50th: 13,090	FY14: 24,397 FY19: 30,364 50th: 27,542	FY14: 24,362 FY19: 30,139 50th: 27,154	FY14: 48,264 FY19: 55,300 50th: 48,264	FY14: 15,590 FY19: 19,699 50th: 22,081	FY14: 11,825 FY19: 14,884 50th: 13,912	FY14: 11,598 FY19: 14,467 50th: 12,440
gastroenterology	FY14: 101,251 FY19: 124,865 50th: 134,496	FY14: 38,843 FY19: 48,071 50th: 43,421	FY14: 90,271 FY19: 107,332 50th: 103,053	FY14: 100,200 FY19: 125,213 50th: 110,383	FY14: 51,650 FY19: 65,398 50th: 65,135	FY14: 154,623 FY19: 203,190 50th: 154,623	FY14: 118,906 FY19: 153,627 50th: 129,836	FY14: 251,213 FY19: 301,432 50th: 268,508	FY14: 104,187 FY19: 134,312 50th: 137,556	FY14: 88,763 FY19: 114,162 50th: 97,071	FY14: 123,592 FY19: 155,470 50th: 129,751
hematology oncology	FY14: 46,372 FY19: 54,159 50th: 51,932	FY14: 14,522 FY19: 17,378 50th: 14,522	FY14: 32,054 FY19: 35,601 50th: 40,311	FY14: 43,015 FY19: 50,131 50th: 45,169	FY14: 22,875 FY19: 28,879 50th: 29,898	FY14: 46,369 FY19: 57,271 50th: 52,342	FY14: 34,515 FY19: 42,738 50th: 39,729	FY14: 96,746 FY19: 106,762 50th: 96,746	FY14: 35,162 FY19: 43,074 50th: 46,844	FY14: 40,082 FY19: 50,613 50th: 40,303	FY14: 33,107 FY19: 40,214 50th: 33,107
infectious disease	FY14: 17,241 FY19: 18,409 50th: 17,473	FY14: 11,161 FY19: 11,966 50th: 11,161	FY14: 21,734 FY19: 20,698 50th: 21,734	FY14: 10,796 FY19: 11,145 50th: 12,180	FY14: 11,274 FY19: 10,947 50th: 12,301	FY14: 22,830 FY19: 25,536 50th: 23,685	FY14: 18,340 FY19: 20,017 50th: 18,781	FY14: 31,242 FY19: 30,256 50th: 32,254	FY14: 16,768 FY19: 16,897 50th: 23,643	FY14: 8,581 FY19: 9,128 50th: 17,481	FY14: 8,784 FY19: 7,417 50th: 9,534
internal medicine	FY14: 486,989 FY19: 533,710 50th: 511,109	FY14: 238,661 FY19: 269,157 50th: 238,661	FY14: 432,388 FY19: 450,795 50th: 449,202	FY14: 778,831 FY19: 582,908 50th: 596,177	FY14: 285,297 FY19: 330,384 50th: 303,311	FY14: 778,831 FY19: 900,726 50th: 818,746	FY14: 830,199 FY19: 973,491 50th: 841,402	FY14: 1,430,541 FY19: 1,559,703 50th: 1,465,279	FY14: 640,164 FY19: 727,774 50th: 655,389	FY14: 539,558 FY19: 616,082 50th: 542,654	FY14: 537,334 FY19: 614,584 50th: 569,979
nephrology	FY14: 32,597 FY19: 36,159 50th: 36,659	FY14: 17,601 FY19: 18,949 50th: 17,601	FY14: 80,393 FY19: 95,305 50th: 84,089	FY14: 38,732 FY19: 46,415 50th: 40,222	FY14: 20,087 FY19: 24,971 50th: 20,703	FY14: 63,415 FY19: 75,470 50th: 65,844	FY14: 41,629 FY19: 54,782 50th: 50,229	FY14: 32,810 FY19: 88,563 50th: 79,975	FY14: 32,810 FY19: 39,163 50th: 51,357	FY14: 29,978 FY19: 37,392 50th: 38,234	FY14: 22,318 FY19: 29,762 50th: 33,553
neurological surgery	FY14: 11,053 FY19: 11,791 50th: 11,716	No FY14 Data	FY14: 10,021 FY19: 11,702 50th: 10,021	FY14: 12,648 FY19: 13,983 50th: 13,796	FY14: 6,869 FY19: 8,343 50th: 6,869	FY14: 29,596 FY19: 35,791 50th: 29,596	FY14: 14,372 FY19: 16,399 50th: 18,044	FY14: 24,344 FY19: 25,565 50th: 25,766	FY14: 13,858 FY19: 15,790 50th: 15,113	FY14: 2,738 FY19: 3,453 50th: 2,738	FY14: 5,700 FY19: 5,921 50th: 5,700
neurology	FY14: 59,507 FY19: 70,271 50th: 68,063	FY14: 19,307 FY19: 24,120 50th: 19,307	FY14: 47,857 FY19: 56,763 50th: 56,886	FY14: 34,318 FY19: 41,362 50th: 39,860	FY14: 45,769 FY19: 55,604 50th: 67,652	FY14: 72,186 FY19: 93,272 50th: 81,385	FY14: 55,535 FY19: 69,915 50th: 65,425	FY14: 43,475 FY19: 124,907 50th: 110,037	FY14: 40,122 FY19: 54,080 50th: 50,845	FY14: 40,122 FY19: 50,942 50th: 49,949	FY14: 41,238 FY19: 50,962 50th: 47,171
obstetrics gynecology	FY14: 6,836 FY19: 9,989 50th: 7,204	FY14: 6,529 FY19: 10,088 50th: 6,529	FY14: 7,851 FY19: 11,722 50th: 10,157	FY14: 5,481 FY19: 8,192 50th: 9,307	FY14: 507 FY19: 670 50th: 579	FY14: 12,349 FY19: 18,519 50th: 13,673	FY14: 15,073 FY19: 20,496 50th: 15,671	FY14: 46,997 FY19: 46,997 50th: 37,522	FY14: 5,646 FY19: 8,764 50th: 7,421	FY14: 8,582 FY19: 12,440 50th: 9,097	FY14: 7,542 FY19: 10,843 50th: 7,542
ophthalmology	FY14: 96,371 FY19: 116,307 50th: 105,430	FY14: 69,071 FY19: 82,453 50th: 69,071	FY14: 68,974 FY19: 78,481 50th: 87,398	FY14: 76,123 FY19: 94,297 50th: 84,603	FY14: 73,745 FY19: 92,068 50th: 73,745	FY14: 153,585 FY19: 202,361 50th: 169,105	FY14: 169,673 FY19: 220,231 50th: 186,893	FY14: 281,771 FY19: 324,602 50th: 318,847	FY14: 115,081 FY19: 148,979 50th: 131,422	FY14: 60,954 FY19: 80,720 50th: 64,258	FY14: 102,065 FY19: 130,548 50th: 102,065
optometry	FY14: 229,002 FY19: 265,484 50th: 240,073	FY14: 53,810 FY19: 63,660 50th: 53,810	FY14: 126,110 FY19: 139,535 50th: 132,363	FY14: 139,235 FY19: 165,427 50th: 152,226	FY14: 55,598 FY19: 67,029 50th: 64,558	FY14: 167,299 FY19: 213,510 50th: 190,432	FY14: 184,217 FY19: 227,493 50th: 202,694	FY14: 308,720 FY19: 356,730 50th: 335,514	FY14: 132,934 FY19: 164,358 50th: 136,280	FY14: 200,532 FY19: 251,528 50th: 212,350	FY14: 143,465 FY19: 176,390 50th: 155,433
orthopaedic surgery	FY14: 58,932 FY19: 66,580 50th: 70,728	FY14: 30,736 FY19: 36,451 50th: 30,736	FY14: 47,644 FY19: 58,774 50th: 47,648	FY14: 61,291 FY19: 74,207 50th: 74,023	FY14: 42,826 FY19: 53,210 50th: 43,661	FY14: 108,888 FY19: 138,976 50th: 132,368	FY14: 52,131 FY19: 63,654 50th: 64,009	FY14: 153,786 FY19: 178,261 50th: 165,145	FY14: 59,486 FY19: 70,238 50th: 65,367	FY14: 52,889 FY19: 66,081 50th: 61,641	FY14: 42,942 FY19: 48,772 50th: 46,996
otolaryngology	FY14: 32,933 FY19: 39,373 50th: 38,069	FY14: 13,105 FY19: 16,637 50th: 13,105	FY14: 39,146 FY19: 46,589 50th: 40,325	FY14: 28,432 FY19: 35,320 50th: 34,053	FY14: 19,841 FY19: 25,103 50th: 24,130	FY14: 40,050 FY19: 53,771 50th: 51,874	FY14: 40,569 FY19: 51,920 50th: 44,887	FY14: 74,012 FY19: 87,682 50th: 76,195	FY14: 36,549 FY19: 45,857 50th: 36,549	FY14: 22,536 FY19: 29,637 50th: 24,066	FY14: 36,715 FY19: 45,432 50th: 39,134
pain medicine	FY14: 7,802 FY19: 8,941 50th: 8,391	No FY19 Data	FY14: 2,014 FY19: 2,651 50th: 2,561	FY14: 3,812 FY19: 4,841 50th: 5,888	FY14: 2,475 FY19: 891 50th: 3,885	FY14: 10,941 FY19: 6,666 50th: 13,620	FY14: 11,108 FY19: 11,741 50th: 13,338	FY14: 27,691 FY19: 33,998 50th: 27,691	No FY19 Data	FY14: 5,279 FY19: 4,396 50th: 5,451	FY14: 4,271 FY19: 4,967 50th: 4,271
physical medicine rehabilitation	FY14: 27,988 FY19: 33,925 50th: 28,752	FY14: 14,286 FY19: 17,631 50th: 15,534	FY14: 71,773 FY19: 84,324 50th: 72,128	FY14: 32,842 FY19: 40,314 50th: 37,940	FY14: 18,179 FY19: 21,469 50th: 21,428	FY14: 43,051 FY19: 57,349 50th: 60,451	FY14: 60,643 FY19: 79,964 50th: 71,580	FY14: 140,491 FY19: 160,386 50th: 146,759	FY14: 34,974 FY19: 42,923 50th: 35,355	FY14: 36,099 FY19: 46,805 50th: 42,154	FY14: 48,237 FY19: 60,574 50th: 51,315
plastic surgery	FY14: 10,941 FY19: 13,654 50th: 11,883	FY14: 8,242 FY19: 10,527 50th: 8,242	FY14: 9,632 FY19: 11,357 50th: 11,614	FY14: 3,206 FY19: 4,335 50th: 3,677	FY14: 7,477 FY19: 9,620 50th: 10,527	FY14: 19,330 FY19: 25,724 50th: 26,647	FY14: 17,212 FY19: 21,452 50th: 18,227	FY14: 46,369 FY19: 58,084 50th: 47,073	FY14: 15,332 FY19: 20,034 50th: 18,875	FY14: 10,204 FY19: 13,535 50th: 10,605	FY14: 18,757 FY19: 23,784 50th: 18,757
podiatry	FY14: 60,716 FY19: 75,298 50th: 75,135	FY14: 35,864 FY19: 46,688 50th: 35,864	FY14: 87,462 FY19: 107,283 50th: 104,795	FY14: 102,145 FY19: 132,288 50th: 109,430	FY14: 43,028 FY19: 55,562 50th: 48,535	FY14: 58,496 FY19: 78,959 50th: 67,744	FY14: 88,020 FY19: 117,052 50th: 93,949	FY14: 154,220 FY19: 188,989 50th: 157,754	FY14: 61,112 FY19: 79,105 50th: 70,682	FY14: 120,090 FY19: 162,056 50th: 126,907	FY14: 51,257 FY19: 67,418 50th: 60,302
psychiatry	FY14: 312,175 FY19: 361,881 50th: 391,802	FY14: 142,459 FY19: 170,003 50th: 142,459	FY14: 289,505 FY19: 339,332 50th: 322,335	FY14: 331,142 FY19: 394,945 50th: 343,674	FY14: 155,373 FY19: 185,331 50th: 164,418	FY14: 340,802 FY19: 426,715 50th: 434,100	FY14: 407,418 FY19: 495,278 50th: 470,677	FY14: 872,051 FY19: 991,201 50th: 878,181	FY14: 299,680 FY19: 365,739 50th: 311,429	FY14: 277,381 FY19: 342,128 50th: 282,070	FY14: 235,243 FY19: 278,589 50th: 266,803
psychology	FY14: 318,188 FY19: 380,946 50th: 362,921	FY14: 130,486 FY19: 160,423 50th: 130,486	FY14: 229,896 FY19: 276,038 50th: 258,061	FY14: 372,610 FY19: 459,771 50th: 376,067	FY14: 182,795 FY19: 226,782 50th: 186,362	FY14: 343,143 FY19: 445,694 50th: 376,378	FY14: 413,736 FY19: 524,653 50th: 429,090	FY14: 676,536 FY19: 822,341 50th: 708,581	FY14: 308,430 FY19: 386,784 50th: 328,316	FY14: 306,961 FY19: 386,032 50th: 334,269	FY14: 301,164 FY19: 371,534 50th: 312,520
rheumatology	FY14: 26,595 FY19: 33,266 50th: 27,814	FY14: 8,615 FY19: 10,833 50th: 8,615	FY14: 10,736 FY19: 12,607 50th: 12,029	FY14: 14,591 FY19: 17,963 50th: 16,758	FY14: 9,908 FY19: 12,440 50th: 10,656	FY14: 12,844 FY19: 17,402 50th: 13,482	FY14: 16,530 FY19: 21,350 50th: 23,116	FY14: 24,084 FY19: 28,806 50th: 25,161	FY14: 10,455 FY19: 12,723 50th: 11,732	FY14: 11,834 FY19: 15,633 50th: 17,026	FY14: 7,981 FY19: 10,045 50th: 10,688
surgery	FY14: 65,908 FY19: 74,645 50th: 70,107	FY14: 31,675 FY19: 36,075 50th: 31,675	FY14: 45,683 FY19: 50,867 50th: 68,260	FY14: 92,367 FY19: 109,380 50th: 102,074	FY14: 29,406 FY19: 34,190 50th: 35,311	FY14: 117,707 FY19: 144,626 50th: 137,488	FY14: 114,615 FY19: 138,157 50th: 123,242	FY14: 152,455 FY19: 168,114 50th: 157,954	FY14: 100,842 FY19: 117,969 50th: 108,292	FY14: 45,477 FY19: 54,794 50th: 60,715	FY14: 80,017 FY19: 92,304 50th: 87,933
thoracic surgery	FY14: 32,347 FY19: 33,319 50th: 32,347	FY14: 8,969 FY19: 9,708 50th: 8,969	FY14: 3,191 FY19: 3,393 50th: 4,002	FY14: 20,823 FY19: 22,647 50th: 23,834	FY14: 10,667 FY19: 11,213 50th: 12,270	FY14: 24,953 FY19: 27,339 50th: 23,834	FY14: 12,551 FY19: 13,449 50th: 15,290	FY14: 43,463 FY19: 45,143 50th: 46,843	FY14: 17,276 FY19: 18,278 50th: 28,444	FY14: 20,816 FY19: 22,510 50th: 24,771	FY14: 12,422 FY19: 12,908 50th: 12,429
urology	FY14: 64,156 FY19: 75,945 50th: 76,450	FY14: 28,820 FY19: 35,389 50th: 35,579	FY14: 60,715 FY19: 71,371 50th: 82,857	FY14: 42,607 FY19: 51,318 50th: 67,708	FY14: 33,498 FY19: 41,775 50th: 38,711	FY14: 76,985 FY19: 97,343 50th: 89,598	FY14: 72,773 FY19: 92,096 50th: 74,046	FY14: 171,048 FY19: 194,921 50th: 178,964	FY14: 64,480 FY19: 79,325 50th: 69,184	FY14: 34,973 FY19: 45,127 50th: 45,157	FY14: 33,110 FY19: 41,302 50th: 40,327
vascular surgery	FY14: 46,996 FY19: 50,323 50th: 52,726	FY14: 27,639 FY19: 30,371 50th: 27,639	FY14: 29,219 FY19: 31,292 50th: 30,688	FY14: 28,807 FY19: 31,120 50th: 35,050	FY14: 22,087 FY19: 25,329 50th: 25,002	FY14: 19,340 FY19: 18,880 50th: 23,442	FY14: 26,423 FY19: 29,479 50th: 33,917	FY14: 68,015 FY19: 69,917 50th: 58,919	FY14: 38,663 FY19: 42,132 50th: 40,042	FY14: 31,758 FY19: 36,446 50th: 34,144	FY14: 40,011 FY19: 44,932 50th: 40,011
Grand Total	FY14: 2,407,207 FY19: 2,788,641 50th: 2,725,264	FY14: 1,085,350 FY19: 1,283,156 50th: 1,098,355	FY14: 2,081,240 FY19: 2,372,619 50th: 2,310,366	FY14: 2,368,367 FY19: 2,809,620 50th: 2,605,340	FY14: 1,274,141 FY19: 1,528,412 50th: 1,423,159	FY14: 2,990,201 FY19: 3,706,892 50th: 3,381,543	FY14: 3,056,005 FY19: 3,761,532 50th: 3,314,608	FY14: 5,901,565 FY19: 6,743,619 50th: 6,119,738	FY14: 2,452,146 FY19: 2,961,324 50th: 2,688,248	FY14: 2,229,775 FY19: 2,746,431 50th: 2,375,652	FY14: 2,143,866 FY19: 2,578,311 50th: 2,288,368

The views, opinions, and/or findings contained in this report are those of RAND Corporation and should not be construed as an official government position, policy, or decision.

VA Specialty	V12	V15	V16	V17	V18	V19	V20	V21	V22	V23	Grand Total
allergy and immunology	FY14: 3,168 FY19: 4,005 50th: 4,686	FY14: 7,065 FY19: 8,824 50th: 7,208	FY14: 2,906 FY19: 3,723 50th: 5,326	FY14: 4,312 FY19: 5,512 50th: 4,312	FY14: 17,911 FY19: 19,435 50th: 19,558	FY14: 692 FY19: 924 50th: 692	FY14: 1 FY19: 1 50th: 174	FY14: 1,382 FY19: 1,656 50th: 1,382	FY14: 10,033 FY19: 12,123 50th: 10,283	FY14: 3,160 FY19: 3,316 50th: 5,140	FY14: 80,052 FY19: 94,709 50th: 93,739
cardiology	FY14: 126,943 FY19: 148,770 50th: 137,820	FY14: 118,592 FY19: 244,635 50th: 118,592	FY14: 213,498 FY19: 222,515 50th: 222,515	FY14: 119,328 FY19: 141,275 50th: 128,191	FY14: 103,938 FY19: 121,000 50th: 108,368	FY14: 59,196 FY19: 69,805 50th: 67,958	FY14: 71,936 FY19: 84,959 50th: 76,775	FY14: 111,497 FY19: 123,612 50th: 123,475	FY14: 136,290 FY19: 116,789 50th: 143,676	FY14: 99,548 FY19: 116,789 50th: 111,889	FY14: 2,458,361 FY19: 2,841,646 50th: 2,650,712
chiropracty	FY14: 4,944 FY19: 6,011 50th: 6,013	FY14: 8,194 FY19: 10,159 50th: 9,085	FY14: 1,808 FY19: 2,352 50th: 3,161	FY14: 16,830 FY19: 21,494 50th: 17,915	No FY14 Data	FY14: 3,052 FY19: 2,943 50th: 3,349	FY14: 8,386 FY19: 10,258 50th: 8,386	FY14: 6,979 FY19: 8,172 50th: 6,979	FY14: 14,948 FY19: 21,201 50th: 15,896	FY14: 5,985 FY19: 5,965 50th: 7,168	FY14: 132,684 FY19: 157,526 50th: 147,577
critical care pulmonary disease	FY14: 36,060 FY19: 45,182 50th: 51,082	FY14: 40,017 FY19: 48,534 50th: 40,970	FY14: 83,615 FY19: 101,281 50th: 105,804	FY14: 57,728 FY19: 72,625 50th: 57,728	FY14: 27,276 FY19: 33,345 50th: 33,424	FY14: 34,374 FY19: 39,753 50th: 40,036	FY14: 38,816 FY19: 49,351 50th: 60,768	FY14: 41,263 FY19: 48,212 50th: 50,391	FY14: 87,957 FY19: 103,484 50th: 90,454	FY14: 31,130 FY19: 37,359 50th: 39,856	FY14: 1,125,446 FY19: 1,351,647 50th: 1,303,273
dermatology	FY14: 52,063 FY19: 68,303 50th: 54,934	FY14: 53,619 FY19: 70,322 50th: 55,516	FY14: 69,710 FY19: 89,041 50th: 80,053	FY14: 65,596 FY19: 88,614 50th: 68,815	FY14: 33,689 FY19: 44,043 50th: 44,236	FY14: 25,505 FY19: 34,219 50th: 32,146	FY14: 35,409 FY19: 47,248 50th: 44,498	FY14: 64,505 FY19: 80,954 50th: 118,888	FY14: 80,210 FY19: 100,704 50th: 99,657	FY14: 40,100 FY19: 51,512 50th: 41,023	FY14: 1,131,318 FY19: 1,456,154 50th: 1,319,580
endocrinology	FY14: 21,642 FY19: 26,369 50th: 22,304	FY14: 10,010 FY19: 12,090 50th: 10,702	FY14: 21,869 FY19: 26,538 50th: 33,598	FY14: 20,590 FY19: 25,468 50th: 24,457	FY14: 9,810 FY19: 12,202 50th: 14,839	FY14: 8,731 FY19: 11,104 50th: 10,286	FY14: 8,248 FY19: 9,620 50th: 11,354	FY14: 26,371 FY19: 30,881 50th: 32,033	FY14: 32,123 FY19: 39,183 50th: 34,186	FY14: 14,600 FY19: 16,876 50th: 18,743	FY14: 393,177 FY19: 472,830 50th: 450,568
gastroenterology	FY14: 83,880 FY19: 105,357 50th: 103,204	FY14: 99,483 FY19: 122,358 50th: 104,273	FY14: 158,104 FY19: 193,137 50th: 221,889	FY14: 105,125 FY19: 135,602 50th: 133,666	FY14: 100,415 FY19: 127,118 50th: 102,203	FY14: 38,312 FY19: 48,935 50th: 50,927	FY14: 73,520 FY19: 93,957 50th: 117,222	FY14: 134,850 FY19: 161,017 50th: 157,837	FY14: 149,242 FY19: 178,121 50th: 170,625	FY14: 63,606 FY19: 79,167 50th: 72,008	FY14: 2,231,936 FY19: 2,777,841 50th: 2,607,686
hematology oncology	FY14: 32,852 FY19: 40,992 50th: 38,445	FY14: 35,756 FY19: 43,098 50th: 35,756	FY14: 56,417 FY19: 67,051 50th: 68,201	FY14: 34,075 FY19: 41,644 50th: 40,566	FY14: 15,250 FY19: 18,926 50th: 20,656	FY14: 20,703 FY19: 25,726 50th: 21,345	FY14: 29,764 FY19: 37,617 50th: 33,064	FY14: 39,881 FY19: 46,392 50th: 57,622	FY14: 44,433 FY19: 50,767 50th: 49,235	FY14: 37,594 FY19: 41,421 50th: 44,581	FY14: 791,544 FY19: 940,054 50th: 900,372
infectious disease	FY14: 8,228 FY19: 8,881 50th: 14,090	FY14: 14,702 FY19: 14,729 50th: 16,433	FY14: 19,060 FY19: 19,089 50th: 27,006	FY14: 12,632 FY19: 13,582 50th: 14,552	FY14: 7,767 FY19: 8,042 50th: 11,568	FY14: 7,093 FY19: 7,457 50th: 9,666	FY14: 6,759 FY19: 7,491 50th: 12,385	FY14: 15,485 FY19: 15,157 50th: 16,976	FY14: 22,672 FY19: 22,118 50th: 24,201	FY14: 7,163 FY19: 7,790 50th: 14,292	FY14: 300,312 FY19: 307,092 50th: 361,397
internal medicine	FY14: 593,948 FY19: 653,697 50th: 627,706	FY14: 473,004 FY19: 527,622 50th: 473,004	FY14: 993,528 FY19: 1,125,065 50th: 1,033,629	FY14: 707,251 FY19: 814,073 50th: 707,251	FY14: 439,129 FY19: 505,381 50th: 503,344	FY14: 360,324 FY19: 418,256 50th: 364,645	FY14: 492,541 FY19: 585,302 50th: 561,836	FY14: 563,289 FY19: 626,971 50th: 659,658	FY14: 684,149 FY19: 730,276 50th: 746,117	FY14: 593,071 FY19: 654,432 50th: 615,649	FY14: 12,629,558 FY19: 14,200,303 50th: 13,284,748
nephrology	FY14: 45,912 FY19: 57,024 50th: 50,970	FY14: 33,523 FY19: 42,648 50th: 33,523	FY14: 33,104 FY19: 40,207 50th: 51,816	FY14: 81,074 FY19: 103,478 50th: 81,139	FY14: 22,043 FY19: 26,128 50th: 22,549	FY14: 15,354 FY19: 17,628 50th: 15,492	FY14: 15,014 FY19: 19,628 50th: 20,019	FY14: 40,923 FY19: 45,265 50th: 42,541	FY14: 97,771 FY19: 115,096 50th: 99,013	FY14: 52,228 FY19: 64,914 50th: 61,386	FY14: 890,821 FY19: 1,078,947 50th: 996,913
neurological surgery	FY14: 17,598 FY19: 19,542 50th: 18,725	FY14: 10,871 FY19: 11,323 50th: 11,569	FY14: 17,812 FY19: 19,725 50th: 26,407	FY14: 5,734 FY19: 16,823 50th: 14,849	FY14: 16,744 FY19: 19,103 50th: 16,744	FY14: 5,734 FY19: 4,508 50th: 5,734	FY14: 15,710 FY19: 17,076 50th: 16,086	FY14: 14,309 FY19: 14,844 50th: 21,623	FY14: 22,414 FY19: 24,908 50th: 26,204	FY14: 18,236 FY19: 19,910 50th: 18,297	FY14: 284,916 FY19: 316,500 50th: 315,597
neurology	FY14: 62,412 FY19: 77,620 50th: 70,328	FY14: 42,545 FY19: 53,229 50th: 42,545	FY14: 119,332 FY19: 148,290 50th: 133,699	FY14: 47,008 FY19: 58,957 50th: 47,008	FY14: 31,969 FY19: 40,430 50th: 33,060	FY14: 23,710 FY19: 30,767 50th: 32,155	FY14: 30,873 FY19: 38,027 50th: 43,158	FY14: 55,000 FY19: 65,274 50th: 83,928	FY14: 66,684 FY19: 79,433 50th: 81,353	FY14: 58,355 FY19: 73,924 50th: 66,562	FY14: 1,103,627 FY19: 1,358,149 50th: 1,290,376
obstetrics gynecology	FY14: 6,968 FY19: 10,169 50th: 9,912	FY14: 1,999 FY19: 2,740 50th: 2,510	FY14: 13,188 FY19: 19,141 50th: 14,247	FY14: 13,758 FY19: 19,525 50th: 13,758	FY14: 9,368 FY19: 13,549 50th: 12,657	FY14: 9,043 FY19: 13,259 50th: 10,206	FY14: 5,509 FY19: 7,762 50th: 6,425	FY14: 11,389 FY19: 16,891 50th: 12,646	FY14: 14,629 FY19: 20,648 50th: 17,508	FY14: 4,622 FY19: 7,409 50th: 5,247	FY14: 201,264 FY19: 289,813 50th: 229,819
ophthalmology	FY14: 127,297 FY19: 159,906 50th: 152,753	FY14: 76,375 FY19: 95,016 50th: 86,497	FY14: 244,337 FY19: 301,745 50th: 256,340	FY14: 116,540 FY19: 142,352 50th: 136,772	FY14: 92,312 FY19: 115,633 50th: 119,079	FY14: 67,077 FY19: 85,899 50th: 93,574	FY14: 91,707 FY19: 119,965 50th: 95,755	FY14: 110,613 FY19: 132,135 50th: 145,686	FY14: 154,316 FY19: 185,391 50th: 160,252	FY14: 107,223 FY19: 133,885 50th: 107,934	FY14: 2,455,210 FY19: 3,048,800 50th: 2,747,466
optometry	FY14: 110,298 FY19: 134,091 50th: 123,002	FY14: 116,145 FY19: 140,735 50th: 117,927	FY14: 215,203 FY19: 263,161 50th: 230,076	FY14: 90,932 FY19: 112,352 50th: 103,546	FY14: 121,059 FY19: 148,063 50th: 121,180	FY14: 31,515 FY19: 39,885 50th: 42,356	FY14: 157,791 FY19: 197,487 50th: 159,031	FY14: 150,904 FY19: 179,173 50th: 153,253	FY14: 167,036 FY19: 194,891 50th: 167,271	FY14: 105,659 FY19: 128,323 50th: 108,965	FY14: 3,007,464 FY19: 3,623,840 50th: 3,202,339
orthopaedic surgery	FY14: 62,966 FY19: 74,445 50th: 68,061	FY14: 65,250 FY19: 76,483 50th: 67,094	FY14: 92,133 FY19: 113,298 50th: 117,374	FY14: 54,303 FY19: 68,603 50th: 55,563	FY14: 84,972 FY19: 102,121 50th: 85,409	FY14: 71,736 FY19: 88,006 50th: 80,360	FY14: 60,628 FY19: 74,124 50th: 65,412	FY14: 81,612 FY19: 91,556 50th: 91,532	FY14: 101,474 FY19: 115,201 50th: 111,423	FY14: 82,600 FY19: 98,741 50th: 82,600	FY14: 1,469,225 FY19: 1,757,782 50th: 1,627,152
otolaryngology	FY14: 35,865 FY19: 43,883 50th: 38,458	FY14: 26,331 FY19: 32,066 50th: 26,331	FY14: 67,506 FY19: 84,494 50th: 86,826	FY14: 23,065 FY19: 29,708 50th: 24,737	FY14: 21,260 FY19: 26,344 50th: 23,501	FY14: 16,377 FY19: 21,133 50th: 18,489	FY14: 35,824 FY19: 45,398 50th: 36,194	FY14: 41,710 FY19: 47,561 50th: 45,703	FY14: 56,225 FY19: 67,206 50th: 61,303	FY14: 34,129 FY19: 39,068 50th: 35,897	FY14: 741,631 FY19: 914,182 50th: 819,828
pain medicine	FY14: 4,315 FY19: 5,790 50th: 4,485	FY14: 10,141 FY19: 8,669 50th: 10,994	FY14: 9,409 FY19: 12,132 50th: 10,461	FY14: 5,609 FY19: 7,290 50th: 13,758	FY14: 4,658 FY19: 6,224 50th: 4,757	FY14: 6,237 FY19: 8,519 50th: 8,174	No FY14 Data	FY14: 4,564 FY19: 5,537 50th: 7,513	FY14: 13,391 FY19: 16,629 50th: 13,974	FY14: 3,171 FY19: 4,046 50th: 3,876	FY14: 137,860 FY19: 153,928 50th: 156,125
physical medicine rehabilitation	FY14: 47,066 FY19: 58,648 50th: 64,262	FY14: 39,232 FY19: 49,722 50th: 39,232	FY14: 58,634 FY19: 74,513 50th: 70,723	FY14: 62,657 FY19: 80,808 50th: 69,101	FY14: 20,691 FY19: 26,312 50th: 29,001	FY14: 29,225 FY19: 37,035 50th: 29,335	FY14: 46,215 FY19: 59,385 50th: 48,959	FY14: 23,252 FY19: 28,202 50th: 34,193	FY14: 113,004 FY19: 138,740 50th: 114,704	FY14: 28,596 FY19: 37,340 50th: 38,248	FY14: 997,135 FY19: 1,236,369 50th: 1,121,175
plastic surgery	FY14: 11,773 FY19: 14,527 50th: 14,529	FY14: 9,735 FY19: 12,012 50th: 9,735	FY14: 15,379 FY19: 18,792 50th: 16,206	FY14: 13,948 FY19: 17,939 50th: 15,105	FY14: 9,557 FY19: 12,343 50th: 15,286	FY14: 5,616 FY19: 7,098 50th: 10,104	FY14: 13,783 FY19: 17,750 50th: 6,899	FY14: 20,072 FY19: 24,437 50th: 20,642	FY14: 20,056 FY19: 23,661 50th: 38,626	FY14: 3,413 FY19: 3,574 50th: 4,644	FY14: 289,755 FY19: 364,239 50th: 336,580
podiatry	FY14: 82,110 FY19: 106,049 50th: 86,430	FY14: 33,620 FY19: 42,846 50th: 35,020	FY14: 66,673 FY19: 83,610 50th: 82,805	FY14: 55,379 FY19: 71,494 50th: 59,188	FY14: 74,602 FY19: 95,193 50th: 81,390	FY14: 56,827 FY19: 74,616 50th: 63,729	FY14: 54,002 FY19: 70,257 50th: 58,041	FY14: 82,397 FY19: 100,191 50th: 90,782	FY14: 78,574 FY19: 96,201 50th: 87,742	FY14: 63,462 FY19: 82,071 50th: 65,640	FY14: 1,510,056 FY19: 1,934,881 50th: 1,678,621
psychiatry	FY14: 327,346 FY19: 393,636 50th: 358,174	FY14: 253,363 FY19: 306,559 50th: 253,363	FY14: 472,691 FY19: 568,801 50th: 501,249	FY14: 384,537 FY19: 473,734 50th: 384,537	FY14: 241,917 FY19: 295,932 50th: 250,576	FY14: 168,005 FY19: 208,142 50th: 202,893	FY14: 284,062 FY19: 345,014 50th: 300,345	FY14: 304,572 FY19: 369,195 50th: 369,442	FY14: 455,516 FY19: 529,942 50th: 455,516	FY14: 210,200 FY19: 261,480 50th: 243,538	FY14: 6,765,438 FY19: 8,089,661 50th: 7,307,580
psychology	FY14: 295,421 FY19: 366,636 50th: 315,552	FY14: 266,529 FY19: 338,701 50th: 275,508	FY14: 487,992 FY19: 620,126 50th: 506,133	FY14: 377,461 FY19: 479,906 50th: 377,526	FY14: 221,479 FY19: 282,657 50th: 245,625	FY14: 154,973 FY19: 200,754 50th: 168,365	FY14: 264,562 FY19: 360,638 50th: 294,557	FY14: 323,739 FY19: 389,080 50th: 339,851	FY14: 377,461 FY19: 458,556 50th: 377,461	FY14: 252,377 FY19: 329,965 50th: 266,704	FY14: 6,627,594 FY19: 8,268,017 50th: 6,918,289
rheumatology	FY14: 15,850 FY19: 19,798 50th: 20,019	FY14: 10,136 FY19: 12,678 50th: 10,136	FY14: 16,608 FY19: 20,502 50th: 22,436	FY14: 14,557 FY19: 18,835 50th: 15,964	FY14: 12,645 FY19: 15,978 50th: 13,475	FY14: 9,537 FY19: 12,655 50th: 12,673	FY14: 22,755 FY19: 27,938 50th: 25,758	FY14: 13,878 FY19: 16,838 50th: 20,617	FY14: 15,372 FY19: 18,589 50th: 17,130	FY14: 14,614 FY19: 18,745 50th: 16,796	FY14: 300,139 FY19: 375,624 50th: 354,931
surgery	FY14: 64,246 FY19: 74,683 50th: 82,519	FY14: 88,940 FY19: 100,577 50th: 88,940	FY14: 141,405 FY19: 166,995 50th: 147,592	FY14: 71,494 FY19: 74,131 50th: 64,811	FY14: 82,502 FY19: 93,709 50th: 88,073	FY14: 60,999 FY19: 73,603 50th: 65,533	FY14: 58,131 FY19: 67,684 50th: 75,162	FY14: 64,176 FY19: 69,725 50th: 70,016	FY14: 102,795 FY19: 113,855 50th: 118,120	FY14: 113,720 FY19: 134,534 50th: 118,606	FY14: 1,714,422 FY19: 1,990,617 50th: 1,911,424
thoracic surgery	FY14: 27,467 FY19: 29,157 50th: 30,887	FY14: 18,307 FY19: 18,083 50th: 20,997	FY14: 38,368 FY19: 42,436 50th: 39,997	FY14: 1,972 FY19: 2,179 50th: 1,972	FY14: 25,808 FY19: 26,503 50th: 26,311	FY14: 7,647 FY19: 7,893 50th: 7,647	FY14: 20,168 FY19: 21,477 50th: 20,168	FY14: 30,437 FY19: 29,869 50th: 30,437	FY14: 29,400 FY19: 28,210 50th: 29,918	FY14: 2,633 FY19: 2,907 50th: 4,126	FY14: 409,685 FY19: 428,621 50th: 451,409
urology	FY14: 58,191 FY19: 68,958 50th: 63,405	FY14: 55,787 FY19: 66,051 50th: 55,787	FY14: 80,657 FY19: 97,836 50th: 95,620	FY14: 64,195 FY19: 79,609 50th: 64,195	FY14: 46,463 FY19: 55,817 50th: 60,035	FY14: 39,233 FY19: 48,752 50th: 42,597	FY14: 54,327 FY19: 67,064 50th: 63,006	FY14: 62,590 FY19: 72,445 50th: 70,629	FY14: 84,282 FY19: 97,608 50th: 100,032	FY14: 52,711 FY19: 65,317 50th: 52,711	FY14: 1,281,601 FY19: 1,545,369 50th: 1,466,598
vascular surgery	FY14: 36,293 FY19: 39,786 50th: 45,147	FY14: 25,354 FY19: 26,730 50th: 27,761	FY14: 40,970 FY19: 44,423 50th: 48,768	FY14: 36,027 FY19: 40,871 50th: 38,988	FY14: 20,442 FY19: 22,028 50th: 23,260	FY14: 15,411 FY19: 17,343 50th: 21,710	FY14: 31,057 FY19: 35,338 50th: 31,166	FY14: 49,793 FY19: 53,392 50th: 57,347	FY14: 42,275 FY19: 45,277 50th: 52,106	FY14: 31,059 FY19: 33,608 50th: 31,940	FY14: 707,639 FY19: 768,457 50th: 790,869
Grand Total	FY14: 2,403,122 FY19: 2,861,515 50th: 2,677,905	FY14: 2,044,625 FY19: 2,430,811 50th: 2,087,008	FY14: 3,851,916 FY19: 4,612,139 50th: 4,259,956	FY14: 2,662,199 FY19: 3,264,959 50th: 2,773,110	FY14: 1,915,676 FY19: 2,313,559 50th: 2,124,982	FY14: 1,352,238 FY19: 1,656,617 50th: 1,528,591	FY14: 2,049,088 FY19: 2,517,816 50th: 2,299,507	FY14: 2,491,432 FY19: 2,876,038 50th: 2,942,623	FY14: 3,274,732 FY19: 3,775,285 50th: 3,513,987	FY14: 2,134,979 FY19: 2,554,388 50th: 2,304,066	FY14: 52,169,870 FY19: 62,143,684 50th: 56,842,756

Sources: Milliman, Inc. August 8, 2014; 2014 VA Enrollee Health Care Projection Model - Base Year 2013 - 2014 Model Documentation & Analysis; Milliman Health Practice Seattle; RAND analyses of VA provider supply; RAND analyses of VA productivity data.

Table H-3. Projected Demand and Supply in FY19, Under Supply Scenario Three, By Specialty

VA Specialty	Milliman National RVU/Year Forecast		% RVU/Year Increase from FY14 to FY19	RVU/Provider/Year FY14 Percentiles			Forecasted FY19 RVU if Provider Trends Continue with No Productivity Improvement	National FY14 RVU Capacity if Providers Operated at least at the Following RVU/Provider/Year Percentiles within their Specialties (shading indicates if capacity is sufficient for FY19)		
	FY14	FY19		25th	50th (median)	75th		Level 1: 25th Percentile	Level 2: 50th Percentile	Level 3: 75th Percentile
allergy.and.immunology	52,258	61,232	17%	1,913	2,515	3,741	90,477	93,611	100,854	182,264
cardiology	2,399,197	2,775,160	16%	3,576	4,255	5,254	2,770,434	2,838,024	2,988,224	3,860,146
critical.care...pulmonary.disease	1,024,015	1,234,833	21%	1,610	2,304	3,446	1,149,754	1,205,160	1,342,355	2,045,983
dermatology	989,391	1,281,753	30%	4,878	7,192	9,094	1,125,476	1,177,455	1,333,943	2,212,634
endocrinology	322,331	388,743	21%	1,513	1,881	2,612	360,841	382,167	412,183	595,746
gastroenterology	2,072,646	2,582,884	25%	4,323	5,943	7,466	2,439,245	2,528,372	2,864,753	4,580,969
hematology.oncology	665,848	793,679	19%	1,783	2,472	3,190	733,481	757,509	845,493	1,224,356
infectious.disease	247,704	254,310	3%	861	1,336	1,826	277,920	296,122	342,662	564,246
internal.medicine	12,505,890	14,062,159	12%	2,124	2,326	2,626	14,385,014	14,712,437	15,138,080	17,991,543
nephrology	718,160	873,480	22%	1,466	2,643	3,704	815,853	834,979	913,990	1,662,343
neurological.surgery	201,019	226,432	13%	2,396	3,458	6,060	230,161	238,496	259,360	792,070
neurology	1,027,688	1,269,969	24%	2,009	2,501	3,124	1,146,489	1,223,465	1,351,039	2,034,635
obstetrics...gynecology	146,695	210,358	43%	1,956	2,643	3,237	163,684	167,034	185,897	289,676
ophthalmology	2,339,681	2,906,777	24%	5,974	7,674	10,207	2,651,203	2,732,721	2,957,816	4,666,593
orthopaedic.surgery	1,373,201	1,641,308	20%	4,044	4,912	6,063	1,597,914	1,659,577	1,774,159	2,884,602
otolaryngology	671,878	831,785	24%	3,711	4,720	6,241	732,470	754,405	811,167	1,254,129
pain.medicine	64,496	82,970	29%	2,028	2,571	3,249	75,386	75,987	81,203	125,784
physical.medicine...rehabilitation	921,624	1,144,832	24%	1,303	1,981	2,556	1,061,976	1,078,238	1,194,767	1,580,191
plastic.surgery	218,928	278,587	27%	3,145	4,138	5,015	249,738	263,725	288,743	380,655
psychiatry	6,692,270	7,998,904	20%	2,466	2,833	3,291	7,932,023	8,183,893	8,565,015	10,536,698
rheumatology	253,793	319,803	26%	1,613	2,156	2,986	291,558	309,965	349,079	516,215
surgery	1,555,503	1,809,837	16%	2,753	3,561	4,320	1,732,279	1,786,223	1,948,585	2,413,767
thoracic.surgery	243,352	255,230	5%	2,228	3,329	5,813	309,860	316,772	342,149	569,962
urology	1,087,103	1,310,019	21%	3,837	5,187	6,396	1,212,362	1,264,375	1,403,545	2,200,070
vascular.surgery	559,583	610,837	9%	3,460	4,716	6,633	648,938	669,713	729,959	1,124,096
Grand Total	38,354,254	45,205,881	18%				44,184,537	45,550,427	48,525,022	66,289,374

Sources: Milliman, Inc. August 8, 2014; 2014 VA Enrollee Health Care Projection Model - Base Year 2013 - 2014 Model Documentation & Analysis; Milliman Health Practice Seattle; RAND analyses of VA provider supply; RAND analyses of VA productivity data.

Table H-4. Projected Demand and Supply in FY19, Under Supply Scenario Three, By VISN and Specialty

The tables below show the following:
4.   FY14: # of RVUs forecasted by Milliman for FY14
5.   FY19: # of RVUs forecasted by Milliman for FY19
6.   50th: RVUs at the 50th percentile under Sensitivity Analysis Productivity Level 2
7.   Incr: Forecasted RVUs resulting from forecasted FTE increase with FY14 productivity per FTE (i.e., no productivity increase)

The cell shading indicates how well Sensitivity Analysis Level 2 50th percentile performs relative to forecasted FY19 RVU demand:
8.   Red: Less than 10% below FY19 RVU
9.   Yellow: Within 10% of FY19 RVU
10.   Green: Exceeds FY19 RVU

Assessment B (Health Care Capabilities) Appendices E–I

VA Specialty	VISN										
	V01	V02	V03	V04	V05	V06	V07	V08	V09	V10	V11
allergy and immunology	FY14: 1,798 FY19: 2,153 Incr: 3,199 50th: 3,199	No FY14 Data	FY14: 1,998 FY19: 2,370 Incr: 2,156 50th: 2,556	No FY14 Data	No FY14 Data	No FY14 Data	FY14: 2,184 FY19: 2,980 Incr: 31,234 50th: 31,500	FY14: 8,805 FY19: 9,928 Incr: 9,271 50th: 12,796	No FY14 Data	FY14: 2,551 FY19: 3,338 Incr: 3,607 50th: 3,607	FY14: 1,143 FY19: 1,503 Incr: 1,468 50th: 1,497
cardiology	FY14: 102,671 FY19: 116,293 Incr: 110,547 50th: 139,482	FY14: 63,314 FY19: 70,767 Incr: 79,229 50th: 79,229	FY14: 60,515 FY19: 65,439 Incr: 59,108 50th: 66,678	FY14: 104,604 FY19: 120,913 Incr: 117,325 50th: 130,159	FY14: 41,899 FY19: 49,482 Incr: 47,405 50th: 59,688	FY14: 140,120 FY19: 170,147 Incr: 165,581 50th: 188,577	FY14: 118,863 FY19: 143,625 Incr: 135,520 50th: 144,985	FY14: 289,186 FY19: 321,632 Incr: 318,959 50th: 324,393	FY14: 142,645 FY19: 168,790 Incr: 164,598 50th: 179,601	FY14: 107,721 FY19: 130,152 Incr: 121,275 50th: 127,792	FY14: 99,369 FY19: 117,080 Incr: 114,224 50th: 123,783
critical care pulmonary disease	FY14: 59,088 FY19: 69,384 Incr: 68,443 50th: 68,895	FY14: 34,466 FY19: 41,843 Incr: 39,964 50th: 39,964	FY14: 42,230 FY19: 46,793 Incr: 46,440 50th: 49,451	FY14: 58,724 FY19: 70,224 Incr: 75,960 50th: 91,390	FY14: 20,577 FY19: 24,465 Incr: 20,774 50th: 29,059	FY14: 67,019 FY19: 85,438 Incr: 69,943 50th: 82,845	FY14: 27,799 FY19: 35,304 Incr: 30,982 50th: 42,845	FY14: 143,554 FY19: 160,759 Incr: 162,805 50th: 169,723	FY14: 46,708 FY19: 58,471 Incr: 51,158 50th: 58,458	FY14: 41,313 FY19: 52,395 Incr: 47,528 50th: 58,458	FY14: 42,153 FY19: 51,742 Incr: 42,195 50th: 44,380
dermatology	FY14: 36,899 FY19: 46,659 Incr: 46,598 50th: 54,853	No FY14 Data	FY14: 61,141 FY19: 73,590 Incr: 66,680 50th: 74,264	FY14: 44,703 FY19: 58,184 Incr: 44,492 50th: 45,946	FY14: 26,746 FY19: 34,424 Incr: 28,386 50th: 38,014	FY14: 34,921 FY19: 42,855 Incr: 41,509 50th: 62,964	FY14: 53,350 FY19: 73,252 Incr: 56,581 50th: 64,185	FY14: 140,046 FY19: 172,516 Incr: 167,653 50th: 173,888	FY14: 38,859 FY19: 52,572 Incr: 39,070 50th: 42,778	FY14: 52,926 FY19: 72,701 Incr: 62,642 50th: 62,642	FY14: 46,855 FY19: 61,999 Incr: 58,933 50th: 64,463
endocrinology	FY14: 15,487 FY19: 17,643 Incr: 17,575 50th: 20,904	No FY14 Data	FY14: 17,232 FY19: 20,246 Incr: 17,971 50th: 18,073	FY14: 20,625 FY19: 24,124 Incr: 23,914 50th: 23,914	FY14: 10,288 FY19: 12,292 Incr: 13,089 50th: 13,089	FY14: 21,785 FY19: 27,057 Incr: 14,977 50th: 26,608	FY14: 11,857 FY19: 14,836 Incr: 13,662 50th: 15,999	FY14: 42,936 FY19: 50,766 Incr: 47,701 50th: 47,701	FY14: 13,675 FY19: 17,352 Incr: 16,053 50th: 19,771	FY14: 3,389 FY19: 4,210 Incr: 3,787 50th: 4,050	FY14: 9,856 FY19: 12,428 Incr: 8,805 50th: 9,554
gastroenterology	FY14: 101,251 FY19: 124,865 Incr: 125,284 50th: 167,857	No FY14 Data	FY14: 73,152 FY19: 87,106 Incr: 68,024 50th: 73,871	FY14: 99,974 FY19: 125,213 Incr: 128,993 50th: 143,362	FY14: 51,650 FY19: 65,398 Incr: 65,184 50th: 81,798	FY14: 154,623 FY19: 203,190 Incr: 188,120 50th: 312,740	FY14: 118,906 FY19: 153,627 Incr: 139,332 50th: 150,191	FY14: 253,113 FY19: 301,432 Incr: 294,987 50th: 312,740	FY14: 104,187 FY19: 134,312 Incr: 119,520 50th: 158,945	FY14: 88,505 FY19: 114,162 Incr: 102,321 50th: 110,768	FY14: 109,870 FY19: 137,818 Incr: 130,678 50th: 137,616
hematology oncology	FY14: 46,372 FY19: 54,159 Incr: 53,240 50th: 59,202	No FY14 Data	FY14: 29,345 FY19: 32,599 Incr: 27,614 50th: 34,648	FY14: 41,864 FY19: 48,776 Incr: 39,362 50th: 39,919	FY14: 17,492 FY19: 22,081 Incr: 18,436 50th: 26,493	FY14: 36,536 FY19: 44,942 Incr: 38,740 50th: 44,140	FY14: 30,473 FY19: 37,801 Incr: 32,530 50th: 36,781	FY14: 75,084 FY19: 83,125 Incr: 81,269 50th: 81,269	FY14: 35,162 FY19: 43,074 Incr: 40,628 50th: 53,678	FY14: 22,831 FY19: 28,538 Incr: 29,678 50th: 29,968	FY14: 33,107 FY19: 40,214 Incr: 38,681 50th: 38,681
infectious disease	FY14: 14,115 FY19: 15,225 Incr: 14,996 50th: 15,229	No FY14 Data	FY14: 18,095 FY19: 16,875 Incr: 20,040 50th: 20,040	FY14: 10,796 FY19: 11,145 Incr: 10,183 50th: 11,522	FY14: 9,136 FY19: 8,818 Incr: 9,377 50th: 10,447	FY14: 22,830 FY19: 25,536 Incr: 21,968 50th: 23,007	FY14: 15,849 FY19: 17,456 Incr: 17,183 50th: 17,183	FY14: 29,898 FY19: 28,844 Incr: 35,602 50th: 36,641	FY14: 6,875 FY19: 7,127 Incr: 7,050 50th: 14,000	FY14: 7,122 FY19: 7,380 Incr: 7,977 50th: 17,375	FY14: 6,249 FY19: 6,261 Incr: 6,548 50th: 7,365
internal medicine	FY14: 486,989 FY19: 533,710 Incr: 500,871 50th: 522,428	FY14: 238,661 FY19: 269,157 Incr: 269,857 50th: 269,857	FY14: 432,388 FY19: 450,795 Incr: 469,128 50th: 487,058	FY14: 529,362 FY19: 582,908 Incr: 584,841 50th: 659,713	FY14: 285,297 FY19: 330,384 Incr: 337,765 50th: 358,129	FY14: 778,831 FY19: 974,286 Incr: 974,417 50th: 1,012,974	FY14: 830,199 FY19: 973,491 Incr: 1,004,511 50th: 1,012,974	FY14: 1,430,541 FY19: 1,559,703 Incr: 1,627,194 50th: 1,669,665	FY14: 640,164 FY19: 727,774 Incr: 729,958 50th: 743,915	FY14: 539,558 FY19: 616,082 Incr: 594,254 50th: 596,900	FY14: 537,334 FY19: 614,584 Incr: 636,327 50th: 671,875
nephrology	FY14: 29,664 FY19: 32,877 Incr: 31,509 50th: 32,132	No FY14 Data	FY14: 43,316 FY19: 48,433 Incr: 46,201 50th: 46,201	FY14: 38,063 FY19: 45,652 Incr: 45,583 50th: 46,819	FY14: 14,770 FY19: 18,670 Incr: 15,089 50th: 15,089	FY14: 45,076 FY19: 54,782 Incr: 56,863 50th: 58,472	FY14: 41,629 FY19: 54,782 Incr: 44,336 50th: 55,389	FY14: 66,993 FY19: 81,404 Incr: 73,493 50th: 79,456	FY14: 15,511 FY19: 18,249 Incr: 17,203 50th: 39,423	FY14: 23,992 FY19: 30,057 Incr: 27,634 50th: 33,444	FY14: 21,594 FY19: 28,890 Incr: 25,653 50th: 37,789
neurological surgery	FY14: 11,053 FY19: 11,791 Incr: 10,811 50th: 11,472	No FY14 Data	No FY14 Data	FY14: 2,778 FY19: 3,049 Incr: 3,668 50th: 4,003	FY14: 6,869 FY19: 8,343 Incr: 7,390 50th: 7,390	FY14: 29,156 FY19: 35,791 Incr: 34,606 50th: 34,606	FY14: 14,372 FY19: 16,399 Incr: 19,403 50th: 23,636	FY14: 12,268 FY19: 13,370 Incr: 14,274 50th: 15,599	FY14: 9,858 FY19: 11,344 Incr: 11,189 50th: 12,630	No FY14 Data	FY14: 5,700 FY19: 5,921 Incr: 9,315 50th: 9,315
neurology	FY14: 57,136 FY19: 70,271 Incr: 65,684 50th: 71,689	FY14: 19,307 FY19: 24,120 Incr: 16,913 50th: 16,913	FY14: 47,857 FY19: 56,763 Incr: 50,613 50th: 59,690	FY14: 34,318 FY19: 41,362 Incr: 38,174 50th: 54,044	FY14: 45,769 FY19: 55,604 Incr: 52,130 50th: 74,810	FY14: 72,186 FY19: 85,137 Incr: 82,130 50th: 92,449	FY14: 45,072 FY19: 56,397 Incr: 52,404 50th: 109,503	FY14: 91,409 FY19: 109,517 Incr: 105,869 50th: 109,503	FY14: 34,613 FY19: 42,881 Incr: 40,737 50th: 50,176	FY14: 31,821 FY19: 40,368 Incr: 36,620 50th: 47,230	FY14: 38,959 FY19: 48,159 Incr: 43,839 50th: 49,891
obstetrics gynecology	FY14: 1,287 FY19: 1,915 Incr: 1,263 50th: 1,263	No FY14 Data	FY14: 7,851 FY19: 11,722 Incr: 8,406 50th: 11,087	FY14: 4,588 FY19: 6,815 Incr: 5,382 50th: 8,022	No FY14 Data	FY14: 9,538 FY19: 13,691 Incr: 10,977 50th: 12,244	FY14: 14,801 FY19: 20,128 Incr: 18,308 50th: 18,621	FY14: 25,263 FY19: 34,761 Incr: 25,150 50th: 27,825	FY14: 3,092 FY19: 4,866 Incr: 2,685 50th: 3,474	FY14: 3,863 FY19: 5,426 Incr: 5,366 50th: 6,117	FY14: 6,121 FY19: 8,974 Incr: 7,247 50th: 7,247
ophthalmology	FY14: 96,371 FY19: 116,307 Incr: 122,531 50th: 133,301	FY14: 69,071 FY19: 82,453 Incr: 66,582 50th: 66,582	FY14: 68,974 FY19: 78,481 Incr: 72,386 50th: 91,238	FY14: 66,330 FY19: 81,755 Incr: 74,307 50th: 82,206	FY14: 59,707 FY19: 74,811 Incr: 74,193 50th: 74,193	FY14: 153,585 FY19: 202,361 Incr: 215,507 50th: 185,560	FY14: 168,450 FY19: 218,664 Incr: 328,706 50th: 235,019	FY14: 281,771 FY19: 324,602 Incr: 370,522 50th: 370,522	FY14: 115,081 FY19: 148,979 Incr: 116,414 50th: 131,837	FY14: 60,954 FY19: 80,720 Incr: 74,932 50th: 78,818	FY14: 99,642 FY19: 127,376 Incr: 124,545 50th: 124,545
orthopaedic surgery	FY14: 52,002 FY19: 59,147 Incr: 52,762 50th: 55,583	FY14: 30,736 FY19: 36,451 Incr: 40,869 50th: 40,869	FY14: 47,644 FY19: 58,774 Incr: 56,693 50th: 56,698	FY14: 45,065 FY19: 55,592 Incr: 51,971 50th: 65,463	FY14: 25,354 FY19: 31,676 Incr: 27,687 50th: 28,621	FY14: 108,888 FY19: 132,871 Incr: 132,871 50th: 158,826	FY14: 52,131 FY19: 63,654 Incr: 61,617 50th: 76,567	FY14: 153,786 FY19: 178,261 Incr: 165,721 50th: 176,773	FY14: 59,486 FY19: 70,238 Incr: 68,440 50th: 74,157	FY14: 52,889 FY19: 66,081 Incr: 59,368 50th: 68,841	FY14: 37,510 FY19: 42,700 Incr: 45,070 50th: 49,056
otolaryngology	FY14: 32,159 FY19: 38,389 Incr: 38,552 50th: 43,690	No FY14 Data	FY14: 34,546 FY19: 41,721 Incr: 40,188 50th: 41,970	FY14: 28,432 FY19: 35,320 Incr: 29,720 50th: 35,727	FY14: 19,841 FY19: 25,103 Incr: 18,019 50th: 22,434	FY14: 40,050 FY19: 53,771 Incr: 46,719 50th: 60,213	FY14: 40,569 FY19: 51,920 Incr: 45,492 50th: 50,292	FY14: 74,012 FY19: 87,682 Incr: 78,741 50th: 81,426	FY14: 30,080 FY19: 37,618 Incr: 28,741 50th: 29,577	FY14: 22,536 FY19: 29,637 Incr: 22,982 50th: 24,610	FY14: 36,715 FY19: 45,432 Incr: 45,766 50th: 48,341
pain medicine	FY14: 2,599 FY19: 3,372 Incr: 2,649 50th: 3,673	No FY14 Data	FY14: 2,387 FY19: 2,651 Incr: 2,527 50th: 3,059	FY14: 2,387 FY19: 3,035 Incr: 3,861 50th: 4,193	No FY14 Data	FY14: 3,419 FY19: 4,483 Incr: 3,673 50th: 3,673	FY14: 7,839 FY19: 10,186 Incr: 10,174 50th: 12,753	FY14: 9,433 FY19: 11,931 Incr: 13,507 50th: 13,507	No FY14 Data	FY14: 3,230 FY19: 4,396 Incr: 3,877 50th: 4,184	FY14: 4,271 FY19: 4,967 Incr: 4,661 50th: 4,661
physical medicine rehabilitation	FY14: 16,364 FY19: 20,239 Incr: 20,240 50th: 21,164	No FY14 Data	FY14: 65,401 FY19: 76,885 Incr: 73,315 50th: 73,656	FY14: 31,389 FY19: 38,332 Incr: 35,130 50th: 41,013	FY14: 18,179 FY19: 21,469 Incr: 24,014 50th: 28,058	FY14: 39,838 FY19: 47,512 Incr: 47,512 50th: 62,028	FY14: 56,572 FY19: 74,937 Incr: 62,340 50th: 73,390	FY14: 140,491 FY19: 160,386 Incr: 144,518 50th: 151,054	FY14: 33,847 FY19: 42,923 Incr: 38,722 50th: 39,234	FY14: 36,099 FY19: 46,805 Incr: 40,843 50th: 48,203	FY14: 37,984 FY19: 47,662 Incr: 47,232 50th: 50,464
plastic surgery	FY14: 4,496 FY19: 5,587 Incr: 5,749 50th: 6,330	No FY14 Data	FY14: 5,385 FY19: 6,202 Incr: 5,936 50th: 8,378	FY14: 3,206 FY19: 4,335 Incr: 3,772 50th: 4,326	FY14: 7,477 FY19: 9,620 Incr: 7,437 50th: 10,766	FY14: 19,330 FY19: 25,724 Incr: 25,544 50th: 35,358	FY14: 14,307 FY19: 18,574 Incr: 15,788 50th: 16,055	FY14: 38,056 FY19: 48,608 Incr: 41,480 50th: 42,207	FY14: 9,006 FY19: 12,204 Incr: 10,946 50th: 12,663	FY14: 10,204 FY19: 13,535 Incr: 11,158 50th: 11,702	FY14: 14,916 FY19: 18,919 Incr: 17,171 50th: 17,171
psychiatry	FY14: 312,175 FY19: 361,881 Incr: 348,529 50th: 438,932	FY14: 142,459 FY19: 170,003 Incr: 168,720 50th: 168,720	FY14: 289,505 FY19: 339,332 Incr: 321,459 50th: 356,062	FY14: 331,142 FY19: 394,945 Incr: 382,167 50th: 396,576	FY14: 155,373 FY19: 185,331 Incr: 167,396 50th: 177,507	FY14: 340,802 FY19: 426,715 Incr: 390,556 50th: 497,702	FY14: 407,418 FY19: 495,278 Incr: 491,205 50th: 573,035	FY14: 872,051 FY19: 991,201 Incr: 1,092,154 50th: 1,099,974	FY14: 251,941 FY19: 365,739 Incr: 377,809 50th: 393,707	FY14: 251,941 FY19: 310,465 Incr: 289,112 50th: 294,562	FY14: 235,243 FY19: 278,589 Incr: 266,448 50th: 277,961
rheumatology	FY14: 23,981 FY19: 29,986 Incr: 26,424 50th: 27,432	No FY14 Data	FY14: 10,736 FY19: 12,607 Incr: 10,345 50th: 11,777	FY14: 11,369 FY19: 14,203 Incr: 14,960 50th: 17,348	FY14: 9,908 FY19: 12,440 Incr: 10,296 50th: 11,198	FY14: 7,769 FY19: 10,495 Incr: 8,941 50th: 9,027	FY14: 16,530 FY19: 21,350 Incr: 19,404 50th: 27,269	FY14: 22,221 FY19: 27,111 Incr: 32,015 50th: 36,931	FY14: 9,692 FY19: 11,765 Incr: 11,415 50th: 12,818	FY14: 11,834 FY19: 15,633 Incr: 13,179 50th: 19,511	FY14: 7,981 FY19: 10,045 Incr: 7,008 50th: 9,406
surgery	FY14: 65,908 FY19: 74,645 Incr: 75,145 50th: 79,507	No FY14 Data	FY14: 43,651 FY19: 48,421 Incr: 51,183 50th: 78,079	FY14: 89,386 FY19: 105,583 Incr: 95,355 50th: 107,249	FY14: 29,406 FY19: 34,190 Incr: 30,312 50th: 35,232	FY14: 95,766 FY19: 118,229 Incr: 129,769 50th: 136,593	FY14: 114,615 FY19: 138,157 Incr: 129,769 50th: 140,096	FY14: 152,455 FY19: 168,114 Incr: 147,524 50th: 151,672	FY14: 100,842 FY19: 117,969 Incr: 97,511 50th: 105,111	FY14: 34,996 FY19: 42,500 Incr: 42,636 50th: 59,529	FY14: 80,017 FY19: 92,304 Incr: 82,654 50th: 89,798
thoracic surgery	FY14: 32,347 FY19: 33,319 Incr: 39,749 50th: 39,749	No FY14 Data	No FY14 Data	FY14: 20,823 FY19: 22,647 Incr: 54,716 50th: 58,373	FY14: 1,300 FY19: 1,533 Incr: 1,246 50th: 2,783	FY14: 12,812 FY19: 14,022 Incr: 11,307 50th: 20,678	FY14: 6,389 FY19: 6,855 Incr: 6,409 50th: 20,678	FY14: 14,119 FY19: 20,004 Incr: 20,678 50th: 20,678	FY14: 15,350 FY19: 16,303 Incr: 17,782 50th: 29,261	FY14: 20,816 FY19: 22,510 Incr: 22,407 50th: 27,805	FY14: 11,078 FY19: 11,519 Incr: 12,983 50th: 12,991
urology	FY14: 48,858 FY19: 57,926 Incr: 42,298 50th: 54,229	FY14: 28,820 FY19: 35,389 Incr: 35,055 50th: 43,276	FY14: 45,544 FY19: 53,538 Incr: 48,631 50th: 73,542	FY14: 30,631 FY19: 37,813 Incr: 30,726 50th: 56,371	FY14: 22,915 FY19: 28,674 Incr: 24,656 50th: 30,182	FY14: 74,169 FY19: 80,264 Incr: 86,264 50th: 97,469	FY14: 63,412 FY19: 73,458 Incr: 73,458 50th: 74,586	FY14: 143,147 FY19: 163,789 Incr: 153,626 50th: 161,853	FY14: 39,173 FY19: 43,208 Incr: 47,332 50th: 50,922	FY14: 33,511 FY19: 33,641 Incr: 34,044 50th: 44,345	FY14: 27,319 FY19: 39,302 Incr: 39,302 50th: 48,297
vascular surgery	FY14: 43,869 FY19: 46,717 Incr: 51,640 50th: 56,106	No FY14 Data	FY14: 23,315 FY19: 24,551 Incr: 28,534 50th: 29,656	FY14: 20,803 FY19: 22,430 Incr: 34,772 50th: 37,134	FY14: 16,759 FY19: 19,206 Incr: 18,844 50th: 25,810	FY14: 19,231 FY19: 18,880 Incr: 19,152 50th: 20,936	FY14: 15,453 FY19: 21,159 Incr: 26,699 50th: 26,699	FY14: 58,964 FY19: 61,078 Incr: 59,583 50th: 59,583	FY14: 34,506 FY19: 37,580 Incr: 39,261 50th: 39,261	FY14: 28,765 FY19: 32,960 Incr: 34,372 50th: 37,097	FY14: 30,808 FY19: 34,966 Incr: 42,393 50th: 42,393
Grand Total	FY14: 1,694,939 FY19: 1,944,460 Incr: 1,876,289 50th: 2,136,740	FY14: 626,834 FY19: 730,183 Incr: 717,189 50th: 725,410	FY14: 1,471,822 FY19: 1,655,894 Incr: 1,593,577 50th: 1,767,738	FY14: 1,671,362 FY19: 1,954,355 Incr: 1,929,338 50th: 2,155,297	FY14: 896,712 FY19: 1,074,014 Incr: 1,019,126 50th: 1,160,791	FY14: 2,324,942 FY19: 2,861,484 Incr: 2,764,077 50th: 3,112,473	FY14: 2,292,817 FY19: 2,801,076 Incr: 2,746,732 50th: 2,994,611	FY14: 4,575,163 FY19: 5,170,523 Incr: 5,242,481 50th: 5,427,378	FY14: 1,838,092 FY19: 2,196,715 Incr: 2,095,057 50th: 2,310,539	FY14: 1,493,367 FY19: 1,813,259 Incr: 1,691,596 50th: 1,817,559	FY14: 1,581,794 FY19: 1,883,693 Incr: 1,859,150 50th: 1,978,544

Assessment B (Health Care Capabilities) Appendices E–I

VA Specialty	VISN V12	V15	V16	V17	V18	V19	V20	V21	V22	V23	Grand Total
allergy and immunology	FY14: 3,168 FY19: 4,005 Incr: 4,334 50th: 6,245	No FY14 Data	FY14: 2,906 FY19: 3,723 Incr: 2,693 50th: 4,560	FY14: 2,991 FY19: 3,820 Incr: 3,317 50th: 3,317	FY14: 17,817 FY19: 19,325 Incr: 20,931 50th: 22,865	No FY14 Data	No FY14 Data	No FY14 Data	FY14: 6,897 FY19: 8,087 Incr: 8,265 50th: 8,712	No FY14 Data	FY14: 52,258 FY19: 61,232 Incr: 90,477 50th: 100,854
cardiology	FY14: 126,943 FY19: 148,770 Incr: 150,681 50th: 162,927	FY14: 118,592 FY19: 136,207 Incr: 161,550 50th: 161,550	FY14: 213,498 FY19: 244,635 Incr: 249,318 50th: 258,721	FY14: 112,859 FY19: 134,113 Incr: 140,417 50th: 150,916	FY14: 99,166 FY19: 115,478 Incr: 117,233 50th: 120,491	FY14: 54,283 FY19: 63,844 Incr: 66,684 50th: 87,298	FY14: 69,024 FY19: 81,385 Incr: 81,726 50th: 87,298	FY14: 111,497 FY19: 123,612 Incr: 120,035 50th: 134,061	FY14: 136,290 FY19: 178,121 Incr: 143,054 50th: 149,937	FY14: 86,138 FY19: 101,530 Incr: 105,965 50th: 120,354	FY14: 2,399,197 FY19: 2,775,160 Incr: 2,770,434 50th: 2,988,220
critical care pulmonary disease	FY14: 36,060 FY19: 45,182 Incr: 38,209 50th: 54,592	FY14: 27,398 FY19: 35,049 Incr: 30,919 50th: 30,919	FY14: 83,615 FY19: 101,281 Incr: 74,078 50th: 97,285	FY14: 54,662 FY19: 68,995 Incr: 65,450 50th: 65,450	FY14: 16,802 FY19: 20,195 Incr: 21,749 50th: 30,207	FY14: 31,771 FY19: 39,753 Incr: 38,549 50th: 45,011	FY14: 38,500 FY19: 48,934 Incr: 48,885 50th: 72,818	FY14: 34,786 FY19: 40,613 Incr: 37,803 50th: 49,370	FY14: 87,957 FY19: 103,484 Incr: 100,122 50th: 102,586	FY14: 28,833 FY19: 34,529 Incr: 37,039 50th: 48,110	FY14: 1,024,015 FY19: 1,234,833 Incr: 1,149,754 50th: 1,342,355
dermatology	FY14: 42,103 FY19: 55,434 Incr: 44,884 50th: 48,345	FY14: 22,253 FY19: 28,569 Incr: 22,478 50th: 24,394	FY14: 60,708 FY19: 78,367 Incr: 68,331 50th: 78,483	FY14: 61,562 FY19: 83,516 Incr: 76,190 50th: 77,338	FY14: 33,689 FY19: 44,043 Incr: 37,176 50th: 49,567	FY14: 16,308 FY19: 21,845 Incr: 20,261 50th: 28,512	FY14: 35,409 FY19: 47,248 Incr: 34,651 50th: 45,772	FY14: 61,838 FY19: 77,576 Incr: 73,374 50th: 138,411	FY14: 80,210 FY19: 100,704 Incr: 89,266 50th: 112,803	FY14: 38,865 FY19: 50,269 Incr: 46,320 50th: 46,320	FY14: 989,391 FY19: 1,281,753 Incr: 1,125,476 50th: 1,333,943
endocrinology	FY14: 21,642 FY19: 26,369 Incr: 22,199 50th: 22,792	FY14: 5,469 FY19: 6,500 Incr: 5,837 50th: 5,837	FY14: 15,456 FY19: 18,693 Incr: 16,958 50th: 30,792	FY14: 20,590 FY19: 25,468 Incr: 25,224 50th: 29,954	FY14: 9,810 FY19: 12,202 Incr: 10,013 50th: 14,254	FY14: 8,731 FY19: 11,104 Incr: 11,255 50th: 13,273	FY14: 9,620 FY19: 9,549 Incr: 9,549 50th: 13,229	FY14: 22,705 FY19: 26,369 Incr: 26,885 50th: 29,675	FY14: 29,261 FY19: 36,186 Incr: 32,504 50th: 33,979	FY14: 13,289 FY19: 15,278 Incr: 14,292 50th: 18,733	FY14: 322,331 FY19: 388,743 Incr: 360,841 50th: 412,183
gastroenterology	FY14: 83,880 FY19: 105,357 Incr: 86,534 50th: 106,574	FY14: 99,483 FY19: 122,358 Incr: 121,882 50th: 127,145	FY14: 130,980 FY19: 160,451 Incr: 160,346 50th: 238,600	FY14: 99,145 FY19: 128,182 Incr: 121,783 50th: 155,991	FY14: 95,711 FY19: 121,129 Incr: 115,458 50th: 117,327	FY14: 38,312 FY19: 48,935 Incr: 45,137 50th: 51,890	FY14: 52,299 FY19: 66,920 Incr: 64,502 50th: 137,531	FY14: 104,757 FY19: 123,141 Incr: 111,683 50th: 137,531	FY14: 149,242 FY19: 178,121 Incr: 187,334 50th: 209,085	FY14: 63,606 FY19: 79,167 Incr: 62,143 50th: 68,699	FY14: 2,072,646 FY19: 2,582,884 Incr: 2,439,245 50th: 2,864,753
hematology oncology	FY14: 23,350 FY19: 28,714 Incr: 22,285 50th: 27,996	FY14: 26,092 FY19: 31,611 Incr: 24,116 50th: 24,116	FY14: 56,417 FY19: 67,051 Incr: 61,750 50th: 74,757	FY14: 34,075 FY19: 41,644 Incr: 42,824 50th: 50,884	FY14: 11,933 FY19: 14,900 Incr: 11,730 50th: 16,448	FY14: 20,703 FY19: 25,726 Incr: 21,408 50th: 32,209	FY14: 29,764 FY19: 37,617 Incr: 35,824 50th: 39,642	FY14: 39,881 FY19: 49,392 Incr: 45,731 50th: 66,429	FY14: 38,653 FY19: 44,586 Incr: 49,958 50th: 54,053	FY14: 16,714 FY19: 20,129 Incr: 17,677 50th: 24,338	FY14: 665,848 FY19: 793,679 Incr: 733,481 50th: 845,493
infectious disease	FY14: 8,228 FY19: 8,881 Incr: 9,184 50th: 15,876	FY14: 5,594 FY19: 5,671 Incr: 7,218 50th: 9,451	FY14: 18,631 FY19: 18,652 Incr: 22,687 50th: 29,346	FY14: 12,632 FY19: 13,582 Incr: 14,039 50th: 15,750	FY14: 7,767 FY19: 8,042 Incr: 8,177 50th: 12,455	FY14: 7,081 FY19: 7,446 Incr: 9,421 50th: 13,409	FY14: 3,590 FY19: 4,204 Incr: 4,436 50th: 9,592	FY14: 14,474 FY19: 14,384 Incr: 17,563 50th: 19,198	FY14: 21,579 FY19: 20,991 Incr: 25,510 50th: 27,051	FY14: 7,163 FY19: 9,719 Incr: 8,763 50th: 17,726	FY14: 247,704 FY19: 254,310 Incr: 277,920 50th: 342,662
internal medicine	FY14: 562,538 FY19: 619,603 Incr: 668,133 50th: 709,460	FY14: 473,004 FY19: 527,622 Incr: 542,642 50th: 542,642	FY14: 993,528 FY19: 1,125,065 Incr: 1,131,693 50th: 1,179,992	FY14: 645,449 FY19: 744,097 Incr: 682,936 50th: 682,936	FY14: 408,673 FY19: 471,221 Incr: 436,827 50th: 503,288	FY14: 360,324 FY19: 418,256 Incr: 442,958 50th: 448,666	FY14: 492,541 FY19: 585,302 Incr: 587,074 50th: 675,154	FY14: 563,289 FY19: 626,971 Incr: 691,145 50th: 832,897	FY14: 684,149 FY19: 730,276 Incr: 776,529 50th: 849,820	FY14: 593,071 FY19: 654,432 Incr: 695,953 50th: 722,756	FY14: 12,505,890 FY19: 14,062,159 Incr: 14,385,014 50th: 15,138,080
nephrology	FY14: 45,756 FY19: 56,842 Incr: 50,495 50th: 54,503	FY14: 18,110 FY19: 22,696 Incr: 24,653 50th: 24,653	FY14: 29,041 FY19: 35,402 Incr: 31,111 50th: 47,415	FY14: 80,840 FY19: 103,197 Incr: 87,974 50th: 87,974	FY14: 22,043 FY19: 26,128 Incr: 23,736 50th: 24,280	FY14: 15,351 FY19: 17,628 Incr: 16,836 50th: 16,920	FY14: 15,014 FY19: 19,628 Incr: 15,374 50th: 21,794	FY14: 40,923 FY19: 45,265 Incr: 44,310 50th: 45,871	FY14: 58,442 FY19: 69,811 Incr: 76,739 50th: 76,739	FY14: 52,032 FY19: 64,914 Incr: 61,059 50th: 69,627	FY14: 718,160 FY19: 873,480 Incr: 815,853 50th: 913,990
neurological surgery	FY14: 17,598 FY19: 19,542 Incr: 17,057 50th: 19,006	No FY14 Data	FY14: 10,244 FY19: 8,477 Incr: 6,509 50th: 11,505	FY14: 16,744 FY19: 11,966 Incr: 12,814 50th: 12,814	FY14: 4,114 FY19: 19,103 Incr: 21,911 50th: 21,911	FY14: 15,710 FY19: 17,076 Incr: 20,007 50th: 20,527	FY14: 14,309 FY19: 14,844 Incr: 14,669 50th: 24,066	FY14: 22,414 FY19: 24,908 Incr: 21,539 50th: 25,879	No FY14 Data	No FY14 Data	FY14: 201,019 FY19: 226,432 Incr: 230,161 50th: 259,360
neurology	FY14: 62,412 FY19: 77,620 Incr: 71,221 50th: 80,716	FY14: 42,545 FY19: 53,229 Incr: 46,776 50th: 46,776	FY14: 107,815 FY19: 134,267 Incr: 117,797 50th: 143,565	FY14: 47,008 FY19: 58,957 Incr: 49,989 50th: 49,989	FY14: 16,167 FY19: 20,294 Incr: 19,033 50th: 20,171	FY14: 23,710 FY19: 25,367 Incr: 25,367 50th: 34,430	FY14: 30,291 FY19: 37,490 Incr: 30,374 50th: 38,410	FY14: 55,000 FY19: 61,593 Incr: 61,808 50th: 88,810	FY14: 66,684 FY19: 79,433 Incr: 72,521 50th: 92,091	FY14: 57,609 FY19: 73,924 Incr: 63,483 50th: 77,020	FY14: 1,027,688 FY19: 1,269,969 Incr: 1,146,489 50th: 1,351,039
obstetrics gynecology	FY14: 5,305 FY19: 7,663 Incr: 7,086 50th: 11,043	No FY14 Data	FY14: 10,021 FY19: 15,035 Incr: 9,719 50th: 10,432	FY14: 13,758 FY19: 19,525 Incr: 15,304 50th: 15,304	FY14: 8,551 FY19: 12,340 Incr: 9,902 50th: 12,246	FY14: 4,322 FY19: 6,577 Incr: 3,754 50th: 4,677	FY14: 3,762 FY19: 5,266 Incr: 4,677 50th: 4,677	FY14: 11,389 FY19: 16,891 Incr: 12,597 50th: 15,418	FY14: 10,513 FY19: 14,591 Incr: 13,242 50th: 15,415	FY14: 2,670 FY19: 4,172 Incr: 2,617 50th: 2,617	FY14: 146,695 FY19: 210,358 Incr: 163,684 50th: 185,897
ophthalmology	FY14: 127,297 FY19: 159,906 Incr: 159,295 50th: 193,606	FY14: 41,620 FY19: 52,874 Incr: 38,394 50th: 38,394	FY14: 236,259 FY19: 291,718 Incr: 263,059 50th: 276,503	FY14: 103,277 FY19: 132,622 Incr: 97,770 50th: 116,660	FY14: 78,554 FY19: 98,024 Incr: 87,287 50th: 116,446	FY14: 67,077 FY19: 85,899 Incr: 85,762 50th: 119,560	FY14: 86,251 FY19: 113,276 Incr: 99,228 50th: 102,645	FY14: 102,524 FY19: 122,527 Incr: 110,187 50th: 146,911	FY14: 153,050 FY19: 183,811 Incr: 181,564 50th: 181,564	FY14: 103,836 FY19: 129,611 Incr: 91,118 50th: 91,705	FY14: 2,339,681 FY19: 2,906,777 Incr: 2,651,203 50th: 2,957,816
orthopaedic surgery	FY14: 74,680 FY19: 65,117 Incr: 63,610 50th: 68,583	FY14: 65,250 FY19: 76,483 Incr: 81,352 50th: 83,657	FY14: 87,343 FY19: 107,119 Incr: 113,446 50th: 145,095	FY14: 53,369 FY19: 67,416 Incr: 62,645 50th: 63,438	FY14: 79,542 FY19: 95,109 Incr: 91,395 50th: 91,967	FY14: 74,536 FY19: 88,006 Incr: 89,548 50th: 100,605	FY14: 43,115 FY19: 51,807 Incr: 45,717 50th: 49,486	FY14: 81,612 FY19: 91,556 Incr: 91,034 50th: 106,893	FY14: 140,101 FY19: 115,201 Incr: 117,011 50th: 127,473	FY14: 79,549 FY19: 81,944 Incr: 75,659 50th: 75,659	FY14: 1,373,201 FY19: 1,641,308 Incr: 1,597,914 50th: 1,774,159
otolaryngology	FY14: 35,865 FY19: 43,883 Incr: 35,661 50th: 38,388	FY14: 14,129 FY19: 17,827 Incr: 12,351 50th: 12,351	FY14: 52,308 FY19: 65,627 Incr: 56,871 50th: 76,742	FY14: 13,809 FY19: 17,891 Incr: 11,325 50th: 11,444	FY14: 21,260 FY19: 26,344 Incr: 27,457 50th: 29,875	FY14: 15,103 FY19: 19,498 Incr: 18,543 50th: 19,887	FY14: 35,824 FY19: 45,398 Incr: 39,931 50th: 40,409	FY14: 40,857 FY19: 47,561 Incr: 45,708 50th: 48,879	FY14: 52,218 FY19: 62,095 Incr: 57,045 50th: 62,511	FY14: 31,565 FY19: 39,068 Incr: 31,821 50th: 32,398	FY14: 671,677 FY19: 831,785 Incr: 732,470 50th: 811,167
pain medicine	FY14: 1,535 FY19: 2,115 Incr: 1,673 50th: 1,858	No FY14 Data	No FY14 Data	No FY14 Data	FY14: 4,658 FY19: 6,224 Incr: 5,366 50th: 5,366	FY14: 5,716 FY19: 7,909 Incr: 4,124 50th: 4,177	No FY14 Data	FY14: 1,617 FY19: 2,098 Incr: 1,734 50th: 2,481	FY14: 13,391 FY19: 16,629 Incr: 15,248 50th: 16,042	FY14: 2,400 FY19: 2,974 Incr: 2,312 50th: 2,448	FY14: 64,496 FY19: 82,970 Incr: 75,386 50th: 81,203
physical medicine rehabilitation	FY14: 40,260 FY19: 50,205 Incr: 49,592 50th: 69,772	FY14: 39,232 FY19: 49,722 Incr: 49,749 50th: 49,749	FY14: 49,584 FY19: 80,808 Incr: 57,463 50th: 70,176	FY14: 62,657 FY19: 62,838 Incr: 70,203 50th: 77,788	FY14: 20,691 FY19: 26,312 Incr: 24,047 50th: 34,250	FY14: 26,675 FY19: 34,228 Incr: 28,442 50th: 28,442	FY14: 43,623 FY19: 56,151 Incr: 50,363 50th: 53,478	FY14: 23,252 FY19: 28,202 Incr: 30,634 50th: 44,460	FY14: 113,004 FY19: 138,740 Incr: 135,738 50th: 137,771	FY14: 26,482 FY19: 34,851 Incr: 31,880 50th: 40,618	FY14: 921,624 FY19: 1,144,832 Incr: 1,061,976 50th: 1,194,767
plastic surgery	FY14: 10,953 FY19: 13,514 Incr: 14,007 50th: 17,520	No FY14 Data	FY14: 8,764 FY19: 10,671 Incr: 8,778 50th: 9,263	FY14: 13,948 FY19: 17,939 Incr: 15,122 50th: 16,621	FY14: 9,557 FY19: 12,343 Incr: 11,888 50th: 12,416	FY14: 2,729 FY19: 3,506 Incr: 2,796 50th: 4,100	FY14: 13,783 FY19: 17,750 Incr: 14,645 50th: 14,645	FY14: 20,072 FY19: 24,437 Incr: 22,102 50th: 22,750	FY14: 12,739 FY19: 15,119 Incr: 15,420 50th: 26,474	No FY14 Data	FY14: 218,928 FY19: 278,587 Incr: 249,738 50th: 288,743
psychiatry	FY14: 327,346 FY19: 393,636 Incr: 405,248 50th: 443,884	FY14: 253,363 FY19: 306,559 Incr: 300,994 50th: 300,994	FY14: 472,691 FY19: 568,801 Incr: 550,727 50th: 585,092	FY14: 364,734 FY19: 450,168 Incr: 452,929 50th: 452,929	FY14: 224,562 FY19: 274,728 Incr: 274,614 50th: 283,460	FY14: 284,062 FY19: 193,818 Incr: 193,103 50th: 236,057	FY14: 304,562 FY19: 345,014 Incr: 339,182 50th: 355,833	FY14: 304,572 FY19: 355,279 Incr: 349,274 50th: 423,831	FY14: 455,516 FY19: 529,942 Incr: 541,494 50th: 481,494	FY14: 210,200 FY19: 261,480 Incr: 267,232 50th: 267,232	FY14: 6,692,270 FY19: 7,998,904 Incr: 7,932,023 50th: 8,565,015
rheumatology	FY14: 15,850 FY19: 19,798 Incr: 17,497 50th: 21,632	No FY14 Data	FY14: 11,696 FY19: 14,518 Incr: 14,990 50th: 18,628	FY14: 12,556 FY19: 16,317 Incr: 12,679 50th: 14,352	FY14: 11,167 FY19: 14,104 Incr: 13,076 50th: 13,076	FY14: 9,495 FY19: 12,606 Incr: 12,192 50th: 16,100	FY14: 19,711 FY19: 25,874 Incr: 26,038 50th: 29,497	FY14: 13,878 FY19: 16,838 Incr: 16,325 50th: 24,511	FY14: 14,585 FY19: 17,668 Incr: 13,749 50th: 15,018	FY14: 12,834 FY19: 16,446 Incr: 11,748 50th: 13,549	FY14: 253,737 FY19: 319,803 Incr: 291,558 50th: 349,079
surgery	FY14: 64,246 FY19: 74,683 Incr: 78,306 50th: 100,489	FY14: 46,374 FY19: 55,299 Incr: 58,283 50th: 58,283	FY14: 105,356 FY19: 123,585 Incr: 124,218 50th: 131,030	FY14: 58,716 FY19: 70,839 Incr: 66,702 50th: 66,702	FY14: 80,773 FY19: 93,709 Incr: 94,732 50th: 101,124	FY14: 60,999 FY19: 67,684 Incr: 59,958 50th: 65,715	FY14: 58,131 FY19: 67,069 Incr: 66,984 50th: 87,204	FY14: 57,351 FY19: 71,634 Incr: 68,999 50th: 83,929	FY14: 102,795 FY19: 113,855 Incr: 120,311 50th: 138,317	FY14: 113,720 FY19: 134,534 Incr: 127,662 50th: 132,926	FY14: 1,555,503 FY19: 1,809,837 Incr: 1,732,279 50th: 1,948,585
thoracic surgery	FY14: 18,742 FY19: 20,193 Incr: 20,305 50th: 21,511	No FY14 Data	FY14: 10,046 FY19: 10,556 Incr: 14,999 50th: 16,638	FY14: 1,972 FY19: 2,179 Incr: 1,322 50th: 2,065	FY14: 4,798 FY19: 4,892 Incr: 6,051 50th: 6,686	No FY14 Data	FY14: 20,168 FY19: 21,477 Incr: 25,674 50th: 31,726	FY14: 17,723 FY19: 17,517 Incr: 19,651 50th: 31,321	FY14: 26,675 FY19: 26,784 Incr: 31,691 50th: 34,578	FY14: 2,633 FY19: 2,907 Incr: 2,891 50th: 4,530	FY14: 243,352 FY19: 255,230 Incr: 309,860 50th: 342,149
urology	FY14: 58,191 FY19: 68,958 Incr: 61,014 50th: 66,630	FY14: 55,787 FY19: 66,051 Incr: 70,382 50th: 70,382	FY14: 74,042 FY19: 89,651 Incr: 87,963 50th: 102,786	FY14: 37,551 FY19: 46,390 Incr: 38,394 50th: 38,394	FY14: 37,450 FY19: 44,411 Incr: 36,750 50th: 46,287	FY14: 31,429 FY19: 38,865 Incr: 40,786 50th: 44,132	FY14: 43,912 FY19: 53,786 Incr: 43,154 50th: 52,274	FY14: 55,865 FY19: 66,531 Incr: 58,855 50th: 67,469	FY14: 84,282 FY19: 97,600 Incr: 102,150 50th: 122,597	FY14: 51,095 FY19: 63,275 Incr: 57,522 50th: 57,522	FY14: 1,087,103 FY19: 1,310,019 Incr: 1,212,362 50th: 1,403,545
vascular surgery	FY14: 36,293 FY19: 39,786 Incr: 39,877 50th: 50,340	No FY14 Data	FY14: 18,808 FY19: 19,257 Incr: 23,568 50th: 30,132	FY14: 36,027 FY19: 40,871 Incr: 38,169 50th: 41,834	FY14: 20,442 FY19: 22,028 Incr: 18,675 50th: 21,909	FY14: 15,411 FY19: 17,343 Incr: 18,298 50th: 25,604	FY14: 31,057 FY19: 35,338 Incr: 34,600 50th: 33,687	FY14: 49,793 FY19: 52,832 Incr: 60,381 50th: 69,217	FY14: 41,153 FY19: 44,051 Incr: 48,148 50th: 60,125	FY14: 18,126 FY19: 19,804 Incr: 21,476 50th: 22,436	FY14: 559,583 FY19: 610,837 Incr: 648,938 50th: 729,959
Grand Total	FY14: 1,830,241 FY19: 2,155,776 Incr: 2,138,386 50th: 2,414,290	FY14: 1,354,295 FY19: 1,594,327 Incr: 1,599,575 50th: 1,611,293	FY14: 2,856,855 FY19: 3,375,440 Incr: 3,269,070 50th: 3,657,538	FY14: 1,954,431 FY19: 2,380,502 Incr: 2,205,519 50th: 2,300,845	FY14: 1,358,327 FY19: 1,622,628 Incr: 1,544,329 50th: 1,728,369	FY14: 1,048,865 FY19: 1,271,670 Incr: 1,260,346 50th: 1,434,008	FY14: 1,473,789 FY19: 1,794,245 Incr: 1,721,570 50th: 1,996,249	FY14: 1,843,964 FY19: 2,108,662 Incr: 2,136,675 50th: 2,627,792	FY14: 2,563,173 FY19: 2,923,947 Incr: 2,976,154 50th: 3,215,162	FY14: 1,602,470 FY19: 1,893,028 Incr: 1,798,301 50th: 1,952,394	FY14: 38,354,254 FY19: 45,205,881 Incr: 44,184,537 50th: 48,525,022

Appendix I Survey Data Tables and Participant Comments

Appendix I.1 Tables

In the following tables, we present survey results for each survey question by survey module, starting with the Facility module for which the Chief of Staff was the intended respondent, followed by the modules for each of the seven clinical conditions. The clinical modules were designed to be answered by the most appropriate service chief. Results with fewer than ten respondents are not presented.

The survey questions first elicit respondents' perceptions about the existence of *clinically meaningful* delays. Specifically, respondents were asked to "*Consider delays which might put a patient at risk for adverse outcomes, slow resolution of symptoms, or which are not compliant with VA/DoD guidelines.*" Respondents who indicated that delays sometimes exist were asked to formulate a solution for reducing delays and then to rate the importance of various components to that solution.

Each module also contained a question that asked respondents to identify issues that affect provider and system efficiency, and several questions intended to determine if respondents had difficulty recruiting and retaining clinicians with expertise in the clinical condition of interest, or in the case of the facility module, staff in categories that spanned multiple conditions. In facilities reporting difficulties with recruitment and retention, respondents were asked to identify barriers that caused these problems.

Appendix I.1.1 Chief of Staff

2015 Survey of VA Capabilities and Resources
Section 1: General Facility Questions for the Chief of Staff

1. In the PAST 90 DAYS**, what percentage of patients trying to obtain a new primary care appointment experienced a *clinically meaningful delay***?

Table I-1. Chief of Staff: Question 1

Service		No Delay		1-10% of patients experience delay		11-25% of patients experience delay		26-50% of patients experience delay		51% or more of patients experience delay		Not applicable	
	N	n	%	n	%	n	%	n	%	n	%	n	%
New primary care appointment	115	63	54.8	45	39.1	5	4.3	1	0.9	0	0.0	1	0.9

2. Think of the most effective way to reduce the number of *clinically meaningful delays* for patients trying to obtain a **new** primary care appointment. Now, **in your solution, how important are each of the following elements**?

Table I-2. Chief of Staff: Question 2

Solution	N	Critically Important		Very Important		Somewhat Important		Unimportant		Not applicable	
		n	%	n	%	n	%	n	%	n	%
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds)	49	22	44.9	13	26.5	12	24.5	1	2.0	1	2.0
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists).	49	21	42.9	25	51.0	3	6.1	0	0.0	0	0.0
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff).	49	11	22.4	28	57.1	8	16.3	2	4.1	0	0.0
d. Acquire and/or improve availability of equipment	49	1	2.0	11	22.4	20	40.8	12	24.5	5	10.2
e. Implement or increase the availability of telehealth services	49	2	4.1	20	40.8	20	40.8	6	12.2	1	2.0
f. Improve information technology (e.g., scheduling system, electronic health record).	48	21	43.8	16	33.3	8	16.7	2	4.2	1	2.1
g. Change "central office policies" that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided)	49	19	38.8	17	34.7	8	16.3	4	8.2	1	2.0
h. Improve personnel supervision, management, or incentives.	49	9	18.4	24	49.0	12	24.5	4	8.2	0	0.0
i. Increase weekend and evening availability of services	49	1	2.0	14	28.6	25	51.0	8	16.3	1	2.0
j. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community	49	5	10.2	17	34.7	15	30.6	11	22.4	1	2.0
k. Some other solution(s).	49	7	14.3	9	18.4	2	4.1	1	2.0	30	61.2
This question (question 2) is based on respondents who indicated that patients experienced delays (n=51) in obtaining a new primary care appointment (question 1).											

The views, opinions, and/or findings contained in this report are those of RAND Corporation and should not be construed as an official government position, policy, or decision.

3. In the **PAST 90 DAYS**, what percentage of patients trying to obtain a **follow-up** primary care appointment experienced a *clinically meaningful delay*?

Table I-3. Chief of Staff: Question 3

Service		No Delay		1-10% of patients experience delay		11-25% of patients experience delay		26-50% of patients experience delay		51% or more of patients experience delay		Not applicable	
	N	n	%	n	%	n	%	n	%	n	%	n	%
Follow-up primary care appointment	113	58	51.3	46	40.7	8	7.1	0	0.0	0	0.0	1	0.9

4. Think of the most effective way to reduce the number of delays for patients trying to obtain a **follow-up** primary care appointment. Now, **in your solution, how important are each of the following elements?**

Table I-4. Chief of Staff: Question 4

Solution	N	Critically Important		Very Important		Somewhat Important		Unimportant		Not applicable	
		n	%	n	%	n	%	n	%	n	%
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds)	53	19	35.8	16	30.2	14	26.4	4	7.5	0	0.0
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists).	53	20	37.7	28	52.8	5	9.4	0	0.0	0	0.0
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff).	52	10	19.2	32	61.5	7	13.5	3	5.8	0	0.0
d. Acquire and/or improve availability of equipment.	52	4	7.7	12	23.1	14	26.9	19	36.5	3	5.8
e. Implement or increase the availability of telehealth services	53	1	1.9	18	34.0	21	39.6	13	24.5	0	0.0
f. Improve information technology (e.g., scheduling system, electronic health record).	52	13	25.0	26	50.0	8	15.4	5	9.6	0	0.0
g. Change "central office policies" that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided)	53	19	35.8	15	28.3	12	22.6	6	11.3	1	1.9
h. Improve personnel supervision, management, or incentives.	53	8	15.1	18	34.0	23	43.4	4	7.5	0	0.0
i. Increase weekend and evening availability of services	53	0	0.0	9	17.0	31	58.5	13	24.5	0	0.0
j. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community	53	6	11.3	14	26.4	12	22.6	20	37.7	1	1.9
k. Some other solution(s).	52	8	15.4	6	11.5	2	3.8	3	5.8	33	63.5
This question (question 4) is based on respondents who indicated that patients experienced delays (n=54) in obtaining a follow-up primary care appointment (question 3).											

Issues that Affect Provider and System Efficiency

5. IN THE PAST YEAR, how much did the following issues negatively impact provider and system efficiency?

Table I-5. Chief of Staff: Question 5

Solution	N	None		A little		A fair amount		A lot		Not Applicable	
		n	%	n	%	n	%	n	%	n	%
a. Providers performing clinical activities that could be performed by individuals with less training	112	5	4.5	30	26.8	43	38.4	33	29.5	1	0.9
b. Providers performing administrative activities that could be performed by others	112	4	3.6	14	12.5	44	39.3	50	44.6	0	0.0
c. Residency training/teaching requirements	112	35	31.3	42	37.5	17	15.2	5	4.5	13	11.6
d. Insufficient clinical/administrative support staff	112	3	2.7	26	23.2	36	32.1	47	42.0	0	0.0
e. Inadequate scheduling system and policies (e.g., hard to cancel or reschedule, coordinate)	112	1	0.9	19	17.0	29	25.9	62	55.4	1	0.9
f. Unnecessary documentation requirements or inefficient CPRS interface	112	3	2.7	17	15.2	33	29.5	58	51.8	1	0.9
g. Patient no-show rates	112	2	1.8	56	50.0	41	36.6	13	11.6	0	0.0
h. Poor patient flow management (room/bed turnover, appointments)	112	12	10.7	42	37.5	40	35.7	18	16.1	0	0.0
i. Too many administrative requirements (Initiatives/Policies/Programs)	112	3	2.7	11	9.8	29	25.9	67	59.8	2	1.8

Workforce

6A. IN THE PAST YEAR, did your local health care system have problems **RECRUITING OR HIRING** the following personnel categories?

Table I-6. Chief of Staff: Question 6A

		Yes		No		Not Applicable	
Staff Positions	**N**	**n**	**%**	**n**	**%**	**n**	**%**
a. Primary Care Providers	112	86	76.8	26	23.2	0	0.0
b. General Surgeons	111	39	35.1	52	46.8	20	18.0
c. Hospitalists	112	56	50.0	46	41.1	10	8.9
d. Intensivists	112	54	48.2	28	25.0	30	26.8
e. Pathologists	112	17	15.2	66	58.9	29	25.9
f. Radiologists	112	24	21.4	73	65.2	15	13.4
g. Dermatologists	112	69	61.6	23	20.5	20	17.9
h. Anesthesiologists	111	27	24.3	60	54.1	24	21.6
i. Advanced practice providers (Nurse Practitioners, Physician Assistants)	112	43	38.4	66	58.9	3	2.7
j. Nursing (RN, LPN, clinical nurse specialist)	112	56	50.0	55	49.1	1	0.9
k. Social Workers	112	10	8.9	102	91.1	0	0.0
l. Psychologists	112	27	24.1	85	75.9	0	0.0
m. Specialized support staff (lab or imaging technicians)	111	65	58.6	45	40.5	1	0.9
n. Inpatient support staff (clerical)	112	20	17.9	86	76.8	6	5.4
o. Administrative support staff (e.g., schedulers)	112	42	37.5	70	62.5	0	0.0
p. Therapists (Occupational Therapists, Physical Therapists, Speech Therapists)	112	54	48.2	53	47.3	5	4.5
q. Pain Management Specialists	112	61	54.5	40	35.7	11	9.8
r. Telehealth clinical technicians	112	24	21.4	85	75.9	3	2.7

Reasons for Staff Recruitment/Hiring Problems

7. Please enter the **top two** reasons why there were problems **RECRUITING AND HIRING** these personnel types.

Table I-7. Chief of Staff: Question 7

Staff Positions	N	Senior management does not agree to post new position n	%	Non-competitive wages n	%	Work schedule (e.g., call requirements) n	%	Benefits (e.g., health insurance, leave, continuing education, travel) n	%	Equipment/resources/office space n	%	Facility condition n	%	Case types/complexity n	%	VA reputation n	%	No academic affiliation/lack of protected time for early career investigator n	%	Geographic location of facility n	%	HR process (e.g., time to advertise; length of time from job offer to start date) n	%	Lack of qualified applicants n	%
a. Primary Care Providers	86	1	1.2	41	47.7	4	4.7	0	0.0	3	3.5	1	1.2	3	3.5	8	9.3	1	1.2	40	46.5	35	40.7	34	39.5
b. General Surgeons	39	1	2.6	26	66.7	3	7.7	0	0.0	2	5.1	2	5.1	4	10.3	6	15.4	0	0.0	10	25.6	10	25.6	10	25.6
c. Hospitalists	56	1	1.8	37	66.1	11	19.6	0	0.0	2	3.6	1	1.8	3	5.4	5	8.9	2	3.6	18	32.1	14	25.0	17	30.4
d. Intensivists	54	1	1.9	40	74.1	10	18.5	0	0.0	1	1.9	2	3.7	5	9.3	3	5.6	1	1.9	12	22.2	10	18.5	21	38.9
e. Pathologists	17	0	0.0	12	70.6	0	0.0	0	0.0	0	0.0	1	5.9	2	11.8	1	5.9	2	11.8	3	17.6	5	29.4	7	41.2
f. Radiologists	24	1	4.2	16	66.7	2	8.3	1	4.2	0	0.0	1	4.2	0	0.0	3	12.5	1	4.2	10	41.7	7	29.2	6	25.0
g. Dermatologists	69	1	1.4	58	84.1	0	0.0	3	4.3	2	2.9	2	2.9	2	2.9	3	4.3	0	0.0	21	30.4	11	15.9	32	46.4
h. Anesthesiologists	27	1	3.7	21	77.8	3	11.1	0	0.0	0	0.0	1	3.7	0	0.0	4	14.8	1	3.7	6	22.2	7	25.9	9	33.3
i. Advanced practice providers (Nurse Practitioners, Physician Assistants)	43	2	4.7	31	72.1	1	2.3	1	2.3	1	2.3	1	2.3	0	0.0	5	11.6	0	0.0	15	34.9	18	41.9	11	25.6
j. Nursing (RN, LPN, clinical nurse specialist)	56	5	8.9	36	64.3	7	12.5	0	0.0	2	3.6	2	3.6	0	0.0	2	3.6	0	0.0	13	23.2	25	44.6	18	32.1
k. Social Workers	10	3	30.0	5	50	0	0.0	0	0.0	0	0.0	1	10.0	0	0.0	0	0.0	0	0.0	3	30.0	6	60.0	2	20.0
l. Psychologists	27	0	0.0	13	48.1	0	0.0	0	0.0	1	3.7	2	7.4	0	0.0	1	3.7	1	3.7	10	37	9	33.3	17	63.0
m. Specialized support staff (lab or imaging technicians)	65	1	1.5	47	72.3	7	10.8	0	0.0	2	3.1	0	0.0	0	0.0	2	3.1	1	1.5	11	16.9	28	43.1	31	47.7
n. Inpatient support staff (clerical)	20	3	15	9	45.0	3	15.0	0	0.0	1	5.0	1	5.0	1	5.0	0	0.0	0	0.0	1	5.0	12	60.0	9	45.0
o. Administrative support staff (e.g., schedulers)	42	6	14.3	21	50.0	3	7.1	1	2.4	2	4.8	1	2.4	0	0.0	0	0.0	0	0.0	4	9.5	29	69.0	17	40.5
p. Therapists (Occupational Therapists, Physical Therapists, Speech Therapists)	54	3	5.6	42	77.8	4	7.4	0	0.0	3	5.6	1	1.9	1	1.9	0	0.0	1	1.9	16	29.6	18	33.3	18	33.3
q. Pain Management Specialists	61	2	3.3	47	77.0	1	1.6	2	3.3	4	6.6	1	1.6	3	4.9	4	6.6	0	0.0	14	23.0	13	21.3	28	45.9
r. Telehealth clinical technicians	24	0	0.0	10	41.7	0	0.0	0	0.0	3	12.5	0	0.0	2	8.3	0	0.0	0	0.0	8	33.3	13	54.2	12	50.0

N refers to the proportion of respondents who listed each "reason" as one of the two most important affecting recruitment and hiring. This question (question 7) is based on respondents who indicated that their local health care system had problems recruiting or hiring certain personnel categories (question 6A). Question 7 was asked for each personnel type marked "yes" in question 6A.

The views, opinions, and/or findings contained in this report are those of RAND Corporation and should not be construed as an official government position, policy, or decision.

6B. IN THE PAST YEAR, did your local health care system have problems **RETAINING t**he following personnel categories?

Table I-8. Chief of Staff: Question 6B

Staff Positions	N	Yes		No		Not Applicable	
		n	%	n	%	n	%
a. Primary Care Providers	111	72	64.9	39	35.1	0	0.0
b. General Surgeons	111	15	13.5	81	73.0	15	13.5
c. Hospitalists	111	36	32.4	66	59.5	9	8.1
d. Intensivists	110	24	21.8	54	49.1	32	29.1
e. Pathologists	110	7	6.4	77	70.0	26	23.6
f. Radiologists	111	7	6.3	95	85.6	9	8.1
g. Dermatologists	111	22	19.8	65	58.6	24	21.6
h. Anesthesiologists	111	11	9.9	82	73.9	18	16.2
i. Advanced practice providers (Nurse Practitioners, Physician Assistants)	111	33	29.7	77	69.4	1	0.9
j. Nursing (RN, LPN, clinical nurse specialist)	111	49	44.1	60	54.1	2	1.8
k. Social Workers	111	9	8.1	99	89.2	3	2.7
l. Psychologists	111	21	18.9	87	78.4	3	2.7
m. Specialized support staff (lab or imaging technicians)	111	46	41.4	63	56.8	2	1.8
n. Inpatient support staff (clerical)	111	26	23.4	77	69.4	8	7.2
o. Administrative support staff (e.g., schedulers)	111	56	50.5	53	47.7	2	1.8
p. Therapists (Occupational Therapists, Physical Therapists, Speech Therapists)	111	26	23.4	83	74.8	2	1.8
q. Pain Management Specialists	111	19	17.1	74	66.7	18	16.2
r. Telehealth clinical technicians	111	19	17.1	90	81.1	2	1.8

Reasons for Staff Retention Problems

8. Please enter **top two reasons** why there were problems **RETAINING** these personnel types.

Table I-9. Chief of Staff: Question 8

Staff Positions	N	01 Lack of opportunity for professional growth/promotion		02 Dissatisfaction with supervision/management support		03 Dissatisfaction with support staff		04 Dissatisfaction with physical demands of the job		05 Dissatisfaction with workload		06 Lack of incentives or "management levers" to encourage productivity (i.e., no accountability)		07 Organizational culture that does not prioritize/encourage productivity		08 Administrative/Program Demands		09 Lack of professional autonomy		10 Dissatisfaction with pay		11 Work schedule		12 Inadequate equipment/resources/office space		13 Burnout	
		n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
a. Primary Care Providers	72	1	1.4	25	34.7	18	25.0	2	2.8	27	37.5	1	1.4	11	15.3	15	20.8	2	2.8	16	22.2	2	2.8	4	5.6	16	22.2
b. General Surgeons	15	3	20.0	4	26.7	3	20.0	0	0.0	2	13.3	0	0.0	1	6.7	4	26.7	0	0.0	7	46.7	1	6.7	5	33.3	0	0.0
c. Hospitalists	36	4	11.1	18	50.0	8	22.2	2	5.6	7	19.4	0	0.0	4	11.1	4	11.1	1	2.8	10	27.8	5	13.9	3	8.3	6	16.7
d. Intensivists	24	4	16.7	10	41.7	7	29.2	2	8.3	4	16.7	1	4.2	2	8.3	3	12.5	2	8.3	5	20.8	3	12.5	3	12.5	2	8.3
e. Pathologists	7	1	14.3	2	28.6	0	0.0	0	0.0	2	28.6	0	0.0	0	0.0	3	42.9	0	0.0	2	28.6	1	14.3	2	28.6	0	0.0
f. Radiologists	7	1	14.3	4	57.1	2	28.6	0	0.0	1	14.3	0	0.0	0	0.0	2	28.6	1	14.3	2	28.6	0	0.0	0	0.0	1	14.3
g. Dermatologists	22	2	9.1	8	36.4	3	13.6	2	9.1	4	18.2	0	0.0	1	4.5	5	22.7	2	9.1	9	40.9	2	9.1	3	13.6	1	4.5
h. Anesthesiologists	11	2	18.2	3	27.3	0	0.0	1	9.1	2	18.2	0	0.0	1	9.1	1	9.1	1	9.1	6	54.5	1	9.1	2	18.2	1	9.1
i. Advanced practice providers (Nurse Practitioners, Physician Assistants)	33	2	6.1	20	60.6	6	18.2	3	9.1	5	15.2	0	0.0	4	12.1	3	9.1	1	3.0	12	36.4	1	3.0	3	9.1	5	15.2
j. Nursing (RN, LPN, clinical nurse specialist)	49	4	8.2	28	57.1	14	28.6	2	4.1	5	10.2	4	8.2	3	6.1	7	14.3	0	0.0	13	26.5	8	16.3	1	2.0	8	16.3
k. Social Workers	9	5	55.6	2	22.2	1	11.1	1	11.1	1	11.1	0	0.0	2	22.2	1	11.1	0	0.0	2	22.2	1	11.1	0	0.0	2	22.2
l. Psychologists	21	4	19.0	10	47.6	5	23.8	2	9.5	4	19.0	0	0.0	1	4.8	4	19.0	0	0.0	7	33.3	1	4.8	3	14.3	1	4.8
m. Specialized support staff (lab or imaging technicians)	46	3	6.5	27	58.7	11	23.9	3	6.5	2	4.3	1	2.2	1	2.2	4	8.7	0	0.0	22	47.8	7	15.2	8	17.4	1	2.2
n. Inpatient support staff (clerical)	26	6	23.1	14	53.8	7	26.9	0	0.0	2	7.7	0	0.0	2	7.7	3	11.5	0	0.0	10	38.5	2	7.7	3	11.5	2	7.7
o. Administrative support staff (e.g., schedulers)	56	12	21.4	28	50.0	10	17.9	2	3.6	8	14.3	1	1.8	4	7.1	4	7.1	0	0.0	15	26.8	8	14.3	12	21.4	5	8.9
p. Therapists (Occupational Therapists, Physical Therapists, Speech Therapists)	26	5	19.2	14	53.8	8	30.8	0	0.0	2	7.7	0	0.0	1	3.8	3	11.5	1	3.8	12	46.2	0	0.0	2	7.7	3	11.5
q. Pain Management Specialists	19	1	5.3	11	57.9	2	10.5	1	5.3	2	10.5	0	0.0	3	15.8	1	5.3	0	0.0	11	57.9	0	0.0	2	10.5	2	10.5
r. Telehealth clinical technicians	19	5	26.3	6	31.6	3	15.8	0	0.0	4	21.1	0	0.0	0	0.0	3	15.8	0	0.0	8	42.1	1	5.3	5	26.3	1	5.3

N refers to the proportion of respondents who listed each "reason" as one of the two most important affecting retention. This question (question 8) is based on respondents who indicated that their local health care system had problems retaining certain personnel categories (question 8B). Question 10 was asked for each personnel type marked "yes" in question 6B.

Use of fee-basis or contracted care

9. How frequently do you refer Veterans to fee-basis or contracted care?

Table I- 10. Chief of Staff: Question 9

	n	%
N	111	
1% or less of the time	18	16.2
2-4% of the time	31	27.9
5-10% of the time	33	29.7
11-100% of the time	29	26.1

10. On a scale from 1 to 3 where 1 is the **most important** reason and 3 is the **least important** reason, please rank which of the following are the most important reasons for referring veterans to fee-basis care.

Table I-11. Chief of Staff: Question 10

		Ranking (1 - 3) Where 1 = most important		
	N	n (%) ranked #1	n (%) ranked #2	n (%) ranked #3
a. Lack of clinical services available at VA facilities	111	86 (77.5)	14 (12.6)	11 (9.9)
b. Veteran travel distance to VA facilities	111	12 (10.8)	51 (45.9)	48 (43.2)
c. Veteran wait times at VA facilities	111	15 (13.5)	46 (41.4)	50 (45.0)
Some individuals ranked more than one reason for referral as "the most important reason" or the "least important reason." As a result, the columns do not add up to 111.				

10D. Are there other important reasons why your local health care system refers veterans to fee-basis or contracted care?

Table I-12. Chief of Staff: Question 10D

	n	%
	111	
Yes	37	33.3
No	74	66.7

11. Please mark 'YES' or 'NO' for the following questions.

Table I-13. Chief of Staff: Question 11

		Yes	No
	N	**n (%)**	**n (%)**
a. Has your local health care system implemented the Non-VA Care Coordination (NVCC) internal referral management program?	111	106 (95.5)	5 (4.5\)
b. At your local health care system, are veteran priority ratings and the service-connection of the injury or illness considered when scheduling appointments?	111	45 (40.5)	66 (59.5)
c. Does your local health care system "bump" a veteran from a scheduled appointment to accommodate the appointment needs of a veteran of a higher priority group?	111	2 (1.8)	109 (98.2)

12. How often does your local health care system do the following things?

Table I-14. Chief of Staff: Question 12

		All of the Time	Most of the time	Some of the time	None of the time
	N	**n (%)**	**n (%)**	**n (%)**	**n (%)**
a. Share records with non-VA health care providers in electronic format?	110	5 (4.5)	10 (9.1)	43 (39.1)	52 (47.3)
b. Collect data about how long veterans wait for appointments at non-VA health care providers?	111	15 (13.5)	23 (20.7)	45 (40.5)	28 (25.2)

13A. If you have to refer veterans out for non-VA care, and the care requires more than one visit, do they need a referral for each visit?

Table I-15. Chief of Staff: Question 13A

	n	%
	111	
Separate referral for each visit	9	8.1
One referral will cover all related visits to this specialist within 60 day timeframe	51	45.9
Other	51	45.9

13B. What if the veteran requires more than one visit to this specialist for his/her broken leg, but the care is anticipated to span a period longer than 60 days (e.g., 7 months)-do they need a referral for each visit?

Table I-16. Chief of Staff: Question 13B

	n	%
	111	
Separate referral for each visit	23	20.7
One referral will cover all related visits to this specialist regardless of timeframe	41	36.9
Other	47	42.3

Information Technology

14. WIFI Access: Is there wireless Internet access in your Administrative Parent for the following people at your VAMC(s) and CBOC(s)?

Table I-17. Chief of Staff: Question 14

		Yes, everywhere and reliable	Yes, everywhere but spotty	Yes, some places reliably	Yes, some places and spotty	No, no wireless Internet
	N	n (%)	n (%)	n (%)	n (%)	n (%)
VAMC (s) Wireless Internet Access						
a. For patients and guests?	111	13 (11.7)	8 (7.2)	33 (29.7)	14 (12.6)	43 (38.7)
b. For VA staff?	111	31 (27.9)	9 (8.1)	21 (18.9)	12 (10.8)	38 (34.2)
CBOC(s) Wireless Internet Access:						
c. For patients and guests?	111	9 (8.1)	3 (2.7)	9 (8.1)	10 (9.0)	80 (72.1)
d. For VA staff?	111	15 (13.5)	5 (4.5)	12 (10.8)	8 (7.2)	71 (64.0)

15. Do facilities in your local health care system send radiology exams for **remote reading**?

Table I-18. Chief of Staff: Question 15

	n	%
N	111	
Yes, both day and night	38	34.2
Yes, only at night	62	55.9
No, neither day nor night	11	9.9

16. Where is the remote reading done? Please mark all that apply.

Table I-19. Chief of Staff: Question 16

	n	%
N	100	
At a VAMC within this Administrative Parent	14	14.0
At a CBOC within this Administrative Parent	4	4.0
At a VA facility **outside** this Administrative Parent	58	58.0
At a **non-VA facility**	47	47.0
This question (question 16) is based on respondents who indicated that facilities in their local health care system send radiology exams for remote reading (question 15).		

17. In the PAST YEAR, what percentage of radiology exams were read remotely? Just your best guess.

Table I-20. Chief of Staff: Question 17

	N	Mean	Median	Standard Deviation	Range
Percent of radiology exams were read remotely	99	15.4	10	17.9	0 - 100
This question (question 17) is based on respondents who indicated that facilities in their local health care system send radiology exams for remote reading (question 15).					

Tele-Medicine Technology

18. What kind of tele-medicine technology is used for the following conditions in your local health care system? **Please select all that apply for each medical condition listed.**

Table I-21. Chief of Staff: Question 18

		Clinical Video Tele-Health (CVT) *provider to patient*		Clinical Video CVT- Virtual Consultations *provider to provider*		Home Telehealth/ Remote monitoring technology		Store and Forward Technology- storage of images or other data for later processing		None of these technologies are available at this Administrative Parent	
	N	n	%	n	%	n	%	n	%	n	%
a. Post-Traumatic Stress Disorder (PTSD)	111	101	91.0	25	22.5	43	38.7	13	11.7	8	7.2
b. Substance Use Disorders (SUD)	111	81	73.0	21	18.9	23	20.7	3	2.7	27	24.3
c. Traumatic Brain Injury (TBI)	110	62	56.4	25	22.7	18	16.4	4	3.6	38	34.6
d. Colon Cancer	111	32	28.8	16	14.4	4	3.6	3	2.7	73	65.8
e. Type 2 Diabetes	111	72	64.9	25	22.5	60	54.1	17	15.3	16	14.4

19/20. Within your local health care system, where are **providers and patients** located when using CVT? This includes CVT use for any medical condition. Include only CVT provider to patient. Just give us your best guess.

Table I-22. Chief of Staff: Question 19/20

Percentage of Clinical Video Telehealth (CVT Provider to Patient)					
	N	**Mean**	**Median**	**Standard Deviation**	**Range**
19. What percentage of the time is the PROVIDER at a:					
a. VAMC?	101	77.3	80.0	23.3	0.0 – 100.0
b. Small or medium CBOC?	101	11.2	5.0	15.3	0.0 – 70.0
c. Large or very large CBOC?	100	6.3	0.0	10.9	0.0 - 75.0
d. Other locations	100	5.3	0.0	15.9	0.0 – 100.0
20. What percentage of the time is a PATIENT at a:					
a. VAMC?	101	27.8	10.0	30.7	0.0 – 100.0
b Small or medium CBOC?	102	51.4	50.0	31.8	0.0 – 100.0
c. Large or very large CBOC?	102	15.6	10.0	20.5	0.0 – 95.0
d. Other locations	101	5.1	0.0	12.1	0.0 – 80.0
These questions (questions 19 and 20) are based on respondents who indicated that CVT provider to patient is used for any condition (question 18). Note % for a+b+c+d = 100% in Q19 and Q20					

Home Telehealth (HT) (Remote Monitoring Programs)

21. What is the average amount of time that a patient is part of a home telehealth monitoring program at your local health care system?

Table I-23. Chief of Staff: Question 21

	n	**%**
N	74	
Less than 1 month	1	1.4
1-3 months	12	16.2
4-6 months	21	28.4
7-12 months	19	25.7
More than 12 months	21	28.4
This question (question 21) is based on respondents who indicated use of a home telehealth monitoring program (question 18).		

22. What is the primary reason patients stop being part of a **home telehealth monitoring program**? Select ONE reason.

Table I-24. Chief of Staff: Question 22

	n	%
N	76	
Death	7	9.2
Improvement in health	34	44.7
Decline in health	4	5.3
Inpatient Admission	1	1.3
Transfer to nursing home or long-term care	7	9.2
Technical issues (such as Internet/phone issues)	3	4.0
Some other reason	20	26.3
This question (question 22) is based on respondents who indicated use of a home telehealth monitoring program (question 18).		

23. What is the **largest** number of patients enrolled in a **home telehealth monitoring program** at any given time from your local health care system?

Table I-25. Chief of Staff: Question 23

	n	%
N	76	
Less than 100	7	9.2
101 – 500	41	54.0
More than 500	28	36.8
This question (question 23) is based on respondents who indicated use of a home telehealth monitoring program (question 18).		

24. What is the **smallest** number of patients enrolled in a **home telehealth monitoring program** at any given time from your local health care system?

Table I-26. Chief of Staff: Question 24

	n	%
N	76	
Less than 100	21	27.6
101 – 500	37	48.7
More than 500	18	23.7
This question (question 24) is based on respondents who indicated use of a home telehealth monitoring program (question 18).		

25. Where do the providers who oversee the **home telehealth monitoring program** at your local health care system **work**? Select all that apply

Table I-27. Chief of Staff: Question 25

	n	%
N	76	
At the patient's primary CBOC	40	52.6
At a different VA facility within the local health care system	27	35.5
Oversight provided by an external vendor company	0	0.0
Some other place	26	34.2
This question (question 25) is based on respondents who indicated use of a home telehealth monitoring program (question 18). Respondents were permitted to select all answer choices that applied.		

Appendix I.1.2 PTSD

Section 2: Post-Traumatic Stress Disorder (PTSD)

PTSD Diagnosis and Assessment

1. Please think about patients who need a **referral for an evaluation** for PTSD.
IN THE PAST 90 DAYS, how often were there *clinically meaningful delays* in getting these patients an **evaluation** leading up to either a diagnosis or initial treatment plan? Indicate the percent of patients that experienced delays for whom the service was required.

Table I-28. Post-Traumatic Stress Disorder: Question 1

Service		No Delay		1-10% of patients experience delay		11-25% of patients experience delay		26-50% of patients experience delay		51% or more of patients experience delay		Not applicable	
	N	n	%	n	%	n	%	n	%	n	%	n	%
a. Evaluation in general mental health within your local health care system	117	54	46.2	49	41.9	8	6.8	2	1.7	2	1.7	2	1.7
b. Evaluation by the PTSD clinical team	117	53	45.3	33	28.2	8	6.8	6	5.1	4	3.4	13	11.1
c. Evaluation using telehealth in CBOCs (all sizes)	117	47	40.2	33	28.2	11	9.4	7	6.0	2	1.7	17	14.5
d. Evaluation for mental health services in CBOCs (all sizes)	117	36	30.8	42	35.9	20	17.1	7	6.0	6	5.1	6	5.1
e. Getting appointments when patients are self-referred for an evaluation in general mental health	117	55	47.0	44	37.6	7	6.0	2	1.7	2	1.7	7	6.0

2. Think about those PTSD patients who experienced *clinically meaningful delays* getting an **evaluation. IN THE PAST 90 DAYS**, which of these delays had the **most negative impact on patients**?

Results not presented. Respondents were only asked this question if they identified more than three delays in Q1 in order to identify their top three delays for Q3.

Reducing Delays in Obtaining a Diagnostic Assessment

3A. **Your solution for delays in getting an:** Evaluation in general mental health within your local health care system. Think of the most effective way to reduce the number of *clinically meaningful delays* at this junction? Now, **in your solution, how important are each of the following elements**?

Table I-29. Post-Traumatic Stress Disorder: Question 3A

Solution	N	Critically important n	Critically important %	Very important N	Very important %	Somewhat important n	Somewhat important %	Unimportant n	Unimportant %	Not applicable n	Not applicable %
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds).	36	13	36.1	12	33.3	7	19.4	3	8.3	1	2.8
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists).	36	20	55.6	10	27.8	6	16.7	0	0.0	0	0.0
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff).	36	11	30.6	14	38.9	8	22.2	3	8.3	0	0.0
d. Acquire and/or improve availability of equipment.	36	3	8.3	5	13.9	10	27.8	10	27.8	8	22.2
e. Implement or increase the availability of telehealth services.	36	3	8.3	9	25.0	15	41.7	7	19.4	2	5.6
f. Improve information technology (e.g., scheduling system, electronic health record).	36	14	38.9	9	25.0	6	16.7	6	16.7	1	2.8
g. Change 'central office policies' that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided).	36	8	22.2	14	38.9	7	19.4	5	13.9	2	5.6
h. Improve personnel supervision, management, or incentives.	36	8	22.2	14	38.9	9	25.0	3	8.3	2	5.6
i. Increase weekend and evening availability of services.	36	3	8.3	4	11.1	15	41.7	12	33.3	2	5.6
j. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community.	36	6	16.7	4	11.1	13	36.1	12	33.3	1	2.8
k. Some other solution(s).	34	6	17.7	9	26.5	1	2.9	1	2.9	17	50.0

This question (question 3) is based on respondents who indicated that patients experienced delays in getting an evaluation (question 1). If 1-3 delays were mentioned in question 1, this question was repeated for each delay mentioned. If 4 or more delays were mentioned in question 1, this question was repeated for the top three delays mentioned in question 2. Respondents were eligible to answer question 3a (N=36, 30.77% of those who answered question 1 and 59.02% of those who reported any delay) if they identified delays in four or more services and indicated that this was one of the three delays that had the most negative impact on patients or if this service was one of the three or fewer services for which a delay was indicated.

3B. **Your solution for delays in getting an:** Evaluation by the PTSD clinical team . Think of the most effective way to reduce the number of *clinically meaningful delays* at this junction? Now, **in your solution, how important are each of the following elements**?

Table I-30. Post-Traumatic Stress Disorder: Question 3B

Solution	N	Critically important		Very important		Somewhat important		Unimportant		Not applicable	
		n	%	n	%	n	%	n	%	n	%
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds).	35	13	37.1	11	31.4	8	22.9	2	5.7	1	2.9
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists).	35	21	60.0	10	28.6	4	11.4	0	0.0	0	0.0
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff).	35	11	31.4	10	28.6	9	25.7	5	14.3	0	0.0
d. Acquire and/or improve availability of equipment.	35	2	5.7	4	11.4	12	34.3	10	28.6	7	20.0
e. Implement or increase the availability of telehealth services.	35	3	8.6	14	40.0	13	37.1	4	11.4	1	2.9
f. Improve information technology (e.g., scheduling system, electronic health record).	35	7	20.0	16	45.7	6	17.1	4	11.4	2	5.7
g. Change 'central office policies' that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided).	35	6	17.1	13	37.1	7	20.0	7	20.0	2	5.7
h. Improve personnel supervision, management, or incentives.	35	6	17.1	9	25.7	16	45.7	3	8.6	1	2.9
i. Increase weekend and evening availability of services.	35	2	5.7	9	25.7	14	40.0	7	20.0	3	8.6
j. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community.	35	3	8.6	6	17.1	16	45.7	9	25.7	1	2.9
k. Some other solution(s).	35	8	22.9	6	17.1	3	8.6	1	2.9	17	48.6

This question (question 3) is based on respondents who indicated that patients experienced delays in getting an evaluation (question 1). If 1-3 delays were mentioned in question 1, this question was repeated for each delay mentioned. If 4 or more delays were mentioned in question 1, this question was repeated for the top three delays mentioned in question 2. Respondents were eligible to answer question 3b (N=35, 29.91% of those who answered question 1 and 68.63% of those who reported any delay) if they identified delays in four or more services and indicated that this was one of the three delays that had the most negative impact on patients or if this service was one of the three or fewer services for which a delay was indicated.

3C. **Your solution for delays in getting an:** Evaluation using telehealth in CBOCs (all sizes). Think of the most effective way to reduce the number of *clinically meaningful delays* at this junction? Now, **in your solution, how important are each of the following elements**?

Table I-31. Post-Traumatic Stress Disorder: Question 3C

Solution	N	Critically important		Very important		Somewhat important		Unimportant		Not applicable	
		n	%	n	%	n	%	n	%	n	%
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds).	29	11	37.9	10	34.5	7	24.1	0	0.0	1	3.5
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists).	29	9	31.0	11	37.9	7	24.1	0	0.0	2	6.9
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff).	29	6	20.7	10	34.5	11	37.9	2	6.9	0	0.0
d. Acquire and/or improve availability of equipment.	29	6	20.7	8	27.6	8	27.6	3	10.3	4	13.8
e. Implement or increase the availability of telehealth services.	29	8	27.6	12	41.4	6	20.7	2	6.9	1	3.5
f. Improve information technology (e.g., scheduling system, electronic health record).	29	10	34.5	11	37.9	5	17.2	2	6.9	1	3.5
g. Change 'central office policies' that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided).	29	4	13.8	7	24.1	5	17.2	8	27.6	5	17.2
h. Improve personnel supervision, management, or incentives.	29	5	17.2	6	20.7	8	27.6	6	20.7	4	13.8
i. Increase weekend and evening availability of services.	29	1	3.5	6	20.7	15	51.7	6	20.7	1	3.5
j. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community.	29	1	3.5	4	13.8	11	37.9	11	37.9	2	6.9
k. Some other solution(s).	28	2	7.1	3	10.7	4	14.3	0	0.0	19	67.9

This question (question 3) is based on respondents who indicated that patients experienced delays in getting an evaluation (question 1). If 1-3 delays were mentioned in question 1, this question was repeated for each delay mentioned. If 4 or more delays were mentioned in question 1, this question was repeated for the top three delays mentioned in question 2. Respondents were eligible to answer question 3c (N=29, 24.79% of those who answered question 1 and 54.72% of those who reported any delay) if they identified delays in four or more services and indicated that this was one of the three delays that had the most negative impact on patients or if this service was one of the three or fewer services for which a delay was indicated.

3D. **Your solution for delays in getting an: e**valuation for mental health services in CBOCs (all sizes). Think of the most effective way to reduce the number of *clinically meaningful delays* at this junction? Now, **in your solution, how important are each of the following elements**?

Table I-32. Post-Traumatic Stress Disorder: Question 3D

Solution	N	Critically important		Very important		Somewhat important		Unimportant		Not applicable	
		n	%	n	%	n	%	n	%	n	%
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds).	61	31	50.8	19	31.2	9	14.8	2	3.3	0	0.0
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists).	61	37	60.7	20	32.8	4	6.6	0	0.0	0	0.0
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff).	61	16	26.2	18	29.5	18	29.5	8	13.1	1	1.6
d. Acquire and/or improve availability of equipment.	61	5	8.2	6	9.8	22	36.1	20	32.8	8	13.1
e. Implement or increase the availability of telehealth services.	61	10	16.4	19	31.2	24	39.3	7	11.5	1	1.6
f. Improve information technology (e.g., scheduling system, electronic health record). .	61	18	29.5	16	26.2	11	18.0	13	21.3	3	4.9
g. Change 'central office policies' that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided).	60	7	11.7	13	21.7	17	28.3	16	26.7	7	11.7
h. Improve personnel supervision, management, or incentives.	61	8	13.1	24	39.3	14	23.0	12	19.7	3	4.9
i. Increase weekend and evening availability of services.	60	1	1.7	12	20.0	30	50.0	15	25.0	2	3.3
j. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community.	61	5	8.2	11	18.0	20	32.8	21	34.4	4	6.6
k. Some other solution(s).	60	6	10.0	10	16.7	3	5.0	4	6.7	37	61.7
This question (question 3) is based on respondents who indicated that patients experienced delays in getting an evaluation (question 1). If 1-3 delays were mentioned in question 1, this question was repeated for each delay mentioned. If 4 or more delays were mentioned in question 1, this question was repeated for the top three delays mentioned in question 2. Respondents were eligible to answer question 3d (N=61, 52.14% of those who answered question 1 and 81.33% of those who reported any delay) if they indicated they identified delays in four or more services and indicated that this was one of the three delays that had the most negative impact on patients or if this service was one of the three or fewer services for which a delay was indicated.												

3E. **Your solution for delays in getting:** appointments when patients are self-referred for an evaluation in general mental health. Think of the most effective way to reduce the number of *clinically meaningful delays* at this junction? Now, **in your solution, how important are each of the following elements**?

Table I-33. Post-Traumatic Stress Disorder: Question 3E

Solution	N	Critically important		Very important		Somewhat important		Unimportant		Not applicable	
		n	%	n	%	n	%	n	%	n	%
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds).	24	7	29.2	6	25.0	7	29.2	4	16.7	0	0.0
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists).	24	13	54.2	6	25.0	4	16.7	1	4.2	0	0.0
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff).	24	6	25.0	6	25.0	9	37.5	2	8.3	1	4.2
d. Acquire and/or improve availability of equipment.	24	0	0.0	2	8.3	7	29.2	10	41.7	5	20.8
e. Implement or increase the availability of telehealth services.	24	1	4.2	8	33.3	7	29.2	7	29.2	1	4.2
f. Improve information technology (e.g., scheduling system, electronic health record).	24	7	29.2	7	29.2	7	29.2	2	8.3	1	4.2
g. Change 'central office policies' that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided	24	3	12.5	7	29.2	6	25.0	7	29.2	1	4.2
h. Improve personnel supervision, management, or incentives.	24	3	12.5	7	29.2	8	33.3	5	20.8	1	4.2
i. Increase weekend and evening availability of services.	24	0	0.0	6	25.0	11	45.8	7	29.2	0	0.0
j. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community.	24	1	4.2	6	25.0	9	37.5	7	29.2	1	4.2
k. Some other solution(s).	24	5	20.8	5	20.8	2	8.3	1	4.2	11	45.8

This question (question 3) is based on respondents who indicated that patients experienced delays in getting an evaluation (question 1). If 1-3 delays were mentioned in question 1, this question was repeated for each delay mentioned. If 4 or more delays were mentioned in question 1, this question was repeated for the top three delays mentioned in question 2. Respondents were eligible to answer question 3e (N=25, 21.37% of those who answered question 1 and 45.45% of those who reported any delay) if they identified delays in four or more services and indicated that this was one of the three delays that had the most negative impact on patients or if this service was one of the three or fewer services for which a delay was indicated.

PTSD Treatment

3. Now please think about patients who have a PTSD diagnosis. IN THE PAST 90 DAYS, how often were there *clinically meaningful delays* scheduling these patients for **PTSD treatment**? Indicate the percent of patients who experienced delays for whom the service was indicated.

Table I-34. Post-Traumatic Stress Disorder: Question 4

Service	N	No Delay		1-10% of patients experience delay		11-25% of patients experience d		26-50% of patients experience delay		51% or more of patients experience delay		Not applicable	
		n	%	n	%	n	%	n	%	n	%	n	%
a. Pharmacotherapy in general mental health	116	47	40.5	43	37.1	13	11.2	5	4.3	4	3.5	4	3.5
b. Pharmacotherapy in CBOCs (all sizes)	116	32	27.6	42	36.2	18	15.5	6	5.2	6	5.2	12	10.3
c. Pharmacotherapy using tele-mental health in CBOCs (all sizes)	116	47	40.5	33	28.5	15	12.9	6	5.2	1	0.9	14	12.1
d. Group or individual psychotherapy in general mental health	114	41	356.0	42	36.8	17	14.9	5	4.4	4	3.5	5	4.4
e. Group or individual psychotherapy in CBOCs (all sizes)	116	27	23.3	40	34.5	25	21.6	12	10.3	5	4.3	7	6.0
f. Group or individual psychotherapy using tele-mental health in CBOCs (all sizes)	116	41	35.3	34	29.3	14	12.1	7	6.0	3	2.6	17	14.7
g. Group or individual psychotherapy with a provider trained in evidence-based psychotherapy for PTSD	116	40	34.5	48	41.4	17	14.7	5	4.3	5	4.3	1	0.9
h. Group or individual psychotherapy with a provider trained in evidence-based psychotherapy for PTSD in CBOCs (all sizes)	116	26	22.4	41	35.3	18	15.5	12	10.3	11	9.5	8	6.9
i. Group or individual psychotherapy provided by tele-mental health with a provider trained in evidence-based psychotherapy for PTSD in CBOCs (all sizes)	116	40	34.5	36	31.0	14	12.1	6	5.2	4	3.5	16	13.8
j. A PTSD specialty bed in MH Residential Rehabilitative Treatment Programs (MH-RRTP)	116	22	19.0	25	21.6	7	6.0	6	5.2	12	10.3	44	37.9
k. Intake with the Substance Use Disorder/PTSD treatment program	116	62	53.5	27	23.3	8	6.9	3	2.6	4	3.5	12	10.3

5. Think about those PTSD patients who experienced *clinically meaningful delays* in obtaining **treatment. IN THE PAST 90 DAYS**, which of these delays had the **most negative impact on patients**?

Results not presented. Respondents were only asked this question if they identified more than three delays in Q4 in order to identify their top three delays for Q6.

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Reducing Delays in Obtaining PTSD Treatment

6A. **Your solution for delays in:** Pharmacotherapy in general mental health. Think of the most effective way to reduce treatment delays for PTSD patients. Now, **in your solution, how important are each of the following elements**?

Table I-35. Post-Traumatic Stress Disorder: Question 6A

Solution	N	Critically important		Very important		Somewhat important		Unimportant		Not applicable	
		n	%	n	%	n	%	n	%	n	%
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds).	37	8	21.6	9	24.3	11	29.7	7	18.9	2	5.4
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists).	37	22	59.6	12	32.4	3	8.1	0	0.0	0	0.0
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff). below.	37	9	24.3	14	37.8	10	27.0	3	8.1	1	2.7
d. Acquire and/or improve availability of equipment.	37	2	5.4	5	13.5	12	32.4	9	24.3	9	24.3
e. Implement or increase the availability of telehealth services.	37	3	8.1	10	27.0	14	37.8	8	21.6	2	5.4
f. Improve information technology (e.g., scheduling system, electronic health record).	37	9	24.3	10	27.0	5	13.5	10	27.0	3	8.1
g. Change 'central office policies' that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided).	37	4	10.8	11	29.7	11	29.7	8	21.6	3	8.1
h. Improve personnel supervision, management, or incentives.	37	6	16.2	14	37.8	12	32.4	4	10.8	1	2.7
i. Increase weekend and evening availability of services.	37	2	5.4	5	13.5	21	56.8	7	18.9	2	5.4
j. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community.	37	2	5.4	6	16.2	13	35.1	13	35.1	3	8.1
k. Some other solution(s).	36	3	8.3	3	8.3	5	13.9	3	8.3	22	61.1

This question (question 6) is based on respondents who indicated that patients experienced delays in obtaining PTSD treatment (question 4). If 1-3 delays were mentioned in question 4, this question was repeated for each delay mentioned. If 4 or more delays were mentioned in question 4, this question was repeated for the top three delays mentioned in question 5. Respondents were eligible to answer question 6a (N=37, 31.9% of those who answered question 4 and 56.92% of those who reported any delay) if they identified delays in four or more services and indicated that this was one of the three delays that had the most negative impact on patients or if this service was one of the three or fewer services for which a delay was indicated.

6B. **Your solution for delays in:** Pharmacotherapy in CBOCs (all sizes). Think of the most effective way to reduce treatment delays for PTSD patients. Now, **in your solution, how important are each of the following elements**?

Table I-36. Post-Traumatic Stress Disorder: Question 6B

Solution	N	Critically important		Very important		Somewhat important		Unimportant		Not applicable	
		n	%	n	%	n	%	n	%	n	%
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds).	37	15	40.5	10	27.0	7	18.9	3	8.1	2	5.4
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists).	37	24	64.9	11	29.7	1	2.7	1	2.7	0	0.0
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff).	37	10	27.0	14	37.8	9	24.3	3	8.1	1	2.7
d. Acquire and/or improve availability of equipment.	37	3	8.1	7	18.9	10	27.0	14	37.8	3	8.1
e. Implement or increase the availability of telehealth services.	37	4	10.8	10	27.0	18	48.7	5	13.5	0	0.0
f. Improve information technology (e.g., scheduling system, electronic health record).	37	10	27.0	9	24.3	7	18.9	9	24.3	2	5.4
g. Change 'central office policies' that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided).	37	4	10.8	9	24.3	7	18.9	12	32.4	5	13.5
h. Improve personnel supervision, management, or incentives.	37	5	13.5	12	32.4	11	29.7	7	18.9	2	5.4
i. Increase weekend and evening availability of services.	37	2	5.4	5	13.5	18	48.7	10	27.0	2	5.4
j. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community.	36	6	16.7	5	13.9	9	25.0	13	36.1	3	8.3
k. Some other solution(s).	36	3	8.3	1	2.8	2	5.6	3	8.3	27	75.0
This question (question 6) is based on respondents who indicated that patients experienced delays in obtaining PTSD treatment (question 4). If 1-3 delays were mentioned in question 4, this question was repeated for each delay mentioned. If 4 or more delays were mentioned in question 4, this question was repeated for the top three delays mentioned in question 5. Respondents were eligible to answer question 6b (N=37, 31.9% of those who answered question 4 and 51.39% of those who reported any delay) if they identified delays in four or more services and indicated that this was one of the three delays that had the most negative impact on patients or if this service was one of the three or fewer services for which a delay was indicated.											

6C. **Your solution for delays in:** Pharmacotherapy using tele-mental health in CBOCs (all sizes). Think of the most effective way to reduce treatment delays for PTSD patients. Now, **in your solution, how important are each of the following elements**?

Table I-37. Post-Traumatic Stress Disorder: Question 6C

Solution	N	Critically important		Very important		Somewhat important		Unimportant		Not applicable	
		n	%	n	%	n	%	n	%	n	%
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds).	11	2	18.2	2	18.2	6	54.6	1	9.1	0	0.0
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists).	11	8	72.7	1	9.1	2	18.2	0	0.0	0	0.0
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff).	11	2	18.2	5	45.5	4	36.4	0	0.0	0	0.0
d. Acquire and/or improve availability of equipment.	11	1	9.1	3	27.3	4	36.4	3	27.3	0	0.0
e. Implement or increase the availability of telehealth services.	11	4	36.4	4	36.4	3	27.3	0	0.0	0	0.0
f. Improve information technology (e.g., scheduling system, electronic health record).	11	3	27.3	4	36.4	3	27.3	1	9.1	0	0.0
g. Change 'central office policies' that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided).	11	0	0.0	4	36.4	3	27.3	3	27.3	1	9.1
h. Improve personnel supervision, management, or incentives.	11	0	0.0	3	27.3	6	54.6	2	18.2	0	0.0
i. Increase weekend and evening availability of services.	11	0	0.0	0	0.0	6	54.6	4	36.4	1	9.1
j. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community.	11	0	0.0	2	18.2	3	27.3	5	45.5	1	9.1
k. Some other solution(s).	11	0	0.0	0	0.0	0	0.0	2	18.2	9	81.8

This question (question 6) is based on respondents who indicated that patients experienced delays in obtaining PTSD treatment (question 4). If 1-3 delays were mentioned in question 4, this question was repeated for each delay mentioned. If 4 or more delays were mentioned in question 4, this question was repeated for the top three delays mentioned in question 5. Respondents were eligible to answer question 6c (N=11, 9.48% of those who answered question 4 and 20% of those who reported any delay) if they identified delays in four or more services and indicated that this was one of the three delays that had the most negative impact on patients or if this service was one of the three or fewer services for which a delay was indicated.

6D. **Your solution for delays in:** Group or individual psychotherapy in general mental health. Think of the most effective way to reduce treatment delays for PTSD patients. Now, **in your solution, how important are each of the following elements**?

Table I-38. Post-Traumatic Stress Disorder: Question 6D

Solution	N	Critically important		Very important		Somewhat important		Unimportant		Not applicable	
		n	%	n	%	n	%	n	%	n	%
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds).	35	13	37.1	11	31.4	4	11.4	5	14.3	2	5.7
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists).	35	20	57.1	9	25.7	6	17.1	0	0.0	0	0.0
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff).	35	8	22.9	11	31.4	11	31.4	4	11.4	1	2.9
d. Acquire and/or improve availability of equipment.	35	1	2.9	4	11.4	9	25.7	9	25.7	12	34.3
e. Implement or increase the availability of telehealth services.	35	2	5.7	6	17.1	14	40.0	7	20.0	6	17.1
f. Improve information technology (e.g., scheduling system, electronic health record).	34	8	23.5	9	26.5	8	23.5	7	20.6	2	5.9
g. Change 'central office policies' that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided).	35	7	20.0	4	11.4	13	37.1	6	17.1	5	14.3
h. Improve personnel supervision, management, or incentives.	35	5	14.3	12	34.3	10	28.6	3	8.6	5	14.3
i. Increase weekend and evening availability of services.	35	0	0.0	4	11.4	15	42.9	15	42.9	1	2.9
j. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community.	35	1	2.9	6	17.1	11	31.4	12	34.3	5	14.3
k. Some other solution(s).	35	9	25.7	5	14.3	2	5.7	1	2.9	18	51.4

This question (question 6) is based on respondents who indicated that patients experienced delays in obtaining PTSD treatment (question 4). If 1-3 delays were mentioned in question 4, this question was repeated for each delay mentioned. If 4 or more delays were mentioned in question 4, this question was repeated for the top three delays mentioned in question 5. Respondents were eligible to answer question 6d (N=35, 30.7% of those who answered question 4 and 51.47% of those who reported any delay) if they identified delays in four or more services and indicated that this was one of the three delays that had the most negative impact on patients or if this service was one of the three or fewer services for which a delay was indicated.

6E. **Your solution for delays in:** Group or individual psychotherapy in CBOCs (all sizes). Think of the most effective way to reduce treatment delays for PTSD patients. Now, **in your solution, how important are each of the following elements**?

Table I-39. Post-Traumatic Stress Disorder: Question 6E

Solution	N	Critically important		Very important		Somewhat important		Unimportant		Not applicable	
		n	%	n	%	n	%	n	%	n	%
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds).	42	20	47.6	13	31.0	6	14.3	3	7.1	0	0.0
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists).	42	24	57.1	11	26.2	5	11.9	2	4.8	0	0.0
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff).	42	8	19.1	11	26.2	13	31.0	9	21.4	1	2.4
d. Acquire and/or improve availability of equipment.	42	0	0.0	6	14.3	11	26.2	16	38.1	9	21.4
e. Implement or increase the availability of telehealth services.	42	2	4.8	13	31.0	17	40.5	5	11.9	5	11.9
f. Improve information technology (e.g., scheduling system, electronic health record).	42	9	21.4	12	28.6	7	16.7	11	26.2	3	7.1
g. Change 'central office policies' that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided).	42	5	11.9	11	26.2	11	26.2	11	26.2	4	9.5
h. Improve personnel supervision, management, or incentives. .	42	6	14.3	13	31.0	16	38.1	5	11.9	2	4.8
i. Increase weekend and evening availability of services.	42	0	0.0	7	16.7	19	45.2	16	38.1	0	0.0
j. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community.	42	2	4.8	4	9.5	14	33.3	19	45.2	3	7.1
k. Some other solution(s).	42	4	9.5	6	14.3	2	4.8	6	14.3	24	57.1
This question (question 6) is based on respondents who indicated that patients experienced delays in obtaining PTSD treatment (question 4). If 1-3 delays were mentioned in question 4, this question was repeated for each delay mentioned. If 4 or more delays were mentioned in question 4, this question was repeated for the top three delays mentioned in question 5. Respondents were eligible to answer question 6e (N=42, 36.21% of those who answered question 4 and 51.22% of those who reported any delay) if they identified delays in four or more services and indicated that this was one of the three delays that had the most negative impact on patients or if this service was one of the three or fewer services for which a delay was indicated.											

6F. **Your solution for delays in:** Group or individual psychotherapy using tele-mental health in CBOCs (all sizes). Think of the most effective way to reduce treatment delays for PTSD patients. Now, **in your solution, how important are each of the following elements**?

Responses to this question are not presented due to small number of respondents who identified delays in accessing group or individual psychotherapy using tele-mental health in CBOCs (N = 9).

6G. **Your solution for delays in:** Group or individual psychotherapy with a provider trained in evidence-based psychotherapy for PTSD. Think of the most effective way to reduce treatment delays for PTSD patients. Now, **in your solution, how important are each of the following elements**?

Table I-40. Post-Traumatic Stress Disorder: Question 6G

Solution	N	Critically important		Very important		Somewhat important		Unimportant		Not applicable	
		n	%	n	%	n	%	n	%	n	%
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds).	25	10	40.0	9	36.0	2	8.0	3	12.0	1	4.0
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists).	25	18	72.0	6	24.0	0	0.0	0	0.0	1	4.0
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff).	25	4	16.0	8	32.0	10	40.0	1	4.0	2	8.0
d. Acquire and/or improve availability of equipment.	25	1	4.0	5	20.0	4	16.0	8	32.0	7	28.0
e. Implement or increase the availability of telehealth services.	25	2	8.0	5	20.0	13	52.0	3	12.0	2	8.0
f. Improve information technology (e.g., scheduling system, electronic health record).	25	6	24.0	5	20.0	8	32.0	3	12.0	3	12.0
g. Change 'central office policies' that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided).	25	6	24.0	5	20.0	9	36.0	3	12.0	2	8.0
h. Improve personnel supervision, management, or incentives. .	25	3	12.0	6	24.0	9	36.0	3	12.0	4	16.0
i. Increase weekend and evening availability of services.	25	0	0.0	4	16.0	12	48.0	7	28.0	2	8.0
j. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community.	25	1	4.0	2	8.0	11	44.0	5	20.0	6	24.0
k. Some other solution(s).	25	8	32.0	1	4.0	1	4.0	1	4.0	14	56.0

This question (question 6) is based on respondents who indicated that patients experienced delays in obtaining PTSD treatment (question 4). If 1-3 delays were mentioned in question 4, this question was repeated for each delay mentioned. If 4 or more delays were mentioned in question 4, this question was repeated for the top three delays mentioned in question 5. Respondents were eligible to answer question 6g (N=25, 21.55% of those who answered question 4 and 33.33% of those who reported any delay) if they identified delays in four or more services and indicated that this was one of the three delays that had the most negative impact on patients or if this service was one of the three or fewer services for which a delay was indicated.

6H. **Your solution for delays in:** Group or individual psychotherapy with a provider trained in evidence-based psychotherapy for PTSD in CBOCs (all sizes). Think of the most effective way to reduce treatment delays for PTSD patients. Now, **in your solution, how important are each of the following elements**?

Table I-41. Post-Traumatic Stress Disorder: Question 6H

Solution	N	Critically important		Very important		Somewhat important		Unimportant		Not applicable	
		n	%	n	%	n	%	n	%	n	%
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds).	31	18	58.1	5	16.1	5	16.1	1	3.2	2	6.5
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists).	31	25	80.7	4	12.9	2	6.5	0	0.0	0	0.0
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff).	31	6	19.4	5	16.1	13	41.9	6	19.4	1	3.2
d. Acquire and/or improve availability of equipment.	31	2	6.5	7	22.6	5	16.1	11	35.5	6	19.4
e. Implement or increase the availability of telehealth services.	31	3	9.7	8	25.8	15	48.4	3	9.7	2	6.5
f. Improve information technology (e.g., scheduling system, electronic health record).	31	7	22.6	9	29.0	5	16.1	9	29.0	1	3.2
g. Change 'central office policies' that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided).	31	4	12.9	7	22.6	8	25.8	8	25.8	4	12.9
h. Improve personnel supervision, management, or incentives.	31	5	16.1	6	19.4	11	35.5	7	22.6	2	6.5
i. Increase weekend and evening availability of services.	31	1	3.2	9	29.0	14	45.2	7	22.6	0	0.0
j. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community.	31	3	9.7	3	9.7	10	32.3	12	38.7	3	9.7
k. Some other solution(s).	31	3	9.7	3	9.7	2	6.5	0	0.0	23	74.2
This question (question 6) is based on respondents who indicated that patients experienced delays in obtaining PTSD treatment (question 4). If 1-3 delays were mentioned in question 4, this question was repeated for each delay mentioned. If 4 or more delays were mentioned in question 4, this question was repeated for the top three delays mentioned in question 5. Respondents were eligible to answer question 6h (N=31, 26.72% of those who answered question 4 and 37.8% of those who reported any delay) if they identified delays in four or more services and indicated that this was one of the three delays that had the most negative impact on patients or if this service was one of the three or fewer services for which a delay was indicated.											

6I. **Your solution for delays in:** Group or individual psychotherapy provided by tele-mental health with a provider trained in evidence-based psychotherapy for PTSD in CBOCs (all sizes). Think of the most effective way to reduce treatment delays for PTSD patients. Now, **in your solution, how important are each of the following elements**?

Table I-42. Post-Traumatic Stress Disorder: Question 6I

Solution	N	Critically important		Very important		Somewhat important		Unimportant		Not applicable	
		n	%	n	%	n	%	n	%	n	%
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds).	11	3	27.3	3	27.3	3	27.3	2	18.2	0	0.0
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists).	11	5	45.5	3	27.3	2	18.2	1	9.1	0	0.0
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff).	11	1	9.1	2	18.2	4	36.4	4	36.4	0	0.0
d. Acquire and/or improve availability of equipment.	11	2	18.2	4	36.4	2	18.2	3	27.3	0	0.0
e. Implement or increase the availability of telehealth services.	11	2	18.2	6	54.6	2	18.2	0	0.0	1	9.1
f. Improve information technology (e.g., scheduling system, electronic health record).	11	1	9.1	4	36.4	4	36.4	2	18.2	0	0.0
g. Change 'central office policies' that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided).	11	2	18.2	3	27.3	2	18.2	3	27.3	1	9.1
h. Improve personnel supervision, management, or incentives.	11	1	9.1	2	18.2	3	27.3	4	36.4	1	9.1
i. Increase weekend and evening availability of services.	11	0	0.0	2	18.2	4	36.4	5	45.5	0	0.0
j. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community.	11	0	0.0	1	9.1	6	54.6	4	36.4	0	0.0
k. Some other solution(s).	11	2	18.2	2	18.2	0	0.0	0	0.0	7	63.6

This question (question 6) is based on respondents who indicated that patients experienced delays in obtaining PTSD treatment (question 4). If 1-3 delays were mentioned in question 4, this question was repeated for each delay mentioned. If 4 or more delays were mentioned in question 4, this question was repeated for the top three delays mentioned in question 5. Respondents were eligible to answer question 6i (N=11, 9.48% of those who answered question 4 and 18.33% of those who reported any delay) if they identified delays in four or more services and indicated that this was one of the three delays that had the most negative impact on patients or if this service was one of the three or fewer services for which a delay was indicated.

6J. **Your solution for delays in:** A PTSD specialty bed in MH Residential Rehabilitative Treatment Programs (MH-RRTP). Think of the most effective way to reduce treatment delays for PTSD patients. Now, **in your solution, how important are each of the following elements**?

Table I-43. Post-Traumatic Stress Disorder: Question 6J

Solution	N	Critically important		Very important		Somewhat important		Unimportant		Not applicable	
		n	%	n	%	n	%	n	%	n	%
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds).	17	8	47.1	6	35.3	1	5.9	1	5.9	1	5.9
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists).	17	3	17.7	8	47.1	3	17.7	2	11.8	1	5.9
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff).	17	2	11.8	8	47.1	4	23.5	2	11.8	1	5.9
d. Acquire and/or improve availability of equipment.	17	0	0.0	0	0.0	4	23.5	5	29.4	8	47.1
e. Implement or increase the availability of telehealth services.	17	0	0.0	2	11.8	3	17.7	4	23.5	8	47.1
f. Improve information technology (e.g., scheduling system, electronic health record).	17	1	5.9	2	11.8	4	23.5	4	23.5	6	35.3
g. Change 'central office policies' that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided).	17	1	5.9	2	11.8	3	17.7	5	29.4	6	35.3
h. Improve personnel supervision, management, or incentives.	17	0	0.0	4	23.5	6	35.3	3	17.7	4	23.5
i. Increase weekend and evening availability of services.	17	0	0.0	3	17.7	3	17.7	5	29.4	6	35.3
j. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community.	17	0	0.0	4	23.5	3	17.7	3	17.7	7	41.2
k. Some other solution(s).	17	5	29.4	2	11.8	1	5.9	0	0.0	9	52.9

This question (question 6) is based on respondents who indicated that patients experienced delays (n= in getting an evaluation (question 4). If 1-3 delays were mentioned in question 4, this question was repeated for each delay mentioned. If 4 or more delays were mentioned in question 4, this question was repeated for the top three delays mentioned in question 5. Respondents were eligible to answer question 6j (N=17, 14.66% of those who answered question 4 and 34% of those who reported any delay) if they identified delays in four or more services and indicated that this was one of the three delays that had the most negative impact on patients or if this service was one of the three or fewer services for which a delay was indicated.

6K. **Your solution for delays in:** Intake with the Substance Use Disorder/PTSD treatment program. Think of the most effective way to reduce treatment delays for PTSD patients. Now, **in your solution, how important are each of the following elements**?

Responses to this question are not presented due to small number of respondents who identified delays in intake with substance use disorder/PTSD treatment program (N = 8).

Issues that Affect Provider and System Efficiency

7. IN THE PAST YEAR, how much did the following issues negatively impact provider and system efficiency in the provision of care for PTSD patients?

Table I-44. Post-Traumatic Stress Disorder: Question 7

	N	None		A little		A fair amount		A lot		Not Applicable	
		n	%	n	%	n	%	n	%	n	%
a. Providers performing clinical activities that could be performed by individuals with less training	115	20	17.4	39	33.9	27	23.5	25	21.7	4	3.5
b. Providers performing administrative activities that could be performed by others	115	7	6.1	25	21.7	37	32.2	46	40.0	0	0.0
c. Residency training/teaching requirements	115	51	44.3	36	31.3	11	9.6	6	5.2	11	9.6
d. Insufficient clinical/administrative support staff	115	9	7.8	23	20.0	33	28.7	50	43.5	0	0.0
e. Inadequate scheduling system and policies (e.g., hard to cancel or reschedule, coordinate)	115	13	11.3	17	14.8	27	23.5	58	50.4	0	0.0
f. Unnecessary documentation requirements or inefficient CPRS interface	115	9	7.8	33	28.7	40	34.8	31	27.0	2	1.7
g. Patient no-show rates	115	3	2.6	48	41.7	47	40.9	17	14.8	0	0.0
h. Poor patient flow management (room/bed turnover, appointments)	115	29	25.2	44	38.3	27	23.5	8	7.0	7	6.1
i. Too many administrative requirements (Initiatives/Policies/Programs)	115	9	7.8	29	25.2	32	27.8	40	34.8	5	4.3

Workforce

8A. IN THE PAST YEAR, did your local health care system have problems **RECRUITING OR HIRING** the following personnel categories?

Table I-45. Post-Traumatic Stress Disorder: Question 8A

Staff Positions	N	Yes		No		Not Applicable	
		n	%	n	%	n	%
a. Psychiatrists	115	95	82.6	18	15.7	2	1.7
b. Psychiatric Nurse Practitioners	115	69	60.0	27	23.5	19	16.5
c. Psychiatric Physician Assistants	115	27	23.5	23	20.0	65	56.5
d. Pharm D psychopharmacologists	115	17	14.8	44	38.3	54	47.0
e. Mental Health Social Workers	115	35	30.4	79	68.7	1	0.9
f. Psychologists	115	68	59.1	46	40.0	1	0.9
g. Marriage/Family Counselors	115	19	16.5	25	21.7	71	61.7
h. Advanced Practice Nurses specializing in mental health	114	60	52.6	27	23.7	27	23.7

Reasons for Staff Recruitment/Hiring Problems

9. Please enter **top two reasons** why there were problems **RECRUITING AND HIRING** these personnel types in the past year.

Table I-46. Post-Traumatic Stress Disorder: Question 9

Staff Positions	N	Senior management does not agree to post new position		Non-competitive wages		Work schedule (e.g., call requirements)		Benefits (e.g., health insurance, leave, continuing education, travel)		Equipment/resources/office space		Facility condition		Case types/complexity		VA reputation		No academic affiliation/lack of protected time for early career investigator		Geographic location of facility		HR process (e.g., time to advertise; length of time from job offer to start date)		Lack of qualified applicants	
	N	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
a. Psychiatrists	95	4	4.2	57	60.0	11	11.6	3	3.2	2	2.1	0	0.0	4	4.2	7	7.4	2	2.1	35	36.8	32	33.7	30	31.6
b. Psychiatric Nurse Practitioners	69	6	8.7	39	56.5	4	5.8	1	1.4	2	2.9	0	0.0	1	1.4	2	2.9	0	0.0	22	31.9	32	46.4	27	39.1
c. Psychiatric Physician Assistants	27	3	11.1	14	51.9	2	7.4	0	0.0	0	0.0	0	0.0	0	0.0	1	3.7	0	0.0	9	33.3	11	40.7	13	48.1
d. Pharm D psychopharmacologists	17	3	17.6	5	29.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	5.9	8	47.1	7	41.2	9	52.9
e. Mental Health Social Workers	35	8	22.9	11	31.4	3	8.6	1	2.9	2	5.7	0	0.0	0	0.0	2	5.7	1	2.9	9	25.7	22	62.9	9	25.7
f. Psychologists	68	12	17.6	22	32.4	3	4.4	3	4.4	6	8.8	2	2.9	0	0.0	4	5.9	3	4.4	23	33.8	35	51.5	21	30.9
g. Marriage/Family Counselors	19	6	31.6	3	15.8	0	0.0	0	0.0	1	5.3	1	5.3	1	5.3	0	0.0	0	0.0	4	21.1	12	63.2	9	47.4
h. Advanced Practice Nurses specializing in mental health	60	8	13.3	26	43.3	4	6.7	3	5.0	2	3.3	0	0.0	1	1.7	1	1.7	0	0.0	19	31.7	31	51.7	23	38.3

N refers to the proportion of respondents who listed each "reason" as one of the two most important affecting recruitment and hiring.

This question (question 9) is based on respondents who indicated that their local health care system had problems recruiting or hiring certain personnel categories (question 8A). Question 9 was asked for each personnel type marked "yes" in question 8A.

Reasons for Staff Retention Problems

8B. IN THE PAST YEAR, did your local health care system have problems **RETAINING** the following personnel categories?

Table I-47. Post-Traumatic Stress Disorder: Question 8B

Staff Positions	N	Yes		No		Not Applicable	
		n	%	n	%	n	%
a. Psychiatrists	115	63	54.8	50	43.5	2	1.7
b. Psychiatric Nurse Practitioners	115	26	22.6	67	58.3	22	19.1
c. Psychiatric Physician Assistants	115	9	7.8	44	38.3	62	53.9
d. Pharm D psychopharmacologists	115	7	6.1	55	47.8	53	46.1
e. Mental Health Social Workers	115	36	31.3	78	67.8	1	0.9
f. Psychologists	115	47	40.9	66	57.4	2	1.7
g. Marriage/Family Counselors	115	5	4.3	35	30.4	75	65.2
h. Advanced Practice Nurses specializing in mental health	114	22	19.3	56	49.1	36	31.6

10. Please enter **top two reasons** why there were problems **RETAINING** these personnel types in the past year.

Table I-48. Post-Traumatic Stress Disorder: Question 10

Staff Positions	N	Lack of opportunity for professional growth/promotion n	%	Dissatisfaction with supervision/management support n	%	Dissatisfaction with support staff n	%	Dissatisfaction with physical demands of the job n	%	Dissatisfaction with workload n	%	Lack of incentives or "management levers" to encourage productivity (i.e., no accountability) n	%	Organizational culture that does not prioritize/ encourage productivity n	%	Administrative/ Program Demands n	%	Lack of professional autonomy n	%	Dissatisfaction with pay n	%	Work schedule n	%	Inadequate equipment/ resources/office space n	%	Burnout n	%
a. Psychiatrists	63	3	4.8	9	14.3	6	9.5	1	1.6	27	42.9	1	1.6	2	3.2	15	23.8	7	11.1	24	38.1	8	12.7	1	1.6	21	33.3
b. Psychiatric Nurse Practitioners	26	5	19.2	4	15.4	0	0.0	1	3.8	7	26.9	0	0.0	0	0.0	4	15.4	2	7.7	13	50.0	3	11.5	2	7.7	6	23.1
c. Psychiatric Physician Assistants	9	0	0.0	2	22.2	0	0.0	0	0.0	2	22.2	0	0.0	0	0.0	3	33.3	0	0.0	5	55.6	1	11.1	0	0.0	2	22.2
d. Pharm D psychopharmacologists	7	1	14.3	3	42.9	0	0.0	0	0.0	1	14.3	1	14.3	0	0.0	2	28.6	0	0.0	1	14.3	1	14.3	0	0.0	3	42.9
e. Mental Health Social Workers	36	16	44.4	5	13.9	2	5.6	1	2.8	8	22.2	3	8.3	0	0.0	9	25.0	2	5.6	11	30.6	3	8.3	1	2.8	10	27.8
f. Psychologists	47	18	38.3	4	8.5	0	0.0	1	2.1	12	25.5	2	4.3	1	2.1	13	27.7	2	4.3	15	31.9	3	6.4	2	4.3	19	40.4
g. Marriage/Family Counselors	5	0	0.0	1	20.0	0	0.0	0	0.0	0	0.0	1	20.0	0	0.0	1	20.0	0	0.0	0	0.0	1	20.0	1	20.0	1	20.0
h. Advanced Practice Nurses specializing in mental health	22	8	36.4	3	13.6	0	0.0	1	4.5	4	18.2	1	4.5	0	0.0	2	9.1	0	0.0	12	54.5	2	9.1	2	9.1	4	18.2

N refers to the proportion of respondents who listed each "reason" as one of the two most important affecting retention
This question (question 10) is based on respondents who indicated that their local health care system had problems retaining certain personnel categories (question 8B). Question 10 was asked for each personnel type marked "yes" in question 8B.

Appendix I.1.3 SUD

Section 3: Substance Use Disorders (SUD)

Comprehensive Evaluation for SUD

1. Please think about patients who are in need of an **initial evaluation** for a SUD. **IN THE PAST 90 DAYS**, how often were there *clinically meaningful delays* in getting these patients an **initial evaluation** leading up to either a diagnosis or initial treatment plan? Indicate the percent of SUD patients that experienced delays for whom the service was indicated.

Table I-49. Substance Use Disorders: Question 1

Service	N	No Delay		1-10% of patients experience delay		11-25% of patients experience delay		26-50% of patients experience delay		51% or more of patients experience delay		Not applicable	
		n	%	n	%	n	%	n	%	n	%	n	%
a. Referral to general mental health	112	65	58.	33	29.5	6	5.4	1	0.9	0	0.0	7	6.3
b. Referral to SUD specialty care	112	76	67.9	24	21.4	8	7.1	1	0.9	0	0.0	3	2.7
c. Referral to tele-mental health	108	42	38.9	22	20.4	6	5.6	0	0.0	2	1.9	36	33.3
d. Referral to SUD services located in CBOCs (all sizes)	111	47	42.3	29	26.1	10	9.0	3	2.7	2	1.8	20	18.0
e. Referral to methadone clinic	112	28	25.0	12	10.7	5	4.5	1	0.9	4	3.6	62	55.4
f. Patients who are self-referred for a SUD evaluation in general mental health	112	73	65.2	23	20.5	3	2.7	1	0.9	1	0.9	11	9.8
g. Referral to SUD services from the Administrative Parent to fee-basis or contracted care	112	23	20.5	11	9.8	6	5.4	2	1.8	6	5.4	64	57.1
h. Referral to residential treatment at another Administrative Parent	112	19	17.0	29	25.9	11	9.8	7	6.3	20	17.9	26	23.2

2. Think about those SUD patients who experienced *clinically meaningful delays* in getting an **initial evaluation. I**n the **PAST 90 DAYS**, which of these delays had the **most negative impact** on patients?

Results not presented. Respondents were only asked this question if they identified more than three delays in Q1 in order to identify their top three delays for Q3.

Reducing Delays in Initial Evaluation for SUD

3A. **Your solution for delays in:** Referral to general mental health. Think of the most effective way to reduce the number of *clinically meaningful delays* at this junction. Now, **in your solution, how important are each of the following elements in your solution**?

Table I-50. Substance Use Disorders: Question 3A

Solution	N	Critically important		Very important		Somewhat important		Unimportant		Not applicable	
		n	%	n	%	n	%	n	%	n	%
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds).	20	6	30.0	7	35.0	5	25.0	1	5.0	1	5.0
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists).	20	9	45.0	8	40.0	3	15.0	0	0.0	0	0.0
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff).	20	4	20.0	6	30.0	7	35.0	2	10.0	1	5.0
d. Acquire and/or improve availability of equipment.	20	0	0.0	3	15.0	3	15.0	9	45.0	5	25.0
e. Implement or increase the availability of telehealth services.	20	0	0.0	4	20.0	11	55.0	4	20.0	1	5.0
f. Improve information technology (e.g., scheduling system, electronic health record).	20	6	30.0	6	30.0	1	5.0	7	35.0	0	0.0
g. Change 'central office policies' that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided).	20	5	25.0	3	15.0	5	25.0	7	35.0	0	0.0
h. Improve personnel supervision, management, or incentives.	20	4	20.0	7	35.0	7	35.0	2	10.0	0	0.0
i. Increase weekend and evening availability of services.	20	1	5.0	2	10.0	7	35.0	10	50.0	0	0.0
j. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community.	20	1	5.0	5	25.0	2	10.0	8	40.0	4	20
k. Some other solution(s).	19	4	21.1	0	0.0	2	10.5	1	5.3	12	63.2

This question (question 3) is based on respondents who indicated that patients experienced delays in getting an evaluation (question 1). If 1-3 delays were mentioned in question 1, this question was repeated for each delay mentioned. If 4 or more delays were mentioned in question 1, this question was repeated for the top three delays mentioned in question 2. Respondents were eligible to answer question 3a (N=20, 17.86% of those who answered question 1 and 50% of those who reported any delay) if they identified delays in four or more services and indicated that this was one of the three delays that had the most negative impact on patients or if this service was one of the three or fewer services for which a delay was indicated.

3B. **Your solution for delays in:** Referral to SUD specialty care. Think of the most effective way to reduce the number of *clinically meaningful delays* at this junction. Now, **in your solution, how important are each of the following elements in your solution**?

Table I-51. Substance Use Disorders: Question 3B

Solution	N	Critically important		Very important		Somewhat important		Unimportant		Not applicable	
		n	%	n	%	n	%	n	%	n	%
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds).	22	10	45.5	6	27.3	3	13.6	2	9.1	1	4.6
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists).	22	16	72.7	5	22.7	1	4.6	0	0.0	0	0.0
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff).	21	5	23.8	10	47.6	6	28.6	0	0.0	0	0.0
d. Acquire and/or improve availability of equipment.	21	1	4.8	4	19.1	3	14.3	10	47.6	3	14.3
e. Implement or increase the availability of telehealth services.	22	2	9.1	8	36.4	11	50.0	1	4.6	0	0.0
f. Improve information technology (e.g., scheduling system, electronic health record).	22	7	31.8	2	9.1	3	13.6	8	36.4	2	9.1
g. Change 'central office policies' that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided).	22	3	13.6	3	13.6	5	22.7	7	31.8	4	18.2
h. Improve personnel supervision, management, or incentives.	22	4	18.2	9	40.9	4	18.2	4	18.2	1	4.6
i. Increase weekend and evening availability of services.	22	1	4.6	4	18.2	8	36.4	9	40.9	0	0.0
j. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community.	22	3	13.6	5	22.7	5	22.7	6	27.3	3	13.6
k. Some other solution(s).	22	4	18.2	0	0.0	1	4.6	1	4.6	16	72.7

This question (question 3) is based on respondents who indicated that patients experienced delays in getting an evaluation (question 1). If 1-3 delays were mentioned in question 1, this question was repeated for each delay mentioned. If 4 or more delays were mentioned in question 1, this question was repeated for the top three delays mentioned in question 2. Respondents were eligible to answer question 3b (N=22, 19.64% of those who answered question 1 and 66.67% of those who reported any delay) if they identified delays in four or more services and indicated that this was one of the three delays that had the most negative impact on patients or if this service was one of the three or fewer services for which a delay was indicated.

3C. **Your solution for delays in:** Referral to tele-mental health. Think of the most effective way to reduce the number of *clinically meaningful delays* at this junction. Now, **in your solution, how important are each of the following elements in your solution**?

Table I-52. Substance Use Disorders: Question 3C

Solution	N	Critically important		Very important		Somewhat important		Unimportant		Not applicable	
		n	%	n	%	n	%	n	%	n	%
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds).	16	5	31.3	7	43.8	1	6.25	2	12.5	1	6.3
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists).	16	4	25.0	7	43.8	4	25.0	0	0.0	1	6.3
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff).	16	2	12.5	4	25.0	8	50.0	2	12.5	0	0.0
d. Acquire and/or improve availability of equipment.	16	2	12.5	2	12.5	5	31.3	5	31.3	2	12.5
e. Implement or increase the availability of telehealth services.	16	2	12.5	3	18.8	6	37.5	5	31.3	0	0.0
f. Improve information technology (e.g., scheduling system, electronic health record). .	16	3	18.8	1	6.3	5	31.3	5	31.3	2	12.5
g. Change 'central office policies' that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided).	16	2	12.5	1	6.3	1	6.3	8	50.0	4	25.0
h. Improve personnel supervision, management, or incentives.	16	2	12.5	3	18.8	4	25.0	4	25.0	3	18.8
i. Increase weekend and evening availability of services.	16	0	0.0	7	43.8	6	37.5	3	18.8	0	0.0
j. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community.	16	1	6.3	2	12.5	4	25.0	7	43.8	2	12.5
k. Some other solution(s).	16	2	12.5	1	6.3	2	12.5	3	18.8	8	50.0

This question (question 3) is based on respondents who indicated that patients experienced delays in getting an evaluation (question 1). If 1-3 delays were mentioned in question 1, this question was repeated for each delay mentioned. If 4 or more delays were mentioned in question 1, this question was repeated for the top three delays mentioned in question 2. Respondents were eligible to answer question 3c (N=16, 14.81% of those who answered question 1 and 53.33% of those who reported any delay) if they identified delays in four or more services and indicated that this was one of the three delays that had the most negative impact on patients or if this service was one of the three or fewer services for which a delay was indicated.

3D. **Your solution for delays in:** Referral to SUD services located in CBOCs (all sizes). Think of the most effective way to reduce the number of *clinically meaningful delays* at this junction. Now, **in your solution, how important are each of the following elements in your solution**?

Table I-53. Substance Use Disorders: Question 3D

Solution	N	Critically important		Very important		Somewhat important		Unimportant		Not applicable	
		n	%	n	%	n	%	n	%	n	%
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds).	35	11	31.4	12	34.3	6	17.1	2	5.7	4	11.4
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists).	35	14	40.0	9	25.7	8	22.9	1	2.9	3	8.6
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff).	35	6	17.1	11	31.4	12	34.3	3	8.6	3	8.6
d. Acquire and/or improve availability of equipment.	35	1	2.9	4	11.4	10	28.6	10	28.6	10	28.6
e. Implement or increase the availability of telehealth services.	35	3	8.6	12	34.3	13	37.1	4	11.4	3	8.6
f. Improve information technology (e.g., scheduling system, electronic health record). Describe the technology improvements needed in the comments box below.	35	8	22.9	7	20.0	7	20.0	8	22.9	5	14.3
g. Change 'central office policies' that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided).	35	5	14.3	7	20.0	8	22.9	10	28.6	5	14.3
h. Improve personnel supervision, management, or incentives.	35	7	20.0	11	31.4	11	31.4	2	5.7	4	11.4
i. Increase weekend and evening availability of services.	35	1	2.9	8	22.9	13	37.1	10	28.6	3	8.6
j. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community.	35	2	5.7	8	22.9	6	17.1	12	34.3	7	20.0
k. Some other solution(s).	35	3	8.6	6	17.1	3	8.6	2	5.7	21	60.0

This question (question 3) is based on respondents who indicated that patients experienced delays in getting an evaluation (question 1). If 1-3 delays were mentioned in question 1, this question was repeated for each delay mentioned. If 4 or more delays were mentioned in question 1, this question was repeated for the top three delays mentioned in question 2. Respondents were eligible to answer question 3d (N=35, 31.53% of those who answered question 1 and 79.55% of those who reported any delay) if they identified delays in four or more services and indicated that this was one of the three delays that had the most negative impact on patients or if this service was one of the three or fewer services for which a delay was indicated.

3E. **Your solution for delays in:** Referral to methadone clinic. Think of the most effective way to reduce the number of *clinically meaningful delays* at this junction. Now, **in your solution, how important are each of the following elements in your solution**?

Table I-54. Substance Use Disorders: Question 3E

Solution	N	Critically important		Very important		Somewhat important		Unimportant		Not applicable	
		n	%	n	%	n	%	n	%	n	%
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds).	15	1	6.7	2	13.3	3	20.0	3	20.0	6	40.0
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists).	15	3	20.0	3	20.0	3	20.0	1	6.7	5	33.3
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff).	15	2	13.3	1	6.7	7	46.7	2	13.3	3	20.0
d. Acquire and/or improve availability of equipment.	15	1	6.7	1	6.7	2	13.3	5	33.3	6	40.0
e. Implement or increase the availability of telehealth services.	15	0	0.0	2	13.3	2	13.3	5	33.3	6	40.0
f. Improve information technology (e.g., scheduling system, electronic health record).	15	0	0.0	2	13.3	2	13.3	5	33.3	6	40.0
g. Change 'central office policies' that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided).	15	0	0.0	2	13.3	0	0.0	7	46.7	6	40.0
h. Improve personnel supervision, management, or incentives.	15	0	0.0	2	13.3	2	13.3	5	33.3	6	40.0
i. Increase weekend and evening availability of services.	15	1	6.7	3	20.0	2	13.3	3	20.0	6	40.0
j. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community.	15	6	40.0	6	40.0	2	13.3	1	6.7	0	0.0
k. Some other solution(s).	15	4	26.7	3	20.0	1	6.7	0	0.0	7	46.7
This question (question 3) is based on respondents who indicated that patients experienced delays in getting an evaluation (question 1). If 1-3 delays were mentioned in question 1, this question was repeated for each delay mentioned. If 4 or more delays were mentioned in question 1, this question was repeated for the top three delays mentioned in question 2. Respondents were eligible to answer question 3e (N=15, 13.39% of those who answered question 1 and 68.18% of those who reported any delay) if they identified delays in four or more services and indicated that this was one of the three delays that had the most negative impact on patients or if this service was one of the three or fewer services for which a delay was indicated.											

3F. **Your solution for delays in:** Patients who are self-referred for a SUD evaluation in general mental health. Think of the most effective way to reduce the number of *clinically meaningful delays* at this junction. Now, **in your solution, how important are each of the following elements in your solution**?

Table I-55. Substance Use Disorders: Question 3F

Solution	N	Critically important		Very important		Somewhat important		Unimportant		Not applicable	
		n	%	n	%	n	%	n	%	n	%
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds).	12	5	41.7	2	16.7	4	33.3	0	0.0	1	8.3
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists).	12	4	33.3	5	41.7	3	25.0	0	0.0	0	0.0
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff).	12	3	25.0	4	33.3	4	33.3	1	8.3	0	0.0
d. Acquire and/or improve availability of equipment.	12	0	0.0	2	16.7	4	33.3	5	41.7	1	8.3
e. Implement or increase the availability of telehealth services.	12	2	16.7	4	33.3	5	41.7	1	8.3	0	0.0
f. Improve information technology (e.g., scheduling system, electronic health record).	12	4	33.3	2	16.7	4	33.3	2	16.7	0	0.0
g. Change 'central office policies' that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided).	12	1	8.3	2	16.7	3	25.0	6	50.0	0	0.0
h. Improve personnel supervision, management, or incentives.	12	0	0.0	7	58.3	5	41.7	0	0.0	0	0.0
i. Increase weekend and evening availability of services.	12	1	8.3	3	25.0	6	50.0	2	16.7	0	0.0
j. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community.	12	1	8.3	1	8.3	4	33.3	3	25.0	3	25.0
k. Some other solution(s).	12	1	8.3	0	0.0	2	16.7	1	8.3	8	66.7

This question (question 3) is based on respondents who indicated that patients experienced delays in getting an evaluation (question 1). If 1-3 delays were mentioned in question 1, this question was repeated for each delay mentioned. If 4 or more delays were mentioned in question 1, this question was repeated for the top three delays mentioned in question 2. Respondents were eligible to answer question 3f (N=12, 10.71% of those who answered question 1 and 42.86% of those who reported any delay) if they identified delays in four or more services and indicated that this was one of the three delays that had the most negative impact on patients or if this service was one of the three or fewer services for which a delay was indicated.

3G. **Your solution for delays in:** Referral to SUD services from the Administrative Parent to fee-basis or contracted care. Think of the most effective way to reduce the number of *clinically meaningful delays* at this junction. Now, **in your solution, how important are each of the following elements in your solution**?

Table I-56. Substance Use Disorders: Question 3G

Solution	N	Critically important		Very important		Somewhat important		Unimportant		Not applicable	
		n	%	n	%	n	%	n	%	n	%
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds).	24	2	8.3	5	20.8	4	16.7	4	16.7	9	37.5
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists).	24	1	4.2	9	37.5	2	8.3	5	20.8	7	29.2
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff).	24	2	8.3	6	25.0	7	29.2	4	16.7	5	20.8
d. Acquire and/or improve availability of equipment.	24	0	0.0	6	25.0	3	12.5	6	25.0	9	37.5
e. Implement or increase the availability of telehealth services.	24	1	4.2	5	20.8	5	20.8	7	29.2	6	25.0
f. Improve information technology (e.g., scheduling system, electronic health record). Describe the technology improvements needed in the comments box below.	24	2	8.3	5	20.8	4	16.7	8	33.3	5	20.8
g. Change 'central office policies' that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided).	24	5	20.8	3	12.5	3	12.5	8	33.3	5	20.8
h. Improve personnel supervision, management, or incentives.	24	3	12.5	4	16.7	4	16.7	8	33.3	5	20.8
i. Increase weekend and evening availability of services.	24	0	0.0	4	16.7	4	16.7	10	41.7	6	25.0
j. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community.	24	7	29.2	10	41.7	2	8.3	3	12.5	2	8.3
k. Some other solution(s).	24	3	12.5	3	12.5	2	8.3	1	4.2	15	62.5

This question (question 3) is based on respondents who indicated that patients experienced delays in getting an evaluation (question 1). If 1-3 delays were mentioned in question 1, this question was repeated for each delay mentioned. If 4 or more delays were mentioned in question 1, this question was repeated for the top three delays mentioned in question 2. Respondents were eligible to answer question 3g (N=24, 21.43% of those who answered question 1 and 96% of those who reported any delay) if they identified delays in four or more services and indicated that this was one of the three delays that had the most negative impact on patients or if this service was one of the three or fewer services for which a delay was indicated.

3H. **Your solution for delays in:** Referral to residential treatment at another Administrative Parent. Think of the most effective way to reduce the number of *clinically meaningful delays* at this junction. Now, **in your solution, how important are each of the following elements in your solution**?

Table I-57. Substance Use Disorders: Question 3H

Solution	N	Critically important		Very important		Somewhat important		Unimportant		Not applicable	
		n	%	n	%	n	%	n	%	n	%
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds).	58	18	31.0	19	32.8	6	10.3	6	10.3	9	15.5
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists).	58	18	31.0	12	20.7	11	19.0	8	13.8	9	15.5
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff).	58	15	25.9	13	22.4	13	22.4	7	12.1	10	17.2
d. Acquire and/or improve availability of equipment.	58	2	3.5	3	5.2	10	17.2	18	31.0	25	43.1
e. Implement or increase the availability of telehealth services.	58	0	0.0	10	17.2	15	25.9	13	22.4	20	34.5
f. Improve information technology (e.g., scheduling system, electronic health record). Describe the technology improvements needed in the comments box below.	58	6	10.3	7	12.1	11	19.0	15	25.9	19	32.8
g. Change 'central office policies' that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided).	58	7	12.1	12	20.7	11	19.0	14	24.1	14	24.1
h. Improve personnel supervision, management, or incentives.	58	5	8.6	17	29.3	8	13.8	8	13.8	20	34.5
i. Increase weekend and evening availability of services.	58	2	3.5	2	3.5	20	34.5	16	27.6	18	31.0
j. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community.	58	5	8.6	13	22.4	15	25.9	13	22.4	12	20.7
k. Some other solution(s).	57	9	15.8	3	5.3	9	15.8	2	3.5	34	59.7

This question (question 3) is based on respondents who indicated that patients experienced delays in getting an evaluation (question 1). If 1-3 delays were mentioned in question 1, this question was repeated for each delay mentioned. If 4 or more delays were mentioned in question 1, this question was repeated for the top three delays mentioned in question 2. Respondents were eligible to answer question 3h (N=58, 51.79% of those who answered question 1 and 86.57% of those who reported any delay) if they identified delays in four or more services and indicated that this was one of the three delays that had the most negative impact on patients or if this service was one of the three or fewer services for which a delay was indicated.

SUD Treatment

4. Now please think about patients who have a SUD diagnosis. **IN THE PAST 90 DAYS,** how often were there *clinically meaningful delays* scheduling these patients for **SUD treatment or follow-up care** in the following areas? Indicate the percent of SUD patients that experienced delays for whom the service was indicated.

Table I-58. Substance Use Disorders: Question 4

Service	N	No Delay		1-10% of patients experience delay		11-25% of patients experience delay		26-50% of patients experience delay		51% or more of patients experience delay		Not applicable	
		n	%	n	%	n	%	n	%	n	%	n	%
a. Medication-assisted Withdrawal Management for Alcoholism provided as an inpatient within your local health care system	113	71	62.8	15	13.3	5	4.4	1	0.9	1	0.9	20	17.7
b. Medication-assisted Withdrawal Management for Alcoholism provided as an inpatient through fee-basis or contracted care	113	37	32.7	11	9.7	5	4.4	1	0.9	2	1.8	57	50.4
c. Medication-assisted Withdrawal Management for Alcoholism provided as an outpatient within your local health care system	113	61	54.0	13	11.5	7	6.2	1	0.9	1	0.9	30	26.6
d. Medication-assisted Withdrawal Management for Opiate Dependence provided as an inpatient within your local health care system	113	61	54.0	14	12.4	4	3.5	0	0.0	0	0.0	34	30.1
e. Medication-assisted Withdrawal Management for Opiate Dependence provided as an inpatient through fee-basis or contracted care	113	29	25.7	14	12.4	4	3.5	4	3.5	1	0.9	61	54.0
f. Medication-assisted Withdrawal Management for Opiate Dependence provided as an outpatient within your local health care system	113	56	49.6	22	19.5	11	9.7	1	0.9	2	1.8	21	18.6
g. Outpatient SUD Psychosocial Treatment (either group or individual) within your local health care system	113	73	64.6	28	24.8	5	4.4	1	0.9	3	2.7	3	2.7
h. Psychosocial Treatment (either group or individual) within Residential SUD care	113	39	34.5	24	21.2	6	5.3	2	1.8	19	16.8	23	20.4
i. SUD Psychosocial Treatment in CBOCs (all sizes)	111	43	38.7	30	27.0	6	5.4	5	4.5	6	5.4	21	18.9
j. SUD Psychosocial Treatment (either group or individual) using tele-mental health in CBOCs (all sizes)	111	43	38.7	15	13.5	6	5.4	1	0.9	5	4.5	41	36.9
k. Pharmacotherapy for Alcoholism provided in specialty mental health clinics within your local health care system	112	55	49.1	24	21.4	5	4.5	4	3.6	1	0.9	23	20.5
l. Pharmacotherapy for Alcoholism provided in specialty SUD clinics within your local health care system	113	68	60.2	24	21.2	3	2.7	3	2.7	0	0.0	15	13.3
m. Pharmacotherapy for Alcoholism provided in CBOCs (all sizes)	111	38	34.2	32	28.8	10	9.0	6	5.4	1	0.9	24	21.6
n. Maintenance Pharmacotherapy for Opiate Dependence: Buprenorphine within your local health care system	113	53	46.9	30	26.6	8	7.1	2	1.8	5	4.4	15	13.27
o. Maintenance Pharmacotherapy for Opiate Dependence: Buprenorphine provided through fee-basis or contracted care	113	17	15.0	18	15.9	4	3.5	5	4.4	8	7.1	61	54.0
p. Methadone Maintenance within your local health care system	113	15	13.3	7	6.2	2	1.8	2	1.8	3	2.7	84	74.3
q. Methadone Maintenance provided through fee-basis or contracted care	113	35	31.0	7	6.2	9	8.0	2	1.8	8	7.1	52	46.0

5. Think about those SUD patients who experienced *clinically meaningful delays* in obtaining treatment and follow-up care. In the **PAST 90 DAYS,** which of these delays had the **most negative impact** on patients?

Results not presented. Respondents were only asked this question if they identified more than three delays in Q4 in order to identify their top three delays for Q6.

Reducing Delays in Accessing SUD Treatment

6A. **Your solution for delays in:** Medication-assisted Withdrawal Management for Alcoholism provided as an inpatient within your local health care system**.** Think about the most effective way to reduce the number of *clinically meaningful delays* for SUD patients at this junction. Now, **in your solution, how important are each of the following elements?**

Table I-59. Substance Use Disorders: Question 6A

Solution	N	Critically important		Very important		Somewhat important		Unimportant		Not applicable	
		n	%	n	%	n	%	n	%	n	%
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds).	11	2	18.2	6	54.6	2	18.2	1	9.1	0	0.0
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists).	12	5	41.7	6	50.0	1	8.3	0	0.0	0	0.0
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff).	12	5	41.7	6	50.0	1	8.3	0	0.0	0	0.0
d. Acquire and/or improve availability of equipment.	12	1	8.3	4	33.3	5	41.7	1	8.3	1	8.3
e. Implement or increase the availability of telehealth services.	11	0	0.0	3	27.3	2	18.2	2	18.2	4	36.4
f. Improve information technology (e.g., scheduling system, electronic health record).	12	0	0.0	5	41.7	1	8.3	1	8.3	5	41.7
g. Change 'central office policies' that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided).	12	0	0.0	3	25.0	3	25.0	3	25.0	3	25.0
h. Improve personnel supervision, management, or incentives.	12	0	0.0	7	58.3	2	16.7	0	0.0	3	25.0
i. Increase weekend and evening availability of services.	11	0	0.0	1	9.1	4	36.4	2	18.2	4	36.4
j. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community.	12	0	0.0	5	41.7	4	33.3	0	0.0	3	25.0
k. Some other solution(s).	10	2	20	3	30.0	0	0.0	0	0.0	5	50.0

This question (question 6) is based on respondents who indicated that patients experienced delays in obtaining treatment and follow-up care (question 4). If 1-3 delays were mentioned in question 4, this question was repeated for each delay mentioned. If 4 or more delays were mentioned in question 4, this question was repeated for the top three delays mentioned in question 5. Respondents were eligible to answer question 6a (N=12, 10.62% of those who answered question 4 and 54.55% of those who reported any delay) if they identified delays in four or more services and indicated that this was one of the three delays that had the most negative impact on patients or if this service was one of the three or fewer services for which a delay was indicated.

6B. **Your solution for delays in:** Medication-assisted Withdrawal Management for Alcoholism provided as an inpatient through fee-basis or contracted care**.** Think about the most effective way to reduce the number of *clinically meaningful delays* for SUD patients at this junction. Now, **in your solution, how important are each of the following elements?**

Responses to this question are not presented due to small number of respondents who identified delays in accessing medication-assisted withdrawal management for alcoholism provided as an impatient through fee-basis or contracted care and answered question 6b with solutions to this delay (N = 5).

6C. **Your solution for delays in:** Medication-assisted Withdrawal Management for Alcoholism provided as an outpatient within your local health care system**. Think about the most effective way to reduce the number of *clinically meaningful delays* for SUD patients at this junction. Now, **in your solution, how important are each of the following elements?**

Table I-60. Substance Use Disorders: Question 6C

		Critically important		Very important		Somewhat important		Unimportant		Not applicable	
Solution	N	n	%	n	%	n	%	n	%	n	%
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds).	10	3	30.0	5	50.0	2	20.0	0	0.0	0	0.0
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists).	10	5	50.0	5	50.0	0	0.0	0	0.0	0	0.0
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff).	10	2	20.0	6	60.0	1	10.0	1	10.0	0	0.0
d. Acquire and/or improve availability of equipment.	10	0	0.0	3	30.0	2	20.0	3	30.0	2	20.0
e. Implement or increase the availability of telehealth services.	10	0	0.0	3	30.0	2	20.0	4	40.0	1	10.0
f. Improve information technology (e.g., scheduling system, electronic health record).	9	0	0.0	3	33.3	2	22.2	3	33.3	1	11.1
g. Change 'central office policies' that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided).	10	0	0.0	3	30.0	0	0.0	6	60.0	1	10.0
h. Improve personnel supervision, management, or incentives.	10	1	10.0	6	60.0	1	10.0	2	20.0	0	0.0
i. Increase weekend and evening availability of services.	10	1	10.0	2	20.0	1	10.0	5	50.0	1	10.0
j. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community.	10	0	0.0	2	20.0	4	40.0	2	20.0	2	20.0
k. Some other solution(s).	9	3	33.3	2	22.2	0	0.0	0	0.0	4	44.4

This question (question 6) is based on respondents who indicated that patients experienced delays in obtaining treatment and follow-up care (question 4). If 1-3 delays were mentioned in question 4, this question was repeated for each delay mentioned. If 4 or more delays were mentioned in question 4, this question was repeated for the top three delays mentioned in question 5. Respondents were eligible to answer question 6c (N=10, 8.85% of those who answered question 4 and 45.45% of those who reported any delay) if they identified delays in four or more services and indicated that this was one of the three delays that had the most negative impact on patients or if this service was one of the three or fewer services for which a delay was indicated.

6D. **Your solution for delays in:** Medication-assisted Withdrawal Management for Opiate Dependence provided as an inpatient within your local health care system**.** Think about the most effective way to reduce the number of *clinically meaningful delays* for SUD patients at this junction. Now, **in your solution, how important are each of the following elements?**

Responses to this question are not presented due to small number of respondents who identified delays in accessing Medication-assisted Withdrawal Management for Opiate Dependence provided as an inpatient within your local health care system and answered question 6d with solutions to this delay (N = 7).

6E. **Your solution for delays in:** Medication-assisted Withdrawal Management for Opiate Dependence provided as an inpatient through fee-basis or contracted care**.** Think about the most effective way to reduce the number of *clinically meaningful delays* for SUD patients at this junction. Now, **in your solution, how important are each of the following elements?**

Responses to this question are not presented due to small number of respondents who identified delays in accessing Medication-assisted Withdrawal Management for Opiate Dependence provided as an inpatient through fee-basis or contracted care and answered question 6d with solutions to this delay (N = 4).

6F. **Your solution for delays in:** Medication-assisted Withdrawal Management for Opiate Dependence provided as an outpatient within your local health care system**.** Think about the most effective way to reduce the number of *clinically meaningful delays* for SUD patients at this junction. Now, **in your solution, how important are each of the following elements?**

Table I-61. Substance Use Disorders: Question 6F

Solution	N	Critically important		Very important		Somewhat important		Unimportant		Not applicable	
		n	%	n	%	n	%	n	%	n	%
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds).	10	2	20.0	4	40.0	2	20.0	1	10.0	1	10.0
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists).	10	5	50.0	4	40.0	1	10.0	0	0.0	0	0.0
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff).	10	2	20.0	2	20.0	3	30.0	2	20.0	1	10.0
d. Acquire and/or improve availability of equipment.	10	0	0.0	0	0.0	5	50.0	3	30.0	2	20.0
e. Implement or increase the availability of telehealth services.	10	0	0.0	1	10.0	1	10.0	5	50.0	3	30.0
f. Improve information technology (e.g., scheduling system, electronic health record).	10	1	10.0	0	0.0	3	30.0	4	40.0	2	20.0
g. Change 'central office policies' that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided).	9	0	0.0	0	0.0	3	33.3	4	44.4	2	22.2
h. Improve personnel supervision, management, or incentives.	10	0	0.0	1	10.0	3	30.0	4	40.0	2	20.0
i. Increase weekend and evening availability of services.	10	0	0.0	1	10.0	4	40.0	3	30.0	2	20.0
j. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community.	10	0	0.0	2	20.0	1	10.0	5	50.0	2	20.0
k. Some other solution(s).	10	2	20.0	1	10.0	1	10.0	1	10.0	5	50.0

This question (question 6) is based on respondents who indicated that patients experienced delays in obtaining treatment and follow-up care (question 4). If 1-3 delays were mentioned in question 4, this question was repeated for each delay mentioned. If 4 or more delays were mentioned in question 4, this question was repeated for the top three delays mentioned in question 5. Respondents were eligible to answer question 6f (N=10, 8.85% of those who answered question 4 and 27.78% of those who reported any delay) if they identified delays in four or more services and indicated that this was one of the three delays that had the most negative impact on patients or if this service was one of the three or fewer services for which a delay was indicated.

6G. **Your solution for delays in:** Outpatient SUD Psychosocial Treatment (either group or individual) within your local health care system**.** Think about the most effective way to reduce the number of *clinically meaningful delays* for SUD patients at this junction. Now, **in your solution, how important are each of the following elements?**

Table I-62. Substance Use Disorders: Question 6G

Solution	N	Critically important		Very important		Somewhat important		Unimportant		Not applicable	
		n	%	n	%	n	%	n	%	n	%
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds).	14	2	14.3	3	21.4	6	42.9	3	21.4	0	0.0
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists).	14	7	50.0	5	35.7	2	14.3	0	0.0	0	0.0
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff).	14	3	21.4	2	14.3	6	42.9	3	21.4	0	0.0
d. Acquire and/or improve availability of equipment.	14	0	0.0	1	7.1	1	7.1	10	71.4	2	14.3
e. Implement or increase the availability of telehealth services.	14	1	7.1	4	28.6	3	21.4	6	42.9	0	0.0
f. Improve information technology (e.g., scheduling system, electronic health record).	14	1	7.1	0	0.0	3	21.4	8	57.1	2	14.3
g. Change 'central office policies' that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided).	14	1	7.1	3	21.4	0	0.0	8	57.1	2	14.3
h. Improve personnel supervision, management, or incentives.	14	2	14.3	4	28.6	3	21.4	2	14.3	3	21.4
i. Increase weekend and evening availability of services.	13	0	0.0	2	15.4	4	30.8	7	53.9	0	0.0
j. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community.	14	0	0.0	3	21.4	3	21.4	5	35.7	3	21.4
k. Some other solution(s).	13	0	0.0	0	0.0	1	7.7	1	7.7	11	84.6

 This question (question 6) is based on respondents who indicated that patients experienced delays in obtaining treatment and follow-up care (question 4). If 1-3 delays were mentioned in question 4, this question was repeated for each delay mentioned. If 4 or more delays were mentioned in question 4, this question was repeated for the top three delays mentioned in question 5. Respondents were eligible to answer question 6g (N=14, 12.39% of those who answered question 4 and 37.84% of those who reported any delay) if they identified delays in four or more services and indicated that this was one of the three delays that had the most negative impact on patients or if this service was one of the three or fewer services for which a delay was indicated.

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6H. **Your solution for delays in:** Psychosocial Treatment (either group or individual) within Residential SUD care**.** Think about the most effective way to reduce the number of *clinically meaningful delays* for SUD patients at this junction. Now, **in your solution, how important are each of the following elements?**

Table I-63. Substance Use Disorders: Question 6H

Solution	N	Critically important		Very important		Somewhat important		Unimportant		Not applicable	
		n	%	n	%	n	%	n	%	n	%
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds).	32	18	56.3	8	25.0	3	9.4	1	3.1	2	6.3
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists).	32	12	37.5	9	28.1	4	12.5	4	12.5	3	9.4
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff).	32	9	28.1	10	31.3	6	18.8	3	9.4	4	12.5
d. Acquire and/or improve availability of equipment.	32	1	3.1	6	18.8	3	9.4	11	34.4	11	34.4
e. Implement or increase the availability of telehealth services.	32	2	6.3	5	15.6	7	21.9	9	28.1	9	28.1
f. Improve information technology (e.g., scheduling system, electronic health record).	32	3	9.4	6	18.8	7	21.9	10	31.3	6	18.8
g. Change 'central office policies' that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided).	32	4	12.5	6	18.8	6	18.8	9	28.1	7	21.9
h. Improve personnel supervision, management, or incentives.	32	4	12.5	9	28.1	7	21.9	4	12.5	8	25.0
i. Increase weekend and evening availability of services.	32	3	9.4	5	15.6	7	21.9	9	28.1	8	25.0
j. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community.	32	5	15.6	10	31.3	7	21.9	4	12.5	6	18.8
k. Some other solution(s).	28	5	17.9	5	17.9	1	3.6	0	0.0	17	60.7
This question (question 6) is based on respondents who indicated that patients experienced delays in obtaining treatment and follow-up care (question 4). If 1-3 delays were mentioned in question 4, this question was repeated for each delay mentioned. If 4 or more delays were mentioned in question 4, this question was repeated for the top three delays mentioned in question 5. Respondents were eligible to answer question 6h (N=33, 29.2% of those who answered question 4 and 64.71% of those who reported any delay) if they identified delays in four or more services and indicated that this was one of the three delays that had the most negative impact on patients or if this service was one of the three or fewer services for which a delay was indicated.											

6I. **Your solution for delays in:** SUD Psychosocial Treatment in CBOCs (all sizes)**.** Think about the most effective way to reduce the number of *clinically meaningful delays* for SUD patients at this junction. Now, **in your solution, how important are each of the following elements?**

Table I-64. Substance Use Disorders: Question 6I

Solution	N	Critically important		Very important		Somewhat important		Unimportant		Not applicable	
		n	%	n	%	n	%	n	%	n	%
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds).	25	11	44.0	8	32.0	4	16.0	2	8.0	0	0.0
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists).	25	14	56.0	8	32.0	2	8.0	1	4.0	0	0.0
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff).	24	5	20.8	11	45.8	6	25.0	2	8.3	0	0.0
d. Acquire and/or improve availability of equipment.	25	1	4.0	6	24.0	7	28.0	9	36.0	2	8.0
e. Implement or increase the availability of telehealth services.	24	3	12.5	9	37.5	10	41.7	1	4.2	1	4.2
f. Improve information technology (e.g., scheduling system, electronic health record).	25	8	32.0	5	20.0	3	12.0	9	36.0	0	0.0
g. Change 'central office policies' that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided).	25	6	24.0	5	20.0	3	12.0	10	40.0	1	4.0
h. Improve personnel supervision, management, or incentives.	25	7	28.0	7	28.0	6	24.0	4	16.0	1	4.0
i. Increase weekend and evening availability of services.	25	2	8.0	6	24.0	7	28.0	9	36.0	1	4.0
j. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community.	25	3	12.0	4	16.0	10	40.0	7	28.0	1	4.0
k. Some other solution(s).	23	2	8.7	1	4.4	3	13.0	1	4.4	16	69.6

This question (question 6) is based on respondents who indicated that patients experienced delays in obtaining treatment and follow-up care (question 4). If 1-3 delays were mentioned in question 4, this question was repeated for each delay mentioned. If 4 or more delays were mentioned in question 4, this question was repeated for the top three delays mentioned in question 5. Respondents were eligible to answer question 6i (N=25, 22.52% of those who answered question 4 and 53.19% of those who reported any delay) if they identified delays in four or more services and indicated that this was one of the three delays that had the most negative impact on patients or if this service was one of the three or fewer services for which a delay was indicated.

6J. **Your solution for delays in:** SUD Psychosocial Treatment (either group or individual) using tele-mental health in CBOCs (all sizes)**.** Think about the most effective way to reduce the number of *clinically meaningful delays* for SUD patients at this junction. Now, **in your solution, how important are each of the following elements?**

Table I-65. Substance Use Disorders: Question 6J

Solution	N	Critically important		Very important		Somewhat important		Unimportant		Not applicable	
		n	%	n	%	n	%	n	%	n	%
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds).	12	9	75.0	0	0.0	2	16.7	0	0.0	1	8.3
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists).	12	6	50.0	1	8.3	2	16.7	2	16.7	1	8.3
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff).	12	4	33.3	4	33.3	3	25.0	1	8.3	0	0.0
d. Acquire and/or improve availability of equipment.	12	5	41.7	4	33.3	2	16.7	0	0.0	1	8.3
e. Implement or increase the availability of telehealth services.	12	4	33.3	5	41.7	2	16.7	1	8.3	0	0.0
f. Improve information technology (e.g., scheduling system, electronic health record).	12	2	16.7	5	41.7	3	25.0	1	8.3	1	8.3
g. Change 'central office policies' that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided).	12	1	8.3	5	41.7	1	8.3	2	16.7	3	25.0
h. Improve personnel supervision, management, or incentives.	12	1	8.3	5	41.7	3	25.0	0	0.0	3	25.0
i. Increase weekend and evening availability of services.	12	0	0.0	2	16.7	4	33.3	3	25.0	3	25.0
j. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community.	12	1	8.3	2	16.7	5	41.7	2	16.7	2	16.7
k. Some other solution(s).	11	0	0.0	1	9.1	3	27.3	0	0.0	7	63.6

This question (question 6) is based on respondents who indicated that patients experienced delays in obtaining treatment and follow-up care (question 4). If 1-3 delays were mentioned in question 4, this question was repeated for each delay mentioned. If 4 or more delays were mentioned in question 4, this question was repeated for the top three delays mentioned in question 5. Respondents were eligible to answer question 6j (N=12, 10.81% of those who answered question 4 and 44.44% of those who reported any delay) if they identified delays in four or more services and indicated that this was one of the three delays that had the most negative impact on patients or if this service was one of the three or fewer services for which a delay was indicated.

6K. **Your solution for delays in:** Pharmacotherapy for Alcoholism provided in specialty mental health clinics within your local health care system**.** Think about the most effective way to reduce the number of *clinically meaningful delays* for SUD patients at this junction. Now, **in your solution, how important are each of the following elements?**

Responses to this question are not presented due to small number of respondents who identified delays in accessing Pharmacotherapy for Alcoholism provided in specialty mental health clinics within your local health care system and answered question 6k with solutions to this delay (N = 8).

6L. **Your solution for delays in:** Pharmacotherapy for Alcoholism provided in specialty SUD clinics within your local health care system**.** Think about the most effective way to reduce the number of *clinically meaningful delays* for SUD patients at this junction. Now, **in your solution, how important are each of the following elements?**

Responses to this question are not presented due to small number of respondents who identified delays in accessing Pharmacotherapy for Alcoholism provided in specialty SUD clinics within your local health care system and answered question 6l with solutions to this delay (N = 5).

6M. **Your solution for delays in:** Pharmacotherapy for Alcoholism provided in CBOCs (all sizes)**.** Think about the most effective way to reduce the number of *clinically meaningful delays* for SUD patients at this junction. Now, **in your solution, how important are each of the following elements?**

Table I-66. Substance Use Disorders: Question 6M

		Critically important		Very important		Somewhat important		Unimportant		Not applicable	
Solution	**N**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds).	17	3	17.7	5	29.4	4	23.53	1	5.9	4	23.5
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists). below.	17	7	41.2	4	23.5	4	23.53	0	0.0	2	11.8
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff).	17	5	29.4	5	29.4	2	11.76	2	11.8	3	17.7
d. Acquire and/or improve availability of equipment.	17	1	5.9	3	17.7	6	35.29	2	11.8	5	29.4
e. Implement or increase the availability of telehealth services.	17	0	0.0	5	29.4	5	29.41	2	11.8	5	29.4
f. Improve information technology (e.g., scheduling system, electronic health record).	17	3	17.7	3	17.7	3	17.65	3	17.7	5	29.4
g. Change 'central office policies' that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided).	15	2	13.3	3	20.0	0	0.0	5	33.3	5	33.3
h. Improve personnel supervision, management, or incentives.	17	1	5.9	7	41.2	3	17.65	3	17.7	3	17.7
i. Increase weekend and evening availability of services.	16	0	0.0	4	25.0	5	31.25	3	18.8	4	25.0
j. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community.	17	2	11.8	2	11.8	4	23.53	3	17.7	6	35.3
k. Some other solution(s).	14	0	0.0	3	21.4	2	14.29	0	0.0	9	64.3

 This question (question 6) is based on respondents who indicated that patients experienced delays in obtaining treatment and follow-up care (question 4). If 1-3 delays were mentioned in question 4, this question was repeated for each delay mentioned. If 4 or more delays were mentioned in question 4, this question was repeated for the top three delays mentioned in question 5. Respondents were eligible to answer question 6m (N=17, 15.32% of those who answered question 4 and 34.69% of those who reported any delay) if they identified delays in four or more services and indicated that this was one of the three delays that had the most negative impact on patients or if this service was one of the three or fewer services for which a delay was indicated.

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6N. **Your solution for delays in:** Maintenance Pharmacotherapy for Opiate Dependence: Buprenorphine within your local health care system**.** Think about the most effective way to reduce the number of *clinically meaningful delays* for SUD patients at this junction. Now, **in your solution, how important are each of the following elements?**

Table I-67. Substance Use Disorders: Question 6N

Solution	N	Critically important		Very important		Somewhat important		Unimportant		Not applicable	
		n	%	n	%	n	%	n	%	n	%
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds).	20	1	5.0	6	30.0	7	35.0	6	30.0	0	0.0
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists).	21	10	47.6	7	33.3	3	14.3	1	4.8	0	0.0
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff).	21	3	14.3	7	33.3	6	28.6	4	19.1	1	4.8
d. Acquire and/or improve availability of equipment.	21	0	0.0	1	4.8	3	14.3	13	61.9	4	19.1
e. Implement or increase the availability of telehealth services.	21	0	0.0	2	9.5	4	19.1	12	57.1	3	14.3
f. Improve information technology (e.g., scheduling system, electronic health record).	21	1	4.8	1	4.8	4	19.1	13	61.9	2	9.5
g. Change 'central office policies' that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided).	21	0	0.0	0	0.0	3	14.3	14	66.7	4	19.1
h. Improve personnel supervision, management, or incentives.	21	0	0.0	3	14.3	5	23.8	10	47.6	3	14.3
i. Increase weekend and evening availability of services.	21	0	0.0	1	4.8	6	28.6	11	52.4	3	14.3
j. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community.	21	1	4.8	4	19.1	3	14.3	9	42.9	4	19.1
k. Some other solution(s).	19	1	5.3	1	5.3	3	15.8	3	15.8	11	57.9

This question (question 6) is based on respondents who indicated that patients experienced delays in obtaining treatment and follow-up care (question 4). If 1-3 delays were mentioned in question 4, this question was repeated for each delay mentioned. If 4 or more delays were mentioned in question 4, this question was repeated for the top three delays mentioned in question 5. Respondents were eligible to answer question 6n (N=21, 18.58% of those who answered question 4 and 46.67% of those who reported any delay) if they identified delays in four or more services and indicated that this was one of the three delays that had the most negative impact on patients or if this service was one of the three or fewer services for which a delay was indicated.

6O. **Your solution for delays in:** Maintenance Pharmacotherapy for Opiate Dependence: Buprenorphine provided through fee-basis or contracted care**.** Think about the most effective way to reduce the number of *clinically meaningful delays* for SUD patients at this junction. Now, **in your solution, how important are each of the following elements?**

Table I-68. Substance Use Disorders: Question 6O

Solution	N	Critically important		Very important		Somewhat important		Unimportant		Not applicable	
		n	%	n	%	n	%	n	%	n	%
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds).	17	1	5.9	4	23.5	0	0.0	5	29.4	7	41.2
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists).	17	9	52.9	2	11.8	0	0.0	1	5.9	5	29.4
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff).	17	2	11.8	6	35.3	2	11.8	1	5.9	6	35.3
d. Acquire and/or improve availability of equipment.	16	1	6.3	0	0.0	2	12.5	6	37.5	7	43.8
e. Implement or increase the availability of telehealth services.	17	0	0.0	2	11.8	3	17.7	6	35.3	6	35.3
f. Improve information technology (e.g., scheduling system, electronic health record).	17	1	5.9	2	11.8	2	11.8	6	35.3	6	35.3
g. Change 'central office policies' that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided).	17	3	17.7	1	5.9	3	17.7	3	17.7	7	41.2
h. Improve personnel supervision, management, or incentives.	16	4	25.0	1	6.3	2	12.5	4	25.0	5	31.3
i. Increase weekend and evening availability of services.	16	2	12.5	1	6.3	2	12.5	5	31.3	6	37.5
j. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community.	17	7	41.2	1	5.9	2	11.8	4	23.5	3	17.7
k. Some other solution(s).	17	5	29.4	5	29.4	0	0.0	1	5.9	6	35.29
This question (question 6) is based on respondents who indicated that patients experienced delays in obtaining treatment and follow-up care (question 4). If 1-3 delays were mentioned in question 4, this question was repeated for each delay mentioned. If 4 or more delays were mentioned in question 4, this question was repeated for the top three delays mentioned in question 5. Respondents were eligible to answer question 6o (N=17, 15.04% of those who answered question 4 and 48.57% of those who reported any delay) if they identified delays in four or more services and indicated that this was one of the three delays that had the most negative impact on patients or if this service was one of the three or fewer services for which a delay was indicated.											

6P. **Your solution for delays in:** Methadone Maintenance within your local health care system**.** Think about the most effective way to reduce the number of *clinically meaningful delays* for SUD patients at this junction. Now, **in your solution, how important are each of the following elements?**

Responses to this question are not presented due to small number of respondents who identified delays in accessing Methadone Maintenance within your local health care system and answered question 6p with solutions to this delay (N = 5).

6Q. **Your solution for delays in:** Methadone Maintenance provided through fee-basis or contracted care**.** Think about the most effective way to reduce the number of *clinically meaningful delays* for SUD patients at this junction. Now, **in your solution, how important are each of the following elements?**

Responses to this question are not presented due to small number of respondents who identified delays in accessing Methadone Maintenance provided through fee-basis or contracted care and answered question 6q with solutions to this delay (N = 9).

SUD Care Transitions

7. Please think about patients with a SUD diagnosis who need to **be transitioned to another level of care**. **IN THE PAST 90 DAYS**, how often were there *clinically meaningful delays* in transitioning a patient to another level of care when needed? Indicate the percent of patients that experienced delays for whom the service was indicated.

Table I-69. Substance Use Disorders: Question 7

Service	N	No Delay		1-10% of patients experience		11-25% of patients experience delay		26-50% of patients experience delay		51% or more of patients experience delay		Not applicable	
		n	%	n	%	n	%	n	%	n	%	n	%
a. From primary care (excluding CBOCs) to outpatient specialty SUD care	112	82	73.2	24	21.4	2	1.8	2	1.8	0	0.0	2	1.8
b. From general mental health to residential SUD care	112	39	34.8	29	25.9	7	6.3	7	6.3	17	15.2	13	11.6
c. From Emergency Department to outpatient specialty SUD care	112	71	63.4	25	22.3	1	0.9	1	0.9	1	0.9	13	11.6
d. From Emergency Department to inpatient detox	112	70	62.5	20	17.9	4	3.6	0	0.0	1	0.9	17	15.2
e. From ambulatory detox to residential SUD treatment	112	29	25.9	23	20.5	8	7.1	5	4.5	18	16.1	29	25.9
f. From CBOCs (all sizes) to specialty residential SUD care at your local health care system	112	27	24.1	35	31.3	8	7.1	6	5.4	14	12.5	22	19.6

8. Think about those SUD patients who experienced **transition delays.** In the **PAST 90 DAYS**, which of these delays had the **most negative impact** on patients?

Results not presented. Respondents were only asked this question if they identified more than three delays in Q7 in order to identify their top three delays for Q9.

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Reducing Delays in SUD Care Transitions

9A**. Your solution for delays in transitioning:** From primary care (excluding CBOCs) to outpatient specialty. Think about the most effective way to reduce the *number of clinically meaningful delays* at this junction. Now, **in your solution, how important are each of the following elements?**

Table I-70. Substance Use Disorders: Question 9A

Solution	N	Critically important		Very important		Somewhat important		Unimportant		Not applicable	
		n	%	n	%	n	%	n	%	n	%
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds).	18	5	27.8	6	33.3	5	27.8	1	5.6	1	5.6
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists).	18	10	55.6	6	33.3	1	5.6	1	5.6	0	0.0
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff).	18	5	27.8	8	44.4	4	22.2	1	5.6	0	0.0
d. Acquire and/or improve availability of equipment.	18	0	0.0	3	16.7	4	22.2	8	44.4	3	16.7
e. Implement or increase the availability of telehealth services.	18	0	0.0	4	22.2	4	22.2	7	38.9	3	16.7
f. Improve information technology (e.g., scheduling system, electronic health record).	18	0	0.0	3	16.7	6	33.3	7	38.9	2	11.1
g. Change 'central office policies' that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided).	18	0	0.0	3	16.7	5	27.8	8	44.4	2	11.1
h. Improve personnel supervision, management, or incentives.	18	0	0.0	6	33.3	5	27.8	4	22.2	3	16.7
i. Increase weekend and evening availability of services.	18	1	5.6	2	11.1	9	50.0	5	27.8	1	5.6
j. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community.	18	0	0.0	1	5.6	9	50.0	4	22.2	4	22.2
k. Some other solution(s).	17	3	17.7	0	0.0	1	5.9	2	11.8	11	64.7
This question (question 9) is based on respondents who indicated that patients experienced transition delays (question 7). If 1-3 delays were mentioned in question 7, this question was repeated for each delay mentioned. If 4 or more delays were mentioned in question 7, this question was repeated for the top three delays mentioned in question 8. Respondents were eligible to answer question 9a (N=18, 16.07% of those who answered question 7 and 64.29% of those who reported any delay) if they identified delays in four or more services and indicated that this was one of the three delays that had the most negative impact on patients or if this service was one of the three or fewer services for which a delay was indicated.											

9B**. Your solution for delays in transitioning:** From general mental health to residential SUD. Think about the most effective way to reduce the *number of clinically meaningful delays* at this junction. Now, **in your solution, how important are each of the following elements?**

Table I-71. Substance Use Disorders: Question 9B

Solution	N	Critically important		Very important		Somewhat important		Unimportant		Not applicable	
		n	%	n	%	n	%	n	%	n	%
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds).	52	18	34.6	17	32.7	9	17.3	4	7.7	4	7.7
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists).	52	18	34.6	15	28.9	6	11.5	6	11.5	7	13.5
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff).	52	13	25.0	16	30.8	9	17.3	6	11.5	8	15.4
d. Acquire and/or improve availability of equipment.	52	0	0.0	6	11.5	13	25.0	16	30.8	17	32.7
e. Implement or increase the availability of telehealth services.	52	1	1.9	9	17.3	11	21.2	15	28.9	16	30.8
f. Improve information technology (e.g., scheduling system, electronic health record).	52	5	9.6	6	11.5	9	17.3	18	34.6	14	26.9
g. Change 'central office policies' that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided).	52	5	9.6	6	11.5	12	23.1	15	28.9	14	26.9
h. Improve personnel supervision, management, or incentives.	52	5	9.6	11	21.2	11	21.2	12	23.1	13	25.0
i. Increase weekend and evening availability of services.	52	2	3.9	8	15.4	14	26.9	14	26.9	14	26.9
j. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community.	52	7	13.5	13	25.0	13	25.0	7	13.5	12	23.1
k. Some other solution(s).	51	8	15.7	6	11.8	4	7.8	0	0.0	33	64.7

This question (question 9) is based on respondents who indicated that patients experienced transition delays (question 7). If 1-3 delays were mentioned in question 7, this question was repeated for each delay mentioned. If 4 or more delays were mentioned in question 7, this question was repeated for the top three delays mentioned in question 8. Respondents were eligible to answer question 9b (N=52, 46.43% of those who answered question 7 and 86.67% of those who reported any delay) if they identified delays in four or more services and indicated that this was one of the three delays that had the most negative impact on patients or if this service was one of the three or fewer services for which a delay was indicated.

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9C**. Your solution for delays in transitioning:** From Emergency Department to outpatient specialty SUD care. Think about the most effective way to reduce the *number of clinically meaningful delays* at this junction. Now, **in your solution, how important are each of the following elements?**

Table I-72. Substance Use Disorders: Question 9C

Solution	N	Critically important n	%	Very important n	%	Somewhat important n	%	Unimportant n	%	Not applicable n	%
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds).	11	3	27.3	5	45.5	2	18.2	1	9.1	0	0.0
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists).	11	6	54.6	2	18.2	1	9.1	2	18.2	0	0.0
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff).	11	4	36.4	3	27.3	2	18.2	2	18.2	0	0.0
d. Acquire and/or improve availability of equipment.	11	0	0.0	2	18.2	1	9.1	6	54.6	2	18.2
e. Implement or increase the availability of telehealth services.	11	1	9.1	2	18.2	1	9.1	5	45.5	2	18.2
f. Improve information technology (e.g., scheduling system, electronic health record).	11	1	9.1	2	18.2	1	9.1	5	45.5	2	18.2
g. Change 'central office policies' that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided).	11	1	9.1	2	18.2	2	18.2	6	54.6	0	0.0
h. Improve personnel supervision, management, or incentives.	11	1	9.1	1	9.1	2	18.2	4	36.4	3	27.3
i. Increase weekend and evening availability of services.	11	0	0.0	2	18.2	4	36.4	4	36.4	1	9.1
j. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community.	11	0	0.0	2	18.2	3	27.3	3	27.3	3	27.3
k. Some other solution(s).	11	1	9.1	1	9.1	0	0.0	1	9.1	8	72.7

This question (question 9) is based on respondents who indicated that patients experienced transition delays (question 7). If 1-3 delays were mentioned in question 7, this question was repeated for each delay mentioned. If 4 or more delays were mentioned in question 7, this question was repeated for the top three delays mentioned in question 8. Respondents were eligible to answer question 9c (N=11, 9.82% of those who answered question 7 and 39.29% of those who reported any delay) if they identified delays in four or more services and indicated that this was one of the three delays that had the most negative impact on patients or if this service was one of the three or fewer services for which a delay was indicated.

9D**. Your solution for delays in transitioning:** From Emergency Department to inpatient detox. Think about the most effective way to reduce the *number of clinically meaningful delays* at this junction. Now, **in your solution, how important are each of the following elements?**

Table I-73. Substance Use Disorders: Question 9D

Solution	N	Critically important		Very important		Somewhat important		Unimportant		Not applicable	
		n	%	n	%	n	%	n	%	n	%
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds).	18	5	27.8	5	27.8	1	5.6	5	27.8	2	11.1
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists).	18	3	16.7	5	27.8	3	16.7	4	22.2	3	16.7
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff).	18	4	22.2	4	22.2	3	16.7	5	27.8	2	11.1
d. Acquire and/or improve availability of equipment.	18	2	11.1	1	5.6	0	0.0	10	55.6	5	27.8
e. Implement or increase the availability of telehealth services.	18	0	0.0	3	16.7	0	0.0	10	55.6	5	27.8
f. Improve information technology (e.g., scheduling system, electronic health record).	18	1	5.6	2	11.1	0	0.0	10	55.6	5	27.8
g. Change 'central office policies' that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided).	18	0	0.0	3	16.7	2	11.1	9	50.0	4	22.2
h. Improve personnel supervision, management, or incentives.	18	0	0.0	7	38.9	1	5.6	8	44.4	2	11.1
i. Increase weekend and evening availability of services.	18	2	11.1	1	5.6	1	5.6	9	50.0	5	27.8
j. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community.	18	2	11.1	4	22.2	5	27.8	3	16.7	4	22.2
k. Some other solution(s).	17	5	29.4	4	23.5	2	11.78	1	5.9	5	29.4

This question (question 9) is based on respondents who indicated that patients experienced transition delays (question 7). If 1-3 delays were mentioned in question 7, this question was repeated for each delay mentioned. If 4 or more delays were mentioned in question 7, this question was repeated for the top three delays mentioned in question 8. Respondents were eligible to answer question 9d (N=18, 16.07% of those who answered question 7 and 72% of those who reported any delay) if they identified delays in four or more services and indicated that this was one of the three delays that had the most negative impact on patients or if this service was one of the three or fewer services for which a delay was indicated.

9E**. Your solution for delays in transitioning:** From ambulatory detox to residential SUD treatment. Think about the most effective way to reduce the *number of clinically meaningful delays* at this junction. Now, **in your solution, how important are each of the following elements?**

Table I-74. Substance Use Disorders: Question 9E

Solution	N	Critically important		Very important		Somewhat important		Unimportant		Not applicable	
		n	%	n	%	n	%	n	%	n	%
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds).	48	21	43.8	13	27.1	7	14.6	4	8.3	3	6.5
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists).	48	14	29.2	14	29.2	7	14.6	5	10.4	8	16.7
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff).	48	9	18.8	20	41.7	6	12.5	5	10.4	8	16.7
d. Acquire and/or improve availability of equipment.	48	1	2.1	5	10.4	9	18.8	18	37.5	15	31.3
e. Implement or increase the availability of telehealth services.	48	1	2.1	5	10.4	12	25.0	18	37.5	12	25.0
f. Improve information technology (e.g., scheduling system, electronic health record).	48	2	4.2	6	12.5	6	12.5	20	41.7	14	29.2
g. Change 'central office policies' that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided).	48	1	2.1	7	14.6	9	18.8	17	35.4	14	29.2
h. Improve personnel supervision, management, or incentives. P	48	6	12.5	8	16.7	11	22.9	12	25.0	11	22.9
i. Increase weekend and evening availability of services.	48	3	6.3	6	12.5	14	29.2	13	27.1	12	25.0
j. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community.	48	5	10.4	12	25.0	12	25.0	8	16.7	11	22.9
k. Some other solution(s).	48	6	12.5	7	14.6	6	12.5	3	6.3	26	54.2

This question (question 9) is based on respondents who indicated that patients experienced transition delays (question 7). If 1-3 delays were mentioned in question 7, this question was repeated for each delay mentioned. If 4 or more delays were mentioned in question 7, this question was repeated for the top three delays mentioned in question 8. Respondents were eligible to answer question 9e (N=48, 42.86% of those who answered question 7 and 88.89% of those who reported any delay) if they identified delays in four or more services and indicated that this was one of the three delays that had the most negative impact on patients or if this service was one of the three or fewer services for which a delay was indicated.

9F**. Your solution for delays in transitioning:** From CBOCs (all sizes) to specialty residential SUD care at your local health care system. Think about the most effective way to reduce the *number of clinically meaningful delays* at this junction. Now, **in your solution, how important are each of the following elements?**

Table I-75. Substance Use Disorders: Question 9F

Solution	N	Critically important		Very important		Somewhat important		Unimportant		Not applicable	
		n	%	n	%	n	%	n	%	n	%
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds).	49	20	40.8	10	20.4	11	22.5	3	6.1	5	10.2
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists).	49	21	42.9	10	20.4	5	10.2	5	10.2	8	16.3
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff).	49	17	34.7	11	22.5	7	14.3	5	10.2	9	18.4
d. Acquire and/or improve availability of equipment.	49	3	6.1	5	10.2	12	24.5	13	26.5	16	32.7
e. Implement or increase the availability of telehealth services.	49	2	4.1	8	16.3	12	24.5	13	26.5	14	28.6
f. Improve information technology (e.g., scheduling system, electronic health record).	49	3	6.1	4	8.2	10	20.4	18	36.7	14	28.6
g. Change 'central office policies' that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided).	49	4	8.2	7	14.3	8	16.3	17	34.7	13	26.5
h. Improve personnel supervision, management, or incentives.	49	6	12.2	8	16.3	9	18.4	12	24.5	14	28.6
i. Increase weekend and evening availability of services.	49	3	6.1	4	8.2	13	26.5	14	28.6	15	30.6
j. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community.	49	6	12.2	8	16.3	8	16.3	11	22.5	16	32.7
k. Some other solution(s).	49	5	10.2	6	12.2	2	4.1	3	6.1	33	67.4

This question (question 9) is based on respondents who indicated that patients experienced transition delays (question 7). If 1-3 delays were mentioned in question 7, this question was repeated for each delay mentioned. If 4 or more delays were mentioned in question 7, this question was repeated for the top three delays mentioned in question 8. Respondents were eligible to answer question 9f (N=49, 43.75% of those who answered question 7 and 77.78% of those who reported any delay) if they identified delays in four or more services and indicated that this was one of the three delays that had the most negative impact on patients or if this service was one of the three or fewer services for which a delay was indicated.

Issues that Affect Provider and System Efficiency

10. IN THE PAST YEAR, how much did the following issues negatively impact provider and system efficiency related to the provision of care for SUD patients?

Table I-76. Substance Use Disorders: Question 10

	N	None		A little		A fair amount		A lot		Not Applicable	
		n	%	n	%	n	%	n	%	n	%
a. Providers performing clinical activities that could be performed by individuals with less training	112	30	26.8	38	33.9	25	22.3	15	13.4	4	3.6
b. Providers performing administrative activities that could be performed by others	113	17	15.0	23	20.4	32	28.3	41	36.3	0.0	0.0
c. Residency training/teaching requirements	113	51	45.1	33	29.2	9	8.0	4	3.5	16	14.2
d. Insufficient clinical/administrative support staff	113	15	13.3	23	20.4	26	23.0	48	42.5	1	0.9
e. Inadequate scheduling system and policies (e.g., hard to cancel or reschedule, coordinate)	113	24	21.2	29	25.7	27	23.9	31	27.4	2	1.8
f. Unnecessary documentation requirements or inefficient CPRS interface	113	25	22.1	30	26.5	30	26.5	26	23.0	2	1.8
g. Patient no-show rates	113	9	8.0	29	25.7	52	46.0	23	20.4	0.0	0.0
h. Poor patient flow management (room/bed turnover, appointments)	113	34	30.1	42	37.2	21	18.6	8	7.1	8	7.1
i. Too many administrative requirements (Initiatives/Policies/Programs)	113	14	12.4	31	27.4	26	23.0	38	33.6	4	3.5

Workforce

11A. IN THE PAST YEAR, did your local health care system have problems **RECRUITING OR HIRING** the following personnel categories?

Table I-77. Substance Use Disorders: Question 11A

Staff Positions	N	Yes		No		Not Applicable	
		n	%	n	%	n	%
a. Prescribing mental health providers	113	86	76.1	21	18.6	6	5.3
b. Prescribing providers with X-waiver for office-based Buprenorphine	113	66	58.4	34	30.1	13	11.5
c. Mental health social workers	113	36	31.9	73	64.6	4	3.5
d. Psychologists	113	53	46.9	51	45.1	9	8.0
e. Clinical nurse specialists or psychiatric physician assistants	113	55	48.7	35	31.0	23	20.4
f. Clerical staff/appointment schedulers (other administrative staff in mental health clinics)	113	41	36.3	61	54.0	11	9.7
g. Other substance use clinicians	113	29	25.7	64	56.6	20	17.7

Reasons for Staff Recruitment/Hiring Problems

12. Please enter the **top two reasons** why there were problems **RECRUITING AND HIRING** these personnel types in the PAST YEAR.

Table I-78. Substance Use Disorders: Question 12

Staff Positions	N	Senior management does not agree to post new position		Non-competitive wages		Work schedule (e.g., call requirements)		Benefits (e.g., health insurance, leave, continuing education, travel)		Equipment/resources/office space		Facility condition		Case types/complexity		VA reputation		No academic affiliation/lack of protected time for early career investigator		Geographic location of facility		HR process (e.g., time to advertise; length of time from job offer to start date)		Lack of qualified applicants	
	N	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
a. Prescribing mental health providers	86	7	8.1	49	57.0	11	12.8	5	5.8	4	4.7	1	1.2	3	3.5	6	7.0	1	1.2	26	30.2	27	31.4	30	34.9
b. Prescribing providers with X-waiver for office-based Buprenorphine	66	5	7.6	36	54.5	8	12.1	3	4.5	2	3.0	0	0.0	6	9.1	5	7.6	1	1.5	20	30.3	16	24.2	29	43.9
c. Mental health social workers	36	8	22.2	7	19.4	1	2.8	0	0.0	5	13.9	0	0.0	1	2.8	1	2.8	0	0.0	10	27.8	22	61.1	13	36.1
d. Psychologists	53	6	11.3	11	20.8	1	1.9	4	7.5	5	9.4	0	0.0	0	0.0	3	5.7	3	5.7	18	34	30	56.6	22	41.5
e. Clinical nurse specialists or psychiatric physician assistants	55	8	14.5	26	47.3	2	3.6	1	1.8	3	5.5	0	0.0	1	1.8	3	5.5	1	1.8	16	29.1	22	40.0	24	43.6
f. Clerical staff/appointment schedulers (other administrative staff in mental health clinics)	41	13	31.7	12	29.3	3	7.3	1	2.4	6	14.6	0	0.0	0	0.0	2	4.9	0	0.0	4	9.8	23	56.1	16	39.0
g. Other substance use clinicians	29	9	31.0	6	20.7	1	3.4	1	3.4	6	20.7	0	0.0	1	3.4	2	6.9	1	3.4	7	24.1	13	44.8	9	31.0

N refers to the proportion of respondents who listed each "reason" as one of the two most important affecting recruitment and hiring. This question (question 12) is based on respondents who indicated that their local health care system had problems recruiting or hiring certain personnel categories (question 11A). Question 12 was asked for each personnel type marked "yes" in question 11A.

Reasons for Staff Retention Problems

11B. IN THE PAST YEAR, did your local health care system have problems **RETAINING** the following personnel categories?

Table I-79. Substance Use Disorders: Question 11B

		Yes		No		Not Applicable	
Staff Positions	**N**	**n**	**%**	**n**	**%**	**n**	**%**
a. Prescribing mental health providers	113	59	52.2	49	43.4	5	4.4
b. Prescribing providers with X-waiver for office-based Buprenorphine	112	39	34.8	57	50.9	16	14.3
c. Mental health social workers	113	36	31.9	72	63.7	5	4.4
d. Psychologists	112	35	31.3	69	61.6	8	7.1
e. Clinical nurse specialists or psychiatric physician assistants	113	21	18.6	68	60.2	24	21.2
f. Clerical staff/appointment schedulers (other administrative staff in mental health clinics)	113	37	32.7	66	58.4	10	8.8
g. Other substance use clinicians	113	19	16.8	78	69.0	16	14.2

13. Please enter the **top two reasons** why there were problems **RETAINING** these personnel types in the PAST YEAR.

Table I-80. Substance Use Disorders: Question 13

Staff Positions	N	Lack of opportunity for professional growth/promotion		Dissatisfaction with supervision/management support		Dissatisfaction with support staff		Dissatisfaction with physical demands of the job		Dissatisfaction with workload		Lack of incentives or "management levers" to encourage productivity (i.e., no accountability)		Organizational culture that does not prioritize/encourage productivity		Administrative/ Program Demands		Lack of professional autonomy		Dissatisfaction with pay		1Work schedule		Inadequate equipment/ resources/office space		Burnout	
	N	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
a. Prescribing mental health providers	59	8	13.6	7	11.9	2	3.4	1	1.7	17	28.8	1	1.7	1	1.7	12	20.3	8	13.6	30	50.8	9	15.3	2	3.4	13	22.0
b. Prescribing providers with X-waiver for office-based Buprenorphine	39	5	12.8	8	20.5	3	7.7	0	0.0	10	25.6	0	0.0	0	0.0	11	28.2	6	15.4	18	46.2	5	12.8	4	10.3	6	15.4
c. Mental health social workers	36	13	36.1	8	22.2	2	5.6	2	5.6	8	22.2	3	8.3	0	0.0	6	16.7	3	8.3	8	22.2	3	8.3	1	2.8	11	30.6
d. Psychologists	35	15	42.9	7	20.0	2	5.7	2	5.7	7	20.0	1	2.9	1	2.9	11	31.4	5	14.3	4	11.4	2	5.7	4	11.4	8	22.9
e. Clinical nurse specialists or psychiatric physician assistants	21	7	33.3	1	4.8	0	0.0	0	0.0	9	42.9	1	4.8	1	4.8	5	23.8	1	4.8	6	28.6	2	9.5	3	14.3	5	23.8
f. Clerical staff/appointment schedulers (other administrative staff in mental health clinics)	37	17	45.9	3	8.1	1	2.7	0	0.0	10	27.0	0	0.0	0	0.0	10	27.0	0	0.0	18	48.6	2	5.4	2	5.4	9	24.3
g. Other substance use clinicians	19	7	36.8	3	15.8	2	10.5	0	0.0	2	10.5	1	5.3	0	0.0	2	10.5	1	5.3	6	31.6	3	15.8	1	5.3	8	42.1

N refers to the proportion of respondents who listed each "reason" as one of the two most important affecting retention
This question (question 13) is based on respondents who indicated that their local health care system had problems retaining certain personnel categories (question 11B). Question 13 was asked for each personnel type marked "yes" in question 11B.

The views, opinions, and/or findings contained in this report are those of RAND Corporation and should not be construed as an official government position, policy, or decision.

Appendix I.1.4 5.4 TBI

Section 4: Traumatic Brain Injury (TBI)

TBI Assessment After Screening (Comprehensive TBI Evaluation)

1. Consider patients who "screen positive" for possible TBI symptoms during a primary care or mental health clinic visit. IN THE PAST YEAR, where would these patients typically be sent to receive a **comprehensive TBI evaluation (CTBIE)**?

Table I-81. Traumatic Brain Injury: Question 1

	N	n	%
Neurology clinic	107	20	18.7
Mental health clinic	107	11	10.3
Primary care clinic	107	9	8.4
Physical medicine & rehabilitation clinic	107	47	43.9
Interdisciplinary TBI clinic within your local health care system	107	56	52.3
Interdisciplinary TBI clinic at a different local health care system	107	6	5.6
Interdisciplinary TBI clinic at a non-VA facility (fee-basis or contracted care)	107	1	0.9
Depends upon where the primary care & mental health clinics are located (VAMC vs. CBOC, and if CBOC, its size and location).	107	2	1.9
Other	107	5	4.7

2. Think about patients who "screen positive" for possible TBI and across all settings. IN THE **PAST YEAR,** how often were there delays in obtaining a **comprehensive TBI evaluation** (CTBIE)? Indicate the percent of patients that experienced this delay for whom the service was indicated.

Table I-82.Traumatic Brain Injury: Question 2

Service	N	No Delay		1-10% of patients experience delay		11-25% of patients experience delay		26-50% of patients experience delay		51% or more of patients experience delay		Not applicable	
		n	%	n	%	n	%	n	%	n	%	n	%
CTBIE	107	47	43.9	32	29.9	11	10.3	10	9.3	3	2.8	4	3.7

Reducing Delays in Completing Comprehensive TBI Evaluation

3. Think of the most effective way to reduce the number of delays that TBI patients experience obtaining a **comprehensive TBI evaluation** (CTBIE). Now, **in your solution, how important are each of the following elements in your solution?**

Table I-83. Traumatic Brain Injury: Question 3

Solution	N	Critically Important		Very Important		Somewhat Important		Unimportant		Not applicable	
		n	%	n	%	n	%	n	%	n	%
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds)	56	4	7.1	10	17.9	22	39.3	14	25.0	6	10.7
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists).	56	17	30.4	12	21.4	18	32.1	5	8.9	4	7.1
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff).	56	7	12.5	15	26.8	17	30.4	12	21.4	5	8.9
d. Acquire and/or improve availability of equipment.	56	0	0.0	6	10.7	15	26.8	26	46.4	9	16.1
e. Implement or increase the availability of telehealth services	56	1	1.8	18	32.1	17	30.4	15	26.8	5	8.9
f. Improve information technology (e.g., scheduling system, electronic health record).	56	10	17.9	17	30.4	15	26.8	9	16.1	5	8.9
g. Change "central office policies" that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided)	56	10	17.9	11	19.6	19	33.9	11	19.6	5	8.9
h. Improve personnel supervision, management, or incentives.	56	4	7.1	11	19.6	17	30.4	15	26.8	9	16.1
i. Increase weekend and evening availability of services	55	2	3.6	5	9.1	21	38.2	19	34.5	8	14.5
j. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community	56	2	3.6	4	7.1	15	26.8	27	48.2	8	14.3
k. Some other solution(s).	34	2	5.9	8	23.5	4	11.8	5	14.7	15	44.1
This question (question 3) is based on respondents who indicated that patients experienced delays (n=56) in obtaining a comprehensive TBI evaluation (question 2).											

Additional Assessments After Comprehensive TBI Evaluation

4. Please think about TBI patients for whom the following assessments are ordered. IN THE **PAST YEAR,** how often were there delays in obtaining the following assessments? Indicate the percent of patients that experienced delays for whom the service was ordered.

Table I-84. Traumatic Brain Injury: Question 4

Service	N	No Delay		1-10% of patients experience delay		11-25% of patients experience delay		26-50% of patients experience delay		51% or more of patients experience delay		Not applicable	
		n	%	n	%	n	%	n	%	n	%	n	%
a. MRI	107	50	46.7	31	29.0	7	6.5	7	6.5	6	5.6	6	5.6
b. Comprehensive sleep evaluation	106	29	27.4	31	29.3	15	14.2	9	8.5	9	8.5	13	12.3
c. Neuropsych evaluation	107	41	38.3	34	31.8	14	13.1	5	4.7	9	8.4	4	3.7
d. Case management services	105	80	76.2	12	11.4	5	4.8	0	0.0	3	2.9	5	4.8
e. Mental health evaluation	106	68	64.2	19	17.9	8	7.6	6	5.7	3	2.8	2	1.9
f. Neuro-optometry/ ophthalmology testing	106	49	46.2	26	24.5	8	7.6	3	2.8	5	4.7	15	14.2
g. Hearing assessment	107	67	62.6	22	20.6	9	8.4	3	2.8	2	1.9	4	3.7
h. Balance and vestibular testing	105	56	53.3	29	27.6	5	4.8	2	1.9	3	2.9	10	9.5
i. Physical therapy evaluation	106	64	60.4	26	24.5	9	8.5	0	0.0	4	3.8	3	2.8
j. Occupational therapy evaluation	107	77	72.0	14	13.1	6	5.6	2	1.9	1	0.9	7	6.5

5. Think about TBI patients who experienced delays in their additional assessments. IN THE **PAST YEAR**, which of these delays had the **most negative impact** on patients?

Results not presented. Respondents were only asked this question if they identified more than three delays in Q4 in order to identify their top three delays for Q6.

Reducing Delays for Assessment After Comprehensive TBI evaluation

6A. **Your solution to delays in** obtaining an MRI**.** Think of the most effective way to reduce the delays that TBI patients experience at this junction. Now, **in your solution, how important are each of the following elements**?

Table I-85. Traumatic Brain Injury: Question 6A

		Critically important		Very important		Somewhat important		Unimportant		Not applicable	
Solution	N	n	%	n	%	n	%	n	%	n	%
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds).	24	5	20.8	10	41.7	3	12.5	2	8.3	4	16.7
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists).	24	5	20.8	8	33.3	5	20.8	1	4.2	5	20.8
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff).	24	5	20.8	8	33.3	5	20.8	2	8.3	4	16.7
d. Acquire and/or improve availability of equipment.	24	7	29.2	10	41.67	3	12.5	1	4.2	3	12.5
e. Implement or increase the availability of telehealth services.	23	0	0.0	6	26.1	3	13.0	4	17.4	10	43.5
f. Improve information technology (e.g., scheduling system, electronic health record).	23	1	4.4	9	39.1	7	30.4	2	8.7	4	17.4
g. Change 'central office policies' that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided). Describe the policy changes needed in the comments box below.	24	2	8.3	8	33.3	1	4.2	5	20.8	8	33.3
h. Improve personnel supervision, management, or incentives.	24	2	8.3	6	25.0	5	20.8	2	8.3	9	37.5
i. Increase weekend and evening availability of services.	24	2	8.3	8	33.3	8	33.3	3	12.5	3	12.5
j. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community.	24	0	0.0	12	50.0	5	20.8	3	12.5	4	16.7
k. Some other solution(s).	17	2	11.8	3	17.7	0	0.0	0	0.0	12	70.6
This question (question 6) is based on respondents who indicated that patients experienced delays in obtaining assessments (question 4). If 1-3 delays were mentioned in question 4, this question was repeated for each delay mentioned. If 4 or more delays were mentioned in question 4, this question was repeated for the top three delays mentioned in question 5. Respondents were eligible to answer question 6a (N=24, 22.43% of those who answered question 4 and 47.06% of those who reported any delay) if they identified delays in four or more services and indicated that this was one of the three delays that had the most negative impact on patients or if this service was one of the three or fewer services for which a delay was indicated.											

6B. **Your solution to delays in obtaining** Comprehensive sleep evaluation**.** Think of the most effective way to reduce the delays that TBI patients experience at this junction. Now, **in your solution, how important are each of the following elements**?

Table I-86. Traumatic Brain Injury: Question 6B

Solution	N	Critically important		Very important		Somewhat important		Unimportant		Not applicable	
		n	%	n	%	n	%	n	%	n	%
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds).	40	5	12.5	13	32.5	13	32.5	3	7.5	6	15
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists).	41	10	24.4	14	34.2	10	24.4	2	4.9	5	12.2
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff).	41	7	17.1	11	26.8	16	39.0	2	4.9	5	12.2
d. Acquire and/or improve availability of equipment.	41	3	7.3	13	31.7	14	34.2	6	14.63	5	12.2
e. Implement or increase the availability of telehealth services.	41	0	0.0	6	14.6	10	24.4	7	17.07	18	43.9
f. Improve information technology (e.g., scheduling system, electronic health record).	41	1	2.4	5	12.2	12	29.3	9	21.95	14	34.2
g. Change 'central office policies' that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided).	41	0	0.0	4	9.8	16	39.0	6	14.63	15	36.6
h. Improve personnel supervision, management, or incentives.	41	0	0.0	4	9.8	13	31.7	13	31.71	11	26.8
i. Increase weekend and evening availability of services.	39	1	2.6	6	15.4	16	41.0	5	12.82	11	28.2
j. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community.	41	3	7.3	9	22.0	19	46.3	7	17.07	3	7.3
k. Some other solution(s).	29	0	0.0	8	27.6	5	17.2	2	6.9	14	48.3

This question (question 6) is based on respondents who indicated that patients experienced delays in obtaining assessments (question 4). If 1-3 delays were mentioned in question 4, this question was repeated for each delay mentioned. If 4 or more delays were mentioned in question 4, this question was repeated for the top three delays mentioned in question 5. Respondents were eligible to answer question 6b (N=42, 39.62% of those who answered question 4 and 65.63% of those who reported any delay) if they identified delays in four or more services and indicated that this was one of the three delays that had the most negative impact on patients or if this service was one of the three or fewer services for which a delay was indicated.

6C. **Your solution to delays in** obtaining Neuropsych evaluation**.** Think of the most effective way to reduce the delays that TBI patients experience at this junction. Now, **in your solution, how important are each of the following elements**?

Table I-87. Traumatic Brain Injury: Question 6C

Solution	N	Critically important		Very important		Somewhat important		Unimportant		Not applicable	
		n	%	n	%	n	%	n	%	n	%
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds).	42	7	16.7	11	26.2	12	28.6	4	9.5	8	19.1
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists).	42	23	54.8	12	28.6	6	14.3	0	0.0	1	2.4
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff).	42	7	16.7	15	35.7	9	21.4	6	14.3	5	11.9
d. Acquire and/or improve availability of equipment.	41	3	7.3	7	17.1	8	19.5	9	22.0	14	34.2
e. Implement or increase the availability of telehealth services.	41	3	7.3	2	4.9	17	41.5	9	22.0	10	24.4
f. Improve information technology (e.g., scheduling system, electronic health record).	41	3	7.3	6	14.6	13	31.7	9	22.0	10	24.4
g. Change 'central office policies' that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided).	42	5	11.9	1	2.4	13	31.0	10	23.8	13	31.0
h. Improve personnel supervision, management, or incentives.	42	2	4.8	5	11.9	13	31.0	11	26.2	11	26.2
i. Increase weekend and evening availability of services.	42	2	4.8	4	9.5	18	42.9	10	23.8	8	19.1
j. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community.	42	3	7.1	7	16.7	21	50.0	8	19.1	3	7.1
k. Some other solution(s).	30	2	6.7	5	16.7	4	13.3	2	6.7	17	56.7

This question (question 6) is based on respondents who indicated that patients experienced delays in obtaining assessments (question 4). If 1-3 delays were mentioned in question 4, this question was repeated for each delay mentioned. If 4 or more delays were mentioned in question 4, this question was repeated for the top three delays mentioned in question 5. Respondents were eligible to answer question 6c (N=42, 39.25% of those who answered question 4 and 67.74% of those who reported any delay) if they identified delays in four or more services and indicated that this was one of the three delays that had the most negative impact on patients or if this service was one of the three or fewer services for which a delay was indicated.

6D. **Your solution to delays in** obtaining Case management services**.** Think of the most effective way to reduce the delays that TBI patients experience at this junction. Now, **in your solution, how important are each of the following elements**?

Table I-88. Traumatic Brain Injury: Question 6D

Solution	N	Critically important		Very important		Somewhat important		Unimportant		Not applicable	
		n	%	n	%	n	%	n	%	n	%
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds).	10	1	10.0	1	10.0	3	30.0	5	50.0	0	0.0
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists).	9	3	33.3	2	22.2	4	44.4	0	0.0	0	0.0
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff).	10	3	30.0	3	30.0	3	30.0	1	10.0	0	0.0
d. Acquire and/or improve availability of equipment.	10	1	10.0	0	0.0	2	20.0	6	60.0	1	10.0
e. Implement or increase the availability of telehealth services.	10	1	10.0	2	20.0	5	50.0	2	20.0	0	0.0
f. Improve information technology (e.g., scheduling system, electronic health record).	9	1	11.1	4	44.4	2	22.2	2	22.2	0	0.0
g. Change 'central office policies' that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided).	10	2	20.0	1	10.0	4	40.0	3	30.0	0	0.0
h. Improve personnel supervision, management, or incentives.	10	1	10.0	1	10.0	4	40.0	3	30.0	1	10.0
i. Increase weekend and evening availability of services.	10	1	10.0	1	10.0	3	30.0	4	40.0	1	10.0
j. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community.	10	0	0.0	0	0.0.0	4	40.0	4	40.0	2	20.0
k. Some other solution(s).	8	1	12.5	0	0.0	1	12.5	0	0.0	6	75.0
This question (question 6) is based on respondents who indicated that patients experienced delays in obtaining assessments (question 4). If 1-3 delays were mentioned in question 4, this question was repeated for each delay mentioned. If 4 or more delays were mentioned in question 4, this question was repeated for the top three delays mentioned in question 5. Respondents were eligible to answer question 6d (N=10, 9.52% of those who answered question 4 and 50% of those who reported any delay) if they identified delays in four or more services and indicated that this was one of the three delays that had the most negative impact on patients or if this service was one of the three or fewer services for which a delay was indicated.											

6E. **Your solution to delays in** obtaining Mental health evaluation. Think of the most effective way to reduce the delays that TBI patients experience at this junction. Now, **in your solution, how important are each of the following elements**?

Table I-89. Traumatic Brain Injury: Question 6E

Solution	N	Critically important		Very important		Somewhat important		Unimportant		Not applicable	
		n	%	n	%	n	%	n	%	n	%
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds).	25	4	16.0	11	44.0	7	28.0	2	8.0	1	4.0
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists).	25	15	60.0	5	20.0	3	12.0	1	4.0	1	4.0
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff).	25	4	16.0	8	32.0	10	40.0	2	8.0	1	4.0
d. Acquire and/or improve availability of equipment.	25	0	0.0	2	8.0	6	24.0	9	36.0	8	32.0
e. Implement or increase the availability of telehealth services.	25	4	16.0	7	28.0	12	48.0	1	4.0	1	4.0
f. Improve information technology (e.g., scheduling system, electronic health record).	24	5	20.8	3	12.5	4	16.7	8	33.3	4	16.7
g. Change 'central office policies' that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided).	24	6	25.0	4	16.7	3	12.5	7	29.2	4	16.7
h. Improve personnel supervision, management, or incentives.	24	3	12.5	5	20.8	9	37.5	4	16.7	3	12.5
i. Increase weekend and evening availability of services.	24	5	20.8	4	16.7	8	33.3	4	16.7	3	12.5
j. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community.	24	2	8.3	5	20.8	8	33.3	7	29.2	2	8.3
k. Some other solution(s).	14	2	14.3	2	14.3	2	14.3	0	0.0	8	57.1
This question (question 6) is based on respondents who indicated that patients experienced delays in obtaining assessments (question 4). If 1-3 delays were mentioned in question 4, this question was repeated for each delay mentioned. If 4 or more delays were mentioned in question 4, this question was repeated for the top three delays mentioned in question 5. Respondents were eligible to answer question 6e (N=25, 23.58% of those who answered question 4 and 69.44% of those who reported any delay) if they identified delays in four or more services and indicated that this was one of the three delays that had the most negative impact on patients or if this service was one of the three or fewer services for which a delay was indicated.											

6F. **Your solution to delays in** obtaining Neuro-optometry/ ophthalmology testing**.** Think of the most effective way to reduce the delays that TBI patients experience at this junction. Now, **in your solution, how important are each of the following elements**?

Table I-90. Traumatic Brain Injury: Question 6F

Solution	N	Critically important		Very important		Somewhat important		Unimportant		Not applicable	
		n	%	n	%	n	%	n	%	n	%
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds).	13	0	0.0	3	23.1	5	38.5	3	23.8	2	15.4
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists)..	14	4	28.6	7	50.0	1	7.1	0	0.0	2	14.3
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff).	14	2	14.3	2	14.3	6	42.9	1	7.1	3	21.4
d. Acquire and/or improve availability of equipment.	14	0	0.0	3	21.4	5	35.7	2	14.3	4	28.6
e. Implement or increase the availability of telehealth services.	14	0	0.0	1	7.1	4	28.6	4	28.6	5	35.7
f. Improve information technology (e.g., scheduling system, electronic health record).	13	0	0.0	4	30.8	1	7.7	4	30.8	4	30.8
g. Change 'central office policies' that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided).	14	0	0.0	3	21.4	3	21.4	2	14.3	6	42.9
h. Improve personnel supervision, management, or incentives. .	14	0	0.0	5	35.7	4	28.6	2	14.3	3	21.4
i. Increase weekend and evening availability of services.	14	0	0.0	2	14.3	6	42.9	2	14.3	4	28.6
j. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community.	14	1	7.1	3	21.4	8	57.1	0	0.0	2	14.3
k. Some other solution(s).	12	1	8.3	3	25.0	2	16.7	0	0.0	6	50.0

This question (question 6) is based on respondents who indicated that patients experienced delays in obtaining assessments (question 4). If 1-3 delays were mentioned in question 4, this question was repeated for each delay mentioned. If 4 or more delays were mentioned in question 4, this question was repeated for the top three delays mentioned in question 5. Respondents were eligible to answer question 6f (N=14, 13.21% of those who answered question 4 and 33.33% of those who reported any delay) if they identified delays in four or more services and indicated that this was one of the three delays that had the most negative impact on patients or if this service was one of the three or fewer services for which a delay was indicated.

6G. **Your solution to delays in** obtaining Hearing assessment**.** Think of the most effective way to reduce the delays that TBI patients experience at this junction. Now, **in your solution, how important are each of the following elements**?

Table I-91. Traumatic Brain Injury: Question 6G

Solution	N	Critically important		Very important		Somewhat important		Unimportant		Not applicable	
		n	%	n	%	n	%	n	%	n	%
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds).	10	2	20.0	5	50.0	2	20.0	0	0.0	1	10.0
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists).	10	2	20.0	5	50.0	2	20.0	0	0.0	1	10.0
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff).	10	0	0.0	5	50.0	4	40.0	1	10.0	0	0.0
d. Acquire and/or improve availability of equipment.	10	2	20.0	3	30.0	4	40.0	0	0.0	1	10.0
e. Implement or increase the availability of telehealth services.	10	1	10.0	0	0.0	2	20.0	4	40.0	3	30.0
f. Improve information technology (e.g., scheduling system, electronic health record). Describe the technology improvements needed in the comments box below.	10	2	20.0	2	20.0	2	20.0	3	30.0	1	10.0
g. Change 'central office policies' that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided).	10	1	10.0	2	20.0	2	20.0	2	20.0	3	30.0
h. Improve personnel supervision, management, or incentives.	10	0	0.0	2	20.0	2	20.0	4	40.0	2	20.0
i. Increase weekend and evening availability of services.	10	3	30.0	3	30.0	2	20.0	1	10.0	1	10.0
j. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community.	10	1	10.0	3	30.0	2	20.0	4	40.0	0	0.0
k. Some other solution(s).	9	1	11.1	3	33.3	1	11.1	0	0.0	4	44.4

This question (question 6) is based on respondents who indicated that patients experienced delays in obtaining assessments (question 4). If 1-3 delays were mentioned in question 4, this question was repeated for each delay mentioned. If 4 or more delays were mentioned in question 4, this question was repeated for the top three delays mentioned in question 5. Respondents were eligible to answer question 6g (N=10, 9.35% of those who answered question 4 and 27.78% of those who reported any delay) if they identified delays in four or more services and indicated that this was one of the three delays that had the most negative impact on patients or if this service was one of the three or fewer services for which a delay was indicated.

6H. **Your solution to delays in** Balance and vestibular testing**.** Think of the most effective way to reduce the delays that TBI patients experience at this junction. Now, **in your solution, how important are each of the following elements**?

Table I-92. Traumatic Brain Injury: Question 6H

Solution	N	Critically important		Very important		Somewhat important		Unimportant		Not applicable	
		n	%	n	%	n	%	n	%	n	%
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds).	10	2	20.0	3	30.0	3	30.0	1	10.0	1	10.0
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists).	10	2	20.0	4	40.0	4	40.0	0	0.0	0	0.0
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff). .	10	1	10.0	3	30.0	4	40.0	1	10.0	1	10.0
d. Acquire and/or improve availability of equipment.	10	1	10.0	5	50.0	2	20.0	1	10.0	1	10.0
e. Implement or increase the availability of telehealth services.	10	1	10.0	1	10.0	3	30.0	5	50.0	0	0.0
f. Improve information technology (e.g., scheduling system, electronic health record).	9	1	11.1	1	11.1	2	22.2	4	44.4	1	11.1
g. Change 'central office policies' that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided).	10	0	0.0	4	40.0	2	20.0	3	30.0	1	10.0
h. Improve personnel supervision, management, or incentives.	9	0	0.0	3	33.3	2	22.2	3	33.3	1	11.1
i. Increase weekend and evening availability of services.	10	0	0.0	1	10.0	3	30.0	6	60.0	0	0.0
j. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community.	10	0	0.0	2	20.0	3	30.0	5	50.0	0	0.0
k. Some other solution(s).	7	0	0.0	3	42.9	1	14.3	2	28.6	1	14.3
This question (question 6) is based on respondents who indicated that patients experienced delays in obtaining assessments (question 4). If 1-3 delays were mentioned in question 4, this question was repeated for each delay mentioned. If 4 or more delays were mentioned in question 4, this question was repeated for the top three delays mentioned in question 5. Respondents were eligible to answer question 6h (N=10, 9.52% of those who answered question 4 and 25.64% of those who reported any delay) if they identified delays in four or more services and indicated that this was one of the three delays that had the most negative impact on patients or if this service was one of the three or fewer services for which a delay was indicated.												

6I. **Your solution to delays in** obtaining Physical therapy evaluation**.** Think of the most effective way to reduce the delays that TBI patients experience at this junction. Now, **in your solution, how important are each of the following elements**?

Table I-93. Traumatic Brain Injury: Question 6I

Solution	N	Critically important		Very important		Somewhat important		Unimportant		Not applicable	
		n	%	n	%	n	%	n	%	n	%
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds).	13	0	0.0	9	69.2	2	15.4	2	15.4	0	0.0
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists).	14	1	7.1	8	57.1	4	28.6	0	0.0	1	7.1
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff).	14	1	7.1	5	35.7	5	35.7	2	14.3	1	7.1
d. Acquire and/or improve availability of equipment.	14	0	0.0	6	42.9	4	28.6	3	21.4	1	7.1
e. Implement or increase the availability of telehealth services.	14	0	0.0	3	21.4	4	28.6	5	35.7	2	14.3
f. Improve information technology (e.g., scheduling system, electronic health record).	14	1	7.1	4	28.6	4	28.6	4	28.6	1	7.1
g. Change 'central office policies' that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided).	14	0	0.0	6	42.9	1	7.1	5	35.7	2	14.3
h. Improve personnel supervision, management, or incentives.	14	1	7.1	4	28.6	6	42.9	2	14.3	1	7.1
i. Increase weekend and evening availability of services.	14	0	0.0	2	14.3	9	64.3	3	21.4	0	0.0
j. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community.	14	1	7.1	3	21.4	3	21.4	6	42.9	1	7.1
k. Some other solution(s).	8	0	0.0	1	12.5	1	12.5	0	0.0	6	75.0

This question (question 6) is based on respondents who indicated that patients experienced delays in obtaining assessments (question 4). If 1-3 delays were mentioned in question 4, this question was repeated for each delay mentioned. If 4 or more delays were mentioned in question 4, this question was repeated for the top three delays mentioned in question 5. Respondents were eligible to answer question 6i (N=14, 13.21% of those who answered question 4 and 35.9% of those who reported any delay) if they identified delays in four or more services and indicated that this was one of the three delays that had the most negative impact on patients or if this service was one of the three or fewer services for which a delay was indicated.

6J. **Your solution to delays in** obtaining Occupational therapy evaluation**.** Think of the most effective way to reduce the delays that TBI patients experience at this junction. Now, **in your solution, how important are each of the following elements**?

Responses to this question are not presented due to small number of respondents who identified delays in accessing Occupational therapy evaluation and answered 6j (N = 7).

TBI Care Transition

7. Please think about patients who have previously been assessed for TBI in the DoD system. IN THE **PAST YEAR,** how often were there delays receiving **necessary medical records from the DoD assessment**? Indicate the percent of patients that experienced delays in having their records transferred to the VA.

Table I-94. Traumatic Brain Injury: Question 7

		No Delay		1-10% of patients experience delay		11-25% of patients experience delay		26-50% of patients experience delay		51% or more of patients experience delay		Not applicable	
Service	N	n	%	n	%	n	%	n	%	n	%	n	%
DoD records	106	32	30.2	24	22.6	13	12.3	7	6.6	21	19.8	9	8.5

TBI Ongoing Care

8/9. Is your local VA health care system a Polytrauma Network Site? How would you best characterize provision of care to patients with ongoing TBI symptoms at your local health care system?

Table I-95. Traumatic Brain Injury: Question 8/9

		N	n	%
Q8: Is your local VA health care system a Polytrauma Network Site?				
Yes		107	34	31.8
No	107	73	68.2	
Q9: How would you best characterize provision of care to patients with ongoing TBI symptoms at your local health care system?				
Most ongoing TBI care occurs at my local health care system rather than the regional polytrauma network site	73	64	87.7	
Most patients who need ongoing TBI care are referred out to the regional polytrauma network site	73	9	12.3	
This question (question 9) is based on respondents who indicated that their local VA health care system is not a Polytrauma Network Site.				

10. Please think about patients who require ongoing TBI care. IN THE **PAST YEAR**, how often were there delays in accessing the following services? Indicate the percent of patients that experienced delays for whom the service was required.

Table I-96. Traumatic Brain Injury: Question 10

Service	N	No Delay		1-10% of patients experience delay		11-25% of patients experience delay		26-50% of patients experience delay		51% or more of patients experience delay		Not applicable	
		n	%	n	%	n	%	n	%	n	%	n	%
a. Ongoing care by a TBI specialist at your facility	107	65	60.8	23	21.5	7	6.5	3	2.8	4	3.7	5	4.7
b. Ongoing care at a regional polytrauma network site	107	53	49.5	13	12.2	4	3.7	2	1.9	2	1.9	33	30.8
c. Neuropsych therapy	107	48	44.9	27	25.2	11	10.3	3	2.8	5	4.7	13	12.2
d. Other mental health therapy	105	67	63.8	19	18.1	8	7.6	6	5.7	2	1.9	3	2.9
e. Pain clinic for refractory symptoms	106	33	31.1	30	28.3	13	12.3	8	7.6	12	11.3	10	9.4
f. Sleep clinic follow-up for refractory symptoms	106	31	29.3	28	26.4	16	15.1	6	5.7	9	8.5	16	15.1
g. Physical therapy	106	65	61.3	25	23.6	9	8.5	2	1.9	1	0.9	4	3.8
h. Occupational therapy	106	78	73.6	14	13.2	3	2.8	3	2.8	1	0.9	7	6.6
i. Speech therapy	107	75	70.1	16	145.0	8	7.5	0	0.0	3	2.8	5	4.7
j. Vocational rehabilitation	105	59	56.2	14	13.3	8	7.6	1	1.0	4	3.8	19	18.1

11. Think about delays among patients who need ongoing TBI care. IN THE **PAST YEAR**, which of these delays had the **most negative impact** on patients?

Results not presented. Respondents were only asked this question if they identified more than three delays in Q10 in order to identify their top three delays for Q11.

Reducing Delays in TBI Treatment

12A. **Your solution to delays in: accessing** Ongoing care by a TBI specialist at your facility. Think of the most effective way to reduce the number of delays that TBI patients experience at this junction. Now, **in your solution, how important are each of the following elements**?

Table I-97. Traumatic Brain Injury: Question 12A

Solution	N	Critically important		Very important		Somewhat important		Unimportant		Not applicable	
		n	%	n	%	n	%	n	%	n	%
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds).	17	4	23.5	3	17.7	5	29.4	4	23.5	1	5.9
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists).	17	7	41.2	7	41.2	2	11.8	0	0.0	1	5.9
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff).	17	3	17.7	6	35.3	7	41.2	1	5.9	0	0.0
d. Acquire and/or improve availability of equipment.	17	1	5.9	3	17.7	5	29.4	5	29.4	3	17.7
e. Implement or increase the availability of telehealth services.	17	1	5.9	4	23.5	4	23.5	4	23.5	4	23.5
f. Improve information technology (e.g., scheduling system, electronic health record).	17	1	5.9	5	29.4	4	23.5	4	23.5	3	17.7
g. Change 'central office policies' that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided).	16	2	12.5	3	18.8	2	12.5	5	31.3	4	25.0
h. Improve personnel supervision, management, or incentives.	16	2	12.5	2	12.5	0	0.0	7	43.8	5	31.3
i. Increase weekend and evening availability of services.	17	2	11.8	3	17.7	6	35.3	4	23.5	2	11.8
j. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community.	17	1	5.9	2	11.8	4	23.5	6	35.3	4	23.5
k. Some other solution(s).	13	1	7.7	4	30.8	1	7.7	0	0.0	7	53.9
This question (question 12) is based on respondents who indicated that patients experienced delays in accessing ongoing TBI care (question 10). If 1-3 delays were mentioned in question 10, this question was repeated for each delay mentioned. If 4 or more delays were mentioned in question 10, this question was repeated for the top three delays mentioned in question 11. Respondents were eligible to answer question 12a (N=17, 15.89% of those who answered question 10 and 45.95% of those who reported any delay) if they identified delays in four or more services and indicated that this was one of the three delays that had the most negative impact on patients or if this service was one of the three or fewer services for which a delay was indicated.											

12B. **Your solution to delays in: accessing** Ongoing care at a regional polytrauma network site. Think of the most effective way to reduce the number of delays that TBI patients experience at this junction. Now, **in your solution, how important are each of the following elements**?

Table I-98. Traumatic Brain Injury: Question 12B

Solution	N	Critically important n	Critically important %	Very important n	Very important %	Somewhat important n	Somewhat important %	Unimportant n	Unimportant %	Not applicable n	Not applicable %
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds).	10	0	0.0	4	40.0	2	20.0	2	20.0	2	20.0
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists).	10	3	30.0	5	50.0	1	10.0	0	0.0	1	10.0
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff).	10	0	0.0	5	50.0	4	40.0	0	0.0	1	10.0
d. Acquire and/or improve availability of equipment.	10	0	0.0	3	30.0	2	20.0	3	30.0	2	20.0
e. Implement or increase the availability of telehealth services.	9	0	0.0	3	33.3	4	44.4	1	11.1	1	11.1
f. Improve information technology (e.g., scheduling system, electronic health record).	10	1	10.0	4	40.0	4	40.0	1	10.0	0	0.0
g. Change 'central office policies' that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided).	10	2	20.0	5	50.0	3	30.0	0	0.0	0	0.0
h. Improve personnel supervision, management, or incentives.	9	0	0.0	4	44.4	0	0.0	3	33.3	2	22.2
i. Increase weekend and evening availability of services.	10	0	0.0	1	10.0	7	70.0	0	0.0	2	20.0
j. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community.	10	0	0.0	2	20.0	4	40.0	4	40.0	0	0.0
k. Some other solution(s).	8	0	0.0	2	25.0	0	0.0	1	12.5	5	62.5

This question (question 12) is based on respondents who indicated that patients experienced delays in accessing ongoing TBI care (question 10). If 1-3 delays were mentioned in question 10, this question was repeated for each delay mentioned. If 4 or more delays were mentioned in question 10, this question was repeated for the top three delays mentioned in question 11. Respondents were eligible to answer question 12b (N=10, 9.35% of those who answered question 10 and 47.62% of those who reported any delay) if they identified delays in four or more services and indicated that this was one of the three delays that had the most negative impact on patients or if this service was one of the three or fewer services for which a delay was indicated.

12C. **Your solution to delays in: accessing** Neuropsych therapy. Think of the most effective way to reduce the number of delays that TBI patients experience at this junction. Now, **in your solution, how important are each of the following elements**?

Table I-99. Traumatic Brain Injury: Question 12C

Solution	N	Critically important		Very important		Somewhat important		Unimportant		Not applicable	
		n	%	n	%	n	%	n	%	n	%
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds).	33	7	21.2	8	24.2	7	21.2	6	18.2	5	15.2
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists).	34	14	41.2	14	41.2	3	8.8	1	2.9	2	5.9
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff).	34	5	14.7	13	38.2	6	17.7	6	17.7	4	11.8
d. Acquire and/or improve availability of equipment.	32	2	6.3	3	9.4	10	31.3	11	34.4	6	18.8
e. Implement or increase the availability of telehealth services.	34	0	0.0	5	14.7	16	47.1	6	17.7	7	20.6
f. Improve information technology (e.g., scheduling system, electronic health record).	34	3	8.8	6	17.7	7	20.6	10	29.4	8	23.5
g. Change 'central office policies' that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided).	33	3	9.1	4	12.1	10	30.3	6	18.2	10	30.3
h. Improve personnel supervision, management, or incentives.	33	3	9.1	6	18.2	5	15.2	11	33.3	8	24.2
i. Increase weekend and evening availability of services.	32	3	9.4	5	15.6	9	28.1	11	34.4	4	12.5
j. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community.	33	2	6.1	9	27.3	13	39.4	7	21.2	2	6.1
k. Some other solution(s).	24	2	8.3	3	12.5	1	4.2	1	4.2	17	70.8
This question (question 12) is based on respondents who indicated that patients experienced delays in accessing ongoing TBI care (question 10). If 1-3 delays were mentioned in question 10, this question was repeated for each delay mentioned. If 4 or more delays were mentioned in question 10, this question was repeated for the top three delays mentioned in question 11. Respondents were eligible to answer question 12c (N=34, 31.78% of those who answered question 10 and 73.91% of those who reported any delay) if they identified delays in four or more services and indicated that this was one of the three delays that had the most negative impact on patients or if this service was one of the three or fewer services for which a delay was indicated.											

12D. **Your solution to delays in: accessing** Other mental health therapy. Think of the most effective way to reduce the number of delays that TBI patients experience at this junction. Now, **in your solution, how important are each of the following elements**?

Table I-100. Traumatic Brain Injury: Question 12D

Solution	N	Critically important		Very important		Somewhat important		Unimportant		Not applicable	
		n	%	n	%	n	%	n	%	n	%
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds).	25	2	8.0	8	32.0	8	32.0	5	20.0	2	8.0
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists).	25	12	48.0	8	32.0	3	12.0	1	4.0	1	4.0
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff).	24	2	8.3	6	25.0	9	37.5	6	25.0	1	4.2
d. Acquire and/or improve availability of equipment.	24	0	0.0	2	8.3	3	12.5	9	37.5	10	41.7
e. Implement or increase the availability of telehealth services.	25	2	8.0	8	32.0	12	48.0	2	8.0	1	4.0
f. Improve information technology (e.g., scheduling system, electronic health record).	23	1	4.4	2	8.7	6	26.1	8	34.8	6	26.1
g. Change 'central office policies' that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided).	24	0	0.0	3	12.5	8	33.3	6	25.0	7	29.2
h. Improve personnel supervision, management, or incentives.	24	0	0.0	7	29.2	6	25.0	6	25.0	5	20.8
i. Increase weekend and evening availability of services.	23	4	17.4	3	13.0	10	43.5	5	21.7	1	4.4
j. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community.	24	0	0.0	2	8.3	13	54.2	6	25.0	3	12.5
k. Some other solution(s).	11	0	0.0	2	18.2	1	9.1	1	9.2	7	63.6
This question (question 12) is based on respondents who indicated that patients experienced delays in accessing ongoing TBI care (question 10). If 1-3 delays were mentioned in question 10, this question was repeated for each delay mentioned. If 4 or more delays were mentioned in question 10, this question was repeated for the top three delays mentioned in question 11. Respondents were eligible to answer question 12d (N=25, 23.81% of those who answered question 10 and 71.43% of those who reported any delay) if they identified delays in four or more services and indicated that this was one of the three delays that had the most negative impact on patients or if this service was one of the three or fewer services for which a delay was indicated.											

12E. **Your solution to delays in: accessing** Treatment from a pain clinic for refractory symptoms. Think of the most effective way to reduce the number of delays that TBI patients experience at this junction. Now, **in your solution, how important are each of the following elements**?

Table I-101. Traumatic Brain Injury: Question 12E

Solution	N	Critically important		Very important		Somewhat important		Unimportant		Not applicable	
		n	%	n	%	n	%	n	%	n	%
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds).	50	15	30.0	16	32.0	14	28.0	2	4.0	3	6.0
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists).	49	21	42.9	20	40.8	4	8.2	1	2.0	3	6.1
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff).	50	9	18.0	19	38.0	16	32.0	3	6.0	3	6.0
d. Acquire and/or improve availability of equipment.	50	6	12.0	8	16.0	18	36.0	11	22.0	7	14.0
e. Implement or increase the availability of telehealth services.	46	2	4.4	6	13.0	19	41.3	9	19.6	10	21.7
f. Improve information technology (e.g., scheduling system, electronic health record).	47	5	10.6	13	27.7	7	14.9	10	21.3	12	25.5
g. Change 'central office policies' that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided).	47	4	8.5	8	17.0	11	23.4	11	23.4	13	27.7
h. Improve personnel supervision, management, or incentives.	48	3	6.3	11	22.9	13	27.1	11	22.9	10	20.8
i. Increase weekend and evening availability of services.	47	5	10.6	6	12.8	15	31.9	13	27.7	8	17.0
j. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community.	48	4	8.3	8	16.7	23	47.9	8	16.7	5	10.4
k. Some other solution(s).	33	2	6.1	4	12.1	2	6.1	1	3.0	24	72.7

This question (question 12) is based on respondents who indicated that patients experienced delays in accessing ongoing TBI care (question 10). If 1-3 delays were mentioned in question 10, this question was repeated for each delay mentioned. If 4 or more delays were mentioned in question 10, this question was repeated for the top three delays mentioned in question 11. Respondents were eligible to answer question 12e (N=52, 49.06% of those who answered question 10 and 82.54% of those who reported any delay) if they identified delays in four or more services and indicated that this was one of the three delays that had the most negative impact on patients or if this service was one of the three or fewer services for which a delay was indicated.

12F. **Your solution to delays in**: **accessing** Treatment from a sleep clinic for follow-up for refractory symptoms. Think of the most effective way to reduce the number of delays that TBI patients experience at this junction. Now, **in your solution, how important are each of the following elements**?

Table I-102. Traumatic Brain Injury: Question 12F

Solution	N	Critically important		Very important		Somewhat important		Unimportant		Not applicable	
		n	%	n	%	n	%	n	%	n	%
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds).	34	5	14.7	12	35.3	9	26.5	3	8.8	5	14.7
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists).	34	8	23.5	15	44.1	7	20.6	0	0.0	4	11.8
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff).	33	5	15.2	13	39.4	9	27.3	2	6.1	4	12.1
d. Acquire and/or improve availability of equipment.	33	1	3.0	13	39.4	11	33.3	3	9.1	5	15.2
e. Implement or increase the availability of telehealth services.	34	1	2.9	2	5.9	12	35.3	4	11.8	15	44.1
f. Improve information technology (e.g., scheduling system, electronic health record).	34	2	5.9	6	17.7	7	20.6	8	23.5	11	32.4
g. Change 'central office policies' that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided).	34	2	5.9	6	17.7	5	14.7	10	29.4	11	32.4
h. Improve personnel supervision, management, or incentives.	32	1	3.1	6	18.8	8	25.0	8	25.0	9	28.1
i. Increase weekend and evening availability of services.	34	2	5.9	5	14.7	15	44.1	6	17.7	6	17.7
j. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community.	33	3	9.1	7	21.2	15	45.5	5	15.2	3	9.1
k. Some other solution(s).	22	0	0.0	3	13.6	3	13.6	1	4.6	15	68.2
This question (question 12) is based on respondents who indicated that patients experienced delays in accessing ongoing TBI care (question 10). If 1-3 delays were mentioned in question 10, this question was repeated for each delay mentioned. If 4 or more delays were mentioned in question 10, this question was repeated for the top three delays mentioned in question 11. Respondents were eligible to answer question 12f (N=36, 33.96% of those who answered question 10 and 61.02% of those who reported any delay) if they identified delays in four or more services and indicated that this was one of the three delays that had the most negative impact on patients or if this service was one of the three or fewer services for which a delay was indicated.											

12G. **Your solution to delays in: accessing** Physical therapy. Think of the most effective way to reduce the number of delays that TBI patients experience at this junction. Now, **in your solution, how important are each of the following elements**?

Table I-103. Traumatic Brain Injury: Question 12G

Solution	N	Critically important		Very important		Somewhat important		Unimportant		Not applicable	
		n	%	n	%	n	%	n	%	n	%
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds).	11	2	18.2	4	36.4	4	36.4	1	9.1	0	0.0
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists).	11	2	18.2	4	36.4	4	36.4	0	0.0	1	9.1
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff).	11	0	0.0	6	54.6	4	36.4	1	9.1	0	0.0
d. Acquire and/or improve availability of equipment.	11	0	0.0	2	18.2	4	36.4	5	45.5	0	0.0
e. Implement or increase the availability of telehealth services.	11	0	0.0	2	18.2	5	45.5	2	18.2	2	18.2
f. Improve information technology (e.g., scheduling system, electronic health record).	11	2	18.2	1	9.1	4	36.4	3	27.3	1	9.1
g. Change 'central office policies' that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided).	11	0	0.0	0	0.0	5	45.5	5	45.5	1	9.1
h. Improve personnel supervision, management, or incentives. .	10	0	0.0	2	20	4	40.0	3	30.0	1	10.0
i. Increase weekend and evening availability of services.	11	0	0.0	3	27.3	3	27.3	3	27.3	2	18.2
j. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community.	11	1	9.1	3	27.3	2	18.2	3	27.3	2	18.2
k. Some other solution(s).	7	0	0.0	0	0.0	1	14.3	0.0	0.0	6	85.7
This question (question 12) is based on respondents who indicated that patients experienced delays in accessing ongoing TBI care (question 10). If 1-3 delays were mentioned in question 10, this question was repeated for each delay mentioned. If 4 or more delays were mentioned in question 10, this question was repeated for the top three delays mentioned in question 11. Respondents were eligible to answer question 12g (N=12, 11.32% of those who answered question 10 and 32.43% of those who reported any delay) if they identified delays in four or more services and indicated that this was one of the three delays that had the most negative impact on patients or if this service was one of the three or fewer services for which a delay was indicated.											

12H. **Your solution to delays in: accessing** Occupational therapy. Think of the most effective way to reduce the number of delays that TBI patients experience at this junction. Now, **in your solution, how important are each of the following elements**?

Responses to this question are not presented due to small number of respondents who identified delays in accessing Occupational therapy and answered 12h (N = 4).

12I. **Your solution to delays in: accessing** Speech therapy . Think of the most effective way to reduce the number of delays that TBI patients experience at this junction. Now, **in your solution, how important are each of the following elements**?

Responses to this question are not presented due to small number of respondents who identified delays in accessing Speech therapy and answered 12i (N = 9).

12J. **Your solution to delays in: accessing** Vocational rehabilitation. Think of the most effective way to reduce the number of delays that TBI patients experience at this junction. Now, **in your solution, how important are each of the following elements**?

Table I-104. Traumatic Brain Injury: Question 12J

Solution	N	Critically important n	%	Very important n	%	Somewhat important n	%	Unimportant n	%	Not applicable n	%
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds).	10	2	20.0	1	10.0	3	30.0	1	10.0	3	30.0
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists).	10	2	20.0	3	30.0	2	20.0	1	10.0	2	20.0
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff).	9	1	11.1	1	11.1	5	55.6	0	0.0	2	22.2
d. Acquire and/or improve availability of equipment.	10	0	0.0	1	10.0	0	0.0	2	20.0	7	70.0
e. Implement or increase the availability of telehealth services.	10	0	0.0	1	10.0	3	30.0	1	10.0	5	50.0
f. Improve information technology (e.g., scheduling system, electronic health record).	10	1	10.0	1	10.0	3	30.0	2	20.0	3	30.0
g. Change 'central office policies' that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided).	10	3	30.0	0	0.0	3	30.0	2	20.0	2	20.0
h. Improve personnel supervision, management, or incentives.	10	1	10.0	0	0.0	3	30.0	2	20.0	4	40.0
i. Increase weekend and evening availability of services.	10	0	0.0	1	10.0	3	30.0	2	20.0	4	40.0
j. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community.	10	0	0.0	1	10.0	4	40.0	1	10.0	4	40.0
k. Some other solution(s).	8	2	25.0	0	0.0	1	12.5	0	0.0	5	62.5

This question (question 12) is based on respondents who indicated that patients experienced delays in accessing ongoing TBI care (question 10). If 1-3 delays were mentioned in question 10, this question was repeated for each delay mentioned. If 4 or more delays were mentioned in question 10, this question was repeated for the top three delays mentioned in question 11. Respondents were eligible to answer question 12j (N=10, 9.52% of those who answered question 10 and 37.04% of those who reported any delay) if they identified delays in four or more services and indicated that this was one of the three delays that had the most negative impact on patients or if this service was one of the three or fewer services for which a delay was indicated.

Issues that Affect Provider and System Efficiency

13. IN THE PAST YEAR, how much did the following issues negatively impact provider and system efficiency related to the provision of TBI care?

Table I-105. Traumatic Brain Injury: Question 13

	N	None n	None %	A little n	A little %	A fair amount n	A fair amount %	A lot n	A lot %	Not Applicable n	Not Applicable %
a. Providers performing clinical activities that could be performed by individuals with less training	106	44	41.5	26	24.5	13	12.3	18	17.0	5	4.7
b. Providers performing administrative activities that could be performed by others	104	17	16.3	23	22.1	25	24.0	34	32.7	5	4.8
c. Residency training/teaching requirements	105	43	41.0	26	24.8	2	1.9	3	2.9	31	29.5
d. Insufficient clinical/administrative support staff	106	15	14.2	24	22.6	25	23.6	38	35.8	4	3.8
e. Inadequate scheduling system and policies (e.g., hard to cancel or reschedule, coordinate)	106	20	18.9	14	13.2	25	23.6	42	39.6	5	4.7
f. Unnecessary documentation requirements or inefficient CPRS interface	106	10	9.4	29	27.4	25	23.6	37	34.9	5	4.7
g. Patient no-show rates	104	0	0.0	29	27.9	30	28.8	44	42.3	1	1.0
h. Poor patient flow management (room/bed turnover, appointments)	105	36	34.3	30	28.6	13	12.4	10	9.5	16	15.2
i. Too many administrative requirements (Initiatives/Policies/Programs)	104	14	13.5	25	24.0	25	24.0	33	31.7	7	6.7
j. Inadequate physical space (e.g., exam rooms) or equipment (e.g., MRI scanner)	105	26	24.8	31	29.5	22	21.0	18	17.1	8	7.6

TBI Workforce

14A. IN THE PAST YEAR, did your local health care system have problems **RECRUITING OR HIRING** the following personnel categories?

Table I-106. Traumatic Brain Injury: Question 14A

Staff Positions	N	Yes n	Yes %	No n	No %	Not Applicable n	Not Applicable %
a. Neurologists	103	38	36.9	34	33.0	31	30.1
b. Neuro-radiologists	101	19	18.8	20	19.8	62	61.4
c. Neurological Surgeons	101	21	20.8	15	14.9	65	64.4
d. Psychiatrists	105	45	43.3	41	39.4	18	17.3
e. Physical Medicine & Rehabilitation Physicians	104	56	53.8	30	28.8	18	17.3
f. Pain Management Physicians	104	47	44.8	35	33.3	23	21.9
g. Physicians with specific training or expertise in TBI (any primary specialty)	106	35	33.0	37	34.9	34	32.1
h. Neuropsychologists	102	34	33.3	43	42.2	25	24.5
i. Other behavior health personnel	103	41	39.8	41	39.8	21	20.4
j. Physical Therapists	105	40	38.1	52	49.5	13	12.4
k. Occupational Therapists	104	28	26.9	58	55.8	18	17.3
l. Speech Therapists	103	23	22.3	51	49.5	29	28.2
m. Vocational Therapists	102	17	16.7	43	42.2	42	41.2
n. Case Managers (RN or Social Worker)	104	27	26.0	59	56.7	18	17.3

The views, opinions, and/or findings contained in this report are those of RAND Corporation and should not be construed as an official government position, policy, or decision.

Reasons for Staff Recruitment/Hiring Problems

15. Please enter the **top two reasons** why there were problems **RECRUITING AND HIRING** these personnel types.

Table I-107. Traumatic Brain Injury: Question 15

Staff Positions	N	Senior management does not agree to post new position n	%	Non-competitive wages n	%	Work schedule (e.g., call requirements) n	%	Benefits (e.g., health insurance, leave, continuing education, travel) n	%	Equipment/resources/office space n	%	Facility condition n	%	Case types/complexity n	%	VA reputation n	%	No academic affiliation/lack of protected time for early career investigator n	%	Geographic location of facility n	%	HR process (e.g., time to advertise; length of time from job offer to start date) n	%	Lack of qualified applicants n	%
a. Neurologists	38	3	7.9	20	52.6	3	7.9	0	0.0	1	2.6	0	0.0	0	0.0	5	13.2	3	7.9	9	23.7	9	23.7	11	28.9
b. Neuro-radiologists	19	3	15.8	9	47.4	0	0.0	0	0.0	2	10.5	0	0.0	0	0.0	1	5.3	2	10.5	4	21.1	4	21.1	3	15.8
c. Neurological Surgeons	21	2	9.5	15	71.4	0	0.0	0	0.0	6	28.6	1	4.8	0	0.0	2	9.5	1	4.8	4	19.0	2	9.5	3	14.3
d. Psychiatrists	45	2	4.3	26	55.3	2	4.3	0	0.0	1	2.1	1	2.1	1	2.1	6	12.8	1	2.1	15	31.9	15	31.9	8	17.0
e. Physical Medicine & Rehabilitation Physicians	56	7	15.6	25	55.6	0	0.0	1	2.2	0	0.0	2	4.4	1	2.2	2	4.4	1	2.2	11	24.4	17	37.8	13	28.9
f. Pain Management Physicians	47	5	8.9	37	66.1	2	3.6	1	1.8	4	7.1	0	0.0	2	3.6	5	8.9	1	1.8	12	21.4	14	25.0	13	23.2
g. Physicians with specific training or expertise in TBI (any primary specialty)	35	4	11.4	22	62.9	0	0.0	1	2.9	1	2.9	0	0.0	1	2.9	2	5.7	1	2.9	11	31.4	10	28.6	7	20.0
h. Neuropsychologists	34	8	23.5	10	29.4	1	2.9	0	0.0	1	2.9	1	2.9	0	0.0	2	5.9	0	0.0	7	20.6	14	41.2	11	32.4
i. Other behavior health personnel	41	6	14.6	17	41.5	2	4.9	0	0.0	0	0.0	1	2.4	2	4.9	1	2.4	0	0.0	9	22.0	16	39.0	10	24.4
j. Physical Therapists	40	5	12.5	20	50.0	0	0.0	2	5.0	1	2.5	0	0.0	1	2.5	3	7.5	0	0.0	7	17.5	23	57.5	6	15.0
k. Occupational Therapists	28	4	14.3	15	53.6	0	0.0	1	3.6	1	3.6	1	3.6	2	7.1	2	7.1	0	0.0	3	10.7	15	53.6	4	14.3
l. Speech Therapists	23	4	17.4	11	47.8	0	0.0	0	0.0	2	8.7	0	0.0	2	8.7	1	4.3	2	8.7	4	17.4	11	47.8	4	17.4
m. Vocational Therapists	17	4	23.5	3	17.6	0	0.0	0	0.0	1	5.9	1	5.9	1	5.9	0	0.0	0	0.0	0	0.0	8	47.1	4	23.5
n. Case Managers (RN or Social Worker)	27	9	33.3	7	25.9	1	3.7	0	0.0	0	0.0	0	0.0	3	11.1	3	11.1	0	0.0	3	11.1	15	55.6	5	18.5

N refers to the proportion of respondents who listed each "reason" as one of the two most important affecting recruitment and hiring.

This question (question 15) is based on respondents who indicated that their local health care system had problems recruiting or hiring certain personnel categories (question 14A). Question 15 was asked for each personnel type marked "yes" in question 14A.

Reasons for Staff Retention Problems

14B. IN THE PAST YEAR, did your local health care system have problems **RETAINING** the following personnel categories?

Table I-108. Traumatic Brain Injury: Question 14B

Staff Positions	N	Yes		No		Not Applicable	
		n	%	n	%	n	%
a. Neurologists	102	22	21.6	50	49.0	30	29.4
b. Neuro-radiologists	101	5	5.0	28	27.7	68	67.3
c. Neurological Surgeons	102	7	6.9	22	21.6	73	71.6
d. Psychiatrists	102	28	27.5	46	45.1	28	27.5
e. Physical Medicine & Rehabilitation Physicians	104	26	25.0	62	59.6	16	15.4
f. Pain Management Physicians	101	22	21.8	48	47.5	31	30.7
g. Physicians with specific training or expertise in TBI (any primary specialty)	104	19	18.3	53	51.0	32	30.8
h. Neuropsychologists	102	13	12.7	63	61.8	26	25.5
i. Other behavior health personnel	102	27	26.5	49	48.0	26	25.5
j. Physical Therapists	103	19	18.4	69	67.0	15	14.6
k. Occupational Therapists	105	12	11.4	78	74.3	15	14.3
l. Speech Therapists	100	9	9.0	75	75.0	16	16.0
m. Vocational Therapists	103	7	6.8	62	60.2	34	33.0
n. Case Managers (RN or Social Worker)	103	15	14.6	72	69.9	16	15.5

16. Please enter the **top two** reasons why there were problems **retaining** these personnel types.

Table I-109. Traumatic Brain Injury: Question 16

Staff Positions	N	Lack of opportunity for professional growth/promotion n	%	Dissatisfaction with supervision/management support n	%	Dissatisfaction with support staff n	%	Dissatisfaction with physical demands of the job n	%	Dissatisfaction with workload n	%	Lack of incentives or "management levers" to encourage productivity (i.e., no accountability) n	%	Organizational culture that does not prioritize/encourage productivity n	%	Administrative/Program Demands n	%	Lack of professional autonomy n	%	Dissatisfaction with pay n	%	Work schedule n	%	Inadequate equipment/resources/office space n	%	Burnout n	%
a. Neurologists	22	4	18.2	6	27.3	1	4.5	0	0.0	8	36.4	0	0.0	1	4.5	4	18.2	1	4.5	7	31.8	2	9.1	3	13.6	5	22.7
b. Neuro-radiologists	5	1	20.0	1	20.0	0	0.0	0	0.0	2	40.0	0	0.0	0	0.0	0	0.0	0	0.0	3	60.0	1	20.0	0	0.0	0	0.0
c. Neurological Surgeons	7	0	0.0	1	14.3	0	0.0	0	0.0	2	28.6	0	0.0	0	0.0	0	0.0	1	14.3	3	42.9	0	0.0	0	0.0	0	0.0
d. Psychiatrists	28	2	7.1	5	17.9	0	0.0	0	0.0	9	32.1	2	7.1	0	0.0	3	10.7	5	17.9	12	42.9	5	17.9	0	0.0	7	25.0
e. Physical Medicine & Rehabilitation Physicians	26	4	15.4	3	11.5	0	0.0	0	0.0	6	23.1	0	0.0	1	3.8	4	15.4	1	3.8	9	34.6	6	23.1	3	11.5	9	34.6
f. Pain Management Physicians	22	0	0.0	2	9.1	1	4.5	0	0.0	7	31.8	0	0.0	0	0.0	3	13.6	2	9.1	8	36.4	3	13.6	4	18.2	5	22.7
g. Physicians with specific training or expertise in TBI (any primary specialty)	19	2	10.5	3	15.8	1	5.3	0	0.0	2	10.5	1	5.3	3	15.8	3	15.8	0	0.0	7	36.8	5	26.3	2	10.5	3	15.8
h. Neuropsychologists	13	2	15.4	2	15.4	2	15.4	0	0.0	3	23.1	0	0.0	0	0.0	1	7.7	0	0.0	4	30.8	4	30.8	0	0.0	3	23.1
i. Other behavior health personnel	27	4	14.8	2	7.4	1	3.7	1	3.7	5	18.5	0	0.0	1	3.7	5	18.5	0	0.0	6	22.2	4	14.8	0	0.0	6	22.2
j. Physical Therapists	19	5	26.3	2	10.5	1	5.3	1	5.3	3	15.8	3	15.8	0	0.0	2	10.5	1	5.3	11	57.9	2	10.5	1	5.3	4	21.1
k. Occupational Therapists	12	3	25.0	2	16.7	1	8.3	0	0.0	1	8.3	1	8.3	0	0.0	2	16.7	1	8.3	6	50.0	2	16.7	1	8.3	2	16.7
l. Speech Therapists	9	1	11.1	1	11.1	0	0.0	1	11.1	2	22.2	1	11.1	0	0.0	2	22.2	0	0.0	4	44.4	1	11.1	1	11.1	1	11.1
m. Vocational Therapists	7	2	28.6	1	14.3	0	0.0	0	0.0	0	0.0	0	0.0	2	28.6	0	0.0	0	0.0	2	28.6	0	0.0	0	0.0	1	14.3
n. Case Managers (RN or Social Worker)	15	1	6.7	4	26.7	1	6.7	1	6.7	4	26.7	1	6.7	0	0.0	5	33.3	1	6.7	1	6.7	2	13.3	1	6.7	7	46.7

N refers to the proportion of respondents who listed each "reason" as one of the two most important affecting retention. This question (question 16) is based on respondents who indicated that their local health care system had problems retaining certain personnel categories (question 14B). Question 16 was asked for each personnel type marked "yes" in question 14B.

Appendix I.1.5 5.5 ACS

Section 5: Acute Coronary Syndrome (ACS)

ACS Diagnosis and Assessment

1. Please think about patients presenting to your Emergency Department with symptoms suggestive of Acute Coronary Syndrome (ACS). **IN THE PAST 90 DAYS,** how often did patients experience delays receiving the following services? Indicate the percent of patients that experienced delays for whom the services were required.

Table I-110. Acute Coronary Syndrome: Question 1

Service	N	No Delay		1-10% of patients experience delay		11-25% of patients experience delay		26-50% of patients experience delay		51% or more of patients experience delay		Not applicable	
		n	%	n	%	n	%	n	%	n	%	n	%
a. Completing the Emergency Department (ED) evaluation	98	48	49.0	36	36.7	5	5.1	0	0.0	0	0.0	9	9.2
b. Transfer from the ED to a short-stay observation unit (i.e., 'chest pain unit')	98	22	22.5	16	16.3	4	4.1	0	0.0	0	0.0	56	57.1
c. Transfer from the ED to a telemetry bed	98	30	30.6	36	36.7	14	14.3	2	2.0	3	3.06	13	13.3
d. Transfer from the ED to a CCU or ICU bed	98	34	34.7	38	38.8	7	7.1	0	0.0	3	3.06	16	16.3

2. Think about those ACS patients who experienced delays getting an **evaluation.** IN THE PAST 90 DAYS, which of these delays had the **most negative impact on patients**?

Results not presented. Respondents were only asked this question if they identified more than three delays in Q1 in order to identify their top three delays for Q3.

3A. **Your solution to delays in**: Completing the Emergency Department (ED) evaluation. Think of the most effective way to reduce the number of delays that ACS patients experience at this junction. Now, **in your solution, how important are each of the following elements?**

Table I-111. Acute Coronary Syndrome: Question 3A

Solution	N	Critically important		Very important		Somewhat important		Unimportant		Not applicable	
		n	%	n	%	n	%	n	%	n	%
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds).	36	13	36.1	14	38.9	6	16.7	2	5.6	1	2.8
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists).	36	4	11.1	12	33.3	16	44.4	2	5.6	2	5.6
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff).	35	7	20.0	15	42.9	9	25.7	2	5.7	2	5.7
d. Acquire and/or improve availability of equipment.	36	3	8.3	5	13.89	17	47.2	9	25.0	2	5.6
e. Implement or increase the availability of telehealth services.	34	0	0.0	6	17.7	11	32.4	12	35.3	5	14.7
f. Change 'central office policies' that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided).	36	6	16.7	7	19.4	13	36.1	8	22.2	2	5.6
g. Improve personnel supervision, management, or incentives.	36	9	25.0	7	19.4	9	25.0	10	27.8	1	2.8
h. Increase weekend and evening availability of services.	35	7	20.0	7	20.0	13	37.1	7	20.0	1	2.89
i. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community.	34	5	14.7	6	17.7	15	44.1	5	14.7	3	8.8
j. Some other solution(s).	36	8	22.2	9	25.0	9	25.0	9	25.0	1	2.8
This question (question 3) is based on respondents who indicated that patients experienced delays in getting an evaluation (question 1). If 1-3 delays were mentioned in question 1, this question was repeated for each delay mentioned. If 4 or more delays were mentioned in question 1, this question was repeated for the top three delays mentioned in question 2. Respondents were eligible to answer question 3a (N=36, 36.73% of those who answered question 1 and 87.8% of those who reported any delay) if they identified delays in four or more services and indicated that this was one of the three delays that had the most negative impact on patients or if this service was one of the three or fewer services for which a delay was indicated.											

3B. **Your solution to delays in**: Transferring from the ED to a short –stay observation unit (i.e., "chest pain unit").Think of the most effective way to reduce the number of delays that ACS patients experience at this junction. Now, **in your solution, how important are each of the following elements?**

Table I-112. Acute Coronary Syndrome: Question 3B

Solution	N	Critically important		Very important		Somewhat important		Unimportant		Not applicable	
		n	%	n	%	n	%	n	%	n	%
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds).	12	6	50.0	6	50.0	0	0.0	0	0.0	0	0.0
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists).	12	4	33.3	2	16.7	4	33.3	1	8.3	1	8.3
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff).	12	3	25.0	6	50.0	3	25.0	0	0.0	0	0.0
d. Acquire and/or improve availability of equipment.	12	2	16.7	0	0.0	6	50.0	4	33.3	0	0.0
e. Implement or increase the availability of telehealth services.	12	0	0.0	0	0.0	4	33.3	6	50.0	2	16.7
f. Change 'central office policies' that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided).	11	0	0.0	2	18.2	6	54.6	1	9.1	2	18.1
g. Improve personnel supervision, management, or incentives.	12	0	0.0	6	50.0	2	16.7	4	33.3	0	0.0
h. Increase weekend and evening availability of services.	12	2	16.7	3	25.0	4	33.3	3	25.0	0	0.0
i. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community.	12	0	0.0	4	33.3	6	50.0	2	16.7	0	0.0
j. Some other solution(s).	12	0	0.0	1	8.3	7	58.3	3	25.0	1	8.3
This question (question 3) is based on respondents who indicated that patients experienced delays in getting an evaluation (question 1). If 1-3 delays were mentioned in question 1, this question was repeated for each delay mentioned. If 4 or more delays were mentioned in question 1, this question was repeated for the top three delays mentioned in question 2. Respondents were eligible to answer question 3b (N=12, 12.24% of those who answered question 1 and 60% of those who reported any delay) if they identified delays in four or more services and indicated that this was one of the three delays that had the most negative impact on patients or if this service was one of the three or fewer services for which a delay was indicated.											

3C. **Your solution to delays in**: Transferring from the ED to a telemetry bed. Think of the most effective way to reduce the number of delays that ACS patients experience at this junction. Now, **in your solution, how important are each of the following elements?**

Table I-113. Acute Coronary Syndrome: Question 3C

Solution	N	Critically important		Very important		Somewhat important		Unimportant		Not applicable	
		n	%	n	%	n	%	n	%	n	%
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds).	50	17	34.0	26	52.0	6	12.0	1	2.0	0	0.0
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists).	49	8	16.3	13	26.5	17	34.7	9	18.4	2	4.1
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff).	49	15	30.6	13	26.5	17	34.7	4	8.2	0	0.0
d. Acquire and/or improve availability of equipment.	50	6	12.0	6	12.0	16	32.0	19	38.0	3	6.0
e. Implement or increase the availability of telehealth services.	50	0	0.0	3	6.0	11	22.0	23	46.0	13	26.0
f. Change 'central office policies' that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided).	50	5	10.0	8	16.0	15	30.0	19	38.0	3	6.0
g. Improve personnel supervision, management, or incentives.	49	5	10.2	10	20.4	13	26.5	16	32.7	5	10.2
h. Increase weekend and evening availability of services.	50	5	10.0	14	28.0	13	26.0	14	28.0	4	8.0
i. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community.	48	5	10.4	13	27.1	11	22.9	14	29.2	5	10.4
j. Some other solution(s).	49	4	8.2	8	16.3	13	26.5	20	40.8	4	8.1
This question (question 3) is based on respondents who indicated that patients experienced delays in getting an evaluation (question 1). If 1-3 delays were mentioned in question 1, this question was repeated for each delay mentioned. If 4 or more delays were mentioned in question 1, this question was repeated for the top three delays mentioned in question 2. Respondents were eligible to answer question 3c (N=50, 51.02% of those who answered question 1 and 90.91% of those who reported any delay) if they identified delays in four or more services and indicated that this was one of the three delays that had the most negative impact on patients or if this service was one of the three or fewer services for which a delay was indicated.											

3E. **Your solution to delays in**: Transferring from the ED to a CCU or ICU bed. Think of the most effective way to reduce the number of delays that ACS patients experience at this junction. Now, **in your solution, how important are each of the following elements?**

Table I-114. Acute Coronary Syndrome: Question 3E

Solution	N	Critically important		Very important		Somewhat important		Unimportant		Not applicable	
		n	%	n	%	n	%	n	%	n	%
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds).	39	19	48.7	12	30.8	6	15.4	2	5.1	0	0.0
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists).	39	11	28.2	9	23.1	11	28.2	7	18.0	1	2.6
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff).	39	15	38.5	12	30.8	9	23.1	3	7.7	0	0.0
d. Acquire and/or improve availability of equipment.	38	6	15.8	4	10.5	12	31.6	15	39.5	1	2.6
e. Implement or increase the availability of telehealth services.	38	1	2.6	4	10.5	4	10.5	19	50.0	10	26.3
f. Change 'central office policies' that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided).	39	3	7.7	8	20.5	6	15.4	18	46.2	4	10.3
g. Improve personnel supervision, management, or incentives.	39	3	7.7	8	20.5	10	25.6	15	38.5	3	7.7
h. Increase weekend and evening availability of services.	38	6	15.8	5	13.2	12	31.6	11	29.0	4	10.5
i. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community.	39	3	7.7	9	23.1	12	30.8	12	30.8	3	7.7
j. Some other solution(s).	39	4	10.3	8	20.5	6	15.4	19	48.7	2	5.1
This question (question 3) is based on respondents who indicated that patients experienced delays in getting an evaluation (question 1). If 1-3 delays were mentioned in question 1, this question was repeated for each delay mentioned. If 4 or more delays were mentioned in question 1, this question was repeated for the top three delays mentioned in question 2. Respondents were eligible to answer question 3d (N=41, 41.84% of those who answered question 1 and 85.42% of those who reported any delay) if they identified delays in four or more services and indicated that this was one of the three delays that had the most negative impact on patients or if this service was one of the three or fewer services for which a delay was indicated.											

4. Please think about "pain-free" inpatients or observation unit patients in whom a definitive ACS diagnosis has not yet been made, or whose coronary anatomy is not yet defined. **IN THE PAST 90 DAYS,** how often were there delays in obtaining the following services? Indicate the percent of patients that experience delays for whom the service was required.

Table I-115. Acute Coronary Syndrome: Question 4

Service	N	No Delay		1-10% of patients experience delay		11-25% of patients experience delay		26-50% of patients experience delay		51% or more of patients experience delay		Not applicable	
		n	%	n	%	n	%	n	%	n	%	n	%
a. Cardiology consultation	99	69	69.7	15	15.2	2	2.0	2	2.0	1	1.0	10	10.1
b. Echocardiography	99	46	46.5	32	32.3	9	9.1	2	2.0	1	1.0	9	9.1
c. Non-invasive coronary evaluation (e.g., nuclear stress testing)	99	35	35.4	34	34.3	10	10.1	3	3.0	3	3.0	14	14.1
d. On-site coronary angiography	99	48	48.5	11	11.1	3	3.0	0	0.0	0	0.0	37	37.4
e. Transfer to another VA health care system for coronary angiography	99	21	21.2	9	9.1	8	8.1	2	2.0	7	7.1	52	52.5
f. Transfer to non-VA facility for coronary angiography (fee-basis or contracted care)	99	40	40.4	20	20.2	6	6.1	1	1.0	0	0.0	32	32.3

5. Think about those ACS patients who experienced delays getting an **evaluation.** IN THE PAST 90 DAYS, which of these delays had the **most negative impact on patients**?

Results not presented. Respondents were only asked this question if they identified more than three delays in Q4 in order to identify their top three delays for Q6.

6A. **Your solution to delays in**: Cardiology consultation. Think of the most effective way to reduce the number of delays that ACS patients experience at this junction. Now, **in your solution, how important are each of the following elements?**

Table I-116. Acute Coronary Syndrome: Question 6A

Solution	N	Critically important		Very important		Somewhat important		Unimportant		Not applicable	
		n	%	n	%	n	%	n	%	n	%
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds).	12	3	25.0	2	16.7	2	16.7	3	25.0	2	16.7
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists).	12	4	33.3	4	33.3	2	16.7	0	0.0	2	16.7
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff).	11	2	18.2	5	45.5	2	18.2	1	9.1	1	9.1
d. Acquire and/or improve availability of equipment.	11	1	9.1	3	27.3	3	27.3	3	27.3	1	9.1
e. Implement or increase the availability of telehealth services.	11	0	0.0	3	27.3	2	18.2	3	27.3	3	27.3
f. Change 'central office policies' that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided).	12	2	16.7	3	25.0	3	25.0	2	16.7	2	16.7
g. Improve personnel supervision, management, or incentives.	12	3	25.0	2	16.7	4	33.3	2	16.7	1	8.3
h. Increase weekend and evening availability of services.	11	0	0.0	1	9.1	6	54.6	2	18.2	2	18.2
i. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community.	12	2	16.7	5	41.7	2	16.7	2	16.7	1	8.3
j. Some other solution(s).	12	2	16.7	3	25.0	3	25.0	2	16.7	2	16.7

This question (question 6) is based on respondents who indicated that patients experienced delays in getting an evaluation (question 4). If 1-3 delays were mentioned in question 4, this question was repeated for each delay mentioned. If 4 or more delays were mentioned in question 4, this question was repeated for the top three delays mentioned in question 5. Respondents were eligible to answer question 6a (N=13, 13.13% of those who answered question 4 and 65% of those who reported any delay) if they identified delays in four or more services and indicated that this was one of the three delays that had the most negative impact on patients or if this service was one of the three or fewer services for which a delay was indicated.

6B. **Your solution to delays in**: Echocardiography. Think of the most effective way to reduce the number of delays that ACS patients experience at this junction. Now, **in your solution, how important are each of the following elements?**

Table I-117. Acute Coronary Syndrome: Question 6B

Solution	N	Critically important		Very important		Somewhat important		Unimportant		Not applicable	
		n	%	n	%	n	%	n	%	n	%
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds).	35	6	17.1	9	25.7	9	25.7	8	22.9	3	8.6
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists).	35	6	17.1	7	20.0	11	31.4	9	25.7	2	5.7
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff).	33	12	36.4	11	33.3	7	21.2	3	9.1	0	0.0
d. Acquire and/or improve availability of equipment.	35	7	20.0	9	25.7	10	28.6	8	22.9	1	2.9
e. Implement or increase the availability of telehealth services.	35	1	2.9	2	5.7	5	14.3	14	40.0	13	37.1
f. Change 'central office policies' that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided).	34	5	14.7	9	26.5	6	17.7	6	17.7	8	23.5
g. Improve personnel supervision, management, or incentives.	35	2	5.7	6	17.1	10	28.6	11	31.4	6	17.1
h. Increase weekend and evening availability of services.	35	2	5.7	8	22.9	7	20.0	12	34.3	6	17.1
i. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community.	35	4	11.4	9	25.7	16	45.7	5	14.3	1	2.9
j. Some other solution(s).	34	5	14.7	4	11.8	8	23.5	12	35.3	5	14.7

This question (question 6) is based on respondents who indicated that patients experienced delays in getting an evaluation (question 4). If 1-3 delays were mentioned in question 4, this question was repeated for each delay mentioned. If 4 or more delays were mentioned in question 4, this question was repeated for the top three delays mentioned in question 5. Respondents were eligible to answer question 6b (N=36, 36.36% of those who answered question 4 and 81.82% of those who reported any delay) if they identified delays in four or more services and indicated that this was one of the three delays that had the most negative impact on patients or if this service was one of the three or fewer services for which a delay was indicated.`

6C. **Your solution to delays in**: Non-invasive coronary evaluation (e.g., nuclear stress testing). Think of the most effective way to reduce the number of delays that ACS patients experience at this junction. Now, **in your solution, how important are each of the following elements?**

Table I-118. Acute Coronary Syndrome: Question 6C

Solution	N	Critically important n	Critically important %	Very important n	Very important %	Somewhat important n	Somewhat important %	Unimportant n	Unimportant %	Not applicable n	Not applicable %
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds).	39	5	12.8	8	20.5	10	25.6	12	30.8	4	10.3
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists).	38	4	10.5	13	34.2	10	26.3	7	18.4	4	10.5
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff).	40	8	20.0	12	30.0	10	25.0	8	20.0	2	5.0
d. Acquire and/or improve availability of equipment.	40	8	20.0	10	25.0	7	17.5	12	30.0	3	7.5
e. Implement or increase the availability of telehealth services.	40	1	2.5	3	7.5	5	12.5	19	47.5	12	30.0
f. Change 'central office policies' that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided).	39	4	10.3	3	7.7	7	18.0	17	43.6	8	20.5
g. Improve personnel supervision, management, or incentives.	40	5	12.5	3	7.5	8	20.0	17	42.5	7	17.5
h. Increase weekend and evening availability of services.	40	3	7.5	7	17.5	10	25.0	14	35.0	6	15.0
i. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community.	40	6	15.0	9	22.5	9	22.5	9	22.5	7	17.5
j. Some other solution(s).	38	5	13.2	6	15.8	9	23.7	11	29.0	7	18.4

This question (question 6) is based on respondents who indicated that patients experienced delays in getting an evaluation (question 4). If 1-3 delays were mentioned in question 4, this question was repeated for each delay mentioned. If 4 or more delays were mentioned in question 4, this question was repeated for the top three delays mentioned in question 5. Respondents were eligible to answer question 6c (N=41, 41.41% of those who answered question 4 and 82% of those who reported any delay) if they identified delays in four or more services and indicated that this was one of the three delays that had the most negative impact on patients or if this service was one of the three or fewer services for which a delay was indicated.

6D. **Your solution to delays in**: On-site coronary angiography. Think of the most effective way to reduce the number of delays that ACS patients experience at this junction. Now, **in your solution, how important are each of the following elements?**

Table I-119. Acute Coronary Syndrome: Question 6D

Solution	N	Critically important		Very important		Somewhat important		Unimportant		Not applicable	
		n	%	n	%	n	%	n	%	n	%
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds).	10	5	50.0	1	10.0	2	20.0	2	20.0	0	0.0
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists).	10	3	30.0	2	20.0	3	30.0	2	20.0	0	0.0
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff).	10	3	30.0	5	50.0	1	10.0	1	10.0	0	0.0
d. Acquire and/or improve availability of equipment.	10	4	40.0	2	20.0	1	10.0	3	30.0	0	0.0
e. Implement or increase the availability of telehealth services.	10	0	0.0	2	20.0	0	0.0	7	70.0	1	10.0
f. Change 'central office policies' that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided).	10	0	0.0	3	30.0	1	10.0	6	60.0	0	0.0
g. Improve personnel supervision, management, or incentives.	10	1	10.0	1	10.0	1	10.0	6	60.0	1	10.0
h. Increase weekend and evening availability of services.	9	0	0.0	1	11.1	2	22.2	6	66.7	0	0.0
i. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community.	10	4	40.0	3	30.0	3	30.0	0	0.0	0	0.0
j. Some other solution(s).	10	2	20.0	2	20.0	2	20.0	4	40.0	0	0.0
This question (question 6) is based on respondents who indicated that patients experienced delays in getting an evaluation (question 4). If 1-3 delays were mentioned in question 4, this question was repeated for each delay mentioned. If 4 or more delays were mentioned in question 4, this question was repeated for the top three delays mentioned in question 5. Respondents were eligible to answer question 6d (N=10, 10.1% of those who answered question 4 and 71.43% of those who reported any delay) if they identified delays in four or more services and indicated that this was one of the three delays that had the most negative impact on patients or if this service was one of the three or fewer services for which a delay was indicated.											

6E. **Your solution to delays in**: Transfer to another VA health care system for coronary angiography. Think of the most effective way to reduce the number of delays that ACS patients experience at this junction. Now, **in your solution, how important are each of the following elements?**

Table I-120. Acute Coronary Syndrome: Question 6E

Solution	N	Critically important		Very important		Somewhat important		Unimportant		Not applicable	
		n	%	n	%	n	%	n	%	n	%
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds).	22	6	27.3	4	18.2	4	18.2	4	18.2	4	18.2
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists).	22	4	18.2	6	27.3	2	9.1	8	36.4	2	9.1
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff).	22	3	13.6	2	9.1	7	31.8	8	36.4	2	9.1
d. Acquire and/or improve availability of equipment.	22	1	4.6	2	9.1	5	22.7	10	45.5	4	18.2
e. Implement or increase the availability of telehealth services.	22	0	0.0	0	0.0	4	18.2	10	45.5	8	36.4
f. Change 'central office policies' that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided).	22	1	4.6	1	4.6	5	22.7	11	50.0	4	18.2
g. Improve personnel supervision, management, or incentives.	21	3	14.3	7	33.3	3	14.3	6	28.6	2	9.5
h. Increase weekend and evening availability of services.	19	3	15.8	4	21.1	4	21.1	6	31.6	2	10.5
i. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community.	20	3	15.0	4	20.0	6	30.0	3	15.0	4	20.0
j. Some other solution(s).	22	8	36.4	3	13.6	4	18.2	5	22.7	2	9.1

This question (question 6) is based on respondents who indicated that patients experienced delays in getting an evaluation (question 4). If 1-3 delays were mentioned in question 4, this question was repeated for each delay mentioned. If 4 or more delays were mentioned in question 4, this question was repeated for the top three delays mentioned in question 5. Respondents were eligible to answer question 6e (N=22, 22.22% of those who answered question 4 and 84.62% of those who reported any delay) if they identified delays in four or more services and indicated that this was one of the three delays that had the most negative impact on patients or if this service was one of the three or fewer services for which a delay was indicated.

6F. **Your solution to delays in**: Transfer to non-VA facility for coronary angiography (fee-basis or contracted care). Think of the most effective way to reduce the number of delays that ACS patients experience at this junction. Now, **in your solution, how important are each of the following elements?**

Table I-121. Acute Coronary Syndrome: Question 6F

Solution	N	Critically important		Very important		Somewhat important		Unimportant		Not applicable	
		n	%	n	%	n	%	n	%	n	%
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds).	20	4	20.0	1	5.0	2	10.0	6	30.0	7	35.0
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists).	20	4	20.0	4	20.0	1	5.0	7	35.0	4	20.0
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff).	20	6	30.0	0	0.0	3	15.0	6	30.0	5	25.0
d. Acquire and/or improve availability of equipment.	20	4	20.0	0	0.0	3	15.0	7	35.0	6	30.0
e. Implement or increase the availability of telehealth services.	20	1	5.0	2	10.0	1	5.0	8	40.0	8	40.0
f. Change 'central office policies' that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided).	20	3	15.0	1	5.0	3	15.0	7	35.0	6	30.0
g. Improve personnel supervision, management, or incentives. .	20	7	35.0	2	10.0	1	5.0	7	35.0	3	15.0
h. Increase weekend and evening availability of services.	20	2	10.0	4	20.0	3	15.0	8	40.0	3	15.0
i. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community.	19	6	31.6	3	15.8	4	21.2	1	5.3	5	26.3
j. Some other solution(s).	20	8	40.0	3	15.0	5	25.0	3	15.0	1	5.0
This question (question 6) is based on respondents who indicated that patients experienced delays in getting an evaluation (question 4). If 1-3 delays were mentioned in question 4, this question was repeated for each delay mentioned. If 4 or more delays were mentioned in question 4, this question was repeated for the top three delays mentioned in question 5. Respondents were eligible to answer question 6f (N=20, 20.2% of those who answered question 4 and 74.07% of those who reported any delay) if they identified delays in four or more services and indicated that this was one of the three delays that had the most negative impact on patients or if this service was one of the three or fewer services for which a delay was indicated.											

ACS Treatment

7. Think about patients who present to your **local VA health care system** with STEMI. **IN THE PAST YEAR**, how often were there delays in the following services?

Table I-122. Acute Coronary Syndrome: Question 7

Service	N	No Delay (%)		1-10% of patients experience delay		11-25% of patients experience delay		26-50% of patients experience delay		51% or more of patients experience delay		Not applicable	
		n	%	n	%	n	%	n	%	n	%	n	%
a. Emergency department activation of STEMI protocol	97	48	49.5	27	27.8	8	8.3	2	2.1	0	0	12	12.4
b. Primary PCI at an on-site catheterization laboratory	99	36	36.4	8	8.1	4	4	2	2	0	0	49	49.5
c. Primary PCI at a different VA facility (via transfer)	98	11	11.2	6	6.1	2	2	2	2	0	0	77	78.6
d. Primary PCI at a non-VA facility (via transfer)	99	33	33.3	25	25.3	6	6.1	3	3	0	0	32	32.3
e. Thrombolytic therapy	99	25	25.3	8	8.1	0	0	0	0	0	0	66	66.7

8. Think about those ACS patients who experienced delays getting an **evaluation.** IN THE PAST 90 DAYS, which of these delays had the **most negative impact on patients**?
Results not presented. Respondents were only asked this question if they identified more than three delays in Q7 in order to identify their top three delays for Q9.

9A. **Your solution to delays in:** Emergency department activation of STEMI protocol**.** Think of the most effective way to reduce the number of delays that ACS patients experience at this junction. Now, **in your solution, how important are each of the following elements**?

Table I-123. Acute Coronary Syndrome: Question 9A

Solution	N	Critically important		Very important		Somewhat important		Unimportant		Not applicable	
		n	%	n	%	n	%	n	%	n	%
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds).	34	3	8.8	10	29.4	7	20.6	12	35.3	2	5.9
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists).	34	7	20.6	8	23.5	7	20.6	12	35.3	0	0.0
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff).	33	7	21.2	9	27.3	6	18.2	11	33.3	0	0.0
d. Acquire and/or improve availability of equipment.	34	4	11.8	2	5.9	8	23.5	19	55.9	1	2.9
e. Implement or increase the availability of telehealth services.	34	1	2.9	1	2.9	11	32.4	15	44.1	6	17.7
f. Change 'central office policies' that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided).	34	3	8.8	6	17.7	8	23.5	14	41.2	3	8.8
g. Improve personnel supervision, management, or incentives.	33	7	21.2	4	12.1	5	15.2	14	42.4	3	9.1
h. Increase weekend and evening availability of services.	34	5	14.7	6	17.7	10	29.4	12	35.3	1	2.9
i. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community.	34	5	14.7	4	11.8	8	23.5	11	32.4	6	17.7
j. Some other solution(s).	34	6	17.7	6	17.7	8	23.5	11	32.4	3	8.8

This question (question 9) is based on respondents who indicated that patients experienced delays in getting an evaluation (question 7). If 1-3 delays were mentioned in question 7, this question was repeated for each delay mentioned. If 4 or more delays were mentioned in question 7, this question was repeated for the top three delays mentioned in question 8. Respondents were eligible to answer question 9a (N=34, 35.05% of those who answered question 7 and 91.89% of those who reported any delay) if they identified delays in four or more services and indicated that this was one of the three delays that had the most negative impact on patients or if this service was one of the three or fewer services for which a delay was indicated.

9B. **Your solution to delays in:** Primary PCI at an on-site catheterization laboratory**.** Think of the most effective way to reduce the number of delays that ACS patients experience at this junction. Now, **in your solution, how important are each of the following elements**?

Table I-124. Acute Coronary Syndrome: Question 9B

Solution	N	Critically important		Very important		Somewhat important		Unimportant		Not applicable	
		n	%	n	%	n	%	n	%	n	%
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds).	14	5	35.7	0	0.0	3	21.4	4	28.6	2	14.3
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists).	14	5	35.7	4	28.6	1	7.1	2	14.3	2	14.3
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff).	14	5	35.7	4	28.6	1	7.1	2	14.3	2	14.3
d. Acquire and/or improve availability of equipment.	14	3	21.4	3	21.4	1	7.1	5	35.7	2	14.3
e. Implement or increase the availability of telehealth services.	14	1	7.1	1	7.1	2	14.3	5	35.7	5	35.7
f. Change 'central office policies' that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided).	14	2	14.3	3	21.4	1	7.1	4	28.6	4	28.6
g. Improve personnel supervision, management, or incentives.	14	2	14.3	3	21.4	1	7.1	5	35.7	3	21.4
h. Increase weekend and evening availability of services.	14	3	21.4	3	21.4	1	7.1	4	28.6	3	21.4
i. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community.	14	6	42.9	2	14.3	3	21.4	0	0.0	3	21.4
j. Some other solution(s).	14	3	21.4	1	7.1	3	21.4	3	21.4	4	28.6

This question (question 9) is based on respondents who indicated that patients experienced delays in getting an evaluation (question 7). If 1-3 delays were mentioned in question 7, this question was repeated for each delay mentioned. If 4 or more delays were mentioned in question 7, this question was repeated for the top three delays mentioned in question 8. Respondents were eligible to answer question 9b (N=14, 14.14% of those who answered question 7 and 100% of those who reported any delay) if they identified delays in four or more services and indicated that this was one of the three delays that had the most negative impact on patients or if this service was one of the three or fewer services for which a delay was indicated.

9C. **Your solution to delays in:** Primary PCI at a different VA facility (via transfer)**.** Think of the most effective way to reduce the number of delays that ACS patients experience at this junction. Now, **in your solution, how important are each of the following elements**?

Table I-125. Acute Coronary Syndrome: Question 9C

Solution	N	Critically important		Very important		Somewhat important		Unimportant		Not applicable	
		n	%	n	%	n	%	n	%	n	%
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds).	10	5	50.0	2	20.0	1	10.0	1	10.0	1	10.0
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists).	10	3	30.0	3	30.0	2	20.0	1	10.0	1	10.0
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff).	10	2	20.0	3	30.0	2	20.0	2	20.0	1	10.0
d. Acquire and/or improve availability of equipment.	10	1	10.0	1	10.0	3	30.0	3	30.0	2	20.0
e. Implement or increase the availability of telehealth services.	9	1	11.1	1	11.1	2	22.2	4	44.4	1	11.1
f. Change 'central office policies' that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided).	10	1	10.0	1	10.0	1	10.0	6	60.0	1	10.0
g. Improve personnel supervision, management, or incentives.	9	2	22.2	1	11.1	2	22.2	3	33.3	1	11.1
h. Increase weekend and evening availability of services.	10	1	10.0	1	10.0	1	10.0	5	50.0	2	20.0
i. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community.	10	2	20.0	1	10.0	2	20.0	3	30.0	2	20.0
j. Some other solution(s).	10	1	10.0	0	0.0	3	30.0	4	40.0	2	20.0

This question (question 9) is based on respondents who indicated that patients experienced delays in getting an evaluation (question 7). If 1-3 delays were mentioned in question 7, this question was repeated for each delay mentioned. If 4 or more delays were mentioned in question 7, this question was repeated for the top three delays mentioned in question 8. Respondents were eligible to answer question 9c (N=10, 10.2% of those who answered question 7 and 100% of those who reported any delay) if they identified delays in four or more services and indicated that this was one of the three delays that had the most negative impact on patients or if this service was one of the three or fewer services for which a delay was indicated.

9D. **Your solution to delays in:** Primary PCI at a non-VA facility (via transfer)**.** Think of the most effective way to reduce the number of delays that ACS patients experience at this junction. Now, **in your solution, how important are each of the following elements**?

Table I-126. Acute Coronary Syndrome: Question 9D

Solution	N	Critically important		Very important		Somewhat important		Unimportant		Not applicable	
		n	%	n	%	n	%	n	%	n	%
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds).	33	4	12.1	6	18.2	1	3.0	12	36.4	10	30.3
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists).	33	5	15.2	3	9.1	4	12.1	12	36.4	9	27.3
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff).	33	5	15.2	5	15.2	5	15.2	9	27.3	9	27.3
d. Acquire and/or improve availability of equipment.	33	6	18.2	3	9.1	2	6.1	11	33.3	11	33.3
e. Implement or increase the availability of telehealth services.	32	2	6.3	2	6.3	5	15.6	8	25.0	15	46.9
f. Change 'central office policies' that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided).	32	3	9.4	3	9.4	5	15.6	10	31.3	11	34.4
g. Improve personnel supervision, management, or incentives.	33	5	15.2	2	6.1	6	18.2	10	30.3	10	30.3
h. Increase weekend and evening availability of services.	33	4	12.1	8	24.2	4	12.1	8	24.2	9	27.3
i. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community.	33	4	12.1	7	21.2	6	18.2	4	12.1	12	36.4
j. Some other solution(s).	32	9	28.1	3	9.4	11	34.4	4	12.5	5	15.6
This question (question 9) is based on respondents who indicated that patients experienced delays in getting an evaluation (question 7). If 1-3 delays were mentioned in question 7, this question was repeated for each delay mentioned. If 4 or more delays were mentioned in question 7, this question was repeated for the top three delays mentioned in question 8. Respondents were eligible to answer question 9d (N=33, 33.33% of those who answered question 7 and 97.06% of those who reported any delay) if they identified delays in four or more services and indicated that this was one of the three delays that had the most negative impact on patients or if this service was one of the three or fewer services for which a delay was indicated.											

9E. **Your solution to delays in:** Thrombolytic therapy**.** Think of the most effective way to reduce the number of delays that ACS patients experience at this junction. Now, **in your solution, how important are each of the following elements**?

Responses to this question are not presented due to small number of respondents who identified delays in accessing Thrombolytic therapy and answered 9e (N = 4).

10. Please think about inpatients who have already undergone diagnostic catheterization, are currently pain-free, but who have one or more unstable coronary lesions. **IN THE PAST 90 DAYS**, how often were there delays in getting the following services?

Table I-127. Acute Coronary Syndrome: Question 10

Service	N	No Delay		1-10% of patients experience delay		11-25% of patients experience delay		26-50% of patients experience delay		51% or more of patients experience delay		Not applicable	
		n	%	n	%	n	%	n	%	n	%	n	%
a. On-site Percutaneous Coronary Intervention (PCI)	99	38	38.4	13	13.1	3	3	0	0	0	0	45	45.5
b. Transfer to another VA facility for PCI	98	16	16.3	10	10.2	6	6.1	1	1	2	2	63	64.3
c. Transfer to a non-VA facility for PCI	98	38	38.8	23	23.5	2	2	0	0	0	0	35	35.7
d. On-site CABG	98	11	11.2	5	5.1	12	12.2	1	1	2	2	67	68.4
e. Transfer to another VA facility for CABG	99	15	15.2	11	11.1	10	10.1	6	6.1	6	6.1	51	51.5
f. Transfer to a non-VA facility for CABG	99	39	39.4	20	20.2	3	3	1	1	2	2	34	34.3

11. Think about those ACS patients who experienced delays getting the following services. **IN THE PAST 90 DAYS,** which of these delays had the **most negative impact on patients**?

Results not presented. Respondents were only asked this question if they identified more than three delays in Q10 in order to identify their top three delays for Q12.

12A. **Your solution to delays in:** On-site Percutaneous Coronary Intervention (PCI)**.** Think of the most effective way to reduce the number of delays that ACS patients experience at this junction. Now, **in your solution, how important are each of the following elements**?

Table I-128. Acute Coronary Syndrome: Question 12A

Solution	N	Critically important		Very important		Somewhat important		Unimportant		Not applicable	
		n	%	n	%	n	%	n	%	n	%
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds).	13	7	53.9	1	7.7	1	7.7	2	15.4	2	15.4
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists).	13	6	46.2	1	7.7	1	7.7	3	23.1	2	15.4
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff).	13	5	38.5	5	38.5	1	7.7	1	7.7	1	7.7
d. Acquire and/or improve availability of equipment.	13	6	46.2	1	7.7	1	7.7	3	23.1	2	15.4
e. Implement or increase the availability of telehealth services.	13	2	15.4	1	7.7	0	0.0	7	53.9	3	23.1
f. Change 'central office policies' that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided).	13	2	15.4	1	7.7	3	23.1	5	38.5	2	15.4
g. Improve personnel supervision, management, or incentives.	13	2	15.4	0	0.0	4	30.8	5	38.5	2	15.4
h. Increase weekend and evening availability of services.	13	2	15.4	2	15.4	3	23.1	4	30.8	2	15.4
i. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community.	13	3	23.1	2	15.4	3	23.1	2	15.4	3	23.1
j. Some other solution(s).	13	4	30.8	1	7.7	3	23.1	1	7.7	4	30.8

This question (question 12) is based on respondents who indicated that patients experienced delays in getting services (question 10). If 1-3 delays were mentioned in question 10, this question was repeated for each delay mentioned. If 4 or more delays were mentioned in question 10, this question was repeated for the top three delays mentioned in question 11. Respondents were eligible to answer question 12a (N=14, 14.14% of those who answered question 10 and 87.5% of those who reported any delay) if they identified delays in four or more services and indicated that this was one of the three delays that had the most negative impact on patients or if this service was one of the three or fewer services for which a delay was indicated.

12B. **Your solution to delays in:** Transfer to another VA facility for PCI. Think of the most effective way to reduce the number of delays that ACS patients experience at this junction. Now, **in your solution, how important are each of the following elements**?

Table I-129. Acute Coronary Syndrome: Question 12B

Solution	N	Critically important		Very important		Somewhat important		Unimportant		Not applicable	
		n	%	n	%	n	%	n	%	n	%
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds).	16	6	37.5	3	18.8	2	12.5	2	12.5	3	18.8
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists).	16	4	25.0	2	12.5	3	18.8	3	18.8	4	25.0
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff).	16	5	31.3	1	6.3	3	18.8	3	18.8	4	25.0
d. Acquire and/or improve availability of equipment.	16	2	12.5	2	12.5	4	25.0	3	18.8	5	31.3
e. Implement or increase the availability of telehealth services.	16	0	0.0	1	6.3	3	18.8	6	37.5	6	37.5
f. Change 'central office policies' that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided).	15	0	0.0	3	20.0	2	13.3	8	53.3	2	13.3
g. Improve personnel supervision, management, or incentives.	15	2	13.3	4	26.7	3	20.0	5	33.3	1	6.7
h. Increase weekend and evening availability of services.	14	2	14.3	2	14.3	4	28.6	6	42.9	0	0.0
i. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community.	14	2	14.3	1	7.1	5	35.7	4	28.6	2	14.3
j. Some other solution(s).	15	3	20	4	26.7	3	20.0	4	26.6	1	6.7
This question (question 12) is based on respondents who indicated that patients experienced delays in getting services (question 10). If 1-3 delays were mentioned in question 10, this question was repeated for each delay mentioned. If 4 or more delays were mentioned in question 10, this question was repeated for the top three delays mentioned in question 11. Respondents were eligible to answer question 12b (N=16, 16.33% of those who answered question 10 and 84.21% of those who reported any delay) if they identified delays in four or more services and indicated that this was one of the three delays that had the most negative impact on patients or if this service was one of the three or fewer services for which a delay was indicated.											

12C. **Your solution to delays in:** Transfer to a non-VA facility for PCI**.** Think of the most effective way to reduce the number of delays that ACS patients experience at this junction. Now, **in your solution, how important are each of the following elements**?

Table I-130. Acute Coronary Syndrome: Question 12C

Solution	N	Critically important		Very important		Somewhat important		Unimportant		Not applicable	
		n	%	n	%	n	%	n	%	n	%
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds).	17	2	11.8	1	5.9	2	11.8	8	47.1	4	23.5
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists).	17	2	11.8	3	17.7	2	11.8	6	35.3	4	23.5
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff).	17	2	11.8	3	17.7	2	11.8	7	41.2	3	17.7
d. Acquire and/or improve availability of equipment.	17	2	11.8	1	5.9	1	5.9	7	41.2	6	35.3
e. Implement or increase the availability of telehealth services.	16	0	0.0	2	12.5	3	18.8	7	43.8	4	25.0
f. Change 'central office policies' that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided).	16	1	6.3	1	6.3	5	31.3	5	31.3	4	25.0
g. Improve personnel supervision, management, or incentives.	17	2	11.8	1	5.9	3	17.7	6	35.3	5	29.4
h. Increase weekend and evening availability of services.	16	0	0.0	3	18.8	2	12.5	6	37.5	5	31.3
i. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community.	15	0	0.0	3	20	4	26.7	5	33.3	3	20.0
j. Some other solution(s).	17	3	17.7	2	11.8	8	47.1	3	17.7	1	5.9

This question (question 12) is based on respondents who indicated that patients experienced delays in getting services (question 10). If 1-3 delays were mentioned in question 10, this question was repeated for each delay mentioned. If 4 or more delays were mentioned in question 10, this question was repeated for the top three delays mentioned in question 11. Respondents were eligible to answer question 12c (N=21, 21.43% of those who answered question 10 and 84% of those who reported any delay) if they identified delays in four or more services and indicated that this was one of the three delays that had the most negative impact on patients or if this service was one of the three or fewer services for which a delay was indicated.

12D. **Your solution to delays in:** On-site CABG**.** Think of the most effective way to reduce the number of delays that ACS patients experience at this junction. Now, **in your solution, how important are each of the following elements**?

Table I-131. Acute Coronary Syndrome: Question 12D

Solution	N	Critically important		Very important		Somewhat important		Unimportant		Not applicable	
		n	%	n	%	n	%	n	%	n	%
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds).	21	5	23.8	4	19.1	6	28.6	5	23.8	1	4.8
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists).	21	9	42.9	8	38.1	3	14.3	1	4.8	0	0.0
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff).	21	6	28.6	9	42.9	4	19.1	1	4.8	1	4.8
d. Acquire and/or improve availability of equipment.	21	4	19.1	2	9.5	4	19.1	9	42.9	2	9.5
e. Implement or increase the availability of telehealth services.	21	1	4.8	3	14.3	0	0.0	14	66.7	3	14.3
f. Change 'central office policies' that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided).	21	3	14.3	1	4.8	2	9.5	11	52.4	4	19.1
g. Improve personnel supervision, management, or incentives.	21	4	19.1	1	4.8	3	14.3	10	47.6	3	14.3
h. Increase weekend and evening availability of services.	21	3	14.3	4	19.1	3	14.3	8	38.1	3	14.3
i. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community.	21	4	19.1	3	14.3	8	38.1	3	14.3	3	14.3
j. Some other solution(s). .	21	5	23.8	1	4.8	4	19.1	8	38.1	3	14.3

This question (question 12) is based on respondents who indicated that patients experienced delays in getting services (question 10). If 1-3 delays were mentioned in question 10, this question was repeated for each delay mentioned. If 4 or more delays were mentioned in question 10, this question was repeated for the top three delays mentioned in question 11. Respondents were eligible to answer question 12d (N=21, 21.43% of those who answered question 10 and 105% of those who reported any delay) if they identified delays in four or more services and indicated that this was one of the three delays that had the most negative impact on patients or if this service was one of the three or fewer services for which a delay was indicated.

12E. **Your solution to delays in:** Transfer to another VA facility for CABG**.** Think of the most effective way to reduce the number of delays that ACS patients experience at this junction. Now, **in your solution, how important are each of the following elements**?

Table I-132. Acute Coronary Syndrome: Question 12E

Solution	N	Critically important		Very important		Somewhat important		Unimportant		Not applicable	
		n	%	n	%	n	%	n	%	n	%
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds).	28	9	32.1	2	7.1	4	14.3	6	21.4	7	25.0
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists).	28	8	28.6	5	17.9	3	10.7	9	32.1	3	10.7
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff). .	28	6	21.4	3	10.7	5	17.9	9	32.1	5	17.9
d. Acquire and/or improve availability of equipment.	28	4	14.3	2	7.1	3	10.7	10	35.7	9	32.1
e. Implement or increase the availability of telehealth services.	28	1	3.6	3	10.7	3	10.7	12	42.9	9	32.1
f. Change 'central office policies' that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided).	28	2	7.1	5	17.9	4	14.3	12	42.9	5	17.9
g. Improve personnel supervision, management, or incentives.	28	3	10.7	6	21.4	6	21.4	8	28.6	5	17.9
h. Increase weekend and evening availability of services.	28	7	25.0	2	7.1	6	21.4	8	28.6	5	17.9
i. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community.	28	7	25.0	3	10.7	7	25.0	6	21.4	5	17.9
j. Some other solution(s).	28	8	28.6	8	28.6	5	17.9	4	14.3	3	10.7

This question (question 12) is based on respondents who indicated that patients experienced delays in getting services (question 10). If 1-3 delays were mentioned in question 10, this question was repeated for each delay mentioned. If 4 or more delays were mentioned in question 10, this question was repeated for the top three delays mentioned in question 11. Respondents were eligible to answer question 12e (N=31, 31.31% of those who answered question 10 and 93.94% of those who reported any delay) if they identified delays in four or more services and indicated that this was one of the three delays that had the most negative impact on patients or if this service was one of the three or fewer services for which a delay was indicated.

12F. **Your solution to delays in:** Transfer to a non-VA facility for CABG**.** Think of the most effective way to reduce the number of delays that ACS patients experience at this junction. Now, **in your solution, how important are each of the following elements**?

Table I-133. Acute Coronary Syndrome: Question 12F

Solution	N	Critically important		Very important		Somewhat important		Unimportant		Not applicable	
		n	%	n	%	n	%	n	%	n	%
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds).	23	4	17.4	1	4.4	6	26.1	5	21.7	7	30.4
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists).	23	5	21.7	3	13.0	2	8.7	6	26.1	7	30.4
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff).	21	3	14.3	1	4.8	4	19.1	7	33.3	6	28.6
d. Acquire and/or improve availability of equipment.	22	4	18.2	1	4.6	3	13.6	6	27.3	8	36.36
e. Implement or increase the availability of telehealth services.	23	1	4.4	2	8.7	1	4.4	9	39.1	10	43.5
f. Change 'central office policies' that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided).	23	2	8.7	3	13.0	3	13.0	7	30.4	8	34.8
g. Improve personnel supervision, management, or incentives.	22	7	31.8	0	0.0	3	13.6	9	40.9	3	13.6
h. Increase weekend and evening availability of services.	22	3	13.6	2	9.1	3	13.6	9	40.9	5	22.7
i. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community.	23	4	17.4	2	8.7	5	21.7	4	17.4	8	34.8
j. Some other solution(s).	23	6	26.1	3	13.0	8	34.8	3	13.0	3	13.0
This question (question 12) is based on respondents who indicated that patients experienced delays in getting services (question 10). If 1-3 delays were mentioned in question 10, this question was repeated for each delay mentioned. If 4 or more delays were mentioned in question 10, this question was repeated for the top three delays mentioned in question 11. Respondents were eligible to answer question 12f (N=24, 24.24% of those who answered question 10 and 92.31% of those who reported any delay) if they identified delays in four or more services and indicated that this was one of the three delays that had the most negative impact on patients or if this service was one of the three or fewer services for which a delay was indicated.											

13. Please think about times when you are called about a stable ACS patient who is at another facility (VA or non-VA, ER or inpatient). IN THE PAST 90 DAYS, how often were there delays **transferring patients from an outside hospital to your hospital for further evaluation?**

Table I-134. Acute Coronary Syndrome: Question 13

		No Delay		1-10% of patients experience delay		11-25% of patients experience delay		26-50% of patients experience delay		51% or more of patients experience delay		Not applicable	
Service	N	n	%	n	%	n	%	n	%	n	%	n	%
a. Transferring patients from an outside hospital to your hospital for further evaluation.	98	24	24.5	16	16.3	3	3.1	4	4.1	25	25.5	26	26.5

14. Think of the most effective way to reduce the number of delays that **ACS patients experience when transferring from an outside hospital to your hospital for further evaluation.** Now, **in your solution, how important are each of the following elements**?

Table I-135. Acute Coronary Syndrome: Question 14

Solution	N	Critically Important		Very Important		Somewhat Important		Unimportant		Not applicable	
		n	%	n	%	n	%	n	%	n	%
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds)	47	26	55.3	14	29.8	5	10.6	1	2.1	1	2.1
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists).	47	8	17.0	13	27.7	9	19.1	13	27.7	4	8.5
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff).	47	11	23.4	13	27.7	13	27.7	6	12.8	4	8.5
d. Acquire and/or improve availability of equipment.	47	7	14.9	4	8.5	6	12.8	20	42.6	10	21.3
e. Implement or increase the availability of telehealth services	46	2	4.3	2	4.3	7	15.2	14	30.4	21	45.7
f. Improve information technology (e.g., scheduling system, electronic health record).	46	4	8.7	4	8.7	8	17.4	17	37.0	13	28.3
g. Change "central office policies" that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided)	46	4	8.7	4	8.7	13	28.3	12	26.1	13	28.3
h. Improve personnel supervision, management, or incentives.	46	4	8.7	9	19.6	9	19.6	13	28.3	11	23.9
i. Increase weekend and evening availability of services	47	6	12.8	7	14.9	12	25.5	12	25.5	10	21.3
j. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community	46	5	10.9	5	10.9	7	15.2	12	26.1	17	37.0
k. Some other solution(s).	41	7	17.1	2	4.9	4	9.8	4	9.8	24	58.5
This question (question 14) is based on respondents who indicated that patients experienced delays (n=48) in transferring from an outside hospital to the respondent's hospital for further evaluation (question 13).											

15. Please think about ACS patients who have been discharged from the hospital. **IN THE PAST 90 DAYS**, how often were there delays in obtaining the following services?

Table I-136. Acute Coronary Syndrome: Question 15

		No Delay		1-10% of patients experience delay		11-25% of patients experience delay		26-50% of patients experience delay		51% or more of patients experience delay		Not applicable	
Service	N	n	%	n	%	n	%	n	%	n	%	n	%
a. Follow-up cardiology clinic appointments (PCI)	98	51	52.0	25	25.5	11	11.2	3	3.1	1	1.0	7	7.1
b. Non-invasive coronary evaluation (e.g., nuclear stress testing) as outpatients	96	49	51.0	22	22.9	9	9.4	2	2.1	4	4.2	10	10.4
c. Initial CT surgery appointment for patients referred for possible elective CABG	97	31	32.0	21	21.7	7	7.2	6	6.2	3	3.1	29	29.9
d. Pre-operative testing (e.g., carotid ultrasound) for patients under consideration for elective CABG	97	55	56.7	18	18.6	5	5.2	1	1.0	1	1.0	17	17.5
e. Elective CABG surgery	97	34	35.1	17	17.5	13	13.4	5	5.2	6	6.2	22	22.7
f. Elective (or otherwise non-emergent) angiography or PCI	97	57	58.8	16	16.5	4	4.1	0	0.0	0	0.0	20	20.6

16. Think about those ACS patients who experienced delays getting services after being discharged from the hospital. IN THE PAST 90 DAYS, which of these delays had the **most negative impact on patients**?

Results not presented. Respondents were only asked this question if they identified more than three delays in Q15 in order to identify their top three delays for Q17.

17A. **Your solution for delays in:** Follow-up cardiology clinic appointments (PCI). Think of the most effective way to reduce the number of delays that ACS patients experience at this junction. Now, **in your solution, how important are each of the following elements?**

Table I-137. Acute Coronary Syndrome: Question 17A

Solution	N	Critically important		Very important		Somewhat important		Unimportant		Not applicable	
		n	%	n	%	n	%	n	%	n	%
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds).	32	17	53.1	6	18.8	5	15.6	3	9.4	1	3.1
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists).	32	18	56.3	8	25.0	3	9.4	1	3.1	2	6.3
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff).	32	12	37.5	9	28.1	8	25.0	2	6.3	1	3.1
d. Acquire and/or improve availability of equipment.	31	4	12.9	3	9.7	5	16.1	13	41.9	6	19.4
e. Implement or increase the availability of telehealth services.	32	1	3.1	8	25.0	6	18.8	11	34.4	6	18.8
f. Change 'central office policies' that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided).	31	7	22.6	5	16.1	5	16.1	8	25.8	6	19.4
g. Improve personnel supervision, management, or incentives.	30	4	13.3	5	16.7	12	40.0	4	13.3	5	16.7
h. Increase weekend and evening availability of services.	32	4	12.5	4	12.5	8	25.0	8	25.0	8	25.0
i. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community.	32	1	3.1	3	9.4	11	34.4	12	37.5	5	15.6
j. Some other solution(s). .	32	1	3.1	6	18.8	9	28.1	10	31.3	6	18.8

This question (question 17) is based on respondents who indicated that patients experienced delays in getting services after being discharged from the hospital (question 15). If 1-3 delays were mentioned in question 15, this question was repeated for each delay mentioned. If 4 or more delays were mentioned in question 15, this question was repeated for the top three delays mentioned in question 16. Respondents were eligible to answer question 17a (N=33, 33.67% of those who answered question 15 and 82.5% of those who reported any delay) if they identified delays in four or more services and indicated that this was one of the three delays that had the most negative impact on patients or if this service was one of the three or fewer services for which a delay was indicated.

17B. **Your solution for delays in:** Non-invasive coronary evaluation (e.g., nuclear stress testing) as outpatients. Think of the most effective way to reduce the number of delays that ACS patients experience at this junction. Now, **in your solution, how important are each of the following elements?**

Table I-138. Acute Coronary Syndrome: Question 17B

Solution	N	Critically important		Very important		Somewhat important		Unimportant		Not applicable	
		n	%	n	%	n	%	n	%	n	%
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds).	28	6	21.4	9	32.1	4	14.3	8	28.6	1	3.6
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists).	28	5	17.9	12	42.9	7	25.0	2	7.1	2	7.1
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff).	28	5	17.9	12	42.9	10	35.7	0	0.0	1	3.6
d. Acquire and/or improve availability of equipment.	28	5	17.9	8	28.6	5	17.9	7	25.0	3	10.7
e. Implement or increase the availability of telehealth services.	28	0	0.0	2	7.1	1	3.6	17	60.7	8	28.6
f. Change 'central office policies' that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided).	27	4	14.8	2	7.4	5	18.5	10	37.0	6	22.2
g. Improve personnel supervision, management, or incentives.	28	1	3.6	5	17.9	6	21.4	10	35.7	6	21.4
h. Increase weekend and evening availability of services.	28	1	3.6	4	14.3	7	25.0	10	35.7	6	21.4
i. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community.	28	0	0.0	7	25.0	7	25.0	9	32.1	5	17.9
j. Some other solution(s).	27	4	14.8	3	11.1	6	22.2	11	40.7	3	11.1
This question (question 17) is based on respondents who indicated that patients experienced delays in getting services after being discharged from the hospital (question 15). If 1-3 delays were mentioned in question 15, this question was repeated for each delay mentioned. If 4 or more delays were mentioned in question 15, this question was repeated for the top three delays mentioned in question 16. Respondents were eligible to answer question 17b (N=28, 29.17% of those who answered question 15 and 75.68% of those who reported any delay) if they identified delays in four or more services and indicated that this was one of the three delays that had the most negative impact on patients or if this service was one of the three or fewer services for which a delay was indicated.											

17C. **Your solution for delays in:** Initial CT surgery appointment for patients referred for possible elective CABG. Think of the most effective way to reduce the number of delays that ACS patients experience at this junction. Now, **in your solution, how important are each of the following elements?**

Table I-139. Acute Coronary Syndrome: Question 17C

Solution	N	Critically important		Very important		Somewhat important		Unimportant		Not applicable	
		n	%	n	%	n	%	n	%	n	%
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds).	29	4	13.8	5	17.2	3	10.3	10	34.5	7	24.1
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists).	30	10	33.3	8	26.7	4	13.3	7	23.3	1	3.3
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff).	28	5	17.9	5	17.9	7	25.0	8	28.6	3	10.7
d. Acquire and/or improve availability of equipment.	29	2	6.9	6	20.7	2	6.9	12	41.4	7	24.1
e. Implement or increase the availability of telehealth services.	29	1	3.5	2	6.9	9	31.0	10	34.5	7	24.1
f. Change 'central office policies' that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided).	28	3	10.7	4	14.3	7	25.0	9	32.1	5	17.9
g. Improve personnel supervision, management, or incentives.	30	5	16.7	4	13.3	6	20.0	10	33.3	5	16.7
h. Increase weekend and evening availability of services.	29	5	17.2	4	13.8	9	31.0	8	27.6	3	10.3
i. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community.	29	3	10.3	5	17.2	4	13.8	10	34.5	7	24.1
j. Some other solution(s).	30	7	23.3	5	16.7	5	16.7	5	16.7	8	26.7

This question (question 17) is based on respondents who indicated that patients experienced delays in getting services after being discharged from the hospital (question 15). If 1-3 delays were mentioned in question 15, this question was repeated for each delay mentioned. If 4 or more delays were mentioned in question 15, this question was repeated for the top three delays mentioned in question 16. Respondents were eligible to answer question 17c (N=31, 31.96% of those who answered question 15 and 83.78% of those who reported any delay) if they identified delays in four or more services and indicated that this was one of the three delays that had the most negative impact on patients or if this service was one of the three or fewer services for which a delay was indicated.

17D. **Your solution for delays in:** Pre-operative testing (e.g., carotid ultrasound) for patients under consideration for elective CABG. Think of the most effective way to reduce the number of delays that ACS patients experience at this junction. Now, **in your solution, how important are each of the following elements?**

Table I-140. Acute Coronary Syndrome: Question 17D

Solution	N	Critically important		Very important		Somewhat important		Unimportant		Not applicable	
		n	%	n	%	n	%	n	%	n	%
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds).	17	2	11.8	5	29.4	7	41.2	0	0.0	3	17.7
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists).	17	1	5.9	4	23.5	5	29.4	1	5.9	6	35.3
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff).	15	0	0.0	7	46.7	7	46.7	0	0.0	1	6.7
d. Acquire and/or improve availability of equipment.	17	2	11.8	3	17.7	7	41.2	2	11.8	3	17.7
e. Implement or increase the availability of telehealth services.	16	0	0.0	2	12.5	4	25.0	2	12.5	8	50.0
f. Change 'central office policies' that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided).	16	1	6.3	1	6.3	8	50.0	0	0.0	6	37.5
g. Improve personnel supervision, management, or incentives.	16	0	0.0	3	18.8	5	31.3	2	12.5	6	37.5
h. Increase weekend and evening availability of services.	17	2	11.8	0	0.0	7	41.2	3	17.7	5	29.4
i. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community.	16	2	12.5	1	6.3	10	62.5	2	12.5	1	6.3
j. Some other solution(s).	17	1	5.9	3	17.7	7	41.2	2	11.8	4	23.5

This question (question 17) is based on respondents who indicated that patients experienced delays in getting services after being discharged from the hospital (question 15). If 1-3 delays were mentioned in question 15, this question was repeated for each delay mentioned. If 4 or more delays were mentioned in question 15, this question was repeated for the top three delays mentioned in question 16. Respondents were eligible to answer question 17d (N=17, 17.53% of those who answered question 15 and 68% of those who reported any delay) if they identified delays in four or more services and indicated that this was one of the three delays that had the most negative impact on patients or if this service was one of the three or fewer services for which a delay was indicated.

17E. **Your solution for delays in:** Elective CABG surgery. Think of the most effective way to reduce the number of delays that ACS patients experience at this junction. Now, **in your solution, how important are each of the following elements?**

Table I-141. Acute Coronary Syndrome: Question 17E

Solution	N	Critically important		Very important		Somewhat important		Unimportant		Not applicable	
		n	%	n	%	n	%	n	%	n	%
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds).	34	11	32.4	3	8.8	5	14.7	11	32.4	4	11.8
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists).	34	13	38.2	6	17.7	6	17.7	6	17.7	3	8.8
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff).	34	7	20.6	7	20.6	7	20.6	9	26.5	4	11.8
d. Acquire and/or improve availability of equipment.	34	5	14.7	2	5.9	6	17.7	13	38.2	8	23.5
e. Implement or increase the availability of telehealth services.	34	2	5.9	2	5.9	6	17.7	13	38.2	11	32.4
f. Change 'central office policies' that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided).	33	3	9.1	4	12.1	7	21.2	11	33.3	8	24.2
g. Improve personnel supervision, management, or incentives.	32	4	12.5	7	21.9	5	15.6	9	28.1	7	21.9
h. Increase weekend and evening availability of services.	34	4	11.8	8	23.5	6	17.7	11	32.4	5	14.7
i. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community.	33	5	15.2	5	15.2	6	18.2	12	36.4	5	15.2
j. Some other solution(s).	34	8	23.5	4	11.8	9	26.5	5	14.7	8	23.5

This question (question 17) is based on respondents who indicated that patients experienced delays in getting services after being discharged from the hospital (question 15). If 1-3 delays were mentioned in question 15, this question was repeated for each delay mentioned. If 4 or more delays were mentioned in question 15, this question was repeated for the top three delays mentioned in question 16. Respondents were eligible to answer question 17e (N=34, 35.05% of those who answered question 15 and 82.93% of those who reported any delay) if they identified delays in four or more services and indicated that this was one of the three delays that had the most negative impact on patients or if this service was one of the three or fewer services for which a delay was indicated.

17F. **Your solution for delays in:** Elective (or otherwise non-emergent) angiography or PCI. Think of the most effective way to reduce the number of delays that ACS patients experience at this junction. Now, **in your solution, how important are each of the following elements?**

Table I-142. Acute Coronary Syndrome: Question 17F

Solution	N	Critically important		Very important		Somewhat important		Unimportant		Not applicable	
		n	%	n	%	n	%	n	%	n	%
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds).	11	1	9.1	3	27.3	1	9.1	4	36.4	2	18.2
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists).	11	1	9.1	1	9.1	5	45.5	2	18.2	2	18.2
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff).	11	1	9.1	2	18.2	2	18.2	4	36.4	2	18.2
d. Acquire and/or improve availability of equipment.	11	2	18.2	1	9.1	0	0.0	6	54.6	2	18.2
e. Implement or increase the availability of telehealth services.	11	0	0.0	0	0.0	2	18.2	7	63.6	2	18.2
f. Change 'central office policies' that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided).	11	1	9.1	0	0.0	3	27.3	5	45.5	2	18.2
g. Improve personnel supervision, management, or incentives.	11	0	0.0	1	9.1	2	18.2	7	63.6	1	9.1
h. Increase weekend and evening availability of services.	11	1	9.1	0	0.0	3	27.3	6	54.6	1	9.1
i. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community.	11	1	9.1	0	0.0	3	27.3	6	54.6	1	9.1
j. Some other solution(s).	11	2	18.2	2	18.2	1	9.1	5	45.5	1	9.1

This question (question 17) is based on respondents who indicated that patients experienced delays in getting services after being discharged from the hospital (question 15). If 1-3 delays were mentioned in question 15, this question was repeated for each delay mentioned. If 4 or more delays were mentioned in question 15, this question was repeated for the top three delays mentioned in question 16. Respondents were eligible to answer question 17f (N=12, 12.37% of those who answered question 15 and 60% of those who reported any delay) if they identified delays in four or more services and indicated that this was one of the three delays that had the most negative impact on patients or if this service was one of the three or fewer services for which a delay was indicated.

Issues that Affect Provider and System Efficiency

18. IN THE PAST YEAR, how much did the following issues negatively impact provider and system efficiency related to the provision of care for ACS patients?

Table I-143. Acute Coronary Syndrome: Question 18

	N	None n	None %	A little n	A little %	A fair amount n	A fair amount %	A lot n	A lot %	Not Applicable n	Not Applicable %
a. Providers performing clinical activities that could be performed by individuals with less training	98	30	30.6	30	30.6	19	19.4	13	13.3	6	6.1
b. Providers performing administrative activities that could be performed by others	98	13	13.3	20	20.4	32	32.7	28	28.6	5	5.1
c. Residency training/teaching requirements	98	39	39.8	20	20.4	15	15.3	6	6.1	18	18.4
d. Insufficient clinical/administrative support staff	98	12	12.2	16	16.3	22	22.4	43	43.9	5	5.1
e. Inadequate scheduling system and policies (e.g., hard to cancel or reschedule, coordinate)	98	12	12.2	27	27.6	20	20.4	32	32.7	7	7.1
f. Unnecessary documentation requirements or inefficient CPRS interface	97	19	19.6	27	27.8	19	19.6	27	27.8	5	5.2
g. Patient no-show rates	98	13	13.3	48	49	28	28.6	1	1.0	8	8.2
h. Poor patient flow management (room/bed turnover, appointments)	98	18	18.4	38	38.8	19	19.4	14	14.3	9	9.2
i. Too many administrative requirements (Initiatives/Policies/Programs)	98	15	15.3	19	19.4	21	21.4	36	36.7	7	7.1
j. Inadequate number of staffed inpatient beds	98	19	19.4	21	21.4	16	16.3	31	31.6	11	11.2
k. Inefficient processes related to outmoded or suboptimal physical infrastructure (e.g., catheterization laboratory) or equipment	98	25	25.5	22	22.4	18	18.4	13	13.3	20	20.4
l. Delays in obtaining specialized supplies or devices (e.g., catheters or defibrillators)	98	35	35.7	21	21.4	12	12.2	9	9.2	21	21.4

ACS Workforce

19A. IN THE PAST YEAR, did your facility have problems **RECRUITING OR HIRING** the following personnel categories?

Table I-144. Acute Coronary Syndrome: Question 19A

Staff Positions	N	Yes n	Yes %	No n	No %	Not Applicable n	Not Applicable %
a. Cardiologists (interventional)	97	17	17.5	32	33.0	48	49.5
b. Cardiologists (echocardiography)	97	26	26.8	34	35.1	37	38.1
c. Cardiologists (electrophysiology)	97	22	22.7	21	21.6	54	55.7
d. Cardiologists (general)	98	35	35.7	37	37.8	26	26.5
e. Cardiothoracic Surgeons	98	15	15.3	17	17.3	66	67.3
f. Physician Assistants or Nurse Practitioners with expertise in cardiology	98	30	30.6	36	36.7	32	32.7
g. RN Cardiovascular Specialists	96	25	26.0	22	22.9	49	51.0
h. Echocardiography Technicians	98	39	39.8	35	35.7	24	24.5
i. Catheterization Lab Technicians	98	25	25.5	26	26.5	47	48.0
j. Perfusionists	96	7	7.3	15	15.6	74	77.1
k. Emergency physicians	96	37	38.5	27	28.1	32	33.3

Reasons for Staff Recruitment/Hiring Problems

20. Please enter **top two reasons** why there were problems **RECRUITING AND HIRING** these personnel types in the PAST YEAR. Use the drop-down menu to select the top two reasons per personnel type.

Table I-145. Acute Coronary Syndrome: Question 20

Staff Position	N	Senior management does not agree to post new position n	%	Non-competitive wages n	%	Work schedule (e.g., call requirements) n	%	Benefits (e.g., health insurance, leave, continuing education, travel) n	%	Equipment/resources/office space n	%	Facility condition n	%	Case types/complexity n	%	VA reputation n	%	No academic affiliation/lack of protected time for early career investigator n	%	Geographic location of facility n	%	HR process (e.g., time to advertise; length of time from job offer to start date) n	%	Lack of qualified applicants n	%
a. Cardiologists (interventional)	17	1	5.9	14	82.4	1	5.9	0	0.0	3	17.6	0	0.0	1	5.9	2	11.8	2	11.8	1	5.9	6	35.3	3	17.6
b. Cardiologists (echocardiography)	26	2	7.7	22	84.6	2	7.7	0	0.0	2	7.7	1	3.8	2	7.7	3	11.5	2	7.7	1	3.8	13	50.0	1	3.8
c. Cardiologists (electrophysiology)	22	3	13.6	14	63.6	2	9.1	0	0.0	3	13.6	1	4.5	2	9.1	4	18.2	2	9.1	1	4.5	3	13.6	7	31.8
d. Cardiologists (general)	35	4	11.4	27	77.1	0	0.0	0	0.0	0	0.0	0	0.0	1	2.9	5	14.3	2	5.7	5	14.3	14	40.0	7	20.0
e. Cardiothoracic Surgeons	15	1	6.7	11	73.3	1	6.7	0	0.0	1	6.7	0	0.0	0	0.0	2	13.3	2	13.3	0	0.0	5	33.3	2	13.3
f. Physician Assistants or Nurse Practitioners with expertise in cardiology	30	5	16.7	20	66.7	1	3.3	0	0.0	1	3.3	2	6.7	1	3.3	2	6.7	0	0.0	2	6.7	16	53.3	4	13.3
g. RN Cardiovascular Specialists	25	7	28.0	17	68.0	2	8.0	0	0.0	0	0.0	0	0.0	0	0.0	1	4.0	0	0.0	2	8.0	13	52.0	6	24.0
h. Echocardiography Technicians	39	9	23.1	28	71.8	1	2.6	0	0.0	1	2.6	1	2.6	0	0.0	0	0.0	0	0.0	3	7.7	25	64.1	6	15.4
i. Catheterization Lab Technicians	25	5	20.0	22	88.0	3	12.0	1	4.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	15	60.0	3	12.0
j. Perfusionists	7	1	14.3	4	57.1	0	0.0	0	0.0	0	0.0	1	14.3	1	14.3	1	14.3	0	0.0	0	0.0	4	57.1	0	0.0
k. Emergency physicians	37	0	0.0	29	78.4	3	8.1	0	0.0	1	2.7	1	2.7	0	0.0	7	18.9	0	0.0	8	21.6	11	29.7	9	24.3

N refers to the proportion of respondents who listed each "reason" as one of the two most important affecting recruitment and hiring.

This question (question 20) is based on respondents who indicated that their facility had problems recruiting or hiring certain personnel categories (question 19A). Question 20 was asked for each personnel type marked "yes" in question 19A.

Reasons for Staff Retention Problems

19B. IN THE PAST YEAR, did your facility have problems **RETAINING** the following personnel categories?

Table I-146. Acute Coronary Syndrome: Question 19B

Staff Positions	N	Yes		No		Not Applicable	
		n	%	n	%	n	%
a. Cardiologists (interventional)	98	11	11.2	50	51.0	37	37.8
b. Cardiologists (echocardiography)	98	9	9.2	58	59.2	31	31.6
c. Cardiologists (electrophysiology)	97	8	8.2	40	41.2	49	50.5
d. Cardiologists (general)	95	11	11.6	63	66.3	21	22.1
e. Cardiothoracic Surgeons	97	6	6.2	29	29.9	62	63.9
f. Physician Assistants or Nurse Practitioners with expertise in cardiology	98	18	18.4	46	46.9	34	34.7
g. RN Cardiovascular Specialists	98	15	15.3	37	37.8	46	46.9
h. Echocardiography Technicians	95	25	26.3	54	56.8	16	16.8
i. Catheterization Lab Technicians	98	19	19.4	37	37.8	42	42.9
j. Perfusionists	97	3	3.1	26	26.8	68	70.1
k. Emergency physicians	97	26	26.8	36	37.1	35	36.1

21. Please enter **top two reasons** why there were problems **RETAINING** these personnel types in the PAST YEAR. Use the drop-down menu to select the top two reasons per personnel type.

Table I-147. Acute Coronary Syndrome: Question 21

Staff Positions	N	01 Lack of opportunity for professional growth/promotion n	%	02 Dissatisfaction with supervision/management support n	%	03 Dissatisfaction with support staff n	%	04 Dissatisfaction with physical demands of the job n	%	05 Dissatisfaction with workload n	%	06 Lack of incentives or "management levers" to encourage productivity (i.e., no accountability) n	%	07 Organizational culture that does not prioritize/encourage productivity n	%	08 Administrative/Program Demands n	%	09 Lack of professional autonomy n	%	10 Dissatisfaction with pay n	%	11 Work schedule n	%	12 Inadequate equipment/resources/office space n	%	13 Burnout n	%
a. Cardiologists (interventional)	11	2	18.2	1	9.1	0	0.0	0	0.0	0	0.0	2	18.2	1	9.1	1	9.1	0	0.0	7	63.6	1	9.1	4	36.4	0	0.0
b. Cardiologists (echocardiography)	9	3	33.3	1	11.1	2	22.2	0	0.0	0	0.0	0	0.0	1	11.1	0	0.0	0	0.0	6	66.7	0	0.0	3	33.3	1	11.1
c. Cardiologists (electrophysiology)	8	1	12.5	1	12.5	0	0.0	0	0.0	1	12.5	0	0.0	1	12.5	0	0.0	0	0.0	5	62.5	0	0.0	2	25.0	1	12.5
d. Cardiologists (general)	11	4	36.4	2	18.2	3	27.3	0	0.0	0	0.0	0	0.0	1	9.1	0	0.0	0	0.0	8	72.7	0	0.0	1	9.1	0	0.0
e. Cardiothoracic Surgeons	6	1	16.7	1	16.7	1	16.7	0	0.0	0	0.0	2	33.3	0	0.0	1	16.7	0	0.0	4	66.7	0	0.0	2	33.3	0	0.0
f. Physician Assistants or Nurse Practitioners with expertise in cardiology	18	3	16.7	2	11.1	3	16.7	3	16.7	2	11.1	0	0.0	2	11.1	2	11.1	1	5.6	12	66.7	1	5.6	1	5.6	2	11.1
g. RN Cardiovascular Specialists	15	4	26.7	4	26.7	3	20.0	1	6.7	1	6.7	0	0.0	3	20.0	0	0.0	2	13.3	8	53.3	2	13.3	0	0.0	1	6.7
h. Echocardiography Technicians	25	5	20.0	2	8.0	1	4.0	2	8.0	2	8.0	1	4.0	0	0.0	0	0.0	1	4.0	12	48.0	1	4.0	0	0.0	3	12.0
i. Catheterization Lab Technicians	19	5	26.3	3	15.8	3	15.8	0	0.0	4	21.1	1	5.3	1	5.3	1	5.3	0	0.0	13	68.4	2	10.5	0	0.0	4	21.1
j. Perfusionists	3	1	33.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	33.3	2	66.7	0	0.0	1	33.3
k. Emergency physicians	26	7	26.9	4	15.4	3	11.5	2	7.7	3	11.5	1	3.8	1	3.8	1	3.8	0	0.0	15	57.7	4	15.4	1	3.8	2	7.7

N refers to the proportion of respondents who listed each "reason" as one of the two most important affecting retention

This question (question 21) is based on respondents who indicated that their facility had problems retaining certain personnel categories (question 19B). Question 21 was asked for each personnel type marked "yes" in question 19B.

Appendix I.1.6 Colon Cancer

Section 6: Colon Cancer

Screening

1. Which of the following are commonly-used methods of **Colon Cancer screening** for average-risk patients over age 50 in your local health care system? **Consider patients screened within the PAST 90 DAYS.**

Table I-148. Colon Cancer: Question 1

	N	n	%
Fecal occult blood test (standard guaiac)	109	39	35.8
Fecal immunochemical test	109	76	69.7
Flexible sigmoidoscopy every 5 years	109	18	16.5
Colonoscopy every 10 years	109	100	91.7
Double contrast barium enema every 5 years	109	4	3.7

2. Which of the following would best characterize the availability of the **fecal immunochemical test** at your local health care system?

Table I-149. Colon Cancer: Question 2

	N	n	%
Available at **all** facilities associated with this local health care system (i.e., VAMC and all CBOCs)	109	80	73.4
Available at **some locations** within this local health care system but not others	109	11	10.1
Not available at any facilities within this local health care system	109	18	16.5

3. Which of the following would best characterize the CPRS implementation of automated clinical reminders to perform Colon Cancer screening at your facilities?

Table I-150. Colon Cancer: Question 3

	N	n	%
Reminders for Colon Cancer screening are implemented	107	107	100.0
Reminders for Colon Cancer screening are **not** implemented	107	0	0.0

4. It is our understanding that providers can change their CPRS settings to turn off some types of laboratory alerts and not others, and that sometimes alerts are easy to miss. Which of the following would best characterize implementation of CPRS "view alerts" for positive Fecal Occult Blood Test (FOBT) results for patients in your local health care system?

Table I-151. Colon Cancer: Question 4

	N	n	%
An abnormal FOBT generates an alert that can be suppressed based upon a clinician's CPRS settings	109	16	14.7
An abnormal FOBT generates an alert which may easily be overlooked (e.g., if a clinician becomes distracted while viewing a patient's chart)	109	35	32.1
An abnormal FOBT generates an alert which requires some sort of acknowledgement by the clinician	109	49	45.0
An abnormal FOBT is automatically routed to gastroenterology for follow-up	109	24	22.0
FOBT alerts are **not** implemented	109	5	4.6
Other	109	20	18.3

Colonoscopy

5. Consider the use of **colonoscopy** for patients with the following indications. In the 12 MONTHS, what do you estimate to have been the **average wait time** (elapsed days from consult request to scheduled procedure date) for the procedures listed below?

Table I-152. Colon Cancer: Question 5

		Days				Not applicable	
Procedure	N	Mean	Median	Standard Deviation	Range	n	%
a. Colonoscopy screening for average-risk patients (if used)	105	56.1	55	35.3	1 – 200 days	20	19.0
b. Colonoscopy screening for high-risk patients (e.g., strong family of Colon Cancer or personal history of inflammatory bowel disease)	106	42.0	30	25.9	7 - 150	17	16.0
c. Colonoscopy for patients with positive FOBT test	106	33.4	30	17.1	5 - 90	15	14.2
d. Colonoscopy for patients with iron deficiency anemia	106	34.4	30	18.3	5 - 90	19	17.9
e. Colonoscopy for patients with other symptoms or indications	106	35.1	30	21.4	5 - 90	25	23.6
This question (question 5) allowed respondents to either mark a numerical entry or mark N/A or can't assess with an explanation.							

6. Please think about patients who need a **colonoscopy. IN THE PAST 12 MONTHS,** how often did patients experience *clinically meaningful* delays in getting a **colonoscopy** for the following indications? Indicate the percent of patients that experienced delays for whom the service was indicated.

Table I-153. Colon Cancer: Question 6

Service	N	No Delay		1-10% of patients experience a delay		11-25% of patients experience delay		26-50% of patients experience delay		51% or more of patients experience delay		Not Applicable	
		n	%	n	%	n	%	n	%	n	%	n	%
a. Colonoscopy screening for average-risk patients	107	57	53.3	24	22.4	11	10.3	6	5.6	4	3.7	5	4.7
b. Colonoscopy screening for high-risk patients (e.g., strong family of Colon Cancer or personal history of inflammatory bowel disease)	107	66	61.7	25	23.4	6	5.6	7	6.5	1	0.9	2	1.9
c. Colonoscopy for patients with positive FOBT test	107	64	59.8	33	30.8	3	2.8	5	4.7	0	0.0	2	1.9
d. Colonoscopy for patients with iron deficiency anemia	107	67	62.6	26	24.3	8	7.5	4	3.7	0	0.0	2	1.9
e. Colonoscopy for patients with other symptoms or indications	107	60	56.1	31	29.0	9	8.4	4	3.7	0	0.0	3	2.8

7. *The colon cancer module did not include a question 7.*

8. Think of the most effective way to reduce the number of *clinically meaningful delays* in patients receiving a colonoscopy. Now**, in your solution, how important are each of the following elements**?

Table I-154. Colon Cancer: Question 8

		Critically Important		Very Important		Somewhat Important		Unimportant		Not applicable	
Solution	N	n	%	n	%	n	%	n	%	n	%
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds)	64	17	26.6	16	25.0	15	23.4	8	12.5	8	12.5
increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists).	64	32	50.0	18	28.1	8	12.5	2	3.1	4	6.3
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff).	64	26	40.6	17	26.6	14	21.9	2	3.1	5	7.8
d. Acquire and/or improve availability of equipment.	64	10	15.6	11	17.2	18	28.1	19	29.7	6	9.4
e. Implement or increase the availability of telehealth services	63	1	1.6	1	1.6	16	25.4	31	49.2	14	22.2
f. Improve information technology (e.g., scheduling system, electronic health record).	64	12	18.8	20	31.3	13	20.3	14	21.9	5	7.8
g. Change "central office policies" that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided)	63	12	19.0	18	28.6	19	30.2	9	14.3	5	7.9
h. Improve personnel supervision, management, or incentives.	64	8	12.5	13	20.3	26	40.6	13	20.3	4	6.3
i. Increase weekend and evening availability of services	64	0	0.0	6	9.4	22	34.4	29	45.3	7	10.9
j. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community	64	3	4.7	13	20.3	30	46.9	16	25.0	2	3.1
k. Some other solution(s).	62	15	24.2	13	21.0	8	12.9	3	4.8	23	37.1
This question (question 8) is based on respondents who indicated that patients experienced any delay in getting a colonoscopy (question 6) (N=64)											

Management of Biopsy-Proven Colon Cancer

9. Please think about patients who have already had a colonoscopy and have biopsy-proven Colon Cancer. **IN THE PAST 12 MONTHS,** how often were there *clinically meaningful* delays in the following assessment and treatment steps (among patients for whom the step is indicated)? Indicate the percent of colon cancer patients that experienced delays for whom the service was indicated.

Table I-155. Colon Cancer: Question 9

Service	N	No Delay		1-10% of patients experience delay		11-25% of patients experience delay		26-50% of patients experience delay		51% or more of patients experience delay		Not applicable	
		n	%	n	%	n	%	n	%	n	%	n	%
a. Initial evaluation by a surgeon	107	81	75.7	16	15.0	4	3.7	2	1.9	0	0.0	4	3.7
b. CT scan for staging	107	91	85.1	12	11.2	1	0.9	0	0.0	1	0.9	2	1.9
c. Elective surgery (i.e., partial colectomy) at your local VA health care system	107	62	57.9	14	13.1	4	3.7	3	2.8	0	0.0	24	22.4
d. Elective surgery (i.e., partial colectomy) at another VA health care system	106	27	25.5	15	14.2	5	4.7	3	2.8	1	0.9	55	51.9
e. Elective surgery (i.e., partial colectomy) at a non-VA facility (fee-basis or contracted care)	107	35	32.7	15	14.0	6	5.6	1	0.9	1	0.9	49	45.8
f. Starting chemotherapy at your local VA health care system	107	71	66.4	13	12.2	3	2.8	0	0.0	0	0.0	20	18.7
g. Starting chemotherapy at another VA health care system	106	27	25.5	6	5.7	4	3.8	2	1.9	0	0.0	67	63.2
h. Starting chemotherapy a non-VA facility (fee-basis or contracted care)	107	35	32.7	11	10.3	1	0.9	0	0.0	1	0.9	59	55.1
i. Starting radiation therapy (any location)	107	73	68.2	15	14.0	5	4.7	1	0.9	0	0.0	13	12.2

10. Think about those Colon Cancer patients who experienced *clinically meaningful delays*. In the PAST 12 MONTHS, which of these delays had the **most negative impact** on patients?

Results not presented. Respondents were only asked this question if they identified more than three delays in Q9 in order to identify their top three delays for Q11.

11A**. Your solution for delays in:** Initial evaluation by a surgeon. Think about the most effective way to reduce the number of *clinically meaningful delays* at this junction. Now**, in your solution, how important are each of the following elements?**

Table I-156. Colon Cancer: Question 11A

Solution	N	Critically important		Very important		Somewhat important		Unimportant		Not applicable	
		n	%	n	%	n	%	n	%	n	%
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds).	14	3	21.4	1	7.1	5	35.7	0	0.0	5	35.7
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists).	14	9	64.3	3	21.4	2	14.3	0	0.0	0	0.0
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff).	14	2	14.3	6	42.9	1	7.1	1	7.1	4	28.6
d. Acquire and/or improve availability of equipment.	14	2	14.3	2	14.3	3	21.4	1	7.1	6	42.9
e. Implement or increase the availability of telehealth services.	14	1	7.1	0	0.0	0	0.0	9	64.3	4	28.6
f. Improve information technology (e.g., scheduling system, electronic health record). .	14	1	7.1	2	14.3	5	35.7	3	21.4	3	21.4
g. Change 'central office policies' that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided).	14	1	7.1	2	14.3	6	42.9	2	14.3	3	21.4
h. Improve personnel supervision, management, or incentives.	14	1	7.1	2	14.3	6	42.9	3	21.4	2	14.3
i. Increase weekend and evening availability of services.	14	0	0.0	2	14.3	3	21.4	6	42.9	3	21.4
j. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community.	14	4	28.6	1	7.1	3	21.4	5	35.7	1	7.1
k. Some other solution(s).	13	5	38.5	0	0.0	2	15.4	0	0.0	6	46.2

This question (question 11) is based on respondents who indicated that patients experienced delays in the management of biopsy-proven Colon Cancer (question 9). If 1-3 delays were mentioned in question 9, this question was repeated for each delay mentioned. If 4 or more delays were mentioned in question 9, this question was repeated for the top three delays mentioned in question 10. Respondents were eligible to answer question 11a (N=14, 13.08% of those who answered question 9 and 63.64% of those who reported any delay) if they identified delays in four or more services and indicated that this was one of the three delays that had the most negative impact on patients or if this service was one of the three or fewer services for which a delay was indicated.

11B**. Your solution for delays in:** CT scan for staging. Think about the most effective way to reduce the number of *clinically meaningful delays* at this junction. Now**, in your solution, how important are each of the following elements?**

Responses to this question are not presented due to small number of respondents who identified delays in accessing CT scan for staging and answered 11b (N = 8).

11C**. Your solution for delays in:** Elective surgery (i.e., partial colectomy) at your local VA health care system. Think about the most effective way to reduce the number of *clinically meaningful delays* at this junction. Now**, in your solution, how important are each of the following elements?**

Table I-157. Colon Cancer: Question 11C

Solution	N	Critically important		Very important		Somewhat important		Unimportant		Not applicable	
		n	%	n	%	n	%	n	%	n	%
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds).	17	6	35.3	2	11.8	4	23.5	4	23.5	1	5.9
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists).	17	8	47.1	6	35.3	1	5.9	1	5.9	1	5.9
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff).	17	4	23.5	3	17.7	6	35.3	2	11.8	2	11.8
d. Acquire and/or improve availability of equipment.	17	2	11.8	2	11.8	6	35.3	5	29.4	2	11.8
e. Implement or increase the availability of telehealth services.	17	1	5.9	0	0.0	4	23.5	7	41.2	5	29.4
f. Improve information technology (e.g., scheduling system, electronic health record).	17	3	17.7	1	5.9	4	23.5	6	35.3	3	17.7
g. Change 'central office policies' that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided).	17	4	23.5	2	11.8	5	29.4	3	17.7	3	17.7
h. Improve personnel supervision, management, or incentives.	17	1	5.9	3	17.7	7	41.2	4	23.5	2	11.8
i. Increase weekend and evening availability of services.	17	1	5.9	1	5.9	4	23.5	8	47.1	3	17.7
j. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community.	17	2	11.8	6	35.3	4	23.5	3	17.7	2	11.8
k. Some other solution(s).	17	5	29.4	2	11.8	2	11.8	1	5.9	7	41.2

This question (question 11) is based on respondents who indicated that patients experienced delays in the management of biopsy-proven Colon Cancer (question 9). If 1-3 delays were mentioned in question 9, this question was repeated for each delay mentioned. If 4 or more delays were mentioned in question 9, this question was repeated for the top three delays mentioned in question 10. Respondents were eligible to answer question 11c (N=17, 15.89% of those who answered question 9 and 80.95% of those who reported any delay) if they identified delays in four or more services and indicated that this was one of the three delays that had the most negative impact on patients or if this service was one of the three or fewer services for which a delay was indicated.

11D**. Your solution for delays in:** Elective surgery (i.e., partial colectomy) at another VA health care system. Think about the most effective way to reduce the number of *clinically meaningful delays* at this junction. Now**, in your solution, how important are each of the following elements?**

Table I-158. Colon Cancer: Question 11D

Solution	N	Critically important		Very important		Somewhat important		Unimportant		Not applicable	
		n	%	n	%	n	%	n	%	n	%
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds).	18	1	5.6	1	5.6	2	11.1	1	5.6	13	72.2
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists).	18	4	22.2	4	22.2	0	0.0	1	5.6	9	50.0
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff).	18	2	11.1	3	16.7	2	11.1	1	5.6	10	55.6
d. Acquire and/or improve availability of equipment.	18	1	5.6	3	16.7	1	5.6	3	16.7	10	55.6
e. Implement or increase the availability of telehealth services.	18	0	0.0	3	16.7	3	16.7	5	27.8	7	38.9
f. Improve information technology (e.g., scheduling system, electronic health record).	18	0	0.0	4	22.2	3	16.7	1	5.6	10	55.6
g. Change 'central office policies' that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided).	18	3	16.7	1	5.6	4	22.2	1	5.6	9	50.0
h. Improve personnel supervision, management, or incentives.	18	1	5.6	2	11.1	2	11.1	4	22.2	9	50.0
i. Increase weekend and evening availability of services.	18	0	0.0	1	5.6	0	0.0	6	33.3	11	61.1
j. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community.	18	2	11.1	5	27.8	2	11.1	0	0.0	9	50.0
k. Some other solution(s).	18	2	11.1	1	5.6	0	0.0	0	0.0	15	83.3

This question (question 11) is based on respondents who indicated that patients experienced delays in the management of biopsy-proven Colon Cancer (question 9). If 1-3 delays were mentioned in question 9, this question was repeated for each delay mentioned. If 4 or more delays were mentioned in question 9, this question was repeated for the top three delays mentioned in question 10. Respondents were eligible to answer question 11d (N=19, 17.92% of those who answered question 9 and 79.17% of those who reported any delay) if they identified delays in four or more services and indicated that this was one of the three delays that had the most negative impact on patients or if this service was one of the three or fewer services for which a delay was indicated.

11E**. Your solution for delays in:** Elective surgery (i.e., partial colectomy) at a non-VA facility (fee-basis or contracted care). Think about the most effective way to reduce the number of *clinically meaningful delays* at this junction. Now**, in your solution, how important are each of the following elements?**

Table I-159. Colon Cancer: Question 11E

Solution	N	Critically important		Very important		Somewhat important		Unimportant		Not applicable	
		n	%	n	%	n	%	n	%	n	%
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds).	16	1	6.3	2	12.5	1	6.3	3	18.8	9	56.3
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists).	16	2	12.5	5	31.3	1	6.3	2	12.5	6	37.5
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff).	16	2	12.5	5	31.3	1	6.3	2	12.5	6	37.5
d. Acquire and/or improve availability of equipment.	16	1	6.3	2	12.5	3	18.8	3	18.8	7	43.8
e. Implement or increase the availability of telehealth services.	16	0	0.0	1	6.3	3	18.8	5	31.3	7	43.8
f. Improve information technology (e.g., scheduling system, electronic health record).	16	0	0.0	6	37.5	4	25.0	4	25.0	2	12.5
g. Change 'central office policies' that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided).	16	1	6.3	2	12.5	6	37.5	3	18.8	4	25.0
h. Improve personnel supervision, management, or incentives. .	16	1	6.3	1	6.3	5	31.3	5	31.3	4	25.0
i. Increase weekend and evening availability of services.	16	0	0.0	1	6.3	1	6.3	7	43.8	7	43.8
j. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community.	16	2	12.5	5	31.3	4	25.0	2	12.5	3	18.8
k. Some other solution(s).	16	0	0.0	2	12.5	2	12.5	0	0.0	12	75.0

This question (question 11) is based on respondents who indicated that patients experienced delays in the management of biopsy-proven Colon Cancer (question 9). If 1-3 delays were mentioned in question 9, this question was repeated for each delay mentioned. If 4 or more delays were mentioned in question 9, this question was repeated for the top three delays mentioned in question 10. Respondents were eligible to answer question 11e (N=16, 14.95% of those who answered question 9 and 69.57% of those who reported any delay) if they identified delays in four or more services and indicated that this was one of the three delays that had the most negative impact on patients or if this service was one of the three or fewer services for which a delay was indicated.

11F**. Your solution for delays in:** Starting chemotherapy at your local VA health care system. Think about the most effective way to reduce the number of *clinically meaningful delays* at this junction. Now**, in your solution, how important are each of the following elements?**

Table I-160. Colon Cancer: Question 11F

Solution	N	Critically important		Very important		Somewhat important		Unimportant		Not applicable	
		n	%	n	%	n	%	n	%	n	%
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds).	11	2	18.2	2	18.2	5	45.5	1	9.1	1	9.1
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists).	11	4	36.4	1	9.1	3	27.3	1	9.1	2	18.2
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff).	11	3	27.3	1	9.1	4	36.4	1	9.1	2	18.2
d. Acquire and/or improve availability of equipment.	11	0	0.0	0	0.0	6	54.6	3	27.3	2	18.2
e. Implement or increase the availability of telehealth services.	11	0	0.0	0	0.0	2	18.2	6	54.6	3	27.3
f. Improve information technology (e.g., scheduling system, electronic health record).	11	1	9.1	0	0.0	2	18.2	5	45.5	3	27.3
g. Change 'central office policies' that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided).	11	0	0.0	2	18.2	5	45.5	1	9.1	3	27.3
h. Improve personnel supervision, management, or incentives.	11	2	18.2	1	9.1	3	27.3	2	18.2	3	27.3
i. Increase weekend and evening availability of services.	11	0	0.0	2	18.2	3	27.3	4	36.4	2	18.2
j. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community.	11	1	9.1	1	9.1	3	27.3	2	18.2	4	36.4
k. Some other solution(s).	11	1	9.1	1	9.1	2	18.2	2	18.2	5	45.5

This question (question 11) is based on respondents who indicated that patients experienced delays in the management of biopsy-proven Colon Cancer (question 9). If 1-3 delays were mentioned in question 9, this question was repeated for each delay mentioned. If 4 or more delays were mentioned in question 9, this question was repeated for the top three delays mentioned in question 10. Respondents were eligible to answer question 11f (N=11, 10.28% of those who answered question 9 and 68.75% of those who reported any delay) if they identified delays in four or more services and indicated that this was one of the three delays that had the most negative impact on patients or if this service was one of the three or fewer services for which a delay was indicated.

11G**. Your solution for delays in:** Starting chemotherapy at another VA health care system. Think about the most effective way to reduce the number of *clinically meaningful delays* at this junction. Now**, in your solution, how important are each of the following elements?**

Responses to this question are not presented due to small number of respondents who identified delays in accessing Starting chemotherapy at another VA health care system and answered 11g (N = 8).

11H**. Your solution for delays in:** Starting chemotherapy a non-VA facility (fee-basis or contracted care). Think about the most effective way to reduce the number of *clinically meaningful delays* at this junction. Now**, in your solution, how important are each of the following elements?**

Responses to this question are not presented due to small number of respondents who identified delays in accessing Starting chemotherapy a non-VA facility (fee-basis or contracted care)and answered 11h (N = 8).

11I. **Your solution for delays in:** Starting radiation therapy (any location). Think about the most effective way to reduce the number of *clinically meaningful delays* at this junction. Now**, in your solution, how important are each of the following elements?**

Table I 161. Colon Cancer: Question 11I

Solution	N	Critically important		Very important		Somewhat important		Unimportant		Not applicable	
		n	%	n	%	n	%	n	%	n	%
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds).	13	2	15.4	3	23.1	1	7.7	3	23.1	4	30.8
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists).	13	2	15.4	3	23.1	2	15.4	2	15.4	4	30.8
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff).	13	1	7.7	5	38.5	2	15.4	2	15.4	3	23.1
d. Acquire and/or improve availability of equipment.	13	3	23.1	3	23.1	1	7.7	2	15.4	4	30.8
e. Implement or increase the availability of telehealth services.	13	0	0.0	1	7.7	0	0.0	7	53.9	5	38.5
f. Improve information technology (e.g., scheduling system, electronic health record).	13	0	0.0	1	7.7	4	30.8	4	30.8	4	30.8
g. Change 'central office policies' that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided).	13	2	15.4	1	7.7	3	23.1	2	15.4	5	38.5
h. Improve personnel supervision, management, or incentives.	13	0	0.0	2	15.4	4	30.8	3	23.1	4	30.8
i. Increase weekend and evening availability of services.	13	0	0.0	2	15.4	2	15.4	4	30.8	5	38.5
j. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community.	13	3	23.1	4	30.8	0	0.0	3	23.1	3	23.1
k. Some other	13	1	7.7	2	15.4	2	15.4	1	7.7	7	53.9

This question (question 11) is based on respondents who indicated that patients experienced delays in the management of biopsy-proven Colon Cancer (question 9). If 1-3 delays were mentioned in question 9, this question was repeated for each delay mentioned. If 4 or more delays were mentioned in question 9, this question was repeated for the top three delays mentioned in question 10. Respondents were eligible to answer question 11i (N=13, 12.15% of those who answered question 9 and 61.9% of those who reported any delay) if they identified delays in four or more services and indicated that this was one of the three delays that had the most negative impact on patients or if this service was one of the three or fewer services for which a delay was indicated.

Issues that Affect Provider and System Efficiency

12. IN THE PAST YEAR, how much did the following issues negatively impact provider and system efficiency related to the provision of Colon Cancer screening, diagnosis, and treatment?

Table I-162. Colon Cancer: Question 12

	N	None		A little		A fair amount		A lot		Not Applicable	
		n	%	n	%	n	%	n	%	n	%
a. Providers performing clinical activities that could be performed by individuals with less training	107	29	27.1	20	18.7	27	25.2	26	24.3	5	4.7
b. Providers performing administrative activities that could be performed by others	107	12	11.2	16	15.0	39	36.4	37	34.6	3	2.8
c. Residency training/teaching requirements	107	39	36.4	30	28.0	9	8.4	5	4.7	24	22.4
d. Insufficient clinical/administrative support staff	107	8	7.5	19	17.8	35	32.7	42	39.3	3	2.8
e. Inadequate scheduling system and policies (e.g., hard to cancel or reschedule, coordinate)	107	14	13.1	21	19.6	39	36.4	31	29.0	2	1.9
f. Unnecessary documentation requirements or inefficient CPRS interface	107	22	20.6	21	19.6	30	28.0	32	29.9	2	1.9
g. Patient no-show rates	107	5	4.7	32	29.9	48	44.9	21	19.6	1	0.9
h. Poor patient flow management (room/bed turnover, appointments)	107	26	24.3	34	31.8	28	26.2	14	13.1	5	4.7
i. Too many administrative requirements (Initiatives/Policies/Programs)	107	15	14.0	27	25.2	25	23.4	35	32.7	5	4.7

Workforce

13. IN THE PAST YEAR, did your local health care system have problems **RECRUITING OR HIRING** the following personnel categories?

Table I-163. Colon Cancer: Question 13

		Yes		No		Not Applicable	
Staff Positions	N	n	%	n	%	n	%
a. Gastroenterologists	107	72	67.3	19	17.8	16	15.0
b. General Surgeons	107	39	36.4	35	32.7	33	30.8
c. Surgical Oncologists	106	25	23.6	15	14.2	66	62.3
d. Medical Oncologists	107	39	36.4	28	26.2	40	37.4
e. Other physicians/surgeons trained in colonoscopy	107	29	27.1	27	25.2	51	47.7
f. Physician Assistants or Nurse Practitioner Gastroenterology Specialists	107	28	26.2	46	43.0	33	30.8
g. Nurse Specialists with oncologic expertise	107	17	15.9	31	29	59	55.1

Reasons for Staff Recruitment/Hiring Problems

14. Please enter **top two reasons** why there were problems **RECRUITING AND HIRING** these personnel types in the PAST YEAR.

Table I-164. Colon Cancer: Question 14

Staff Positions	N	Senior management does not agree to post new position n	%	Non-competitive wages n	%	Work schedule (e.g., call requirements) n	%	Benefits (e.g., health insurance, leave, continuing education, travel) n	%	Equipment/resources/office space n	%	Facility condition n	%	Case types/complexity n	%	VA reputation n	%	No academic affiliation/lack of protected time for early career investigator n	%	Geographic location of facility n	%	HR process (e.g., time to advertise; length of time from job offer to start date) n	%	Lack of qualified applicants n	%
a. Gastroenterologists	72	6	8.3	67	93.1	2	2.8	0	0.0	3	4.2	2	2.8	1	1.4	6	8.3	3	4.2	18	25.0	19	26.4	15	20.8
b. General Surgeons	39	0	0.0	35	89.7	2	5.1	0	0.0	4	10.3	1	2.6	4	10.3	3	7.7	1	2.6	11	28.2	7	17.9	8	20.5
c. Surgical Oncologists	25	1	4.0	22	88.0	0	0.0	1	4.0	2	8.0	0	0.0	2	8.0	3	12	2	8.0	1	4.0	7	28.0	7	28.0
d. Medical Oncologists	39	4	10.3	30	76.9	2	5.1	1	2.6	2	5.1	1	2.6	3	7.7	2	5.1	3	7.7	8	20.5	13	33.3	7	17.9
e. Other physicians/surgeons trained in colonoscopy	29	3	10.3	21	72.4	2	6.9	1	3.4	3	10.3	0	0.0	0	0.0	3	10.3	0	0.0	7	24.1	5	17.2	9	31.0
f. Physician Assistants or Nurse Practitioner Gastroenterology Specialists	28	7	25.0	13	46.4	4	14.3	0	0.0	1	3.6	0	0.0	2	7.1	3	10.7	0	0.0	2	7.1	15	53.6	5	17.9
g. Nurse Specialists with oncologic expertise	17	5	29.4	8	47.1	0	0.0	0	0.0	3	17.6	0	0.0	1	5.9	2	11.8	0	0.0	1	5.9	9	52.9	3	17.6

N refers to the proportion of respondents who listed each "reason" as one of the two most important affecting recruitment and hiring.

This question (question 14) is based on respondents who indicated that their local health care system had problems recruiting or hiring certain personnel categories (question 13). Question 14 was asked for each personnel type marked "yes" in question 13.

15. IN THE PAST YEAR, did your local health care system have problems **RETAINING** the following personnel categories?

Table I-165. Colon Cancer: Question 15

Staff Positions	N	Yes n	Yes %	No n	No %	Not Applicable n	Not Applicable %
a. Gastroenterologists	106	40	37.7	47	44.3	19	17.9
b. General Surgeons	105	20	19.0	50	47.6	35	33.3
c. Surgical Oncologists	105	9	8.6	24	22.9	72	68.6
d. Medical Oncologists	104	19	18.3	48	46.2	37	35.6
e. Other physicians/surgeons trained in colonoscopy	105	10	9.5	34	32.4	61	58.1
f. Physician Assistants or Nurse Practitioner Gastroenterology Specialists	105	18	17.1	48	45.7	39	37.1
g. Nurse Specialists with oncologic expertise	105	10	9.5	28	26.7	67	63.8

Reasons for Staff Retention Problems

16. Please enter **top two reasons** why there were problems **RETAINING** these personnel types in the PAST YEAR.

Table I-166. Colon Cancer: Question 16

Staff Positions	N	Lack of opportunity for professional growth/promotion		Dissatisfaction with supervision/management support		Dissatisfaction with support staff		Dissatisfaction with physical demands of the job		Dissatisfaction with workload		Lack of incentives or "management levers" to encourage productivity (i.e., no accountability)		Organizational culture that does not prioritize/ encourage productivity		Administrative/ Program Demands		Lack of professional autonomy		Dissatisfaction with pay		Work schedule		Inadequate equipment/ resources/office space		Burnout	
		n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
a. Gastroenterologists	40	3	7.5	12	30.0	6	15.0	2	5.0	3	7.5	2	5.0	1	2.5	9	22.5	1	2.5	25	62.5	4	10.0	6	15.0	4	10.0
b. General Surgeons	20	6	30.0	8	40.0	4	20.0	0	0.0	4	20.0	0	0.0	2	10.0	3	15.0	2	10.0	5	25.0	1	5.0	1	5.0	4	20.0
c. Surgical Oncologists	9	4	44.4	2	22.2	1	11.1	0	0.0	0	0.0	0	0.0	1	11.1	1	11.1	0	0.0	6	66.7	0	0.0	2	22.2	1	11.1
d. Medical Oncologists	19	0	0.0	4	21.1	0	0.0	2	10.5	2	10.5	1	5.3	1	5.3	6	31.6	2	10.5	9	47.4	3	15.8	4	21.1	4	21.1
e. Other physicians/surgeons trained in colonoscopy	10	1	10.0	2	20.0	2	20.0	2	20.0	2	20.0	0	0.0	0	0.0	2	20.0	1	10.0	4	40.0	2	20.0	1	10.0	1	10.0
f. Physician Assistants or Nurse Practitioner Gastroenterology Specialists	18	2	11.1	9	50.0	5	27.8	2	11.1	4	22.2	0	0.0	1	5.6	2	11.1	0	0.0	6	33.3	0	0.0	1	5.6	4	22.2
g. Nurse Specialists with oncologic expertise	10	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0

This question (question 16) is based on respondents who indicated that their local health care system had problems retaining certain personnel categories (question 15). Question 16 was asked for each personnel type marked "yes" in question 15. Due to a programming error, respondents who indicated problems with retaining Nurse Specialists with oncologic expertise were not asked to provide the top two reasons for retention problems for this specialty. Therefore this data should be considered missing.

The views, opinions, and/or findings contained in this report are those of RAND Corporation and should not be construed as an official government position, policy, or decision.

Appendix I.1.7 Diabetes Mellitus (type 2)

Section 7: Type 2 Diabetes

Delays in Management After Diagnosis

1. Please think about patients who are in need of the following Type 2 Diabetes management services. **IN THE PAST 90 DAYS**, how often were there *clinically meaningful delays* in patients' access to the following diabetes management services? Indicate the percent of Type 2 Diabetes patients that experienced delays for whom the service was indicated.

Table I-167. Type 2 Diabetes: Question 1

Service	N	No Delay		1-10% of patients experience delay		11-25% of patients experience delay		26-50% of patients experience delay		51% or more of patients experience delay		Not applicable	
		n	%	n	%	n	%	n	%	n	%	n	%
a. Primary care clinic appointment for issues related to glycemic control (e.g., symptoms or glucometer reading)	110	44	40.0	37	33.6	11	10.0	3	2.7	6	5.5	9	8.2
b. Consult with endocrinologist/diabetes specialist (e.g., or poor glycemic control, or for patients at high risk for complications)	110	44	40.0	32	29.1	19	17.3	5	4.6	4	3.6	6	5.5
c. In-person care at endocrinology, for poor glycemic control, or for patients at high risk for complications	110	44	40.0	36	32.7	12	10.9	6	5.5	3	2.7	9	8.2
d. Nutritionist	110	75	68.2	20	18.2	11	10.0	1	0.9	2	1.8	1	0.9
e. Podiatry clinic for preventative care	110	44	40.0	33	30.0	16	14.6	8	7.3	4	3.6	5	4.6
f. Retinopathy screening services	110	73	66.4	20	18.2	7	6.4	3	2.7	3	2.7	4	3.6
g. Retinopathy treatment services	110	48	43.6	41	37.3	5	4.6	6	5.5	0	0.0	10	9.1
h. Bariatric surgery (in patients deemed to be good candidates)	110	18	16.4	12	10.9	5	4.6	7	6.4	18	16.4	50	45.5
i. Dispensing diabetes-related personal equipment such as glucometers or special footwear	110	84	76.4	18	16.4	6	5.5	1	0.9	0	0.0	1	0.9

2. Think about those Type 2 Diabetes patients who experienced *clinically meaningful delays.* In the PAST 90 DAYS which of these delays had the **most negative impact** on patients?

Results not presented. Respondents were only asked this question if they identified more than three delays in Q1 in order to identify their top three delays for Q3.

3A**. Your solution for delays in:** Primary care clinic appointment for issues related to glycemic control (e.g., symptoms or glucometer reading)**.** Think of the most effective way to reduce the number of *clinically meaningful delays* at this junction. Now, **in your solution, how important are each of the following elements**?

Table I-168. Type 2 Diabetes: Question 3A

Solution	N	Critically important		Very important		Somewhat important		Unimportant		Not applicable	
		n	%	n	%	n	%	n	%	n	%
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds).	44	15	34.1	12	27.3	10	22.7	6	13.6	1	2.3
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists).	44	20	45.5	10	22.7	10	22.7	2	4.6	2	4.6
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff).	44	13	29.6	19	43.2	9	20.5	3	6.8	0	0.0
d. Acquire and/or improve availability of equipment.	44	1	2.3	8	18.2	14	31.8	13	29.6	8	18.2
e. Implement or increase the availability of telehealth services.	44	5	11.4	9	20.5	21	47.7	8	18.2	1	2.3
f. Improve information technology (e.g., scheduling system, electronic health record).	44	17	38.6	8	18.2	7	15.9	11	25.0	1	2.3
g. Change 'central office policies' that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided).	44	10	22.7	12	27.3	14	31.8	8	18.2	0	0.0
h. Improve personnel supervision, management, or incentives.	44	9	20.5	9	20.5	13	29.6	9	20.5	4	9.1
i. Increase weekend and evening availability of services.	44	3	6.8	6	13.6	16	36.6	15	34.1	4	9.1
j. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community.	44	1	2.3	4	9.1	17	38.6	17	38.6	5	11.4
k. Some other solution(s).	44	11	25.0	7	15.9	4	9.1	2	4.6	20	45.5

This question (question 3) is based on respondents who indicated that patients experienced delays in accessing diabetes management services (question 1). If 1-3 delays were mentioned in question 1, this question was repeated for each delay mentioned. If 4 or more delays were mentioned in question 1, this question was repeated for the top three delays mentioned in question 2. Respondents were eligible to answer question 3a (N=44, 40.0% of those who answered question 1 and 77.2% of those who reported any delay) if they identified delays in four or more services and indicated that this was one of the three delays that had the most negative impact on patients or if this service was one of the three or fewer services for which a delay was indicated.

3B**. Your solution for delays in:** Consult with endocrinologist/diabetes specialist (e.g., or poor glycemic control, or for patients at high risk for complications)**.** Think of the most effective way to reduce the number of *clinically meaningful delays* at this junction. Now, **in your solution, how important are each of the following elements**?

Table I-169. Type 2 Diabetes: Question 3B

Solution	N	Critically important		Very important		Somewhat important		Unimportant		Not applicable	
		n	%	n	%	n	%	n	%	n	%
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds).	44	12	27.3	9	20.5	11	25.0	6	13.6	6	13.6
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists).	44	16	36.4	10	22.7	12	27.3	2	4.6	4	9.1
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff).	44	9	20.5	16	36.4	15	34.1	1	2.3	3	6.8
d. Acquire and/or improve availability of equipment.	44	2	4.6	2	4.6	15	34.1	14	31.8	11	25.0
e. Implement or increase the availability of telehealth services.	44	3	6.8	7	15.9	24	54.6	8	18.2	2	4.6
f. Improve information technology (e.g., scheduling system, electronic health record).	44	7	15.9	12	27.3	13	29.6	10	22.7	2	4.6
g. Change 'central office policies' that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided).	44	7	15.9	13	29.6	13	29.6	8	18.2	3	6.8
h. Improve personnel supervision, management, or incentives.	44	6	13.6	11	25.0	13	29.6	8	18.2	6	13.6
i. Increase weekend and evening availability of services.	44	0	0.0	6	13.6	14	31.8	19	43.2	5	11.4
j. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community.	44	2	4.6	7	15.9	16	36.4	16	36.4	3	6.8
k. Some other solution(s).	43	6	14.0	6	14.0	3	7.0	2	4.7	26	60.5

This question (question 3) is based on respondents who indicated that patients experienced delays in accessing diabetes management services (question 1). If 1-3 delays were mentioned in question 1, this question was repeated for each delay mentioned. If 4 or more delays were mentioned in question 1, this question was repeated for the top three delays mentioned in question 2. Respondents were eligible to answer question 3b (N=45, 40.9% of those who answered question 1 and 75.0% of those who reported any delay) if they identified delays in four or more services and indicated that this was one of the three delays that had the most negative impact on patients or if this service was one of the three or fewer services for which a delay was indicated.

3C**. Your solution for delays in:** In-person care at endocrinology, for poor glycemic control, or for patients at high risk for complications**.** Think of the most effective way to reduce the number of *clinically meaningful delays* at this junction. Now, **in your solution, how important are each of the following elements**?

Table I-170. Type 2 Diabetes: Question 3C

Solution	N	Critically important		Very important		Somewhat important		Unimportant		Not applicable	
		n	%	n	%	n	%	n	%	n	%
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds).	41	11	26.8	8	19.5	13	31.7	5	12.2	4	9.8
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists).	41	15	36.6	14	34.2	7	17.1	2	4.9	3	7.3
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff).	40	9	22.5	12	30.0	16	40.0	0	0.0	3	7.5
d. Acquire and/or improve availability of equipment.	41	0	0.0	6	14.6	13	31.7	13	31.7	9	22.0
e. Implement or increase the availability of telehealth services.	41	2	4.9	10	24.4	20	48.8	6	14.6	3	7.3
f. Improve information technology (e.g., scheduling system, electronic health record).	41	7	17.1	9	22.0	13	31.7	9	22.0	3	7.3
g. Change 'central office policies' that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided).	39	5	12.8	9	23.1	16	41.0	5	12.8	4	10.3
h. Improve personnel supervision, management, or incentives.	41	2	4.9	13	31.7	10	24.4	8	19.5	8	19.5
i. Increase weekend and evening availability of services.	40	1	2.5	3	7.5	12	30.0	16	40.0	8	20.0
j. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community.	41	1	2.4	7	17.1	16	39.0	14	34.2	3	7.3
k. Some other solution(s).	41	4	9.8	5	12.2	5	12.2	1	2.4	26	63.4

This question (question 3) is based on respondents who indicated that patients experienced delays in accessing diabetes management services (question 1). If 1-3 delays were mentioned in question 1, this question was repeated for each delay mentioned. If 4 or more delays were mentioned in question 1, this question was repeated for the top three delays mentioned in question 2. Respondents were eligible to answer question 3c (N=41, 37.3% of those who answered question 1 and 71.9% of those who reported any delay) if they identified delays in four or more services and indicated that this was one of the three delays that had the most negative impact on patients or if this service was one of the three or fewer services for which a delay was indicated.

3D. **Your solution for delays in:** Nutritionist. Think of the most effective way to reduce the number of *clinically meaningful delays* at this junction. Now, **in your solution, how important are each of the following elements**?

Table I-171. Type 2 Diabetes: Question 3D

Solution	N	Critically important		Very important		Somewhat important		Unimportant		Not applicable	
		n	%	n	%	n	%	n	%	n	%
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds).	11	2	18.2	3	27.3	4	36.4	0	0.0	2	18.2
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists).	11	4	36.4	3	27.3	1	9.1	1	9.1	2	18.2
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff).	11	2	18.2	4	36.4	4	36.4	1	9.1	0	0.0
d. Acquire and/or improve availability of equipment.	11	0	0.0	1	9.1	2	18.2	5	45.5	3	27.3
e. Implement or increase the availability of telehealth services.	11	0	0.0	0	0.0	9	81.8	1	9.1	1	9.1
f. Improve information technology (e.g., scheduling system, electronic health record).	11	1	9.1	4	36.4	3	27.3	0	0.0	3	27.3
g. Change 'central office policies' that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided).	11	0	0.0	1	9.1	5	45.5	2	18.2	3	27.3
h. Improve personnel supervision, management, or incentives.	11	0	0.0	3	27.3	2	18.2	3	27.3	3	27.3
i. Increase weekend and evening availability of services.	11	0	0.0	1	9.1	5	45.5	3	27.3	2	18.2
j. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community.	11	0	0.0	1	9.1	3	27.3	3	27.3	4	36.4
k. Some other solution(s).	11	1	9.1	1	9.1	3	27.3	0	0.0	6	54.6

This question (question 3) is based on respondents who indicated that patients experienced delays in accessing diabetes management services (question 1). If 1-3 delays were mentioned in question 1, this question was repeated for each delay mentioned. If 4 or more delays were mentioned in question 1, this question was repeated for the top three delays mentioned in question 2. Respondents were eligible to answer question 3d (N=11, 10.0% of those who answered question 1 and 32.4% of those who reported any delay) if they identified delays in four or more services and indicated that this was one of the three delays that had the most negative impact on patients or if this service was one of the three or fewer services for which a delay was indicated.

3E**. Your solution for delays in:** Podiatry clinic for preventative care**.** Think of the most effective way to reduce the number of *clinically meaningful delays* at this junction. Now, **in your solution, how important are each of the following elements**?

Table I-172. Type 2 Diabetes: Question 3E

Solution	N	Critically important		Very important		Somewhat important		Unimportant		Not applicable	
		n	%	n	%	n	%	n	%	n	%
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds).	34	9	26.5	12	35.3	7	20.6	4	11.8	2	5.9
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists).	34	17	50.0	8	23.5	7	20.6	1	2.9	1	2.9
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff).	34	9	26.5	13	38.2	8	23.5	3	8.8	1	2.9
d. Acquire and/or improve availability of equipment.	34	1	2.9	10	29.4	8	23.5	10	29.4	5	14.7
e. Implement or increase the availability of telehealth services.	34	0	0.0	6	17.7	7	20.6	15	44.1	6	17.7
f. Improve information technology (e.g., scheduling system, electronic health record).	34	5	14.7	4	11.8	10	29.4	10	29.4	5	14.7
g. Change 'central office policies' that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided).	34	8	23.5	2	5.9	13	38.2	8	23.5	3	8.8
h. Improve personnel supervision, management, or incentives.	34	5	14.7	5	14.7	10	29.4	11	32.4	3	8.8
i. Increase weekend and evening availability of services.	34	0	0.0	6	17.7	14	41.2	12	35.3	2	5.9
j. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community.	34	1	2.9	11	32.4	16	47.1	5	14.7	1	2.9
k. Some other solution(s).	34	3	8.8	6	17.7	6	17.7	3	8.8	16	47.1

This question (question 3) is based on respondents who indicated that patients experienced delays in accessing diabetes management services (question 1). If 1-3 delays were mentioned in question 1, this question was repeated for each delay mentioned. If 4 or more delays were mentioned in question 1, this question was repeated for the top three delays mentioned in question 2. Respondents were eligible to answer question 3e (N=34, 30.9% of those who answered question 1 and 55.7% of those who reported any delay) if they identified delays in four or more services and indicated that this was one of the three delays that had the most negative impact on patients or if this service was one of the three or fewer services for which a delay was indicated.

3F**. Your solution for delays in:** Retinopathy screening services**.** Think of the most effective way to reduce the number of *clinically meaningful delays* at this junction. Now, **in your solution, how important are each of the following elements**?

Table I-173. Type 2 Diabetes: Question 3F

Solution	N	Critically important		Very important		Somewhat important		Unimportant		Not applicable	
		n	%	n	%	n	%	n	%	n	%
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds).	11	3	27.3	2	18.2	3	27.3	1	9.1	2	18.2
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists).	11	4	36.4	4	36.4	1	9.1	1	9.1	1	9.1
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff).	11	5	45.5	3	27.3	1	9.1	1	9.1	1	9.1
d. Acquire and/or improve availability of equipment.	11	4	36.4	3	27.3	2	18.2	1	9.1	1	9.1
e. Implement or increase the availability of telehealth services.	11	1	9.1	8	72.7	0	0.0	1	9.1	1	9.1
f. Improve information technology (e.g., scheduling system, electronic health record).	11	2	18.2	2	18.2	3	27.3	3	27.3	1	9.1
g. Change 'central office policies' that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided).	11	3	27.3	2	18.2	1	9.1	3	27.3	2	18.2
h. Improve personnel supervision, management, or incentives.	11	4	36.4	2	18.2	1	9.1	3	27.3	1	9.1
i. Increase weekend and evening availability of services.	11	2	18.2	3	27.3	2	18.2	3	27.3	1	9.1
j. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community.	10	0	0.0	4	40.0	2	20.0	3	30.0	1	10.0
k. Some other solution(s).	11	5	45.5	1	9.1	0	0.0	2	18.2	3	27.3

This question (question 3) is based on respondents who indicated that patients experienced delays in accessing diabetes management services (question 1). If 1-3 delays were mentioned in question 1, this question was repeated for each delay mentioned. If 4 or more delays were mentioned in question 1, this question was repeated for the top three delays mentioned in question 2. Respondents were eligible to answer question 3f (N=11, 10.0% of those who answered question 1 and 33.3% of those who reported any delay) if they identified delays in four or more services and indicated that this was one of the three delays that had the most negative impact on patients or if this service was one of the three or fewer services for which a delay was indicated.

3G. **Your solution for delays in:** Retinopathy treatment services. Think of the most effective way to reduce the number of *clinically meaningful delays* at this junction. Now, **in your solution, how important are each of the following elements**?

Table I-174. Type 2 Diabetes: Question 3G

Solution	N	Critically important		Very important		Somewhat important		Unimportant		Not applicable	
		n	%	n	%	n	%	n	%	n	%
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds).	21	5	23.8	8	38.1	3	14.3	4	19.1	1	4.8
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists).	21	9	42.9	6	28.6	4	19.1	1	4.8	1	4.8
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff).	21	9	42.89	4	19.1	6	28.6	1	4.8	1	4.8
d. Acquire and/or improve availability of equipment.	21	3	14.3	6	28.6	7	33.3	4	19.1	1	4.8
e. Implement or increase the availability of telehealth services.	21	2	9.5	8	38.1	5	23.8	5	23.8	1	4.8
f. Improve information technology (e.g., scheduling system, electronic health record).	21	5	23.8	6	28.6	5	23.8	4	19.1	1	4.8
g. Change 'central office policies' that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided).	21	5	23.8	5	23.8	4	19.1	6	28.6	1	4.8
h. Improve personnel supervision, management, or incentives.	21	4	19.1	4	19.1	9	42.9	3	14.3	1	4.8
i. Increase weekend and evening availability of services.	21	1	4.8	3	14.3	6	28.6	8	38.1	3	14.3
j. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community.	21	1	4.8	5	23.8	10	47.6	5	23.8	0	0.0
k. Some other solution(s).	21	1	4.8	3	14.3	2	9.5	0	0.0	15	71.4

This question (question 3) is based on respondents who indicated that patients experienced delays in accessing diabetes management services (question 1). If 1-3 delays were mentioned in question 1, this question was repeated for each delay mentioned. If 4 or more delays were mentioned in question 1, this question was repeated for the top three delays mentioned in question 2. Respondents were eligible to answer question 3g (N=21, 19.1% of those who answered question 1 and 40.4% of those who reported any delay) if they identified delays in four or more services and indicated that this was one of the three delays that had the most negative impact on patients or if this service was one of the three or fewer services for which a delay was indicated.

3H**. Your solution for delays in:** Bariatric surgery (in patients deemed to be good candidates)**.** Think of the most effective way to reduce the number of *clinically meaningful delays* at this junction. Now, **in your solution, how important are each of the following elements**?

Table I-175. Type 2 Diabetes: Question 3H

Solution	N	Critically important		Very important		Somewhat important		Unimportant		Not applicable	
		n	%	n	%	n	%	n	%	n	%
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds).	25	4	16.0	3	12.0	10	40.0	1	4.0	7	28.0
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists).	25	5	20.0	8	32.0	5	20.0	1	4.0	6	24.0
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff).	25	4	16.0	5	20.0	6	24.0	1	4.0	9	36.0
d. Acquire and/or improve availability of equipment.	24	3	12.5	2	8.3	6	25.0	6	25.0	7	29.2
e. Implement or increase the availability of telehealth services.	25	1	4.0	2	8.0	6	24.0	9	36.0	7	28.0
f. Improve information technology (e.g., scheduling system, electronic health record).	25	2	8.0	1	4.0	8	32.0	7	28.0	7	28.0
g. Change 'central office policies' that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided).	24	7	29.2	4	16.7	6	25.0	3	12.5	4	16.7
h. Improve personnel supervision, management, or incentives.	24	3	12.5	2	8.3	9	37.5	2	8.3	8	33.3
i. Increase weekend and evening availability of services.	25	0	0.0	1	4.0	4	16.0	10	40.0	10	40.0
j. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community.	25	7	28.0	8	32.0	5	20.0	3	12.0	2	8.0
k. Some other solution(s).	25	6	24.0	2	8.0	3	12.0	2	8.0	12	48.0

This question (question 3) is based on respondents who indicated that patients experienced delays in accessing diabetes management services (question 1). If 1-3 delays were mentioned in question 1, this question was repeated for each delay mentioned. If 4 or more delays were mentioned in question 1, this question was repeated for the top three delays mentioned in question 2. Respondents were eligible to answer question 3h (N=25, 22.7% of those who answered question 1 and 59.5% of those who reported any delay) if they identified delays in four or more services and indicated that this was one of the three delays that had the most negative impact on patients or if this service was one of the three or fewer services for which a delay was indicated.

3I**. Your solution for delays in:** Dispensing diabetes-related personal equipment such as glucometers or special footwear**.** Think of the most effective way to reduce the number of *clinically meaningful delays* at this junction. Now, **in your solution, how important are each of the following elements**?

Responses to this question are not presented due to small number of respondents who identified delays in Dispensing diabetes-related personal equipment such as glucometers or special footwear *and answering question 3i (N = 2).*

Complications of Type 2 Diabetes

4. Please think about patients who had the following **complications** from Type 2 Diabetes. **IN THE PAST 90 DAYS**, how often were there *clinically meaningful delays* in patients' access to treatment for these **complications of diabetes**? Indicate the percent of Type 2 Diabetes patients that experienced delays for whom the service was indicated.

Table I-176. Type 2 Diabetes: Question 4

Service	N	No Delay		1-10% of patients experience delay		11-25% of patients experience delay		26-50% of patients experience delay		51% or more of patients experience delay		Not applicable	
		n	%	n	%	n	%	n	%	n	%	n	%
a. Evaluation and treatment by vascular surgery for non-acute limb ischemia	110	51	46.4	28	25.5	14	12.7	3	2.7	2	1.8	12	10.9
b. Evaluation and treatment by ophthalmology for declining vision	110	60	54.6	32	29.1	7	6.4	4	3.6	1	0.9	6	5.5
c. Evaluation and treatment by nephrology for worsening renal function	110	62	56.4	22	20.0	13	11.8	2	1.8	3	2.7	8	7.3
d. Evaluation and treatment by cardiology for new symptoms or refractory hyperlipidemia	110	62	56.4	24	21.8	11	10.0	3	2.7	0	0.0	10	9.1
e. Evaluation and treatment by podiatry for new foot lesions	110	56	50.9	32	29.1	12	10.9	4	3.6	2	1.8	4	3.6

5. Think about those Type 2 Diabetes patients who experienced *clinically meaningful delays*. In the **PAST 90 DAYS**, which of these delays had the **most negative impact** on patients?

Results not presented. Respondents were only asked this question if they identified more than three delays in Q4 in order to identify their top three delays for Q6.

Reducing Delays in Care for Complications of Diabetes

6A. **Your solution for delays in:** Evaluation and treatment by vascular surgery for non-acute limb ischemia. Think about the most effective way to reduce the number of *clinically meaningful delays* at this junction. Now, **in your solution, how important are each of the following elements**?

Table I-177. Type 2 Diabetes: Question 6A

Solution	N	Critically important n	Critically important %	Very important n	Very important %	Somewhat important n	Somewhat important %	Unimportant n	Unimportant %	Not applicable n	Not applicable %
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds).	36	7	19.4	8	22.2	10	27.8	9	25.0	2	5.6
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists).	36	14	38.9	13	36.1	6	16.7	1	2.8	2	5.6
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff).	36	7	19.4	14	38.9	7	19.4	6	16.7	2	5.6
d. Acquire and/or improve availability of equipment. .	36	4	11.1	10	27.8	5	13.9	12	33.3	5	13.9
e. Implement or increase the availability of telehealth services.	36	1	2.8	5	13.9	14	38.9	7	19.4	9	25.0
f. Improve information technology (e.g., scheduling system, electronic health record).	35	3	8.6	9	25.7	3	8.6	13	37.1	7	20.0
g. Change 'central office policies' that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided).	35	7	20.0	4	11.4	9	25.7	8	22.9	7	20.0
h. Improve personnel supervision, management, or incentives.	36	6	16.7	6	16.7	9	25.0	10	27.8	5	13.9
i. Increase weekend and evening availability of services.	36	3	8.3	2	5.6	10	27.8	14	38.9	7	19.4
j. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community.	35	2	5.7	7	20.0	16	45.7	7	20.0	3	8.6
k. Some other solution(s). .	35	4	11.4	7	20.0	0	0.0	0	0.0	24	68.6

This question (question 6) is based on respondents who indicated that patients experienced delays in accessing diabetes management services (question 4). If 1-3 delays were mentioned in question 4, this question was repeated for each delay mentioned. If 4 or more delays were mentioned in question 4, this question was repeated for the top three delays mentioned in question 5. Respondents were eligible to answer question 6a (N=36, 32.7% of those who answered question 4 and 76.6% of those who reported any delay) if they identified delays in four or more services and indicated that this was one of the three delays that had the most negative impact on patients or if this service was one of the three or fewer services for which a delay was indicated.

6B. **Your solution for delays in:** Evaluation and treatment by ophthalmology for declining vision. Think about the most effective way to reduce the number of *clinically meaningful delays* at this junction. Now, **in your solution, how important are each of the following elements**?

Table I-178. Type 2 Diabetes: Question 6B

Solution	N	Critically important		Very important		Somewhat important		Unimportant		Not applicable	
		n	%	n	%	n	%	n	%	n	%
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds).	31	7	22.6	7	22.6	9	29.0	2	6.5	6	19.4
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists).	31	12	38.7	13	41.9	4	12.9	0	0.0	2	6.5
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff).	31	7	22.6	9	29.0	9	29.0	3	9.7	3	9.7
d. Acquire and/or improve availability of equipment.	31	4	12.9	13	41.9	5	16.1	4	12.9	5	16.1
e. Implement or increase the availability of telehealth services.	30	1	3.3	9	30.0	11	36.7	4	13.3	5	16.7
f. Improve information technology (e.g., scheduling system, electronic health record).	31	3	9.7	7	22.6	14	45.2	4	12.9	3	9.7
g. Change 'central office policies' that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided).	31	8	25.8	3	9.7	12	38.7	5	16.1	3	9.7
h. Improve personnel supervision, management, or incentives.	31	4	12.9	6	19.4	11	35.5	7	22.6	3	9.7
i. Increase weekend and evening availability of services.	31	3	9.7	4	12.9	9	29.0	9	29.0	6	19.4
j. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community.	31	3	9.7	9	29.0	12	38.7	2	6.5	5	16.1
k. Some other solution(s).	31	8	25.8	4	12.9	2	6.5	1	3.2	16	51.6

This question (question 6) is based on respondents who indicated that patients experienced delays in accessing diabetes management services (question 4). If 1-3 delays were mentioned in question 4, this question was repeated for each delay mentioned. If 4 or more delays were mentioned in question 4, this question was repeated for the top three delays mentioned in question 5. Respondents were eligible to answer question 6b (N=31, 28.2% of those who answered question 4 and 70.5% of those who reported any delay) if they identified delays in four or more services and indicated that this was one of the three delays that had the most negative impact on patients or if this service was one of the three or fewer services for which a delay was indicated.

6C. **Your solution for delays in:** Evaluation and treatment by nephrology for worsening renal function. Think about the most effective way to reduce the number of *clinically meaningful delays* at this junction. Now, **in your solution, how important are each of the following elements**?

Table I-179. Type 2 Diabetes: Question 6C

Solution	N	Critically important		Very important		Somewhat important		Unimportant		Not applicable	
		n	%	n	%	n	%	n	%	n	%
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds).	29	4	13.8	8	27.6	8	27.6	4	13.8	5	17.2
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists).	29	8	27.6	13	44.8	5	17.2	1	3.5	2	6.9
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff).	29	3	10.3	10	34.5	9	31.0	5	17.2	2	6.9
d. Acquire and/or improve availability of equipment.	29	3	10.3	3	10.3	7	24.1	9	31.0	7	24.1
e. Implement or increase the availability of telehealth services.	29	1	3.5	6	20.7	12	41.4	5	17.2	5	17.2
f. Improve information technology (e.g., scheduling system, electronic health record).	29	2	6.9	6	20.7	5	17.2	11	37.9	5	17.2
g. Change 'central office policies' that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided).	28	4	14.3	5	17.9	4	14.3	10	35.7	5	17.9
h. Improve personnel supervision, management, or incentives.	29	3	10.3	7	24.1	5	17.2	11	37.9	3	10.3
i. Increase weekend and evening availability of services.	29	1	3.5	3	10.3	8	27.6	11	37.9	6	20.7
j. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community.	29	0	0.0	8	27.6	14	48.3	6	20.7	1	3.5
k. Some other solution(s).	28	1	3.6	4	14.3	3	10.7	2	7.1	18	64.3

This question (question 6) is based on respondents who indicated that patients experienced delays in accessing diabetes management services (question 4). If 1-3 delays were mentioned in question 4, this question was repeated for each delay mentioned. If 4 or more delays were mentioned in question 4, this question was repeated for the top three delays mentioned in question 5. Respondents were eligible to answer question 6c (N=29, 26.4% of those who answered question 4 and 72.5% of those who reported any delay) if they identified delays in four or more services and indicated that this was one of the three delays that had the most negative impact on patients or if this service was one of the three or fewer services for which a delay was indicated.

6D. **Your solution for delays in:** Evaluation and treatment by cardiology for new symptoms or refractory hyperlipidemia. Think about the most effective way to reduce the number of *clinically meaningful delays* at this junction. Now, **in your solution, how important are each of the following elements**?

Table I-180. Type 2 Diabetes: Question 6D

Solution	N	Critically important		Very important		Somewhat important		Unimportant		Not applicable	
		n	%	n	%	n	%	n	%	n	%
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds).	23	6	26.1	8	34.8	5	21.7	1	4.4	3	13.0
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists).	23	8	34.8	7	30.4	6	26.1	0	0.0	2	8.7
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff).	23	4	17.4	6	26.1	8	34.8	2	8.7	3	13.0
d. Acquire and/or improve availability of equipment.	23	1	4.4	8	34.8	6	26.1	4	17.4	4	17.4
e. Implement or increase the availability of telehealth services.	23	3	13.0	5	21.7	7	30.4	7	30.4	1	4.4
f. Improve information technology (e.g., scheduling system, electronic health record).	23	3	13.0	4	17.4	7	30.4	5	21.7	4	17.4
g. Change 'central office policies' that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided).	23	2	8.7	5	21.7	7	30.4	4	17.4	5	21.7
h. Improve personnel supervision, management, or incentives.	23	1	4.4	3	13.0	6	26.1	8	34.8	5	21.7
i. Increase weekend and evening availability of services.	23	1	4.4	4	17.4	7	30.4	7	30.4	4	17.4
j. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community.	23	1	4.4	4	17.4	9	39.1	7	30.4	2	8.7
k. Some other solution(s). .	23	3	13.0	3	13.0	3	13.0	1	4.4	13	56.5

This question (question 6) is based on respondents who indicated that patients experienced delays in accessing diabetes management services (question 4). If 1-3 delays were mentioned in question 4, this question was repeated for each delay mentioned. If 4 or more delays were mentioned in question 4, this question was repeated for the top three delays mentioned in question 5. Respondents were eligible to answer question 6d (N=24, 21.8% of those who answered question 4 and 63.2% of those who reported any delay) if they identified delays in four or more services and indicated that this was one of the three delays that had the most negative impact on patients or if this service was one of the three or fewer services for which a delay was indicated.

6E. **Your solution for delays in:** Evaluation and treatment by podiatry for new foot lesions. Think about the most effective way to reduce the number of *clinically meaningful delays* at this junction. Now, **in your solution, how important are each of the following elements**?

Table I-181. Type 2 Diabetes: Question 6E

Solution	N	Critically important		Very important		Somewhat important		Unimportant		Not applicable	
		n	%	n	%	n	%	n	%	n	%
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds).	36	8	22.2	13	36.1	9	25.0	5	13.9	1	2.8
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists).	36	14	38.9	13	36.1	8	22.2	1	2.8	0	0.0
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff).	36	8	22.2	15	41.7	10	27.8	2	5.6	1	2.8
d. Acquire and/or improve availability of equipment.	36	2	5.6	11	30.6	10	27.8	9	25.0	4	11.1
e. Implement or increase the availability of telehealth services.	36	1	2.8	6	16.7	11	30.6	14	38.9	4	11.1
f. Improve information technology (e.g., scheduling system, electronic health record).	36	3	8.3	4	11.1	13	36.1	12	33.3	4	11.1
g. Change 'central office policies' that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided).	36	7	19.4	3	8.3	12	33.3	10	27.8	4	11.1
h. Improve personnel supervision, management, or incentives.	36	4	11.1	4	11.1	16	44.4	10	27.8	2	5.6
i. Increase weekend and evening availability of services.	36	3	8.3	4	11.1	12	33.3	14	38.9	3	8.3
j. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community.	36	0	0.0	9	25.0	18	50.0	7	19.4	2	5.6
k. Some other solution(s).	36	3	8.3	6	16.7	1	2.8	3	8.3	23	63.9

This question (question 6) is based on respondents who indicated that patients experienced delays in accessing diabetes management services (question 4). If 1-3 delays were mentioned in question 4, this question was repeated for each delay mentioned. If 4 or more delays were mentioned in question 4, this question was repeated for the top three delays mentioned in question 5. Respondents were eligible to answer question 6e (N=36, 32.7% of those who answered question 4 and 72.0% of those who reported any delay) if they identified delays in four or more services and indicated that this was one of the three delays that had the most negative impact on patients or if this service was one of the three or fewer services for which a delay was indicated.

Issues that Affect Provider and System Efficiency

7. IN THE PAST YEAR, how much did the following issues negatively impact provider and system efficiency related to the provision of care for Type 2 Diabetes patients?

Table I-182. Type 2 Diabetes: Question 7

		None		A little		A fair amount		A lot		Not Applicable	
	N	n	%	n	%	n	%	n	%	n	%
a. Providers performing clinical activities that could be performed by individuals with less training	110	9	8.2	31	28.2	38	34.5	30	27.3	2	1.8
b. Providers performing administrative activities that could be performed by others	110	2	1.8	16	14.5	41	37.3	47	42.7	4	3.6
c. Residency training/teaching requirements	110	35	31.8	27	24.5	8	7.3	7	6.4	33	30.0
d. Insufficient clinical/administrative support staff	110	8	7.3	24	21.8	35	31.8	42	38.2	1	0.9
e. Inadequate scheduling system and policies (e.g., hard to cancel or reschedule, coordinate)	110	9	8.2	21	19.1	30	27.3	50	45.5	0.0	0.0
f. Unnecessary documentation requirements or inefficient CPRS interface	110	8	7.3	30	27.3	25	22.7	46	41.8	1	0.9
g. Patient no-show rates	109	4	3.7	56	51.4	33	30.3	16	14.7	0.0	0.0
h. Poor patient flow management (room/bed turnover, appointments)	110	13	11.8	46	41.8	29	26.4	18	16.4	4	3.6
i. Too many administrative requirements (Initiatives/Policies/Programs)	110	5	4.5	20	18.2	37	33.6	47	42.7	1	0.9

Workforce

8A. IN THE PAST YEAR, did your local health care system have problems **RECRUITING OR HIRING** the following personnel categories?

Table I-183. Type 2 Diabetes: Question 8A

		Yes		No		Not Applicable	
Staff Positions	N	n	%	n	%	n	%
a. Primary Care Physicians	110	79	71.8	20	18.2	11	10.0
b. Non-Physician Primary Care Providers (Physician Assistants/Nurse Practitioners)	110	47	42.7	48	43.6	15	13.6
c. Endocrinologists	110	36	32.7	36	32.7	38	34.5
d. Podiatrists	110	28	25.5	48	43.6	34	30.9
e. Nutritionists	110	20	18.2	69	62.7	21	19.1
f. Nurse Specialists with diabetes expertise	110	32	29.1	47	42.7	31	28.2
g. Physician Assistants/Nurse Practitioners with diabetes expertise	110	32	29.1	33	30.0	45	40.9
h. Ophthalmologists	110	35	31.8	38	34.5	37	33.6

Reasons for Staff Recruitment/Hiring Problems

9. Please enter **top two reasons** why there were problems **RECRUITING AND HIRING** these personnel types in the PAST YEAR.

Table I-184. Type 2 Diabetes: Question 9

Staff Positions	N (Yes to Q8)	Senior management does not agree to post new position		Non-competitive wages		Work schedule (e.g., call requirements)		Benefits (e.g., health insurance, leave, continuing education, travel)		Equipment/resources/office space		Facility condition		Case types/complexity		VA reputation		No academic affiliation/lack of protected time for early career investigator		Geographic location of facility		HR process (e.g., time to advertise; length of time from job offer to start date)		Lack of qualified applicants	
		n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
a. Primary Care Physicians	79	7	8.9	47	59.5	8	10.1	2	2.5	3	3.8	2	2.5	0	0.0	10	12.7	0	0.0	19	24.1	34	43.0	26	32.9
b. Non-Physician Primary Care Providers (Physician Assistants/Nurse Practitioners)	47	5	10.6	33	70.2	1	2.1	1	2.1	4	8.5	2	4.3	0	0.0	3	6.4	0	0.0	10	21.3	22	46.8	13	27.7
c. Endocrinologists	36	4	11.1	25	69.4	1	2.8	1	2.8	4	11.1	1	2.8	1	2.8	3	8.3	0	0.0	4	11.1	18	50.0	10	27.8
d. Podiatrists	28	1	3.6	19	67.9	1	3.6	1	3.6	2	7.1	1	3.6	0	0.0	1	3.6	0	0.0	7	25.0	14	50.0	9	32.1
e. Nutritionists	20	4	20.0	10	50.0	2	10.0	0	0.0	2	10.0	0	0.0	0	0.0	2	10.0	0	0.0	4	20.0	10	50.0	4	20.0
f. Nurse Specialists with diabetes expertise	32	9	28.1	19	59.4	2	6.3	0	0.0	1	3.1	1	3.1	1	3.1	2	6.3	0	0.0	6	18.8	10	31.3	11	34.4
g. Physician Assistants/Nurse Practitioners with diabetes expertise	32	8	25.0	18	56.3	0	0.0	0	0.0	2	6.3	1	3.1	1	3.1	1	3.1	0	0.0	7	21.9	11	34.4	13	40.6
h. Ophthalmologists	35	3	8.6	29	82.9	1	2.9	2	5.7	2	5.7	1	2.9	1	2.9	2	5.7	0	0.0	8	22.9	11	31.4	10	28.6

N refers to the proportion of respondents who listed each "reason" as one of the two most important affecting recruitment and hiring

This question (question 9) is based on respondents who indicated that their local health care system had problems recruiting certain personnel categories (question 8A). Question 9 was asked for each personnel type marked "yes" in question 8A.

8B. IN THE PAST YEAR, did your local health care system have problems **RETAINING** the following personnel categories?

Table I-185. Type 2 Diabetes: Question 8B

Staff Positions	N	Yes		No		Not Applicable	
		n	%	n	%	n	%
a. Primary Care Physicians	110	69	62.7	28	25.5	13	11.8
b. Non-Physician Primary Care Providers (Physician Assistants/Nurse Practitioners)	110	34	30.9	63	57.3	13	11.8
c. Endocrinologists	110	19	17.3	57	51.8	34	30.9
d. Podiatrists	110	11	10.0	64	58.2	35	31.8
e. Nutritionists	110	7	6.4	77	70.0	26	23.6
f. Nurse Specialists with diabetes expertise	110	11	10.0	59	53.6	40	36.4
g. Physician Assistants/Nurse Practitioners with diabetes expertise	110	12	10.9	48	43.6	50	45.5
h. Ophthalmologists	110	15	13.6	49	44.5	46	41.8

Reasons for Staff Retention Problems

10. Please enter **top two reasons** why there were problems **RETAINING** these personnel types in the PAST YEAR.

Table I-186. Type 2 Diabetes: Question 10

Staff Positions	N	Lack of opportunity for professional growth/promotion n	%	Dissatisfaction with supervision/management support n	%	Dissatisfaction with support staff n	%	Dissatisfaction with physical demands of the job n	%	Dissatisfaction with workload n	%	Lack of incentives or "management levers" to encourage productivity (i.e., no accountability) n	%	Organizational culture that does not prioritize/ encourage productivity n	%	Administrative/ Program Demands n	%	Lack of professional autonomy n	%	Dissatisfaction with pay n	%	Work schedule n	%	Inadequate equipment/ resources/office space n	%	Burnout n	%
a. Primary Care Physicians	69	9	13.0	2	2.9	8	11.6	7	10.1	31	44.9	3	4.3	2	2.9	15	21.7	6	8.7	15	21.7	1	1.4	5	7.2	34	49.3
b. Non-Physician Primary Care Providers (Physician Assistants/Nurse Practitioners)	34	5	14.7	2	5.9	5	14.7	6	17.6	14	41.2	0	0.0	0	0.0	6	17.6	2	5.9	10	29.4	2	5.9	3	8.8	13	38.2
c. Endocrinologists	19	2	10.5	4	21.1	2	10.5	3	15.8	4	21.1	0	0.0	0	0.0	5	26.3	3	15.8	9	47.4	2	10.5	1	5.3	3	15.8
d. Podiatrists	11	1	9.1	0	0.0	1	9.1	1	9.1	4	36.4	0	0.0	0	0.0	4	36.4	0	0.0	5	45.5	0	0.0	1	9.1	5	45.5
e. Nutritionists	7	1	14.3	2	28.6	0	0.0	1	14.3	2	28.6	0	0.0	1	14.3	1	14.3	1	14.3	2	28.6	1	14.3	0	0.0	2	28.6
f. Nurse Specialists with diabetes expertise	11	3	27.3	4	36.4	2	18.2	0	0.0	2	18.2	1	9.1	2	18.2	0	0.0	2	18.2	4	36.4	0	0.0	1	9.1	1	9.1
g. Physician Assistants/Nurse Practitioners with diabetes expertise	12	3	25.0	1	8.3	1	8.3	2	16.7	4	33.3	0	0.0	1	8.3	0	0.0	2	16.7	5	41.7	0	0.0	2	16.7	3	25.0
h. Ophthalmologists	15	2	13.3	1	6.7	3	20.0	0	0.0	2	13.3	1	6.7	0	0.0	4	26.7	1	6.7	10	66.7	1	6.7	3	20.0	2	13.3

N refers to the proportion of respondents who listed each "reason" as one of the two most important affecting retention
This question (question 10) is based on respondents who indicated that their local health care system had problems retaining certain personnel categories (question 8B). Question 10 was asked for each personnel type marked "yes" in question 8B.

Appendix I.1.8 Gynecologic Surgery

Section 8: Gynecologic Surgery

Gynecologic Surgery

1. Please think about patients who need gynecologic surgery either as an in-patient or an outpatient, for conditions, which include, but are not limited to, endometriosis, cervical, uterine or ovarian cancer, fibroids, or a miscarriage. **IN THE PAST 12 MONTHS**, how often were there *clinically meaningful delays* scheduling these patients for an initial surgical evaluation with the following providers?

Table I-187. Gynecologic Surgery: Question 1

		No Delay		1-10% of patients experience delay		11-25% of patients experience delay		26-50% of patients experience delay		51% or more of patients experience delay		Not applicable	
	N	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
a. VA Gynecologist located at **this Administrative Parent** (local health care system)	107	58	54.2	15	14.0	7	6.5	0	0.0	0	0.0	27	25.2
b.VA Gynecologist located at **another VA health care system**	107	29	27.1	7	6.5	5	4.7	2	1.9	2	1.9	62	57.9
c. Community Gynecologist (fee-basis or contracted care)	107	52	48.6	21	19.6	9	8.4	5	4.7	1	0.9	19	17.8

Reducing Delays in Evaluations for Gynecologic Surgery

2A. **Your solution for delays in getting an initial surgical evaluation with a: VA Gynecologist located at this Administrative Parent (local health care system)**. Think of the most effective way to reduce the number of *clinically meaningful delays* in patients receiving an **initial surgical evaluation.** Now, **in your solution, how important are each of the following elements**?

Table I-188. Gynecologic Surgery: Question 2A

Solution	N	Critically Important n	%	Very Important n	%	Somewhat Important n	%	Unimportant n	%	Not applicable n	%
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds)	22	5	22.7	8	36.4	4	18.2	3	13.6	2	9.1
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists).	22	7	31.8	9	40.9	4	18.2	1	4.5	1	4.5
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff).	22	7	31.8	9	40.9	4	18.2	1	4.5	1	4.5
d. Acquire and/or improve availability of equipment.	22	3	13.6	9	40.9	3	13.6	4	18.2	3	13.6
e. Implement or increase the availability of telehealth services	22	0	0.0	6	27.3	9	40.9	3	13.6	4	18.2
f. Improve information technology (e.g., scheduling system, electronic health record).	22	5	22.7	4	18.2	8	36.4	2	9.1	3	13.6
g. Change "central office policies" that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided)	22	2	9.1	8	36.4	4	18.2	5	22.7	3	13.6
h. Improve personnel supervision, management, or incentives.	22	7	31.8	4	18.2	4	18.2	5	22.7	2	9.1
i. Increase weekend and evening availability of services	22	1	4.5	0	0.0	14	63.6	5	22.7	2	9.1
j. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community	22	2	9.1	4	18.2	7	31.8	8	36.4	1	4.5
k. Some other solution(s).	22	3	13.6	6	27.3	2	9.1	0	0.0	11	50.0
This question (question 2a) is based on respondents who indicated that patients experienced delays (n=22) in getting an initial surgical evaluation with a VA Gynecologist located at this Administrative Parent (question 1a)											

2B. **Your solution for delays in getting an initial surgical evaluation with a: VA Gynecologist located at another VA health care system**. Think of the most effective way to reduce the number of *clinically meaningful delays* in patients receiving an **initial surgical evaluation.** Now, **in your solution,**

Table I-189. Gynecologic Surgery: Question 2B

Solution	N	Critically Important n	%	Very Important n	%	Somewhat Important n	%	Unimportant n	%	Not applicable n	%
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds)	16	1	6.3	3	18.8	4	25.0	0	0.0	8	50.0
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists).	16	2	12.5	9	56.3	0	0.0	0	0.0	5	31.3
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff).	16	3	18.8	3	18.8	3	18.8	0	0.0	7	43.8
d. Acquire and/or improve availability of equipment.	16	2	12.5	2	12.5	3	18.8	2	12.5	7	43.8
e. Implement or increase the availability of telehealth services	15	0	0.0	2	13.3	7	46.7	1	6.7	5	33.3
f. Improve information technology (e.g., scheduling system, electronic health record).	15	0	0.0	1	6.7	6	40.0	2	13.3	6	40.0
g. Change "central office policies" that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided)	15	0	0.0	2	13.3	4	26.7	2	13.3	7	46.7
h. Improve personnel supervision, management, or incentives.	16	1	6.3	3	18.8	6	37.5	0	0.0	6	37.5
i. Increase weekend and evening availability of services	16	0	0.0	1	6.3	7	43.8	2	12.5	6	37.5
j. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community	16	3	18.8	3	18.8	4	25.0	1	6.3	5	31.3
k. Some other solution(s).	16	0	0.0	6	37.5	1	6.3	1	6.3	8	50.0

This question (question 2b) is based on respondents who indicated that patients experienced delays (n=16) in getting an initial surgical evaluation with a VA Gynecologist located at another VA health care system (question 1b).

2C. **Your solution for delays in getting an initial surgical evaluation with a: Community Gynecologist (fee-basis or contracted care)**. Think of the most effective way to reduce the number of *clinically meaningful delays* in patients receiving an **initial surgical evaluation.** Now, **in your solution,**

Table I-190. Gynecologic Surgery: Question 2C

Solution	N	Critically important		Very Important		Somewhat Important		Unimportant		Not applicable	
		n	%	n	%	n	%	n	%	n	%
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds)	36	4	11.1	5	13.9	6	16.7	8	22.2	13	36.1
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists).	36	8	22.2	9	25.0	4	11.1	6	16.7	9	25.0
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff).	35	10	28.6	6	17.1	8	22.9	3	8.6	8	22.9
d. Acquire and/or improve availability of equipment.	36	4	11.1	10	27.8	3	8.3	6	16.7	13	36.1
e. Implement or increase the availability of telehealth services	35	0	0.0	7	20.0	9	25.7	9	25.7	10	28.6
f. Improve information technology (e.g., scheduling system, electronic health record).	35	5	14.3	9	25.7	11	31.4	4	11.4	6	17.1
g. Change "central office policies" that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided)	35	3	8.6	5	14.3	14	40.0	5	14.3	8	22.9
h. Improve personnel supervision, management, or incentives.	35	5	14.3	5	14.3	9	25.7	9	25.7	7	20.0
i. Increase weekend and evening availability of services	35	0	0.0	4	11.4	12	34.3	9	25.7	10	28.6
j. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community	36	4	11.1	16	44.4	10	27.8	3	8.3	3	8.3
k. Some other solution(s).	36	3	8.3	9	25.0	5	13.9	4	11.1	15	41.7
This question (question 2c) is based on respondents who indicated that patients experienced delays (n=36) in getting an initial surgical evaluation with a Community Gynecologist (fee-basis or contracted care) (question 1c).											

3. Now please think about patients who have an indication for gynecologic surgery. IN THE PAST 12 MONTHS, how often were there *clinically meaningful delays* in the patient **receiving the surgical procedure at the following locations**?

Table I-191. Gynecologic Surgery: Question 3

		No Delay		1-10% of patients experience delay		11-25% of patients experience delay		26-50% of patients experience delay		51% or more of patients experience delay		Not applicable	
	N	n	%	n	%	n	%	n	%	n	%	n	%
a. At this local VA health care system	107	50	46.7	16	15.0	6	5.6	2	1.9	1	0.9	32	29.9
b. At another local VA health care system	107	28	26.2	5	4.7	6	5.6	3	2.8	1	0.9	64	59.8
c. In the community using fee-basis or contracted care	107	58	54.2	19	17.8	10	9.3	2	1.9	2	1.9	16	15.0

Reducing Delays in Gynecologic Surgery

4A. **Your solution to delays in patients receiving gynecologic surgery:** at this local VA health care system. Think about the most effective way to reduce the number of *clinically meaningful delays* for **patients receiving gynecologic surgery**. Now, **in your solution, how important are each of the following elements**?

Table I-192. Gynecologic Surgery: Question 4A

	N	Critically important		Very Important		Somewhat Important		Unimport ant		Not applicable	
		n	%	n	%	n	%	n	%	n	%
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds)	25	4	16.0	11	44.0	4	16.0	4	16.0	2	8.0
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists).	25	7	28.0	7	28.0	6	24.0	3	12.0	2	8.0
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff).	25	7	28.0	10	40.0	6	24.0	1	4.0	1	4.0
d. Acquire and/or improve availability of equipment.	25	6	24.0	5	20.0	8	32.0	3	12.0	3	12.0
e. Implement or increase the availability of telehealth services	25	0	0.0	2	8.0	10	40.0	6	24.0	7	28.0
f. Improve information technology (e.g., scheduling system, electronic health record).	25	5	20.0	6	24.0	9	36.0	3	12.0	2	8.0
g. Change "central office policies" that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided)	25	3	12.0	5	20.0	6	24.0	4	16.0	7	28.0
h. Improve personnel supervision, management, or incentives.	25	5	20.0	3	12.0	8	32.0	5	20.0	4	16.0
i. Increase weekend and evening availability of services	25	1	4.0	2	8.0	8	32.0	7	28.0	7	28.0
j. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community	24	3	12.5	3	12.5	11	45.8	3	12.5	4	16.7
k. Some other solution(s).	25	3	12.0	4	16.0	5	20.0	3	12.0	10	40.0

This question (question 4a) is based on respondents who indicated that patients experienced delays (n=25) in receiving surgery at this local VA health care system (question 2a).

4B. **Your solution to delays in patients receiving gynecologic surgery:** at another local VA health care system**.** Think about the most effective way to reduce the number of *clinically meaningful delays* for **patients receiving gynecologic surgery**. Now, **in your solution, how important are each of the following elements**?

Table I-193. Gynecologic Surgery: Question 4B

Solution	N	Critically important		Very Important		Somewhat Important		Unimportant		Not applicable	
		n	%	n	%	n	%	n	%	n	%
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds)	15	2	13.3	2	13.3	4	26.7	1	6.7	6	40.0
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists).	15	3	20.0	5	33.3	2	13.3	1	6.7	4	26.7
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff).	15	5	33.3	2	13.3	2	13.3	1	6.7	5	33.3
d. Acquire and/or improve availability of equipment.	15	3	20.0	4	26.7	1	6.7	1	6.7	6	40.0
e. Implement or increase the availability of telehealth services	15	1	6.7	1	6.7	3	20.0	4	26.7	6	40.0
f. Improve information technology (e.g., scheduling system, electronic health record).	15	2	13.3	2	13.3	3	20.0	3	20.0	5	33.3
This question (question 4b) is based on respondents who indicated that patients experienced delays (n=15) in receiving surgery at another local VA health care system (question 2b). Due to a technical problem in the survey software, we do not have data about the importance of the following solutions for resolving delays at another local VA health care system: g. Change "central office policies" that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided); h. Improve personnel supervision, management, or incentives. Please describe in the comments box below; i. Increase weekend and evening availability of services; j. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community; k. Some other solution(s). Please describe your recommendations in the comments box below.											

4C. **Your solution to delays in patients receiving gynecologic surgery:** in the community using fee-basis or contracted care**.** Think about the most effective way to reduce the number of *clinically meaningful delays* for **patients receiving gynecologic surgery**. Now, **in your solution, how important are each of the following elements**?

Table I-194. Gynecologic Surgery: Question 4C

Solution	N	Critically important		Very Important		Somewhat Important		Unimportant		Not applicable	
		n	%	n	%	n	%	n	%	n	%
a. Create additional space for patient care (e.g., more exam rooms, procedure rooms, inpatient beds)	33	5	15.2	4	12.1	4	12.1	8	24.2	12	36.4
b. Increase the number of licensed independent practitioners (e.g., physicians, nurse practitioners, psychologists).	33	7	21.2	11	33.3	5	15.2	5	15.2	5	15.2
c. Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff).	33	8	24.2	8	24.2	5	15.2	5	15.2	7	21.2
d. Acquire and/or improve availability of equipment.	33	7	21.2	5	15.2	4	12.1	6	18.2	11	33.3
e. Implement or increase the availability of telehealth services	33	1	3.0	6	18.2	8	24.2	7	21.2	11	33.3
f. Improve information technology (e.g., scheduling system, electronic health record).	33	6	18.2	4	12.1	9	27.3	5	15.2	9	27.3
This question (question 4c) is based on respondents who indicated that patients experienced delays (n=33) in receiving surgery in the community using fee-basis or contracted care (question 2c). Due to a technical problem with the survey software, we do not have data about the importance of the following solutions for resolving delays in the community using fee-basis or contracted care: g. Change "central office policies" that affect workflow and efficiency (e.g., rules governing documentation or how quickly certain services must be provided); h. Improve personnel supervision, management, or incentives. Please describe in the comments box below; i. Increase weekend and evening availability of services; j. Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community; k. Some other solution(s). Please describe your recommendations in the comments box below.											

Issues that Affect Provider and System Efficiency

5. IN THE PAST YEAR, how much did the following issues negatively impact provider and system efficiency related to the provision of gynecologic surgery?

Table I-195. Gynecologic Surgery: Question 5

	N	None		A little		A fair amount		A lot		Not Applicable	
		n	%	n	%	n	%	n	%	n	%
a. Providers performing clinical activities that could be performed by individuals with less training	106	33	31.1	21	19.8	20	18.9	11	10.4	21	19.8
b. Providers performing administrative activities that could be performed by others	106	17	16.0	23	21.7	18	17.0	28	26.4	20	18.9
c. Residency training/teaching requirements	106	37	34.9	13	12.3	11	10.4	2	1.9	43	40.6
d. Insufficient clinical/administrative support staff	106	14	13.2	26	24.5	20	18.9	28	26.4	18	17.0
e. Inadequate scheduling system and policies (e.g., hard to cancel or reschedule, coordinate)	106	27	25.5	20	18.9	24	22.6	18	17.0	17	16.0
f. Unnecessary documentation requirements or inefficient CPRS interface	106	24	22.6	24	22.6	21	19.8	20	18.9	17	16.0
g. Patient no-show rates	106	10	9.4	35	33.0	30	28.3	16	15.1	15	14.2
h. Poor patient flow management (room/bed turnover, appointments)	106	32	30.2	27	25.5	15	14.2	6	5.7	26	24.5
i. Too many administrative requirements (Initiatives/Policies/Programs)	106	27	25.5	20	18.9	24	22.6	17	16.0	18	17.0

Workforce

6. IN THE PAST YEAR, did your local health care system have problems **RECRUITING AND HIRING** gynecologists?

Table I-196. Gynecologic Surgery: Question 6

		Yes		No		Not Applicable	
Staff Positions	**N**	**n**	**%**	**n**	**%**	**n**	**%**
Gynecologist	106	30	28.3	76	71.7	0	0.0

7. Please enter up to **FIVE** reasons why there were problems **RECRUITING AND HIRING** gynecologists.

Table I-197. Gynecologic Surgery: Question 7

	N	n	%
Senior management does not agree to post new position –	30	7	23.3
Non-competitive wages	30	25	83.3
Work schedule (e.g., call requirements)	30	10	33.3
Benefits (e.g., health insurance, leave, continuing education, travel)	30	3	10.0
Equipment/resources/office space	30	15	50.0
Facility condition	30	5	16.7
Case types/complexity	30	10	33.3
VA reputation	30	12	40.0
No academic affiliation/lack of protected time for early career investigator	30	6	20.0
Geographic location of facility	30	13	43.3
HR process (e.g., time to advertise; length of time from job offer to start date)	30	25	83.3
Lack of qualified applicants	30	11	36.7
This question (question 7) is based on respondents who indicated that their local health care system had problems recruiting or hiring gynecologists (question 6). N refers to the proportion of respondents who listed each "reason" as one of the five most important affecting recruitment and hiring. This question (question 7) is based on respondents who indicated that their local health care system had problems recruiting or hiring gynecologists (question 6).			

8. IN THE PAST YEAR, did your local health care system have problems **RETAINING** gynecologists?

Table I-198. Gynecologic Surgery: Question 8

Staff Positions	**N**	**n**	**%**
Yes	106	13	12.3
No	106	93	87.7

9.   Please enter up to **FIVE** reasons why there were problems **RETAINING** gynecologists.

Table I-199. Gynecologic Surgery: Question 9

	N	n	%
01 Lack of opportunity for professional growth/promotion	13	7	53.8
02 Dissatisfaction with supervision/management support	13	4	30.8
03 Dissatisfaction with support staff	13	4	30.8
04 Dissatisfaction with physical demands of the job	13	1	7.7
05 Lack of frozen pathology or gynecology backup	13	2	15.4
06 Lack of trained operating room support or lack of post-operating room nursing support	13	5	38.5
07 Dissatisfaction with workload	13	5	38.5
08 Lack of incentives or "management levers" to encourage productivity (i.e., no accountability)	13	3	23.1
09 Organizational culture that does not prioritize/encourage productivity–	13	4	30.8
10 Administrative/Program Demands–	13	5	38.5
11 Lack of professional autonomy–	13	4	30.8
12 Dissatisfaction with pay–	13	8	61.5
13 Work schedule–	13	2	15.4
14 Inadequate equipment/resources/office space–	13	8	61.5
15 Burnout–	13	3	23.1
N refers to the proportion of respondents who listed each "reason" as one of the five most important affecting retention This question (question 9) is based on respondents who indicated that their local health care system had problems retaining gynecologists (question 8).			

Appendix I.2 Survey Participant Comments

The comments from each survey respondent are grouped together, separated by a blank line between respondents. Comments are provided verbatim, except that: (1) Potentially identifiable comments have been redacted and redactions are noted as such (2) Some typographic errors have been corrected, and (3) duplicate comments from a given respondent have been deleted.

- **Chief of Staff**

Walk in visits to PC are acceptable and the Urgent Care Clinic is available for emergent/urgent care needs between 8am and 8pm
"Streamline documentation processes (utilize scribes, dictation software), decrease amount of clinically insignificant alerts, staff in PACT team work to highest level of scope. The physician should not be a "secretary"
Medical issues that are not clinically meaningful/urgent can be delayed.
Need to focus on basics; special initiatives and programs are mandated without thought of impact on the field or the needs of Veterans. There is a disconnect between Central Office and the facilities providing the care
"As applicable for primary care
If for all services, up to 10%"
"Closure of intensive care unit, ED and decrease of surgical services available on site"
At the main campus

Not able to assess whether and to what extent such occurs
Unable to determine
Some authorizations are for care of a specified duration
Some authorizations include a sufficient timespan so that f/u encounters for that problem are included
Educational sessions

"Unable to determine with any level of confidence. 88% of patients are getting in within 30 days. Some of the remaining 12% may have experienced a clinically meaningful delay. On the chance that some small number may have experienced a clinically meaningful delay, we answered 1 - 10%."
"Need to expand one of our rural CBOCs to provide space for an additional PACT provider and staff.
Need to hire growth teams at the parent site and one CBOC
Additional resources for FEE basis staff will help fill gaps."
No show rates impact some clinics more than others.
"Section on hiring issues did not give the opportunity to address our real problem areas. Urology is a critical shortage and non-competitive salaries are the major driving factor. Psychiatrists are in very short supply. Salaries are currently competitive, but may get to the point where they are not if supply and demand continue to be out of balance in both public and private sectors."
VLER penetration rate is low but increasing. We expect to do much more sharing of records electronically in the future. When the two large local healthcare systems are part of VLER sharing will increase dramatically.
The consult is valid for 12 months

We use hot spots in a few locations
Patients from other VA facilities and/or home to Providers in [location redacted].
Also within the Primary Care at [location redacted] VA

Decrease amount of hours required of LIPs to complete mandatory training.
Access to care
Cable not run through entire facility due to the presence of asbestos

"We have the capacity and systems in place to assure new patient access to primary care. Although some sites are at capacity, alternate sites are available within a modest distance <15 miles."

We have added provider extenders (NPs and PAs) specifically to assure same day/next day access for needed care.

The lack of sufficient exam rooms makes it very difficult to have efficient speciallty clinic flow or to expand capacity even when we have providers. Inpatient bed flow is similarly impaired by the lack of single patient rooms. The difficulties in trying to assure coordination of care through NVCC and the Choice program is creating substantial additional workload on clinicians that diminishes efficiency.

"Varies depending on the scenario. If we know in advance that the care will span a period longer than 60D, we can authorize a longer period. However, we would not authorize an indefinite time frame."

"CBOC Wifi is needed. ALthough delayed, we finally had our facility wifi upgrade completed in 12/14. We did out own internal guest wifi for the main facility encompassing selected inpatient wards and waiting areas."

We use the VA teleradiology program as well as internal resources (e.g radiologists with access from home).

"As noted on earlier response, we also use our providers reading from home as well as VHA teleradiology. We are collaborating with other VISN facilitiese to create an internal VISN teleradiology program housed at our VA"

This is a high end estimate and it is only certain urgent ED and off tour inpatient studies (e.g. stroke code) that might require this.

A large portion of our Telehealth program (including the Regional telemental health program) is housed offsite co-located with a PTSD/TBI-focused RRTP.

Direct to home CVT

Off-site facility telehealth center

Veterans sometimes choose not to get their care at the VA and demand we pay for them. They also demand second opinions which puts us in an awkward situation

"NVCC authorizations are good for 90 days. So after 90 days, they need a new authorization."

cooperation of other major VA to provide consultation service in a timely manner

n/a

parent va

"Need competive hiring processes such as direct funding for interviews, use of Public Health Service, home buy out, higher salaries"

"Need ability to work with community providers and not necessarily go thru 3rd party admin for local fee, DoD, and native sharing agreements"

Clinical reminders and alerts are overwhelming staff

We purchase some primary care and we purchase a high amount of specialty care that we do not offer in house.

We offer care closer to home which results in purchased care and we do not offer many specialty services so we purchase them.

There are barriers to sharing records with non VA providers electronically for over a year tied to info security and back ground checks.

We authorize a period of care of 90 days with a number of visits within the period of care under one referral

"If patient needs additional visits beyond hte initial period of care, we amend the original to the end of the fiscal year for reconcilation."

VAMC has WIFI for med equipment only.

We have a full time radiologist for our outpatient facility. We send exams for remote reads when he is on leave for coverage.
We send to another VA in VISN and VA National Tele Radiology program.
We provide teleMH with services from Dom to CBOC; CBOC to CBOC; VAMC to CBOC; VAMC to [location redacted] site.

temporary loses of staff
Depends on the service and provider
National VA Tele-radiology services

We specify the number of visits allowed within a 90-day window. We use the same referral to add more visits if necessary.
"After 90 days, we request a second referral for additional care."

Specify number/duration of follow up in NVCC consult request
telegenomics is in[location redacted]
VAMC

"I would estimate that very few patients, if any, experienced a clinically meaningful delay. Veterans are given the option of receiving primary care in the community, if we cannot provide access within 30 days."
"Information technology revolves around security ONLY and not the needs of those caring for Veterans. We use slow, outdated, and underpowered equipment that is geared to care in the late 20th century and not the needs of caregivers in 2015 and beyond. There is no flexibility of use.
Central Office policies, although possibly well-intentioned, often fly in direct contrast to the needs of our Veterans or with requirements made for those at the facility level. The shear amount of documentation often dwarfs the actual time caring for the Veteran."
"The VA has been overrun with beaurocratic policies and oversight that often lays in direct contrast to access and quality of care needs of our Veterans. The idea that "if a little is good, much more must be better" is the standard operating procedure of the VA."
"Lack of inpatient beds
Ugent/Emergent Care"

home

particularly women Veterans with mammography based on VHA Directive
one referral will cover all EXPECTED visits for a given condition during a specified (EXPECTED) timeframe. these are not open ended and may require additional approval for UNEXPECTED number of visits/conditions

support the facility staff; leadership is leaving with substantial gaps

Space and lack of exam rooms is the primary barrier.
"While eligibility category is considered, the major focus is on clinical needs and acuity."
Difficult to get good data about non-VA wait times.

"One referral is used for an episode of care which may include multiple visits depending on the nature of the referral. As much as possible, additional services of visits are identified and approved in the intial referral."
"If the length of a course of therapy is known, we try and approve it as a whole. Where needed, separate 60 day authorizations may be used, but to the extent possible, one referral is used."
"Guest Wifi is available and installed in designated inpatient areas, waiting rooms, and cafeterias."
Only certain studies. Most are interpreted by on-call radiology staff
VA TeleRadiology Program as needed
We have a large telehealth center that is stationed at an offsite location that also houses a VA residential treatment program. It is not a CBOC.
Telehealth services to home
Off-site telehealth center co-located with a VA RRTP

increased space less fee for care...not veteran centric
space

dependent on services requested
primarily the primary VA medical center

"Prescriptive directives regarding required language to be documented, clinical reminders, informed consent documentation and discipline requirements."
Tertiary Care VA referral site has no access
"f/u appointments do not need a separate referral, but do require a second authorization review."
Methods are in place to bring the patient back in to the VA system if clinically appropriate.
home CVT
local VA

"Central office policies pertain to use of create date vs. desired date for new patients. A new patient may not want an appointment right away, particularly if they have previously been under the care of an outside provider.
Improved management relates to standardizing approaches for demand management across clinics."
"Improved IT relates to the scheduling system - there have been ongoing problems with selecting the correct desired date.
Changing central office policies refers to the many yearly clinical reminders that physicians need to clear even if a yearly appt is not otherwise necessary for the patient."
We focus on providing appointments to all Veterans who need care
"Prefer to bundle, but will question appropriateness for period longer than 60 days out"
Colon cancer and Diabetes clinics use telehealth for patient education
We have a speech language pathologist who provides care from [location redacted]
we provide clinical video telehealth to the home

depends on how consult is entered by physician and how it is approved.
based on review by the clinical chief

Unanticipated loss of providers at 2 CBOCS
"1. Need to be able to hire Physiciand- primary care and mental health -non competetive salaries, lack of efficient HR and contracting support are major impediments

2. Having adequate support staff- to answer phone calls and make scheduling changes
3. Easy to use scheduling software including options that allow Veterans to select and manage their own schedules- see commercial app"ZocDoc"; as an example
4. the process for using purchased care and the veterans choice options is deeply flawed and the contractor incapable of handling the needs"
"1. Reduce the lag time in hiring processes
2. Allow rentives etcapid implementation of locum contracts for temporary staffing
3. Improve the incentive process - repayment of educational debt, sign up incentives
4. Allow efficient staffing of front desk clerks and telephone call centers.
5. Multiple clinic rooms for effient throughput
6. VA policies to allow nurses etc to be more independent
7. Efficient scheduling software to allow for scrubbing and managing schedules
8. Higher graded clerical staff who can be trained to better interact with Veterans"
Loss of providers at 3 sites has required the remaing providers to take on their panels and limited the available capacity in the remaing providers
The PACT team has to function like a doctors office- where all but the essentila medical work is handled by other staff. Here the support staff have no incentive to support the doctor- just do the minimum work as listed in their PD or functional statements thansk to VA policies and labor agreements
Lack of capacity at the more complex sister Vas
Clical Urgency takes precedence
Sharing records is very difficult
Depends on the clinical situation- Usually for one visit unless its obvious that a follow up wil be needed
Depends on the situation

Fixed number of visits - depending on the need - specific time frame
Several of our PT providers located out of state and provide tele PT
We provide CVT to home and other NON VA locations

Where we have not had timely access we have utilized Non-VA care to provide
Need MDs and NPs to provide the care; Need PACT team support staff for team to function; Need equipment to make clinic rooms functional; Scheduling package wholly out dated and meets our needs poorly and is far from user friendly needs replacement critically; central office seems solely politically driven is not using best medical evidence to drive decisions on access and focuses on process not outcome measures; HR systems outdated and OPM rules cumbersome and limiting
"We have become a system driven by process measures which have cause and effect relationship to quality outcomes, there is little to no interest in getting input from those in the field; the bureaucracy from VISN upward needs "constant feeding" and adds next to no value and has grown 15-20 fold in 15 years; the last 6 years the VA seems to be solely guided by politics; The functional business unit is the facilities"

"LIP: Having more physicians and mid-levels are needed to see new patients in a more timely manner. Support personnel: Need PACT specific support personnel and other non-PACT hospital/clinical support such as pharmacists, techs, phlebotomists, clerks.
IT: A new scheduling package is important to help ensure appropriate scheduling and the EHR would be improved by having modern abilities for automation.
Central Office Policies: Policies get pushed down from Central Office that are often more mandates than guidelines and recommendations without field input or sufficient consideration for clinical repercussions."

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improved by having modern abilities for automation.
Central Office Policies: Policies get pushed down from Central Office that are often more mandates than
guidelines and recommendations without field input or sufficient consideration for clinical
repercussions."
"No, our local guidelines are that the NVCC request state a timeframe for all necessary follow-up care.
e.g. referral for broken leg with 5 visits and necessary associated care for the next 2 months."
"No, our local guidelines are that the NVCC request state a timeframe for all necessary follow-up care.
e.g. referral for broken leg with 5 visits and necessary associated care for the next 2 months."
"Tele-radiology services will start for weekend coverage in our facility as of July 1st, 2015."
Not sure this question makes sense to us. Each CBOC has different providers who provide tele-health
services.

"We offer all patients who enroll, same day PC appointments. Patient scheduled only if they decline
same day"
"Depends, some reerrals are eval and some are eval and treat"
"Again, depends on the condition and referring providers concerns, documentation and nature of
request"

Too many alerts
Complex care
Patient satisfaction data from SAIL
Re-consult for ongoing care past 6 months
Telework

AGILE HR SERVICES AND PROCESSES!
THE PROLIFERATION OF COMPETING/SUPERFLUOUS/OVERLAPPING POLICIES BROUGHT FORTH BY CO
AND PGM OFFICES NEGATIVELY IMPACTS TIMELINESS AND QUALITY OF PATIENT CARE
"One referral will cover all related visits to this specialist WITHIN THE LENGTH OF TIME ALLOWABLE FOR
THE AUTHORIZATION, typically 60 days, and providing that the number of related visits requested is
evidence based."
a separate referral will be needed after 60 days for further visits

"Better access to gap providers when urgent need arises, i.e., VA locums or related. It is taking way too
long to get new hires for backfilled positions on board."
"Provider education re use of other VA facilities not uniformly good at this time; also, regional VA
partners will occasionally indicate their inability to see patients even though they have the services"

"Increased access by expanding space, practitioners and support staff including clerks and nursing.
Telehealth here is doing well although primary Tele-health is just starting. A reliable system of note
dictation is crucial since enormous time is spent typing. Supervision of timely scheduling is very
important. I believe that "fee" care for primary care services is to be avoided if possible since the model
of delivery that is a hallmark of VHA quality cannot be assured under these circumstances."
Issues for new appointments less critical although the time saved by good record creation would also be
an issue here. Current weekend and night hours are poorly attended by Veterans.

Follow-up care is rarely delayed.

Scheduling rules do not always allow clerks to meet Veteran needs. Excessive educational requirements subtract from time with Vets.

VCL offered to Vets based upon distance or access. For access rarely accepted. Otherwise it is for services we do not do.

The local health care system cannot make those judgments.

We are looking at the average time. Data should be collected but it is not.

"Referral includes the number of visits necessary, procedures and post procedure visits for up to six months."

will need another referral if is past 6 months. Facility is capable of follow-up.

"Wireless internet access available in one CBOC. However, access meant for Vets and families and not staff."

Nighttime coverage outside this Admin. Parent.

STAT readings

Data sent to Veteran's outpatient PCP

Clinical space for efficient flow is an issue. Providers are not assigned multiple rooms for efficient patient flow

Maternity Care isnot done at VA medical centers. Space needs at the medical center prevent expansion of services locally

If a service connected veteran cannot be scheduled in a timely manner then this is brought to the attention of MAS and clincal supervisors in the area and resolved.

One referral will cover related visits for a period of 60 days

Authorization will be extended for the required time frame.

less than 5% but all are re-read by our radiologist

We are now starting CVT in the home. largest CVT is in MH

and Main VA hospital

VA interpretation of OPM rules constrain our ability to hire staff at salaries that are competitive with our private sector competition. We cannot hire health techs since they were downgraded to GS5. HR has been decimated by downgrades and cannot hire the VACAA positions we were designated to receive.

We have 650 positions stuck in the hiring queue

"Scheduling package: see Jon Stewart

We have 1985 tools to manage our systems of care. VACO imposes reporting criteria that make it difficult to schedule, but facilitate their reporting of our scheduling."

We prioritize almost exclusively based on medical need.

All of our teleradiology reads are overread the following morning. THe only official reads are VA reads. We use teleradiology for emergencies at night

"Ability to recruit and retain physicians is a huge problem. VA pay for providers has not kept track with what has been available in our area. Additionally, once we get good providers in place, in unending bureaucracy, difficulty dealing with non-productive clerical staff, and burdensome clinical reminders leads them to consider other jobs. Too many of our provider hires consider the VA at "temporary"; job until something better comes along or they can move to another area. For the most part, we have the appropriate number of support personnel, but maintaining those with a good work ethic is difficult and getting rid of those who are unproductive is even more difficult. Equipment procurement and contracting are extremely difficult to navigate, making new purchases a challenge. Central Office's

requirements, while noble, fail to take in to account the current status of non-VA health care systems across the country. Mandating 30 day evaluations for the VA when most clinicians in our area can't accommodate similar requests is unreasonable. Patients that we send out via Choice are rarely seen any sooner than we could see them in our facility."

Issues are similar to those expressed in previous section. I would add that the VA scheduling program is extremely outdated and very user unfriendly.

Approval will typically cover initial visit and necessary follow-up visits.

question makes no sense; what is the denominator?

not sure about last question

home or on college campus as part of VITAL program

"Information management - need updated EMR

h. change pay to incentivize productions, also change Title 38 leave to be used hourly.

j. administrative burden"

Generally panel specific--as a composite we do not have delays.

Overall administrative burden is out of control.

limited local specialty care

"Limited specialty care.

Serve large population."

Will structure based on episode of care

Home/telework

home/telework

"Currently Home Telehealth and Home TeleMOVE combined have over 500 patients. 1 Lead RN, 4 RNs and 2.2 RDs."

"RDs are stationed out of Medical Center,(telework from home). 3 RNs are at CBOCs (telwork from home). 2 RNS stated at Medical Center (telework from home). The RNs are assigned to specific PACT teams with geographical location kept in mind when assigning."

"1. In [location redacted], space is one of our most critical needs. It has been very difficult to obtain space in a timely manner due to the incredibly cumbersome contracting process.

2. VHA contracting policies/practices must be redesigned to be more user friendly, efficient and timely. This is one of our biggest barriers to providing timely care.

3. The rules/regulations around Non-VA care must be simplified and the process must be streamlined if we are to ever be successful in obtaining care in the community.

4. [Location redacted] is in the process of reorganizing our services into product lines to have higher accountability from mid-level supervisors."

"See comments on prior section - many relate to established pts as well. In addition:

1. We have hired many new providers. We just need to get their panels up to capacity which takes some time.

2. We must continue to aggressively hire the support staff that helps compose the rest of the primary care team.

3. We will never be successful if we continue to expect some of our lowest graded (entry level) employees to use an antiquated, overly complex scheduling system. We need a new system asap or we are setting ourselves up for failure."

"1. The current volume of suspenses, reports, etc. coming from VHA is untenable. Many of our leaders spend great amounts of time completing these and then never receive feedback. For example, we just

---

completed the bi-annual Uniformed Mental Health Services survey - nearly 600 questions that we will never see the results of and that will not help us improve.
2. We burden our providers with administrative tasks that are either not-value-added OR that could be done by someone else."
1. [Location redacted] is reportedly the largest user of Non-VA care in the U.S.
"We have allowed for longer timeframes, but not unlimited."
only VA issued equipment are allowed on the wifi. patients do not have access to the system.
I'm not 100% certain about this.
"we use telehealth/teleconsultation with other VAs. For example, Tele-genomics with Salt Lake City."

Under this last question would include significant TMS requirements especially a flood of new requirements recently that are taking providers out of patient care to complete
Lack of appointment availability in [location redacted]
Veteran priority/SC are considered sometimes when scheduling surgery appointments. These issues do not affect clinic appointments
Usually all visits will be covered within a specified global period.
"Visits outside the global period are reviewed and normally authorized on the same consult. Sometimes another consult is required depending upon the situation, time since last appointment, how far outside the global period the requested appointment is"
Also weekends and holidays
Home telehealth (other than monitoring) or telehealth for Alaska

"For surgical cases, as described above, the pt would be covered under global period for 90 days for all visits and would not require an additional referral. For physical therapy, a certain number of visits are authorized on a single request. For follow-up visits not within the scope of the initial referral, an additional consult would be required. Short answer, it depends on the service and whether or not multiple visits are required to provide the service"
See previous response
At a referring facility or at home

More flexibility at Medical Center level to solve problems.
Provider turnover - note the difference between services we normally would provide to those that we would not.
One referral to provide all clinically indicated services.

one referral will cover all related visits within the designated timeframe.
they would need a subsequent referral for the extended time frame

systems redesign
systems redesign
one referral with time limit on approval
one referral with approval for increased timeframe

Veteran gaming the system

PC has a 1-2 day wait time.
Need to work on cultural transformation in some clinics.
Compassionate care when distance is involved or end of life are.

We share images from radiology with outside providers when appropriate. We routine use data on wait times.

Change VA primary care model staffing similar to Kaiser.
Fully staff PACT and get people work at top of license.
Excessive clinical reminders. Too much typing.

"If Veteran is frail and condition requires frequent visits to medical center may refer to fee basis to avoid undue stress to vet, at times a second opinion is sometimes requested and is not readily available at another VA"
"1% of the CVT encounters by provider are conducted by Geneticist out of network located in Salt-Lake City, UT.
1% of the CVT encounters by provider are also conducted by SCI providers outside our network."
"1% of TH patients outside our network are seen by Spinal Cord Injury providers in EOVAMC.
3% of TH patients are seen via ?Video to Home(CVT)? which precludes the patient from presenting at a CBOC or VAMC and instead present in the comfort of their homes."

Home

We allow walk-in appointments and we have an ED for patients to use.
"We only have one exam room per PCC MD. This makes patient flow inefficient. We have a shortage of Primary Care MD/DOs. Our scheduling system is poor and makes us spend too much time trying to justify mistakes. Telehealth is something we have begun to use, but it requires more space. The number of clinical reminders is too large, thus making it difficult to address all issues in the allotted appointment time.We have not found weekend clinics to be used by Veterans. The difficulty in receiving information from outside venders is an ongoing problem."
We unexpectedly lost providers and have been detailing providers from other sections to help cover.
We do not have a neurosurgeon and we just recently hired our second ortho doc.
One provider works from home.

"Delays have resulted only when a miscommunication has occurred and a pattern is that the patient themself has contributed. At this facility, there has been a minimum of clinically meaningful delays."
"1. Create additional space for patient care:
Primary care providers at [location redacted] are limited as they must perform all activities and a single examination room. Flow of busy clinics is enhanced by increasing the number of available clinic once per provider. 2 exam rooms per provider would greatly facilitate workload. Note as well that mandatory assignment of full large rooms for supportive staff seems wasteful. Smaller cubical type environments would likely suffice for nursing intakes and nursing clinic visits.
The strengths of this largely rural facility are in its outpatient venues with the exception of some areas where strengths should be maximized (orthopedic surgery program). Maximization of outpatient capabilities will be more effectively and efficiently utilize the resources available. His facilities greatest vulnerability as its inpatient acute care service and it is quite difficult to higher skilled hospitalist and intensivist and emergency department physicians. Additional inpatient beds are therefore not currently warranted.
2. Increase the number of licensed independent practitioners:
[Location redacted] Health Care System resides primarily in the [location redacted]. The geographic isolation of this area influences the availability of care. Hiring young professionals into our city and county is difficult. Private sector resources are also limited. Many specialties are served by monopolies.

Inpatient hospitalist coverage and outpatient primary care provider coverage are limited and additional providers in these venues would be greatly valued. Specialty care in urology is a huge challenge. Other specialties such as general surgery are currently meeting demand. Both physician assistant and nurse practitioner resources would be evaluated as well. Mental health support/psychologists and psychiatrists is a huge needed.

3. Increase the number of other personnel:

Pharmacist support is lacking. The sophistication of medications and especially psychotropic medications is often beyond the vernacular of primary care providers and the expertise of pharmacist availability would be greatly valued. Current requirements for medication reconciliation, oversight of psychotropic medications, use of hepatitis C therapies and other venues require on the spot expertise that has become outside the usual fund of knowledge for physicians. The quality of care can only increase by optimizing pharmacist support. Clerical support is very lacking. The entry nature of the position of a clerk, particularly a clerk assigned to scheduling, results in rapid transitions. The expertise of an individual in a clerical roll is therefore quickly lost. Additionally the scheduling software, ancillary tasks assigned by auditing agencies and the need for data extraction frequently overwhelmed these personnel. Centralizing clerical services appears to be a favorable influence however functional interactions between clerical services and clinical services is not occurring as is standard.

4. Acquire and/or improve availability of equipment:

This is a more difficult question to answer. Budgetary constraints often truncate the wish was to this facility however I respect the organizations prioritization of equipment that contributes to patient care. Acquisitions are encumbered by contracting and processes are quite challenging.

5. Implement or increase the availability until a health services:

Telemedicine and tele-health are exceptional attributes of the VA. Growth of this modality is in the organization?s best interest. Telemedicine can provide backup for absent providers and reach Veteran patients in remote locations. Specialty care not available locally is accessed and distant resources.

6. Improve information technology:

This cannot be answered quickly. Scheduling software is defective antiquated inefficient non-intuitive. The methodology by which electron a size data is extracted requires a substrate of clinic in location definitions that is also overwhelmingly confusing and, because of its complexity, often misused. It appears that the priority is the VERA capitation model. The entire system is built on a Foundation that collecting capitation data is optimized. Clinical data is de-prioritized to the top of the pyramid. Rather than starting out with the clinical report and extracting encounter data and other data from the clinical information, the current system asks that the encounter location and definition either platform upon which the clinical information is built. This inversion of priorities as a basic programming assumption results in a lack of understanding throughout the system. CPRS, the actual EMR, is user-friendly in many ways that normal gallop is are not. It allows speech to text input. It is moldable. It is not however standardized and in position of some standardization would help. Short staffing of IT and helpfullness of IT are extraordinarily poor. There is poor attitude in the IT staff there is a lack of willingness to facilitate the organization omission and there is a sense of self abuse and punishment imposed from outside. It is difficult to describe the frustration of day-to-day computer and software dysfunction. It is even more difficult to realize that they help available from information technology is essentially absent most of the time.

7. Change central office policies that affect work flow and efficiency:

Central office policies are often a "one size fits all" mandate that does not match the needs of any specific facility but represents a lowest common denominator of expectation. Mandated programs such as the women"

See answers already submitted in earlier question.

"Followup has been more challenging than an initial appointment. Particularly in CBOCs, support personnel are limited. Providers themselves have demonstrated lack of flexibility to facilitating scheduling. Clerical behavior has also been in obstruction. Clinically meaningful delay does occur more often with followup visits then with an initial appointment."

Requirements imposed by off as an inspector general are many times opaque to the providers that must comply. For example documentation that the patient understands the instructions regarding flouroquinolone administration is a requirement that has been emphasized to the point of ridiculousness. The history of many requirements he is obscure and the rationalization has been lost

Limited resources available on station. Geographic isolation of our location. These factors for small business out to the private sector.

A multitude of reasons exist. Travel difficulties for veterans who are not qualified for travel reimbursement is an issue.

Data regarding her patient's electronically with private sector providers is a huge handicap to the care of patient's. The over-prioritization of privacy restrictions hamstrings our ability to share vital information with outside hospitals and providers.

"Generally speaking, non-VA coordinated care is managed our facility by optimizing the likelihood that additional referrals will not be needed."

"Generally speaking

Episodes of care require additional referrals. Cases that span extraordinarily long times are discussed on a daily basis for decision-making purposes."

Wireless has been handicapped by privacy issues. General availability of wireless is not present. It is difficult to access the Internet in this facility.

Use of NTP has been extremely common in this facility.

Some of this utilization has been the discretion of the radiology service and less autonomy in this decision-making is anticipated.

Tele-health services are also provided by specialists are station to patient's at the facility/administrative parent.

At the main facility/administrator parent

"Need locum tenems capability or gap/surge providers when providers are out or leave. Also, increase retention incentives to minimize turnover"

Loss of providers often leads to delay in follow-up appointments that rely on a patient's interpretation of clinically meaningful as they have walkin availability but often don't utilize it.

one referral but authorization will be updated based on clinical review of request from non va provider. new but related followup managed for up to 1 year on same referral.

Provider at home.

patient at home

Eliminate the arbitrarily set expectation that patients must receive an appointment within 30 days of the clinically indicated date. It has no clinical relevance.

eliminate unnecessary clinical reminders that have no clinical relevance.

"A specific clinical service is not available, or vacancies exist that contribute to delays.l"

We have access to some non-VA provider's electronic record portals

For Veterans Choice One referral covers all related visits up to 60 days. A reevaluation is then completed to determine the need for further care.

probably 11-20% of the time

ED diversion due to full inpatient beds
one referral covers all related visits within a specific timeframe

Use of Contract Providers and Locums Tenems; expand affiliation with local PA Schools
Too many View Alerts with limited clinical value added
"one referral will cover all related visits within a stipulated timeframe, eg 3 visits in 6months"
additional referrals are required for services to be rendered that will involves other diagnostic and
therapeutic interventions
at the Parent facility with satellite offices in the CBOC

"The system is perfectly designed to get the results it achieves.
Serious IT interface issues, network speed, built space layout issues, training and competency issues for
non-physician and physician staff, ineffective staffing on PACT's (why LPN, RN and clerk....was the old
physician with 3 MA's and an RN case manager, Pharm D and APN to cover 1100-1500 in a panel so
bad?) Also....illness and complexity of patients in panels not considered in staffing. No consideration for
standardized work and real competency on the teams. A 85K a year RN answering phones is a waste of
personnel. And if a physician does not have three exam rooms and a mobile computer, how do you ever
expect them to see more than 8 -9 a day. I would invite anyone who thinks they can do it, rather than
pontificating on the merits of PACT or PCMH within the VA to come down and try it out for themselves.
PACT can work, but it is a fignewton of the imagination in it's current structure. Almost no VA's have the
full elements that were found in the Commonwealth Fund article to be needed to make PACT really
work. You can get mad at Dr. Stark, bit no one is listening to the 49% of providers that are burnt out or
the front lines. The plan forward is to make the VA physician led on PACT's. Providers are paid a
capitated amount based on quality, panel size and disease severity, access and patient satisfaction and
total costs of care. Providers can earn more by practicing better medicine and getting larger panels. Pay
issues are self correcting. Providers select their team members who are also incentivized to share in the
success of the team. Team members who do not perform can be replaced if they cannot produce to the
level of care that is needed. Providers, must however, work with HR to help replenish team members
that are lost. The Union should be the fiduciary owner of worker quality. The new bargaining
agreement should include FTE hiring and incentive pay plans based on achieving certain value based
metrics for outcomes in quality, cost of care, patient satisfaction, access and overall health of the
population."
"Political pressure by local politicians to do so, especially in [location redacted]. DAV is telling veterans
they can go wherever they want due to the new ACT. We try to explain the ACT politely and accurately
but there is little willingness to listen as this is not reinforced in political offices which have even turned
us over to the press when the answer has not pleased the veteran."
"This would be considered unethical from a medical perspective. In reality, it creates a caste system in
the VA and breeds disrespect on both sides, high ranking and low ranking. Either give everyone the
same benefits or don't give benefits at all. On no planet is this even remotely ethical."
We do this with the new VCL program and they are waiting in general significantly more than within the
VA. Forget trying to find a new PCP in the community.
There is usually a limit but we try to cover the entire episode of care or one year whichever is most
appropriate.
"They might, but usually this does not happen. Globals cover the surgery and global period. Outside of
the global period, the surgeon usually just calls and requests and we approve. It was being gamed a bit
in the past so this is why the re-referral."

establish a pool of primary care provider to cover new or existing positions

it depends

"For patients that cannot be scheduled quickly, we make telephone contact with each one to ensure that no urgent need exists (i.e., a delay would be clinically meaningful). If one exists, they are seen immediately. Otherwise they are given a true choice - wait for PCP or use Choice for the community options. Almost all choose to wait."

"At 90 days we can see all returning patients. 30-day timeframe is a little tighter with their own provider. However, if there is an urgent need, they will be seen by someone, but perhaps not their own PCP."

"There are many activities that to a clinician are considered clerical, but somehow are defined as clinical by others (arranging travel, facilitating procurement of OTC prosthetic items like socks). There is a fair amount of required training with no medical value that negatively impacts access. We manage our no-show rates by appropriate overbooking once we hit the lowest rate we can, so that is not actually a problem. CPRS inefficiencies, including documentation requirements for regulatory and not medical reasons, definitely lowers productivity (I have a list of these if anyone asks)."

"[Location redacted] is unique in that we have > 100,000 enrolled veterans [informationr edacted] but no inpatient facilities, so ALL tertiary care must be bought in the community. This will change very shortly (2015) with the activation of our new/first hospital. Even so, over the last 5 years we have been steadily increasnig the complexity and capacity of the care we can provide as an outpatient facility (e.g. 450 surgeries per month, advanced endoscopy)"

"As stated before, [name redacted] is huge [redacted]). Geographically, we live in a veteran-dense area, so < 1% of our veterans live more than 40 miles from any facility. It is solely a question of having a limited portfolio, and as we activate our hospital in the next 6 months, we will be able to bring much more care into the system; we expect our community reliance to drop by at least half."

"We triage by medical necessity. Having said that, we have never had the situation where we would need to "bump"; one veteran at the expense of another; all receive the care they need in a timely fashion, either internally or through one of the purchased care mechanisms."

"For electronic sharing, we have a va-employed hospitalist team at a local hospital for up to 30 admitted patients and can see their electronic record, but no one else's (and we fee out $140M per year, so this is the minority). We do track wait times through NVCC-managed care, and the community is in many ways worse than we are. Choice-ACT/VCL care is much harder to track, and we review that as well; again, the VA does at least as well as the community in the things we do offer. Many patients have asked to cancel their VCL-appointments when the realize the VA may actually see them sooner. We have much better overall control of care through NVCC, though, and will make sure patients are seen when they medically need to be."

"Depends on the indication. For some things we know in advance will require comprehensive care (multidisciplinary cancer treatment, e.g.), we attempt to authorize the entire episode up front. For specific surgeries, e.g., we authorize the post-op visits and rehab, but additional care will need additional review."

"As before. We try to anticipate the length of the episode of care needed to address a problem completely and preauthorize it. Sometimes we guess wrong and the veterans do need additional authorizations for a single issue, but this is rare in our system."

"This is an evolving topic. In two of our OPC's and our hospital, WiFi is available. It is not yet available in 4 of our CBOCs, but there is a firm plan to implement it."

"We are an outpatient-only facility at this time, but we do use remote reading when appropriate, either among our own sites and through the national VA telerads contract (who does much of their work overnight)."

As previously described in question 15.

"We use the national telerads program to cover unanticipated absences and manage variability in radiology supply. [redacted] Our goal is to have the majority of our studies read by our own physicians, even if at different sites, and use teleradiology for a small amount to smooth out demand / supply."

"We use telemedicine extensively in a provider-patient modality (including with patients who are abroad), and for selected clinics with provider-provider modality for access to specialists as listed above."

We have no hospital; but we have three very large OPC

"We have no hospital in our system.

Our 3 very large OPC's support each other, but the majority of that support is directed at CBOC's which have fewer specialists or even primary providers. A small amount of our patients receive telecare directly outside of a VA facility."

"Keep in mind that we have > 100,000 patients enrolled, so even with the same % of adoption, we will also have one of the largest absolute number of enrollees."

We maintain a high absolute number of patients enrolled because of our innately large patient base.

"The number of clinical reminders, performance measures have ballooned since Kyser's initial items to where there are over 300+ measures. Also requirements for encounter completion, adds workload to providers which from the patient's prospective would not be value added. Also direct enter of progress notes with out facilitated technologies greatly limit our primary care and specialty care providers to numbers of patients that can be seen in comparison to private practice providers."

"Authorizations are specific to type of care that is requested, some consults cover a whole episode of care with associated procedures (e.g. Hemodialysis 3 times a week; Nephrologist office visits 2-3 times a month; Temporary catheter if indicated, monthly labs, AV fistula or graft if indicated, to include venous mapping, revision of fistula/graft, post imaging, shunt replacements/revisions certification period 10/01/14-09/30/15). Other authorizations specify evaluations with requirement for present recommendations pre-authorized care (e.g. Veteran is approved to be outsourced to neurosurgeon for evaluation and treatment recommendations for lumbar disc prolapse with radiculopaty. All labs, radiology exams, physical therapy and durable medical equipment are to be requested through the additional COS consult for pre-authorization. Review of administrative eligibility has been completed.)"

"Care is outlined in authorization, with when to re-contact facility for additional authorization, (e.g. Veteran is approved to be outsourced to community urologist for cystscopy for evaluation of hematuria, also approved is one UA with cytology, follow-up office visit to discuss findings. All pathology slides positive for malignancy must be sent to Veterans Healthcare System [location redacted]. Review of administrative eligibility has been completed.)"

"There is Wi-Fi at main facility for medical instruments, VA lap tops, but there is no access available currently for private use of staff or Veterans and visitors."

VISN with contract radiology providers.

Just a guess

Tele retinal reading for store and forward

Tele-Health program is supervised by ACOS of primary care. Most of the Tele-Health staff are located at the Medical Center a few in larger CBOC

I am not aware of any untoward events in this arena.

Vista appointment sytem should be replaced with off the shelf product. very old and complex. CPRS needs to be either refurbished on the user interface or be repalced.

"This varies based on volume, inpatient capability, overall lack of supportive resources throughout the enterprise."

Lack of resources.

This is performed by PC-3 they provide dashboard data.

Defined number of vists and scope of care are given. We can always add or subtract additional visits based on the Veterans needs.

Some may go during the normal work hours based on demand.

New PC appointments scheduled between 91 and 120 Days = 13.38 % and PC appointments scheduled > 120 Days =10.51% based on the Veterans Preferred Date

Established PC appointments > 90 Days = 15.58% and Established PC appointments > 120 Days = 5.23% based on the Veterans Preferred Date

"[Location redacted] VAMC utilizes a high percentage of NVCC, Choice, and PC3, as a level 3 facility much of our specialty services are fee-basis or contracted care"

"The items marked "a lot" are common themes in provider feedback provided to the facility, and are a significant hindrance to providers attempting to deliver care"

Patients feel entitled to non-VA care and demand we fund it.

"We consider priority in new patient evaluations (in primary care), otherwise not"

Word of mouth is that veterans wait significantly longer for care in the private sector.

"We authorize an "episode of care". This is typically one visit, but sometimes more depending on the service required (eg. surgery will authorize a follow-up visit along with the surgery itself)"

"I believe our timeframe is 90 days. If it requires more than 90 days to complete the episode of care, we require a separate consult/auth"

Nights and weekends

NTP program

"Surgical post-ops and some pre-ops can be done via CVT technology.

TBI requires face-to-face evaluation."

"We primarily use telehealth from the parent. Occasionally, one CBOC helps another. We are investigating the possibility of some care from remote areas (interstate)"

"The only patients at the main facility (for CVT) are ones receiving services from another main facility (spoke and hub, where hub reaches out to us)"

One referral will cover related visits to this specialist regardless of timeframe unless it crosses fiscal years and then a new consult is required.

nothing to add

one referral will cover all related visits within a given timeframe

for VA devices

No cases have been identified indicating that patients experienced a clinically meaningful delay but it is plausible that that may have occurred.

"Though no adverse outcome has been identified, delay and lack of continuity of care has occurred due to vacancies and Provider turnover."

Referral sites may not be able to provide timely access to specialty care (depending on the specialty).

"It depends on the reason for referral. Evaluation and recommendations only or evaluation and treatment or evaluation treatment and follow up. If recommendation is made for further follow up, then it is approved by adding an addendum (separate referral is not needed)"

This also depends on the reason for referral. We try to get patients back to the VA system. If needed we authorize for further nonva care.

"For MRI and Nuclear medicine tests, as well as for STAT requests when staff radiologist is not available."
Utilize CVT into the Veterans home

Requests for fee care are reviewed on an occasional basis to accommodate special circumstances. We also get pressured to approve fee care by our Congressional folks in area
Dependent on the condition being requested on the referral. Some will automatically include other visits for the management of the care
Most likely one referral will cover the related condition and the approval will be added to the consult

We need to be able to shift funds between the 3 major appropirations.

depending on the clinical necessity
depending on clinical necessity and travel distance
NTP MOU
at parent facility also

"Our facility needs more space for primary care, better incentives and pay to recruit and retain high quality providers (loss of retention pay 2 years ago is difficult), and authority to increase the number of primary care teamlets to make our growth in uniques (there is a horrible lag in this regard, meaning that we only add teamlets when we've gone beyond capacity)."
Referrals are authorized for specific care delineated within the authorization for NVC. Timelines are rarely given to providers that state how much time they have to complete that care.
We would love to have this but it is simply not affordable based on our current local budget.
We use the another facility in our network on occasion and use NTP every day for after hours work that needs a STAT reading.
Other locations is medical genetic consults at SLC.

[Location redacted] is trending in the right direction
"Under primary care provider retention, View Alerts are the biggest reason for provider burn-out. A primary care provider will receive approximately 100+ View Alerts per day. A large part of the view alerts involve either esoteric clinically irrelevant information or alerts sent to multiple individuals leaving the primary care physician with the burden of determining who may have already taken action on a certain alert. [Location redacted] VAMC has done
all it can within the current flexibilities of CPRS to decrease the view alert burden. Facilities must acquire additional authorities to locally modify CPRS such that primary care providers can focus their efforts on those alerts that they must take action on. Under "other solutions", primary care providers must provide pain management to medically complex patients with significant psycho-social issues. Under the Opioid Safety Initiative (OSI), primary care physicians must offer alternatives to narcotics, which does not easily lend itself to a 30-minute appointment. TMS pain management education modules give interesting but operationally impractical information. I propose that VHA fund one pain management specialist for each Patient Aligned Care Team (PACT).
Under "central office policies", Facilities must obtain the authority to hire, fire, and promote on the spot with minimal interference from federal statutes or VHA policy."
"See comments under "new patients""
[Location redacted] is trending in the right direction.

"[Location redacted] VAMC is working to change the culture towards improving the above. However, VACO can assist with the following:

1. Eliminate administrative burdens such as the verbal consent requirement for HIV testing. The private sector does not do this.

2. Increase authorities for facilities to modify CPRS.

3. Enable facilities to hire, fire, and promote personnel on the spot with minimal interference from federal statutes or VHA policy. This will go far in changing the culture and increasing morale."

Varies among specialties

Veteran eligibility for NVCC is determined prior to appointment being made. COS approves all exceptions to eligibility.

[Location redacted] VAMC must scan in records from the private sector into Vista.

"Generally, non-VA care will authorize a limited number of visits with a specific provider. However, if the conditions require other services such as diagnostic studies or treatment modalities (eg: physical therapy, prosthetics, etc), then VA must submit an additional referral."

"If beyond 60 days, VA requires a referral to cover the additional 60 days."

"Remote by an outside vendor takes place every night, weekend, and holiday."

"For diabetes, [location redacted] VAMC will implement "downloadable"; glucometers so primary care providers can improve diabetic control."

"equipment-just BP cuffs, ekg machines, etc

EHR: information needed is not at point of care. I would like to have information on which patients had recent med changes, specialty recommendations.

Policies/procedures. The return to clinic mandatory electronicordering as per VISN [location redacted] has created difficulty in workflow. the provider gets the order in sometimes after the patient leaves, so the scheduling is not face to face.

Med recon is hard to implement. It is 1 more task on the providers. There should be a way for the patient to enter his meds and flag any questions or concerns for review with the provider.

A standard intake form electronically that would populate the provider note would really help. The veteran could enter his fall data, med changes, med questions and it would pull into doc note. The specialist recommendations would pull in. Then patient education material could be automatically printed (on fall recuction, medication side effects) for the provider to review with the veteran."

"see previous question response.

Also, realign clerical and nsg staff under PACT to decrease silos."

"The COS and nursing office often has to make up for inefficiencies and poor performance in the business office and HR, leading to loss of focus on access. Our AA to the COS spends most of her time on HR. Which is ironic, since we have only hired 10 VACAA positions so far, of which 5 were internal hires, and only 1 is a provider. There is a lot of time spent with little seen for the effort."

lack of inpatient mental health and medicine/ICU beds

"we are moving toward 1 referral (example: orthopedic surgery will have a preop visit, surgery and PT)"

If over 90 days per the NVCC staff

VA contract

Home

At parent facility

"Need more nurses and clerical staff.

Our scheduling software is archaic and is not flexible enough to accommodate the types and complexities of appointments.

The access standards are inflexible and "one size fits all". Expectations are often unrealistic.

Physician/provider compensation is not aligned with access and productivity. Incentives do not adequately reward high performers."
"Documentation requirements are excessive and sometimes comical.
Other comments same as in previous section"
"We used a contract, but transitioned to a VA contract in past year or thereabouts"

"Depends on the referral; for example, surgical oncology would be approved for a pre-op visit, the surgery, and a specified number of post-op visits over a year"
"Depends on the specialty, but generally would be approved for a certain number of visits over a certain period of time"
CVT to home

Provider works from home

At another VA providing telehealth consultation not at our location
Patients to receive these services at home

Provider and Nursing vacanies
Hard to get data from [name redacted] vendor
Parent facility

Adhere to the 60 day time frame
"Under other locations, a few providers are providing service from home."
On-site at VAMC

"We estsblish timeframes, frequency and duration for all referrals"
we have many providers working all diffent schedules at facility and CBOCS

Number of visits authorized at time of initial referral
Up to 12 months
Remote reading instituted within past few months
Patient home

Number of approved visits is specified
It is decided case by case
[Location redacted] is a HCC not a VAMC
All are located at the HCC

urgency not able to be accomodated
only in EWL are these things considered per policy
"it depends on what is approved. sometimes follow up is approved on initial authorization, sometimes not"
it depends on the authorization
the NTP system has been a game-changer
NTP
at the main site

"We have significant space issues. We have turned providers away because of lack of space. It takes far to long to obtain space.
Everyone thinks to hire the doc, but truly the doc can be far more efficient with support staff. We need more nurses and techs.
Every year we have equipment needs that get placed to the bottom of the list. I need new OR lights, all defibrillators are at end of life. I could use 5 million more surgical instruments.
surgical complexity requirements are too restrictive on smaller, rural facilities.
The NVCC process is difficult at best. Far to many requirements and steps. It just creates barriers to care."
see other responses
"Providers approving eye glasses and all sorts of prosthetic items, Nurses can play a larger role, the electronic records makes things more difficult especially with scanning etc.
Consult process is cumbersome. Would be great to have support staff assist in process.
The alert process is difficult for providers.
Providers required to do the coding pieces.
Too many clinics-- required do to copays, billable, non billable, Inpt clinics now.
CPRS has become admin record and not a clinical record."
lack of space to hire specialists Too many restrictions to keep a provider competent
"This is not usually needed, our wait times are not clinically excessive."
another VA facility
Indian Health reservation

"Administrative burden including inordinate amount of clinical reminders, view alerts, suspenses, metrics requires large amount of administrative time that could be better used to see patients"
We try to approve all visits with one referral but does not happen consistently
One telehealth psychiatrist works in Minnesota but is on staff here.
Main facility

Can authorize several visits and then extend if needed
not really sure on this one. Some of the patients are at one of our CBOCs while others are at the main facility
currently in [location redacted]

VACO policies are contributing to the problem. Please let us do our job.
Veterans requiring obstetric care are covered by a single referral
We've not had an issue takinig care of these patients in-house
"If you's stop asking mind-numbingly stupid questions, we could get on with real work"

May require separate approval if a procedure is recommended after consultation.
Done on case by case basis as clinically indicated.
There is wireless internet but it can only be accessed via VA devices.
Tele-retinal cameras are in CBOCs where images are acquired and then forwarded to another facility in the VISN for interpretation.

"most troublesome admin barriers are leasing delays, no space's poor flow
hiring barriers"
uncertain the projected impact of the CARE program.
home

Too many non clinical requirements take away time from meaningful and value added Veteran care expereience and timely acces for Veterans

Lack of availability of timely care from neighboring tertiary care VA facilities - esp. since the close tracking of timely acces to care

Is based on clinical needs.

"All outpatient visists can be on one referral

Inpatient care requests need another referral and authorization accoding to CBO

In the example above, if the Veteran needs an inaptient stay following operative fixation, then he needs another authorization - significantly adds to admin workload and at times scrambing to avoid delays in care for Veterans"

Home

Lack of space to expand services. Lack of support staff to schedule.

Expect that emergent/urgent care needs would be prioritized by clinical staff without delay.

Same as prior answer

"Fee basis is growing rapidly as system and expectations change. However, the vast majority of care is still being delivered in VA."

Usually for specialized services that VA does not provide

within reason. Additional referral and approval may be needed if the care plan changes.

We do follow national guidelines for Dental eligibility

We do share paper copies when clinically indicated at the patients request.

We use a combination of one referrals and multiple referrals based on the individual patient's clinical need.

One referral will cover all related visits to this specialist within a specific timeframe.

But we also have onsite staff as well.

We have Radiologists that telework readings from home.

Some on-call and telework reading

Also at our parent facility

Remote location (designated rural health hospital); Tertiary care facilities in VISN [location redacted] do not accept patients readily: preserve their own numbers (performance measures)

"Other VISN [location redacted] facilities have those that approve the transfers in low clinical levels, which allows for inconsistent decisions secondary to work load requirements on transfer."

"To reduce potential cost issues, f/u visits are required to be approved by chief of staff before scheduling."

Older buildings with blackage of wireless access by degree of obstructive materials used in older constructions.

CVT is located where specialty services are available at VA facilities.

"At the parent facility (VAMC). The facility is a rural access hospital, and all home telehealth is supported by in house providers."

One referral with specific time frames and services.

Extension of time frame is authorized.

Ease from restrictive Civil Service (H R) Rules would facilitate hiring

care is covered for up to 60 days
individual decision: will be reviewed for need of further care
at the Parent Facility

One referral if requests states the number of visits and the time frame
Several visits may be requested over an extended period of time
Wireless internet access is being installed at a CBOC at this time
One provider delivers care from home work site
"We have consistently had over 1,000 enrollees. The number fluctuates slightly over time."
The last time we were under 500 enrollees was before 2010.
We also have a NP assigned to the Home Telehealth Program who assists with health care needs of
those Veterans enrolled in the Program.

Same day access for all established patients is available in all Primary Care locations.
"Lack of sufficient beds to admit patients, causing diversion (due to lack of nursing staff)"
Based on clincial needs and only under 1 year.
"If original authorization is exceeded, then a new authorization will be needed for the extended visits,
based on clinical need."
HBPC CVT to the home.

Patient request - PTSD or prior bad experience at VA

One referral covers all related visits for a period of 90 days.

"Need new scheduling package, need competitive salaries, need better contracting and IT, need
streamlined HR"
"Space, improved HR, Improved scheduling package"
At the VAMC

"Increase in psychiatrists, medical officer of the day coverage, PACT providers and Medical Support
Assistants. Very difficult to recruit to this rural area. No equipment needed. New scheduling package is
essential.Central Office policies of 1 size fits all does not work in all arenas of healthcare especially in
rural/frontier areas."
Refer to previous comments
"Due to difficult to recruit area, we have providers participating in roles that could be more efficient
with use of other disciplines."
limited access capacity at tertiary facilities in our VISN
As long as the original referral is authorized as such after the initial clinical review
See previous comment

Handled on a case by case basis depending on nature of the treatment.
At the local VAMC.

"IT equipment needed and scheduling package is inadequate. Requirement for times of appointment
indicated by consult, fails to recognize later veteran preference for time of care."
as for 2
Time specified in approval
specified at approval up to 60 days

The views, opinions, and/or findings contained in this report are those of RAND Corporation and should not be
construed as an official government position, policy, or decision.

For some scans. In house for most by day
home

"The degree of management by numbers rather than actual clinical outcomes causes delays in access and decreases in Veteran satisfaction, specifically relying on numbers to measure care impedes the clinical process. The non-VA option for care was working for access, now CHOICE will worsen it yet again based on non-clinical people determining how clinical care should be driven. Simply put, stop having non-clinical people determine how care is delivered"
"They will be approved for a certain amount of visits, applicable to the clinical condition"
as in 13 a

biggest issue with patient flow is lack of space and the time frame for acquisition of new space which can take as long as 5 years for our most recent CBOC.
"specialized services that we cannot provide such as radiation therapy, nursing home care, home health aids"
we manage our access to take care of ALL our veterans within a clinically appropriate timeframe
Our info security program office does not allow sharing of electronic medical records. We do receive electronic records from outside providers.
"referral covers entire episode of care but is time limited based on what type of care is required. For example, 2nd opinion is a single visit; if we know the veteran needs surgery the referral covers pre-op and post op visits as well as surgical procedure."
see 13 A comments
VA Office of Information Technology has been unable to support this.
Colon cancer: tech is available but not in use for colon cancer
Have some offsite office space for telemental health so doesn't use much needed clinical space in med center.
using home CVT telehealth
telework from home to free up scarce and much needed clinical space

- **PTSD**

modify from 14 days to 30 days for new pts
modify 14 day to 30 day requirement for new pts
increase availability tele-health equipment
clerical staff; need additional computers and telehealth equipment; hiring and retention initiatives

"*outgrowing all opt clinical space
All LIP needed
*Pharm D, clerical staff, nursing
*Improve organizational structure with admin support
*Scheduling System improve user friendly. *Decrease number of opt clinics to manageable size
*Must continue to build BHIP Teams"
"* Psychologist, LCSW or equiv, nursing, Psychiatrist, pharmd and admin
* build teams with supervision internally"
"*Space for CBOCs to include exam space and additional inpt beds due to growing demands
*Telehealth-space,equipment and staff needed to include prescribers, therapists, technicians admin, nursing
*User friendly scheduling pkg
*create teams supervised by member of the team"
"*Space to build more treatment teams to include prescribers, therapists, nursing and admin equipment to include bp machines
*pbm also exists in scheduling return appts. this is critical once initial visit/diagnosis made"
"*need space, staff to include prescribers, therapists, nursing, admin, pharm d.
*Teams function as a unit supervised by team member
*Major pbm is scheduling timely return appts after initial eval/diagnosis"
"*space for staff, additional staff to include therapists, admin, technicians who can perform testing
*build teams with leads and supervision in teams
*Pbms rescheduling timely follow up appts once initially seen"
"*physicians tend to carry the burden of care
*improve flow with additional staff and space
*too many clinical reminders"

"b. Reassign [location redacted]telehealth responsibility away fron [location redacted]. Have CHOICE telemental health provider
c. Someday more newly hired-MHI social workerinto offices in [location redacted] CBOC and [location redacted] CBOC.
g. Reduce SPRS reminders and required TMS training."

"More LIP therapists, particularly psychologists and LCSWs.
Mental health Suite consumes more time than is neccessary and is redundant information. Such information should be in the providers note.
Nurse Case managers could be extremely helpful particularly with managing individuals with multiple conditions (i.e. Polytrauma (PTSD, TBI, and Chronic Pain))
Desperately need admin person or persons dedicated exclusively to our Psychology and LCSW Training Programs."
"Need for more general mental health therapists (psychologists, LCSWs).
Redundancy of Mental Health Suite; information in the MHS should be included in the clinicians evaluation report, usually in a more efficient, concise and readable fashion.
Nurse Case Managers could help facilitate and ensure continuity of care for patient''s with comorbidities and complex conditions (i.e. Polytrauma (PTSD, Ortho, TBI, Chronic Pain)"
Mental health Suite is redundant and does not provide useful information.

"Need tele-screening capability--working on this at present.
Weekend and evening coverage will require a ""culture shift for both patients and clinicians."
scheduling system is too old/cumbersome

"We are lucky to be hiring more staff, but HR policies and not enough HR staff are slowing down the hiring process. Without MH new staff, mainly psychologists, GMH and PCT cannot keep up with psychotherapy demands. Metrics do not help us, but rather slow us down and often use data that does not accurately reflect our work and patient care. Admin support is inadequate due to low staff and poor training. Administrative processes for non-va care are slow and have gaps in the process. Solution: stop asking current staff to take on the work of these deficiencies and give more staff who are trained and most importantly, give us space. Contracting issues have slowed our leased emergency space to 2 yrs!!! It is taking years to build new buildings. Solution: cut the red tape especially in contracting."
"Need more staff to meet psychotherapy demands with the space to go with that. It is taking 2 yrs for our emergency lease space and years to build any new buildings. Solution: cut red tape in contracting. Admin staff need more training. Veterans are telling us that vcl is taking longer than being seen at the VA. Hire staff to manage vcl and ewls for psychotherapy. Needs for psychotherapy are different than PC or even psychiatry since psychotherapists see the same vets weekly for 3-6 months. That leaves no room to take on new cases until the others are done. Productivity measures for psychologists need to be different than one size fits all disciplines since psychologists have many roles which are not always direct patient care. Need more staff for infrastructure to support our work such as clinic profiles staff, HR staff, clerical staff. Archaic processess like vista scheduling and multiple forms needing multiple signatures delay work. It took me almost 3 mos to get the paperwork for teleworking through and we got it done when I mentioned we"
"The same 3 things are critical for every section in this survey 1) More staff 2) More space 3) More admin support. Not able to retain staff due to overloading them with clerical tasks, not providing adequate training (MSAs), Same gaps in the process for vcl as mentioned before."
"Staff are coming, but until then (months) we are understaffed for psychotherapy. We are almost doubling our staff size, but have no space for when they get here. Our waiting room holds 8 seats. Emergency lease space is taking 2 yrs!! Our new building is taking yrs to build. Vista scheduling is archaic. The paperwork to start to telework staff creates delays. There is no wait for telehealth because the demand is low. The wait for our cbocs for psychotherapy was clinically significant until recently because we hired more staff."

Our SUD/PTSD services are in the same PCT clinic. The same comments for the other sections apply here.

"As providers, we have to do many clerical tasks since our admin support is overwhelmed with patient demand. Our infrastructure is a house of cards....we have to double check the work of support staff because there are either errors or things are not done because support staff are a skeleton crew. Constantly having to remind support staff (this is not just clerks) to get things done or fix mistakes is frustrating and doubles the provider''s work. The scheduling system is inflexible and so, does not reflect how we work to meet the veteran''s needs. Veterans no-show because there is no consequence for not showing (being charged or losing sessions authorized). They know they can show when they want. However, this often means another veteran could have been seen. The no-show veteran for intakes goes to the back of the line which makes the consult open for months. There are so many policies regarding cancelling clinics, tours,taking leave, working hours, etc., that are rigid and do not provide flexibility for employees."

"We currently have a 1.0 FTEE SW providing 100% of EBPs for PTDS at Rockford. There are occasional delays for Veterans to commence psychotherapy for PTSD in [location redacted]when referral rates are higher. This waxes and wanes over the course of a year. If new FTEE were requested for [location redacted], it would be for a psychologist or social worker."

"1. We literally hae no space for the additional providers that we need to serve our Veterans. We have money for new staff, but cannot use it because of lack of office space.
2. Because of the emphasis upon hiring staff for the Homeless Veterans program, HRMS is forced to delay many hiring actions for other staff.
3. We need additional clinicians in all disciplines. Workload data indicates that average clinician productivity in this station exceeds Directive 1161 RVU targets by about 50%, and we still have difficulty meeting the clinical needs of our Veterans.
4. Additional clerical staff (schedulers) and at least one additional administrative staff member are needed in MH.
5. The scheduling system is archaic, cumbersome, and does not meet the needs of modern healthcare systems. It needs not a set of ”fixes”“, but replacement.
6. ACRP is extremely limited in its capabilty to provide meaningful reports on provider productivity. The interfaces that have been developed to pull data from VISTA cnstitute improvements, but they too are very limited, and I have found mathematical errors in the one being promulgated nationally.
7. As a manager, I am extremely limited in the incentives I can offer my staff. Given how hard most of them are working, this means I cannot adequately reward the degree to which some of them truly go ““above and beyond””. This leads to poor morale.
8. This station has for years had the lowest salaries for most disciplines in the VISN, and indeed, is among the lowest int he country, despite having one of the highest costs of living. With our budgetary restraints, we have staff in various disciplines leaving here to go elsewhere within the VA system, for similar positions, and getting ~10% more pay in lower cost of living areas.
”“[comment redacted because potentially identifiable]
11. Weekend and evening hours have been extremely underutilized despite extensive marketing."
Already addressed previously in survey
"Greatest needs are:
1. Support staff for telehealth
2. Greater bandwidth
3. More space for equipment, though ideally this would be accommodated by desktop telehealth units in provider offices(but too few offices)

4. Providers..."
"1. Personnel needed:
   a. Providers: psychologists, LCSWs
   b. Support staff: clerks & admin
2. IT: scheduling package. Also, I should have mentioned earlier, that CPRS needs a significant "overhaul"" or replacement:
   a. Notes and Discharge Summaries modules should function like a word processor, not like a typewriter.
   b. Notes Module should permit direct insertion of images.
   c. Template system should be both more capable and user-friendly.
3. VACO polices - as previously addressed.
4. Incentives, as previously addressed."
"1. Psychiatrists spending hours per week literally doing social work care coordination, similar examples in all disciplines.
2. Providers and managers spending MANY hours each week doing scheduling, running administrative reports, etc., that could be effectively done by personnel at the GS9-11 level, but are being done by personnel at the GS13-GS15 level due to lack of such support staff.
3. Terrible scheduling software, as mentioned previously.
4. Outdated CPRS interface, as discussed.
5. Poor bed management system for residential care.
6. Providers spend substantial time meeting "clinical" performance measures that are actually of very limited value."

Other solution: decrease administrative burden on clinicians which would allow more time for patient care
Decrease administrative burden on clinicians
Our residential program has been reduced to 6 beds (from 12 beds) due to space constraints. Additional space is of essence for this program to be fully functional.

"We are currently operating at 60% mental health staffing which has impacted clinicians ability to schedule additional appointments for veterans. Initial Access to care has not been impacted, but has adversely impacted morale of staff as staff work through lunches, essentially triaging scheduling of returning veterans, and working late or coming in early. Given that PTSD is the 3rd most common diagnosis for this facility, it would be helpful to have a defined PTSD program. Having a defined PTSD program would help flow over veterans from specialty care to less intensive mental health services delivered through PCMHI. Difficult to do telemental health groups as there are usually problems with the equipment either at the main clinic or at the CBOC. On average it would take 20 minutes to start a group using telemental health equipment which negatively impacted veteran care. IT support staff available would be helpful. Central policies are well intentioned and useful; however, we need to have an active role at the local level in implementation and development in writing for how these policies will work in outpatient. I hear this frequently "we need more things written down." The strongest concern from local staff is that the policies are not reviewed and discussed in a timely manner. It would be helpful to have additional support staff with clear expectations of roles in scheduling and coordinating communication between veterans and clinicians. For example, some days MSAs use outlook to check clinicians schedules and on other days just Vista. When veterans are rescheduled or request to have an appointment change, it would be helpful for the MSA to make the appointment change instead of asking the clinician make the call. Given the decrease in clincians, it would be helpful to not have to make additional administrative calls. Management could be better supported in assisting staff with barriers to

doing their job or holding staff accountable to do their assigned job. Improve role definition between different displines (i.e., psychologist, social worker, RN) would likely improve morale as clinicians would be working towards the top of their license. Increase incentives/recognition for clinicians working towards making positive changes in the department. We already have extened hours in outpatient mental health. We are already utilizing fee-based care with positive results."

Recommend increased incentives for hiring and retaining psychiatrist or nurse practioners for CBOCs. Additional support staff and clinicians may help improve retention of psychiatrist or nurse practioners. Increase availability to use and improve system for telemental health so psychiatrist or nurse practioners at the Anchorage clinic can readily deliver these services to CBOC's. Have a SOP in place for this process and how to manage staffing issues in the CBOC. Increase availability of rooms for telehealth. Fee-based care is highly utilized in the CBOCs.

"Increase support for psychiatrist and nurse practioners to do telemental health. For example, have IT available to answer questions quickly. Support in scheduling appointments. Make space available for veteran to be seen by a psychiatrist or nurse practioner from the main clinic to a CBOC."

"Psychology and LCSW staff needed.
Scheduling system should be made more user-friendly to improve efficiencies.
In order to increase evening/weekend clinical hours there need to be increased support staff hours as well.
Discharge planning needs are made difficult in an entitlement-based system."
"See previous comments, as they apply here as well."

clerical support

"Vista is so old, would be nice to have a new system."
"CBOCs have limited space and are understaffed in BH services. Social workers are wearing 3 hats: PACT social work, PCMHI, and BH. Some CBOCs might have only a BH prescriber and a social worker or have these services only available via tele-health during very limited hours. Policies that are predicated on attendance, which VA staff have no control over, should be recinded.
We need a scheduling system that allows schedulers to see clinic availability in multiple clinics at one time."
Space and personnel are primary issues. Reference the literature or VA studies regarding evening and weekend hours. No-shows during these times are problematic.
"Policy can dictate; but without staff to support, will be impossible to implement. In addition, policy can dictate by xxx time, xx% of all visits will be non-F2F. What if the Veterans prefer F2F. Which is more important, Veteran centered-care or policy?"
"During the recent allocation of Choice positions, our facility "received"" 4.1 additional BH slots. Need is much greater. Only 1 of those 4.1 positions went to a CBOC."
"When staff is limited (7 psychologists in our entire system) and programs/initiatives require o.3 to 0.5 or more time allotment for implementation AND staff are assigned more than one program, staff availability for treatment is significantly impacted.
We have attempted to assign these program duties to other staff, with the result that implementation was negatively impacted."

"Additional Psychiatry, Social Work (LCSW) and/or Psychoolgy staff at some of our CBOC''s is needed."

"More staff (LCSW;LPMHC;PhD) would improve access. Limited telepsych is staff related, not equipment related; lack of administrative support (e.g. clerks) leaves clinical staff doing admin. work that takes from clinical time; multiple "coordinator"" positions and collateral duties also reduce clinical availability;
Strong emphasis on specific credentials (e.g. jobs rolled out by VACO for only psychologists) can also limit availability. Strong emphasis on hiring Veterans sometimes makes recruitment of the best possible clinicians difficult."
"As stated in previous section - more staff are most important, office space will be a problem if more staff are hired, lack of admin support that is program specific is a problem; limitations of supervision (e.g. GS 12 team lead can"
As noted previously - pay incentives for clinicians to travel to remote CBOCS would be helpful in recruiting.
Incentives to work at remote CBOCS. More streamlined supervision process. More ability to recruit external providers who are not Veterans or internal candidates when jobs are posted
"As noted before - we are understaffed. CBOCs are more understaffed, but everywhere is. More staff will need more office space, which is also a problem, especially at the CBOCs"
"Providers must do consult management, schedule appointments, handle all administrative tasks.
Training programs pull psychologists' time a good deal, so do the multiple coordinator positions; as

team lead, I have spent hours reviewing charts related to measures and writing business case plans to beg for more staff when, as an EBP trained trauma therapist, I could have been seeing clients."

"Scheduling software needs a lot of improvement, not flexible and we are trying to do too much with it that it was not designed to do."
Need more providers in certain CBOCs and is hard to recruit particularly with non-compete clauses that the community has them sign. Community will also often pay them a stipend while in residency in exchange for a certain number of years of work. We cannot compete with that.
Space and staffing are important factors in most of our CBOCs. Groups do not work well with tele-health so we need on-site staff for this.
Scheduling software needs to be modernized

More demand than beds available; no community residential PTSD programs

"need to cease using ancient scheduling system, including use of "clinical profiles" in this system which are so restrictive and arduous to update when providers'' availability changes. Our #1 problem with access for PTSD patients is in regards to the way scheduling is done!"
"MH supervisors need dedicated time to provide meaningful clinical supervision to assure PTSD services are done in accordance to Best Practice Guidelines and to assure clinical CPRS templates are updated and being used appropriately. Also, MH supervisors need dedicated time to establish and maintain telehealth arrangements with Hub sites."
see previous comments as they all apply for this section as well
we don''t have enough dedicated PTSD providers nor do we have the space for additional offices or group treatment rooms
please see previous comments
wait time for residential treatment is terrible

"b. Psychologists, Social Workers, Family Therapists
c. LMFTs, Nurses, Clerks, Pharmacy support for CBOCs
f. Scheduling system does not accomodate groups well
g. NEPEC reporting takes too much time away from clinical care; EBP is not for everyone; EBP training programs are rigid, cumbersome, and at times traumatic to therapists; Performance measure ""force"" patients into therapy whether they need it or not.
h. Clinicians need more autonomy and increasaed flexibility in the workplace."
same as previous

"We need general mental health support for stable, long term PTSD patients outside of the PTSD Clinical team. PTSD
Team needs a single, "dedicated" Administrative Staff person to coordinate all scheduling and monitoring of all required paperwork."
We need more clinical staff who can see patients for medication. Delays are critically difficult when a patient misses an appt. and cannot get a new one for weeks.

"Additional Clinical VA Staff vice locums or fee-based.
Additonal Administrative Staff would also be beneficial."
"Incentives would be nice.
Policies could be more flexible to recognize differences in facilities

Reports/Ratios are not the same for rural and urban medical centers, yet we are all held to and judged by, the same standards.

An IT system, or Enterprise Resource System, that is web based and can "talk"" to all facets of treatment - unlike the hodge podge of systems of wildly vintages that the VA uses now.

Just interoperability of what we have now would be an improvement."

"IT infrastructure is critical to CBOC care.

Incentives would be nice.

Additional clinical staff would be nice as well."

More clinical personnel would allow for a slight increase in the number of cohorts being conducted at any one time.

"Increasing the # of Admin Staff, Scheduling software, and CPRS upgrades would all be desirable."

the scheduling package that we currently use is antiquated and not practical for use in Mental health services where you have both individual and group therapy

"the schedulilng package makes it very difficult with so many grids, due to liminitation of the package and multiple stop codes"

"We are in dire need of more space and more providers. If both were increased, the access issue would be resolved. We have well trained and dedicated staff. The situation is worsening, and CHOICE is making it worse for a variety of reasons. VACO needs to set and disseminate feasible standards for mental health care in terms of expected productivity of providers. The mandates on our providers are MUCH more extensive than they were even 5 years ago, yet know additional time has been allocated for those "non-direct care"" tasks. CPRS is okay, but the scheduling software is very outdated and causes huge inefficiencies. The fact that we have over 20 distinct passwords that change every 90 days is also inefficient - why not one password connected to our PIV cards?"

"The environment in VHA currently is punitive in many cases rather than offering rewards for excellent ideas, policies, and procedures."

"The demand for mental health services has skyrocketed in recent years, and the number of truly new, independent providers has not kept pace. We need space to put new providers in."

It is difficult for us to recruit and retain psychiatrists - many have left the VA or reduced hours due to salary and burnout (they report feeling overwhelmed by the workload).

"We have some of the best trained staff in the nation - including trainers in EBPs. However, there are insufficient therapy slots because of the multiple cometing demands on our providers."

"EPBs work very well, but they require a bit more prep time and sometimes more time during and after appointments. Without incentives, therapists find it difficult to add this additional workload when productivity doesn''t change."

"No shows are seen as a system cost, but to individual providers no shows are seen as an oppotunity to catch up on the many other required duties. It is critical to understand this when solutions are proposed. "Missed Opportunities"" often means "Opportunity for something else that helps Veterans.""

"Licensed independent practitioners: are in great need of additional therapists (psychologists and LCSW), as well as mid-levels to support medication management services.

Technology: MHS is very cumbersome and time-consuming

Central Office policies: having to call all no-show patients 3x regardless of risk status (particularly time-consuming for groups)

Personnel incentives: for some disciplines, the compensation at VA is not competitive with private sector, and make it difficult to recruit and retain high quality professionals

Other solutions: need to create ways to have some variety in duties/responsibilities as well as some ”down time”“ in order to reduce provider burn out; would be good to partner more with VSOs and other organizations regarding some of the ”myths”“ that many veterans buy into regarding types of services/frequency, etc that is needed to obtain/increase/keep their level of service connection"

"For areas that are same for initial evaluation in previous question, would have the same comments. For this section, would recommend need for additional tele-health equipment with adequate time for training of staff"

"Would give same comments as in previous sections. Would also add that for our facility the majority of MH is provided via tele-health, with little face-to-face contact- often this is a complaint of veterans. Additionally, except for MH staff most of the providers in our CBOCs are contracted, and veterans often complain about this- the quality of care they receive, and the high turn over rate. This impacts their medical care for physical health concerns, but also impacts their MH care as well (ex: veterans become frustrated and either don''t come back or request to have their care transferred back to the main VA, which limits their ability to come for appts due to the distance travelled; often the contracted staff are not as aware of the MH services available to the veterans so may not refer as needed/appropriately"

"Critically important to have more clinical psychologsits and LCSW to provide group and indvidual therapy; also, office space for these providers is essential.
Technology: use of MHS is cumbersome and time consuming, especially so for documenting group interventions; scheduling technology is slow and not very user friendly, especially when trying to schedule multiple appts (ie, for a group or an EBT protocol)
Other solutions: better educate non-EBT providers regarding the EBTs- what they are, what makes a good referral for this type of treatment, educating veterans of what to expect"

Would offer same comments as in previous section.

Would offer same comments as in previous section.

"Need more clerical staff who are competent to do their job and who are well/appropriately supervised Need additional group rooms. We are very constrained space-wise"

There are too many reporting requirements and metrics that are not meaningful from a care perspective. These duties take away from valuable patient care time and do not add to the well-being of the Veterans.

need more space in CBOC''s and more TCT''s to room the pts and monitor.

need more space to provide services

continue to offer EBT training and we are trying to make sure we have enough in the CBOC

Need more PTSD MHRRTP programs. maybe if we had more space and it was easier to start them up?

"Better Tele-equipment would be helpful, as well as more available units. Begin using iPad''s for ERANGE and HBPC. Working in two time zones there are occasional double books and other scheduling problems."

Increase prescribers (Psychiatrists and NP/PA or PharmD). Improved computers/tele-equipment. Incentives are important in rural settings. Better scheduling packages would help with double booking and other errors.

"Psychiatrists are badly needed (along with NP/PA or PharmD with mental health training), nurses or LVNs as support to the prescribers, nurse case managers would also be very helpful regarding follow-up care and follow-thru on care planning. Good tele-equipment is very important especially in rural settings. Better scheduling systems would potentially decrease scheduling errors especially when dealing with multiple sites and two time zones. In rural settings incentives and other enticements are important given what the provider will give up leaving more urban environments."

"Psychiatrist, and other prescribers are crticial with support needed from nursing, and administration/health techs. Improved tele-mental health equipment is needed especially in rural areas. In a rural setting, incentives and other enticements are important."
"Physicians within the CBOCs are critically important. Support for the physicians in the form of nursing/health tech would support a higher quality of care, along with space to work. Better scheduling system would be helpful along with incentives that would support the move to a rural setting."
"Psychiatrists are critical with nurses/LVNs and other support staff being very important. Better tele-equipment with improved scheduling programs would also be important. Finally, being in a rural region incentives and better access would improve care but there are few providers in some of these rural communities that would allow Veterans to use fee-basis or other forms of care."

"In our clinic, our scheduling options are limited for PTSD services because of stop code requirements. Guidance about setting up clinic profiles to allow for more flexibility would improve access. Now, clinicians are bound to evaluating certain patients within certain stop codes.
Our current assignments include overburdened supervisors, who have to attend to administrative duties rather than being available for clinical supervision - this reduces efficiency in providing care to Veterans suffering from PTSD. Recruiting talented and experienced clinicians (Psychologists for example) with the current benefits structure of only 2 weeks of AL is extremely difficult although other benefits are inviting."
"Once again, we are located in a rural hard to recruit area - improving recruitment incentives such as benefits (specifically AL) would be very helpful to our recruitment efforts. The scheduling system and requirements need to be improved. We work hard to get Veterans timely services, but getting a Veteran seen in consult quickly does not guarantee that follow up is adequate. I personally don''t see contracted care as the solution, as our community does not have staff who are as well-trained and knowledgeable about Veteran care. (Ex: the state of WV does not require doctoral level for psychology licensure, the VA does and we believe this is the best level of educational background to treat Veterans)."
"We have CBOC that are too small to accommodate staff, and more space is needed. Telework options are limited in some rural areas where Veterans do not have access to broadband services (VA equipment availability is actually quite good - but not helpful if you can''t reach a Veteran). Once again, better recruitment incentives are crucial."
"1 of our CBOC''s has NO group room, one has a small and limited space for groups that is shared space with telehealth equipment limiting services and requires extraordinary coordination. More space is needed. Veterans have not, in our experience, enjoyed attempts to participate in groups via telehealth with a group of Veterans at our parent facility (even our staff who use telehealth equipment to be involved in team discussions feel removed and thus it is more difficult to engage). Efforts to recruit staff for weekend services has been extremely challenging and our current availability of weekend services is thus limited - evening services are better but only in the parent hospital."
"Our hospital doe not have a PTSD residential option, thus we refer to other VA''s with delays in admission. Community options are not available."
"We have a plan to build and open a SA residential rehabilitation program that will include programming for dually diagnosed SA/PTSD Veterans. If approved, this will be of benefit. Also, we are attempting to recruit experience personnel to expand our SA/PTSD services. In this area, addiction rates are quite high. We have the required SA/PTSD psychologist but need at the very least one more experienced staff member - Luckily we have an interested candidate."
"A sensitive issue: Staff here are required to continue running support groups that are not effective in promoting recovery, this limits availability to focus on EBT''s. We are attempting to utilize Peer Support Specialists to address this, which is helpful, but previous directives "not to discontinue" these types of

groups is an issue here and I believe, across the VA. Turnover rates in personnel have impacted the balance between providing supervision to trainees and providing clinical services. The impact of productivity standards often limits what some of our professional staff is willing to do to support our training programs. We view training as essential to building a strong, experienced workforce to treat out Veterans - clinicians should not be penalized for providing this type of supervision more intensely with low productivity reports. It would be very helpful to have national guidance on how to address no-show''s more effectively - we need to utilize technology to remind patients of appointments including email and text reminders."

"Need to have staffing which allows for loss of provider without impacting patient care; Currently staffed at bare minimums; need to have a scheduling system which is geared toward mental health and appropriate; need additional, well trained scheduling staff;"
Current staff are insufficient for the demand; Cannot get patients back for weekly psychotherapy when necessary; scheduling system is grossly inappropriate for mental health; Staffing is at bare minimums and loss of a provider would result in compromise of patient care.
"Need to staff for growth. As stated before, our MH system is working but we are seeing increases in demands; pushback from administration about staffing levels; CBOCs are viewed as "primary care" with "mental health as a side show""
Need to have an appropriate scheduling system for mental health; need to have staff with availability in schedule to see patients appropriately; need better clerical support in the CBOCs.
Need better scheduling package for MH needs; Need better clerical-admin support for clinicians; need less reminders and more therapy services;

"Some of our CBOCs have no MH staff available to even partner with, to combine in person and vtel services. Managing MH needs completely by vtel is a huge challenge."
"Our scheduling system is extremely cumbersome. We need a way to be able to assign into appropriate clinics (and stop-codes) after the appointment has been completed, so that we are not limited by having to use certain clinics for certain appointments."
"I would consider implementation of CBOC BHIP teams, including providers from a number of CBOCs and vtel providers from the parent VA."
"This one is tough.....as technology advances, it may be appropriate to do more structured group therapy via vtel, but right now it is a bit iffy..."

"- More clerical staff
- Would help if CO streamlined documentation policies and reduced number of changes per year. Staff spend significant amount of time learning new ways of documenting which change often.
-"
"We have the equipment but the training is very time consuming.
-Personnel - we need a full team of Telemental Health administrative staff."

Increasing space in the CBOCs to use telemental health would increase access. Also streamlining the administrative scheduling process telemental health.
Access to initial evaluations and treatment are negatively impacted by space and staff limitations.
Nurse care managers to assist in contacting and screening self referred patients for the most appropriate services.
Trained staff is very important. Additional support staff is needed along with extended hours. However space is often the limiting factor.

Support staff are necessary to contact patients to schedule for groups. Providers are needed to be trained in evidenced based psychotherapies to provided treatments to reduce symptoms and encourage recovery. Current issues include ineffective treatments or groups designed to hold patients while waiting for an EBP.
"Similar to previous comment increase in trained clinicians and support staff to contact, screen and schedule patients are needed."

"The CBOC''s we work with primarily need more licensed independent providers. However, even more, the staff in the contract CBOC''s need much greater instruction on VA policies especially regarding patient confidentiality and rules around privacy."
"general mental health services providing PTSD care need larger group rooms, more licensed personnel, more scheduling clerks."
CBOC''s need more licensed clinical staff and improved weekend hours.
"In order to provide services via telemental health more effectively, the CBOC''s need more equipment, more licensed clinical staff and expanded weekend hours."
Primarily lack of adequate staffing has made for an unnecessary stress on providers working well under their license ceiling.

We need more office space that will allow for TMH to other CBOCS. We need more administrative support for therapist. Currently there is not a delay in care because staff see patients in their administrative time. The coordinator of PCT uses all of her administrative time for patient care. We do not have the space to add more clinicians
We only have access to 16 hours of Substance Use/PTSD available each week; this is not enough time to take care of all of the Veterans that are presenting for care in PCT. Other clinical staff and the Coordinator are using their administrative time to take care of the request for care. Currently we do not have the space to add more clinicians.
"PCT Clinicians provide all administrative support for themselves. We have 8 hours of administrative support dedicated to PCT. These hours are sometimes used for other departments, attending staff meeting, tracking some data."

"Tele-health clerical staff at one CBOC and LIP''s at multiple CBOC''s - e.g. psychologists, social workers. Organization is already in process of bringing on more LIP clinical staff - e.g. MH staff, especially psychologists, which should help."
Facility in process of bringing additional LIP''s to CBOC''s which should improve this area. Need more available physical space for therapy in CBOC's.

New scheduling system is needed. But our few delay typically stem from administrative processes that we''re working to refine. (Fix already underway.)
Hard-to-fill vacancies for psychiatrists are the challenge; we''re actively recruiting
See previous question.
"Challenge is transfer to other VISN facilities, as we have no RRTP at our site. However, these other sites are short-staffed for providers as well. Administrative processes for intra-facility transfers continue to be challenging"
We''re working to transform "legacy groups" into peer-led (rather than clinician-led) functions.
Scheduling system needs upgrade

staffing resources (LIPs) would be critical (VACO has estimated that we are 10FTEE ''down''. Support staff would also help in streamlining some processes (alllowing to work at top of license

same as comments on prior page

"General outpatient psychiatry medication prescribers or PC MDs are needed to follow PTSD patients on stable treatment regimens. PTSD MDs are overloaded with such cases, making it difficult to meet with more complex cases (e.g., OEF/OIF/OND veterans with acute PTSD, suicidality, aggression related to trauma exposures. Nursing staff could also follow stable patients, freeing up MD, and therapist time for acute needs.
Clerical staff needed to track patient caseloads and manage complex scheduling- the MHTC program has created a level of administrative work for clinicians that does not appear to yield benefits for patient care.
Clinicians are burned out, but must spend large amounts of time on administrative matters. Good administrative support is needed."
Comments for preceeding question apply here
"Space is unavailable for FT providers in MH and in PCMH. There is a general lack of interest in telemental health in the patient population who can travel easily to the medical center. Need for MH support personnel - NP, nurses, admin to manage MD and therapist case load. Evidence-based treatment is available. Older veterans prefer supportive counseling and some state they are entitled to frequent appointments; younger veterans often requuire crisis-management and case management (e.g., housing, safety planning, legal services, employement and educational services) before evidence based treatment can be initiated."
"Evidence-based treatment for PTSD treatment is always available. Older veterans with PTSD prefer supportive counseling and some state they are entitled to frequent appointments; younger veterans often requuire crisis-management and case management (e.g., housing, safety planning, legal services, employement and educational services) before evidence based treatment for PTSD can be initiated."
"No shows are a frequent occurrence and the clinic utilization system is outdated and does not adequately capture a clinician''s workload. The scheduling system is inflexible. The multiple required outreaches for people who consistently no show for appointments could be conducted by admin or bachelor''s level clinical staff, but there is no staffing available for this. Space is unavailable. Training is time consuming, but this is something that providers enjoy doing."

Va needs to provide streamlined access to off-the-shelf psychological testing products and these need to be integrated with CPRS. Right now the security and privacy concerns VA has with computerized testing systems are preventing the utilization of products widely in use in the private sector. This grossly attenuates the utility of testing in the clinical environment of care. This is especially important as we are trying to be accountable for providing evidence based therapies and measurement based care for Veterans.
"It is critically important to provide support staff for clinical care. This goes beyond scheduling to include key supports like care management, communication with patients, follow-up care, etc. we also need to promote an embedded leader in every team...too often in VA teams are accountable to a leader who is completely absent from the environment of care."
Need more MH specific leadership embedded in the teams
"Need a new and functional scheduling package that interacts with other key,critical data such as provider leave,
And that is adaptable to the complexity of mental health"
"There is no space for groups, even individual offices appear to be impossible to get. Uncertainty and variability in the care environment creates problems in Veteran treTment. Unavailability of group spaces leads us to be less productive and offer far less access than we could otherwise. Also, insufficient numbers of support staff are a challenge"

Need a streamlined and simplified scheduling system

psychologists specifically trained in evidence based trauma-related treatments and psychiatrists

"Extend funding period for access to care positiong for mental health programs. One year funding limited local facilities from fully implementing new positions.
Dedicated funding for medical providers to support RRTP screening requirements."
"Equalizing locality pay between the [location redacted] and [location redacted] campus, clinical staff workinig on the [location redacted] campus are paid a lower locality rate despite a high percentage comuting from the [location redacted]area. This causes a higher turnoever rate and difficulty in recruitment."
"Extend access to care fudning for mental health positions, one year funding period limited local facilites from implementing all new positions.
Increase locality pay for [location redacted] based clinicians as lower locality rate negatively impacts retention and recruitment of specialty PTSD providers (PCT located in [location redacted])."
"A large volume of administartive demands coming in the form of site visits, action items, auditing tools and other tasks that are a duplication and not directly linked to patient care take critical time away from providers."

Antiquated scheduling system; high turnover of administrative staff and delays in filling vacancies.

"The scheduling s ystem is often down, is not controlled by clinicians directly, and is difficult to manage. Administrative support (e.g., clerical) is lacking due to understaffing."
"Need more personnel (e.g., staff to triage emergent patients, prescribers, therapists, support staff). The new SAIL metric measuring patients who have had a diagnosis of PTSD and requires two sessions in the specialty clinic will reduce access to EBT for patients who are interested and motivated."
"The current scheduling system creates errors in displaying availability, double bookings, and timely scheduling (as it often crashes) which restricts access. The SAIL metric, which focuses on providing treatment rather than offering treatment, may block access to full, EBT participation in the absence of more staff."
Please see prior comments; all still apply.

The area impacting this issue the most is the limited number of prescribing providers.
"Limited providers in the outpatient clinic has resulted in large panel sizes for providers that limits frequency of sessions. Further, new ideas for groups are often not able to be developed given limited group room space."
"While there are several providers who are certified to offer EBPs for PTSD, large panel sizes due to limited providers has resulted in difficulty offering sessions on a weekly or bi-weekly basis. For many, they are simply unable to offer these treatments with any regularity given lack of staff in the clinic."
"Policy states there must be three attempts to contact veterans following a no-show. This often takes place via phone or mailed letter and can be time consuming. Further, there is no clear policy regarding procedures/guidelines in situations in which a veteran has a pattern of not showing to appointments or canceling without sufficient notice."

Patient flow from PTSD programs needs to be encouraged; tele health technology is a viable way to improve access in underserved areas.

need psychiatrists and therapists

therapists
"changes in scheduling had a big impact negatively both for veterans and staff .
not enough clerical staff to facilitate program management data collection"

"less barriers in making changes overall (e.g., hiring process, clinic profiles, scheduling). Each barrier lends to increased time to make effective change, thus decreasing clinic time available"

"Our delays are relatively modest in terms of % of Vets effected. However, they are tied to staffing in outpatient mental health services, particularly LIP''s."
"As we noted earlier, our delays are relatively modest (2-3% face delays of 30+ days). However, they are tied to staffing in outpatient mental health services, particularly LIP's"
"We have a flow work group that has been addressing these issues for several years, but there is always room to improve."

Space is the number one issue. Second issue staffing timely by Human Resources. Third is less mandates from central office and need more autonomy at service level.
"Space, autonomy service level, Timely and efficient help from human resources for recruitment, less mandates from central office"
"Space, Human Resources support for timely recruitment, autonomy at service level and less mandates from central office"
"Initiative, policies are quite cumbersome and time consuming"

Dedicated BHS clerical staff needed. More therapists and psychiatrists needed. Updated scheduling system needed to facilitate ease of scheduling multiple appointments in a row as required by EBPs.
Increase BHS dedicated clerical staff as well as update scheduling system so that scheduling is not so burdensome in terms of time. Allow providers to schedule their own appointments.
Increase number of therapists and psychiatrists as well as BHS dedicated clerical staff. Update scheduling system so that scheduling is not so burdensome in terms of time. Allow providers to schedule their own appointments.

TRANSPORTATION AT TIMES CAN BE DIFFICULT
Increase PCMHI in OPC with a certain volumn
Ability to recruite non-citizens
"Evening and weekend directive is too prescriptive, the medical centers need to be able to have flexability to meet the needs of the Veterans they treat."

recruitment and retention bonuses and flexible tours/telework etc for greater staff satisfaction
flexible tours/telework. Recruitment and relocation incentives
recruitment/relocation incentives. Flexible tours and telework options

Increase space for providers and increase psychologists and psychiatrists. Also allow these providers to schedule their Veterans to ensure they are put in the system and on correct day and time.
Increase number of psychologists which will require an increase in space. Allow them the option to schedule their own Veterans to ensure correct day and time.
Ensure telehealth equipment is available and there is enough support staff to arrange the sessions and manage paperwork.
Increase psychiatry and nursing staff which will lead to an increase in office space.
Increase all staff in residential programs to increase bed space. At times the wait is 4 to 6 months.

There are a large number of reminders to complete and need to go into more than one system MH Suite and CPRS.

Ability to hire additional staff efficiently is critical. Current HR processes for onboarding and offering incentives are inefficient and untimely. Space for additional staff is critical. Ability to recruit to rural and remote locations (where the community is also lacking resources) needs to be incentivized in VHA. Space and staffing are critical. In smaller health care systems the loss of 1-2 providers in a team results in delays due to lack of ability to cover their caseloads and slowness in the recruitment/hiring process. The current scheduling package is also arcaic and makes it difficult to overlay multiple clinics and schedule correctly.
There is significant need for a user friendly scheduling package.

More technicians on the patient side for telehealth.
"1) Will likely need more clinical social workers and psychologists to keep up with the psychotherapy demand.
2) As clinical staff increase, a proportional increase in support staff is needed.
3) SAIL measures create unnecessary burden by prescribing the number of psychotherapy sessions within artificial time frames.
4) Implementation of DRAGON dictation software would help with documentation of care."
"1) Will likely need more clinical social workers and psychologists to keep up with the psychotherapy demand.
2) As clinical staff increase, a proportional increase in support staff is needed.
3) SAIL measures create unnecessary burden by prescribing the number of psychotherapy sessions within artificial time frames.
4) Implementation of DRAGON dictation software would help with documentation of care."
Staff are slowed down by excessive clinical reminders and inefficient Treatment Plan Suite software.

"LIPs - need competitive salaries for LIPs. Need to be able to hire them in a timely fashion. Need an up to date EHR, not one that is an antique. Need streamlined policies that are collaborative vertically and horizontally."
"Need better more competitive salaries for providers.
Need an EHR that is modern, integrated, and has better scheduling functionality. The "AR"" unsigned notes, and several other problems would simply go away.
Policies really need to be made with better vertical as well as horizontal transmission for optimal understanding of local impact.
Regarding personnel supervision and management: We need to be able to FIRE people who cannot or do not do their jobs. Right now that is nearly impossible."
"See previous reply - same here, with the addition that we do need more after hours capability in the cbocs."
same as previous
same as previous

"Need additional therapists/clinicians (current openings in program); improvements in information technology to assist in looking at openings across a team (not just an individual) and to better gauge openings for EBPs for PTSD (i.e., weekly therapy slots for a provider); personnel/management: clinicians and staff are supervised by individuals not on team at this time, and this at times results in inefficiencies and complications in the process, and there are minimal incentives for the staff how are demonstrating efficiency"

"telemental health is widely used for PTSD assessment, however, the scheduling of providers to match room availability in the CBOC can be challenging; TMH to home could be suggested after the evaluation, but clinically we prefer to assess first within a clinic; there are numerous people involved in the process; the TMH lead is readily available and helpful but remains a more time-involved activity to arrange these assessments and coordinate with the local supports on the patient's end"

"telehealth has been an option to increase service delivery for those clinics with gaps; however, room is needed in both locations; telehealth coordinator has been very available and helpful, but a centralized scheduling strategy to streamline these efforts would be helpful"

"CBOCs are offering evening and weekend hours, but need additional staffing that can work weekly in evenings to permit delivery of EBPs in evenings); CBOC providers also need to cover numerous functions, like PC-MHI in CBOCs based upon central policies; they seem to be divided into too many essesntial and mandatory roles that little time can be left for EBPs"

long waits within the VISN for PTSD beds at several locations; it would be beneficial for more TMH to be utilized for assessments and intakes for programs

"most important issues (order of importance) are
1, HR to increase efficiency of hiring process
2. need to recruit more LIP
3. VA to provide better IT support to build clinics and manage work load"
"1. improve efficiency of HR hiring
2. increase LIPs
3. better techinical and administarative support"
"1. increase speed of HR hiring
2. increase number of LIPs
3. increase administarative and technical support"
"1, increase speed of HR hiring
2. increae number of LIP
3. increase admin and tech support
4. increase salary for physician so VA can be more competitive"
"1. increase speed of HR hiring
2. increase salary for physician
3. increase number of LIPs
increse admin and tech support from VACO"
"1. increase speed of HR hiring
2. increase number of LIPs trained in EBP
3. VACO to help in tracking EBP outcomes"
VACO should be more cooperative and direct in assisting each medical center and write clear policies. Most policies are vague and cause confusion between MCDs and Chiefs

Working to increase the availability of services
Working to increase the availability of services
Working to increase the availability of services
Working to increase the availability of services

"--We need to be able to hire and retain talented clinicians, such as psychiatrists, psychologists, social workers, and nurse case managers with a background in psychiatric care.
--We need the support staff to be able to do less administrative tasks as c"

"--We need to be able to hire and retain talented and trained clinicians. With the disparity in pay between professions (i.e., social work and psychology) that are providing the same trained services (i.e., evidence-based treatments for PTSD), we are seein"

"--Our CBOCs need additional staff in the form of psychiatrists, nurse case managers, psychologists and social workers. However, with space being an issue, the amount of additional staff provided would need to come along with the addition of space.
--Tel"

"with the volumes of Veterans needing services, outpatient mental health needs to be able to hire and retain psychiatrists and/or nurse practitioners to meet the demands for medication management. additional clinical pharmacists would be helpful in reviewing medications for interactions and educating Our Veterans about how to take their medications. nurse case managers would be helpful in assisting to follow up with Veterans in between appointments."

"Adding personnel to the CBOCs is critically important, but space is an issue in that additional space is needed to house any new staff. Increasing the use of telemental health services in critical both for pharmacological interventions as well as therapeutic interventions. However, there needs to be adequate space and technology available to make this happen."

"Space has been a constant worry over the last 15 years. Our facility was built as a hospital and much of the space has been jury rigged to work as outpatient offices. The speed at which space is fully remodeled and repurposed does not keep up with the hiring of staff and expansion of services. We have new ""watched staff"" coming on board with no offices for them to land in, no furniture as of yet as well as other resources. I truly believe the problems don"

"The biggest single challenge for our PTSD care providers has been that the volume of patients seeking care has increased over time and we have needed to grow our clinic which we did with recent access staffing hiring initiative.
   The evidenced based psychotherapies are a tough sell with the veterans as whole. It is not easy to get them engaged in a therapy process that requires more active participation - but this is true in the civilian sector as well. I think the national expectations for the adoption of these therapies and their clinical penetration was unrealistically hopeful."

"CBOC's are contracted space and over time our clinics have become landlocked with no space to grow into.
  Hiring in some of the rural areas has been difficult. The recent pay band changes for Psychiatry have helped and without this we would have even more openings. We may not pay more than the community but at least we are closer to being competitive. Students loan repayment has also been effective in recruiting for some positions. These are welcome additions."

"The hiring of prescribers in more rural areas has benefited from recent pay band changes but there is a nationwide shortage of Psychiatrists. I think advertising loan repayment options in a more obvious way would help - right now they are there but a bit of secret.
   Space and office equipment are challenges that vary over time."

Again staffing in rural areas can be difficult. We seem to be able to find qualified PHD and MSW therapists. Hiring practices are clunky and we could use some support and flexibility with regards to the behind the scenes work that must occur to hire someone.

"All mental health staff have to work together at improving scheduling and access. MH is not staffed nor is it''s space ready to adopt a PACT like model and so more of the day to day task fall onto the clinicians to perform or manage. In tour MH clinic the prescribers do the bulk of the reminders but for our primary care teams the MA's and RN''s do the bulk of the clinical reminders.
  The mental health treatment planning software has added little in the way of value added. Why must we use this if we are the only MH provider seeing a given veteran? Does a team of one need to write

themselves a treatment plan to follow - this is a time waster and feedback on national calls seems overwhelming negative and yet we persist with it."

"Need more beds space (funding) to increase patient flow. Also, will need additional nursing and clerk staff. Also, retaining qualified employees is VERY challenging. Need incentives that are attainable and renewable."

Increase clinical staffing in CBOCs to meet workload demand
Increase CBOC clinical and support staff and office space to suppor them
Increase clinical and support staff in CBOCS and provide the space necessary for increased staffing

"The incredible length of time it takes to hire psychology staff is absolutely an impediment to having services available. Also, staff who are "maxed" out on the GS scale often lack the incentive to be anything other than ordinary in their work performance---needs to change!!"
make the hiring process quicker!!
mandate that providers must be trained in EBT's
"our time is constantly bombarded with e-mails, trainings, surveys,meetings etc."

"PTSD IS a PRIMARY reason MH services in VA exist---yet we are funding more and more general care. Soldiers from OEF-OIF are becoming Veterans, with PTSD as one of their signature injuries, but PTSD programs not gaining staff. The idea apparently is that patients will do BRIEF work in PTSD, then transfer to general care---but most traumatized vets have great difficulty trusting, and transfers of care are problematic.
 scheduling system is a dinosaur (VISTA)
We are CONSTANTLY being pulled away to deal with mandates and measures. The paperwork requirements are overwhelming.
More performance incentives for THERAPISTS (GS 11-13 Psychologists and GS11 SW), not just for Psychiatrists. More ability to promote, and based on merit, not longevity
Fee basis care is expensive and a logistical nightmare, as is the CHOICE act.
Stop throwing quick solutions at the VA without talking to clinicians rather than adminstrators at a high level only."
We need more psychiatrists AND we need HR to make hiring easier and take off restrictions on who we can hire.
"We need more therapists/clinicians in PTSD--primarily either psychologists with real training in EBP's, or experienced social workers"

"Need more providers, particularly psychologists. Need additional space in the CBOCs for tele-mental health. Need more bandwidth."
"As before, space, tele-MH providers, particularly psychologists, more bandwidth."
"Need more space in CBOCs, more providers, more bandwidth. Many community providers don't have the skills needed to treat military related PTSD."
"Same answer, more space in CBOCs, more providers doing tele-MH, more bandwidth."
"Same answer, more space in CBOCs, more providers, more bandwidth."
Mental Health Suite Treatment Planning is cumbersome and doesn't integrate with CPRS well.

"The community lacks the quality of care that the VA demands of us and using FEE or community to service our Vets also makes it difficult to coordinate care. It requires a whole new level of managers to make sure the patients don''t get lost and the quality they are receiving in the community are up to

standards. VA Handbook 1160 is very proscriptive in must do'' for our providers/patients with unreasonable demands given staffing. It requires that Psychiatrists become Case Managers for their patients using Behavioral Health guides (stronger than normal JC guides for mental health). This requires teams with case manager in the team to actually do a "recovery based"" treatment plan. The documentation requirements and paternalistic rules for managing patients are so overwhelming that it over tasks the providers and causes huge morale issues. In addition we have been begging for space for the past 5 years and are yet to see any movement on this. The biggest reason I am told is the Contracting and in this Town where there is a big military presence we have to compete with all the other federal agencies when we need any thing done that involves a contract. We lost a mental health building because it took two years for contracting to offer the owner a bid and then the property had appreciated so much in that time that the owner laughed and turned it down. We find that patients generally do not want late appointments, some will use Saturday but many of the young who have families do not want either. So these clinics are not well utilized. I do not have enough providers to cover both weekends, evenings and day time clinics, as this requires extra support staff and give I also have to cover call this is another morale downer for providers. Central Office now realizes that MH teams need to be exactly that , teams, so we can do all the things the Handbook requires but this also requires hiring more administrative staff and nursing. We have a long way to go to get staffed up to the recommended BHIP size and in addition pair down the recommended panel size per BHIP. This would enable us to better" "Case Manage"; our patients but we cannot do it if I don''t have space in which to place the teams. Finally HR rules are onerous and outdated and interfere with getting well qualified applicants hired timely. The process requires to much level of oversight by the head of HR because of common mistakes made by the HR representatives. In all my years of trying to understand the inefficiencies of HR the only thing I can surmise is that you must have to have a PhD in human resources at the very basic level of helping a service get providers on board because despite all the training they have had the rules keep changing like a moving target so paper work keeps getting returned and in the mean time the provider we are trying to hire takes a job elsewhere and we have to start all over again." Please see my previous comments they apply here as well.

"My comments remain true for every aspect of care. I do want to add that for substance abuse services I need a more beds to be available and a large facility so we can do a better job of offering Intensive Outpatient Services. Currently we are managing but we had to build extra office space on the porches of the existing building. [potentially identifiable comment redacted]

I want to emphasize that the community cannot even take care of the community at large so to use the community to manage our patients is not an option. Also most of the community lacks the skills of evidenced based therapies and hence cannot help our veterans with the same quality that we have trained up to do.

In order to case manage our patients I need more administrative and nursing support."

Please see previous comments.

"Please see previous comments. I would like to add that additional personnel needed are substance abuse counselors and Addictions Psychiatry, especially if Extended Hours, I am currently not adequately manned for extended hours as I do not have enough personnel to offer this service and keep operational during normal duty hours too Immediate (same day) appointments are expected and difficult to accomplish also secondary to manning, but I need space if I am to grow in manning. I do believe that same day appointments are essential in this population because you have to catch them when they are ready. Secondary to the lack of space (see previous comments about our Domiciliary, our outpatient program shares the building) we are at critical mass for being able to expand and offer good coverage of services to this population."

"The mandated use of Mental Health Suite for treatment plans has only added a layer of unnecessary, inefficient, not patient centered and useless paperwork for both the patient and the provider. It

consumes time and does not lend itself to producing a plan that is recovery based or easy to read and understand when printed. It needs to be scratched and un-mandated. We are now starting to use the ”standardized““ templates for EBTs, but I have heard they are in need of ““tweaking““ but this is a welcome over the MHS. Again because of the expectation of case management I need more nurses and lower level (SW or LPCs) to help with coordination of care issues."

"Mental health staffing and space is the biggest issue. The VACO office of mental health operations has outlined staffing models but our facility cannot meet demand and we are not staffed properly. In addition, we are unable to compete for certain disciplines - nurse practitioners in particular-with the local metro market and even the VISN. We have had recruits decline due to pay. Our psychiatrists are at least 20K under the metro. My last three hires -including two from other VAs [location redacted] are taking a paycut to come here -coming for other reasons (spouse job, etc). Equipment needs for MH are related to telehealth infrastructure. VISN [location redacted] is huge geographically - our ability to provide high qulaity care to our rural vets depends on improved infraastructure including expanding innovative modalities - CVT into the home. The inability to lease space, the time it takes for new buildings to get approved for construction,etc are untenable in a 1a facility with a 8% growth rate for the past few years. We have already outgrown some of our blueprints that have yet to be built. Recently VACO OMHO did change access measure for MH to 30 days which is better. Would revisit critically all metrics and compare to what other MH care systems (non-VA) are doing. Staffing models seem to neglect the importance of administrative staff, -MSAs/PSAs, data analysts, etc. The regular occurence of downgrading positions and not classifying positions for folks based on their own expertise and experience also negatively impacts recruitment and retention. the process for fee-basis and contracted care is very cumbersome and not easy to navigate. HR and MPS services are understaffed and take too long to onboard staff -we have lost recruits as a result."

previous comments secction addresses most concerns. VACO OMHO expectations for evidence based psychotherapies (EBP) - metrics are too idealistic and difficult to achieve in a high growth 1a facility. In order to have robust programming of EBPs you need to have adequate staffing models of psychologists and SWs (we do not meet the BHIP staffing model requirements) - our focus is on access -again with the disproportionate growth in unique Veterans vs growth in staffing - making the frequency requirements of these EBPS (X #of sessions in Y #of weeks) difficult. One comment on telehealth capacity within the Portland CBOCs - there is no space-multiple tele services competing for in most places a single tele room. Services that have telehealth as a core mission must have dedicated space in CBOCs. Clinicians are doing admin work -not at top of their license due to shortage of admin staff

evening and weekend clinics would be wonderful but we cannot realistically contemplate here in Portland without staffing increases.

same as previous comments.

with not being able to provide market pay - the education mission is often what appeals to our applicants and why we are able to get high quality staff. THe requirements for three contacts post no-show for all Veterans is burdensome and is in direct conflict with the conceptual model of recovery and ownership of one's own care. Would like to actually see evidence based support for that required policy. This is also not the community standard. Does make sense for oflks with a high risk suicide flag.

Re-designing MH services delivery in alignment with current provider scarcity realities and evidence based medical interventions.

Staff all RRTP beds in the VISN. Make admission process more transparent and efficient. Consider using TeleHealth to screen Veterans

"The number of Veterans seeking services have outgrown the clinical admin infrastructure. No issues with clinical staffing, but most service lines are thin in terms of AO, MSA support. Too many requests coming from VACO for data that require considerable time to collect."

"We are in critical need of additional staff to provide services. Particularly, med providers including psychiatry services. We also need improvement in our electronic medical record. It is difficult to use." Increase the number of providers available to improve veteran care. We do not have enough psychiatrists or other med providers. We also need increased levels of therapist and admin staff.

Some VACO policies make things worse. The MHTC policy has created a tremendous amount of work for clinicians with little to no gain in patient care.
We do not have enough PTSD staff to meet the needs. We need additional clerical support. Some VACO policies (i.e. MHTC) take time away from critical patient care.
CBOC staffing is inadequate for the patient needs.
General mental health does not have enough clinicians to provide psychotherapy; they essentially function as case managers.
"CBOCs do not have enough staff to meet the needs, and also have space issues."
"We do not have enough staff, nor do we have enough space."
"Clinicians spend far too much time on nonclinical duties. We have a ridiculous amount of irrelevant TMS trainings, for instance."

Allow managers to hold employees more accountable and terminate employees who are repeatedly performing poorly. The union interferes with this and perpetuates the problem.

"We need:
- Pharmacists, technicians, psychologists, clerks, SW and supervisors.
-Infrastructure to track Non VA cases at the clinical level."
"We need more technical support and adequate staff to assist the clinician in the scheduling, care management, evaluation of the Veterans in need of the service."
CBOCs lack the staff and supervision to implement our mandates and provide same level of care.

"We are having to pull clinicians away from clinical care to keep up with the growing amount of time devoted to complete administrative requirements, training, completion of reports,etc. The effeciency of providing care is being greatly reduced."

"licensed independent practitioners: psychology, psychiatry, and social work; need more administrative support staff especially at clerk level; IT: scheduling package should allow us to view a single provider's availability at a given time regardless of stop code/ clinic number - an Outlook-type schedule would be helpful; we need to improve the way we deploy all of the staff with an emphasis on providing same day access for new patients, not just patients already enrolled - requires cooperation across all disciplines; some other solutions: creating greater availability of same day access particularly for new patients by making more efficient use of resources, including same-day weekend and evening access"
Need additional psychologists/social workers in PTSD Clinic.
increase number of psychologists and social workers in PTSD Clinic; assign psychiatrists to PTSD Clinic

general mental health is in need of additional LIPs in order to be able to offer weekly or every other week therapy (in order to prepare for or augment PTSD specific treatment) for veterans on a consistent basis. This would also require additional space as our system currently has some MH providers without

a full time dedicated space. We are also in need of additional program support assistants to support the number of clinicians and programs in our system.
All LIPs sharing case management duties rather than consideration of dedicated case managers in system.

"Need new scheduling package
Need to be able to pay and otherwise provide incentives to providers with less restrictions"

"Some CBOC''s are short staffed on both psychiatrists and therapists. This impacts access to care, especially therapists trained in evidence based practices for PTSD. More evening hours for telehealth and couples based treatments are needed at several locations"
See question 2 comments
See answer to queston 2

"We are having difficulty recruiting clinical staff in CBOC''s in rural areas. MD''s, psychologists and LCSW."
Difficulty recruiting med providers
retention-recruitment incentives would help with this.
Increase space for CBOC for groups and for access to Vtel for each provider.

"VISTA scheduling package was designed more than 30 years ago. Creates numerous problems with convenience, access, efficiency, and Veteran satisfaction.
We lead the nation in the use of telemental health and need to expand it further. Is a great thing--rarely done well in the private sector.
Would be helpful for efficiency to have additional TCTs for our clinicians doing telemental health"
Marked N/A for ""fee-basis" question as we only very rarely need to do utilize fee-basis for clinical care
Are hiring new staff and anticipate resolution of minor delays in pharmacotherapy appts for established patients within the next few months.
"See response for previous comments section,
Would also be helpful to have additional CBOC TCTs"

need additional subspeciality licensed independent providers.

"3 psychologists, one nurse practitioner, one nurse supervisor, one clerk"
"two RN, three psychologists, one MD, one NP, one LVN"
"two RN, three psychologists, one MD, one NP, one LVN"
"5 psychologists, one social worker, 1 clerk"
"3 psychologists, one clerk"
"3 psychologists, one clerk"

Limited space beds for inpatient or residential PTSD. Some veterans choose to wait for Northport PTSB bed rather than going to another facility for the program. They are followed by MH.
Could always use more therapists to conduct individual psychotherapy. Have evening and weekend hours currwntly.

Increase efficiency of the consult process

Increase EDRP money available to stations. We cannot offer without money. Need more telehealth equipment and space for providers.

"Provider space, EMS equipment, CPRS training, local PRRTP program"
"Need more provider space; focus on clinical care not political care; eliminate government roadblocks and bureaucracy, eliminate irrelevant and unsuccessful measures unrelated to providing good clinical care, revamp phone and scheduling programs"
See previous comments
"Provide MH-RRTPs locally for each medical center, sending Veterans long distances does not support reintegration and recovery into their local environment, family, friends and/or community"

"More IT support and updated PC''s and printers
Too much time away from clinical work with too many traininjg requirements and burden of the amount of clinical reminders.
Higher grade and pay for secretaries for more effecient and more capable suppoirt staff."
"More IT support and updated PC''s and printers

"Ineffecient secretarial staff.
Burden of surveys, reviews, reminders, training."
'

Changing performace based measures to assess patient outcomes. Majority of focus is on access to care but not quality or evaluating effectivness of interventions. Policies to support the delivery of evidence based treatments over supportive care/case management. Providing incentives to providers who routinely implement and provide evidence based treatments.

"Most of the delays in Veterans receiving services are in general mental health, not in the specialty clinics (like, PCT, MST, PRRC, etc.). Access to speciality clinics is great. I think that Salisbury has been slow to implement BHIP teams, and this is just starting now, which will help access in general mental health. Also, our leadership in mental health is not very supportive or respectful of its staff, so staff morale can be low, which inevitably affects patient care, timeliness, etc."

We are out of space and we need to add additional providers to meet the need. We have a large volume of referrals to contracted providers (about 20%) but many Vets insist on being seen at the VA.

Improve amount of TMH and greater case management and administrative support.
Adding personnel at CBOCs is critical.
Use of consults has added significantly to the administrative burden.

[Location redacted] has submitted expansion plan to VACO for additional Residential Rehabilitation Treatment Program beds (2015)

"addition of case manager/nursing personnel to help coordinate care, complete clinical reminders and administer symptom rating scales would be beneficial, have adequate number of LIP positions but several vacancies and filing vacant positions is a lengthy process. addition of TMH services would help access and requires equipment, staff and space"
"Not enough TMH access at busiest CBOC-adding service requires space, staff and equipment"
"Program has adequate positions approved but several open vacancies and lengthy process to fill, having case management/nursing staff to help with care coordination and paperwork would be helpful,

expanding TMH would require new equipment as well as staff at the remote site and program being fully staffed with providers trained in EBTs"

"increased availability of TMH services at CBOC would decrease delays in service, increasing TMH requires equipment, space and staff at both locations- fully staffed with providers trained in EBTs in order to provide services"

"increased availability of TMH services at busiest CBOCs requires space, equipment and support staff to make service run smoothly at remote location and requires PTSD program being fully staffed, being able to refer those out who can not be served in a timely manner is essential"

"increased access through greater availability of TMH especially at heavily utilized CBOCs, offering extended wkends and evening hours, fully staff and addition of staff to support LIPs, ability to refer to community providers when necessary"

"LIPs spend time making no show phone calls, entering symptom rating scales that could be done by staff with less training, we have good administrative support but when that person is out often have no coverage, patients call central scheduling to cancel but clinic is not notified, computer often is slow impacting workflow"

"- need for additional psychologists and prescribers (psychiatrists and/or NPs), as well as nursing support - antiquated VISTA scheduling system and clinic grids do not allow for sufficient flexibility in scheduling to better meet veteran needs"

"A major impediment to utilizing more telehealth for provision of psychopharmacology is difficulty accessing telehealth clinic slots at the CBOCs. To some extent this is due to limited space (only a single telehealth room to be used for all specialties across the Atlanta VAMC system and limited coverage with TCTs if on leave). Bigger issue is related to scheduling. It would be very helpful to have an active calendar that demonstrates all clinic slots available for telehealth so that any available slot can be booked if it matches the psychiatrist and patient schedule. Currently, different programs typically have specifically assigned slots (i.e. Thursday from 2-3 pm) that may not match pt scheduling needs and therefore may be going unutilized but could be used to provide clinical care for other services who might be able to utilize that slot. In addition, telehealth requires separate clinics in CPRS, which does not allow for psychiatrists to flexibly utilize any clinic slot they have available to see a telehealth patient, but again locks them into more''rigid'' slots that may not meet patient needs or CBOC telehealth availability."

"Very similar issues to previous question. One of the main issues impeding provision of these services by telehealth is availability of accessing telehealth clinic slots at the CBOC. To some extent, this is related to limited space (one single room utilized for all telehealth services provided by the Atlanta VA system) or limited personnel (providing backup for TCTs when on leave or pending hiring/backfill). Bigger issues relate to lack of flexibility in scheduling. Rather than having a ''real time'' calendar that demonstrates all clinic slots available for booking, in general there are specific slots assigned to a given program (i.e. Thursdays from 2-3 pm). If that slot does not work for the patient(s) then it may go un-utilized, whereas other services may be able to utilize that slot. Similarly, the requirement for separate telehealth clinics locks therapists into specific clinic slots for provision of telehealth (which may or may not meet patient needs) rather than allowing them to flexibly utilize any of their clinic slots to see patients via telehealth."

"There is not a PTSD RRTP associated with the [location redacted] VAMC despite a very large population of veterans diagnosed with PTSD and a large Trauma Recovery Program with clinicians with significant expertise in the treatment of PTSD. The primary barriers are physical and staffing - building space and residence space are needed to create a PTSD RRTP associated with the [location redacted] VAMC and staff are needed to provide care (psychiatry, psychology, social work, nursing, peer support, residence

staff) during days, evenings and weekends. Currently, veterans often need to wait for extended periods of time to be accepted into and enrolled in PTSD RRTPs outside the VISN."

"1) No show rates are at approximately 15%. As no show reminder calls are not made in a sufficiently reliable manner, we are beginning a pilot of ''robo calls'' to provide reminders

2) due to limited administrative support, much clinician time is devoted to consult management, data tracking (i.e. treatment plan completion, medical record review, etc.), and scheduling outreach."

- **SUD**

"Space needs include additional access to group spaces at main campus, and space for individual and group sessions at all CBOC"

Space is a critical need at all CBOC

"Similar responses to previous questions. Group space is important for ability to do additional group therapies, as are additional substance abuse counselors (more than one dedicated outpatient counselor for facility and CBOC''s). Adding additional supervisors and/or management ""bandwidth" would be helpful, as would fee basis. Evening hours helpful only if additional staff."

Simply need additional psychiatrists; numbers are critically low with two suboxone-qualified outpatient psychiatrists on deployment or indefinite leave.

Need more psychiatric providers. Additional education and support for prescribing in this area from general psychiatric providers could be useful as well.

"Need more psychiatrists. In addition to vacancies, currently two outpatient suboxone-qualified psychiatrists are away on leave or mobilization."

Same answers for section 1 detailing challenges with outpatient SUD services.

Same comments as section 1 detailing SUD services

"At many CBOC sites, CPRS bandwidth is severely limited and very slow computer responsiveness. If all required activities were actually completed (reminders, treatment plan in MHS by all disciplines, note, encounter, med reconciliation, safety plans and risk assessments), outpatient time on charting per encounter is significant, with most of this done by provider rather than medical assistant. A primary care provider will appropriately have three support staff, a cardiologist or specialist will have a nurse. A psychiatrist is expected to work with a fraction of a nurse and a fraction of a scheduler."

Support SuD Business Plan to have veterans seen on more odd tours of duty and SUD focuse teams for weekend clinics duty.Expand MAT TX in CBOC s.

Community Fee-Base programs feels that VAs are not paying enough vs medicaid rates.

Veterans wanting the improvement to occur in VA and not contracted to some programs that have poor enviorment for recovery.

Continue to improve SUD Quality of care.

"1. Technology: telehealth from home would improve pt access and outcomes but VA would need to supply ipad and needed equipment. Standardized biofeedback equipment such as apps and finder monitors which are used on personal cell phones be funded and made available to veterans for mood regulation.

2. CO policies: maintain centralized SUD services for uniformity; establish earmarked funds for SUD rather than fund through general mental health dollars; continue trend to monitor by effective, outcome-based bench-marking.

3. Personnel: recommend all BHIP teams have designated SUD specialist for identifying SUD issues, provide Brief Intervention, case management. Recommend the acute phase of treatment each SUD sub-speciality have MD specializing in addictions, a nurse practitioner, social worker or psychologist, addiction therapist, and peer support, Specify staffing models for different levels of care based on ASAM criteria to include designated staffing for ancillary/support services such as gym, recreation therapy, occupational therapy, vocational rehab. Ancillary services are critical to reconditional the limbic system/ leisure time activity and reduce relapse risks. Such changes provide uniformity and consistency among all VHA.

4. Recommend all sites have ability to use dip sticks for immeidate/ on-site urine drug screens"

"VHA standardized bed board and intrafacility consult process for referrals outlining best practice for points of contacts and referral authoriztion to reduce bottle neck when sending to another facility. Also, travel pay guidleines needed so monies are available to transport veterann to and from out of catchment area facility"

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4. Recommend all sites have ability to use dip sticks for immeidate/ on-site urine drug screens

5. More clinicians with certifications in SUD. Currently, SUD certifications are not reimbursed and pay scales to not reflect if paid out-of-pocket by provider. Addiction therapsits need to be Level I and Level II independent providers within the VHA system to practice their full capability and reduce clinical supervision requirements."

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2. CO policies: maintain centralized SUD services for uniformity; establish earmarked funds for SUD rather than fund through general mental health dollars; continue trend to monitor by effective, outcome-based bench-marking."

"Frontline clinical prescribers needed with specialty in SUD with devoted labor-mapping to SUD clients solely so emphasis, time/ attention is provided.to this difficult, complex, veteran population"

"See question 3 for suggestions.

1. Personnel: increase SUD specialization/ knowledge through incentivizing SUD certification as associated costs of obtaining SUD certification is not currently reimbursed by VA and does not increase staff pay if such costs are paid out-of-pocket.

2. Also, revised personnel standards/ qualifications to allow for addiction therapists to be AT 1 for entry level and AT 2 for advanced level providing a licensed independent provider status to those with a master''s degree."

Limited physician time limits how many admissions we can schedule. WOuld help if we broadened the time period for completion of admission process for them and allowed for more activities to be done by other providers.

incentives needed to take referrals at other sites when we send them

Preparing copies for group sessions could be done by admin staff.

Would require an added addiction psychiatrist and another nurse practitioner who could do the physical screening so that the person cold be staffed and inducted.

"1. Rules about how quickly veteran services need to be scheduled in the community are not dependent on VA referral agents. Rather, it is dependent on the outside agencies. This puts heavy pressure on VA staff who cannot control the speed in which the No-VA Care agency gets the veteran in for services.

2. VA needs to market and recruit more Non-VA Care agencies in some areas (e.g. Methadone/Suboxone) as there is far more need and not enough services available."

"1. Increase in number of residential beds, especially "dedicated residential beds", would reduce need for Non-VA Care referrals.

2. Increase in residential staff, along with unit nursing staff, to accompany the increase in number of beds, would also reduce need for Non-VA Care referrals.

3. Increase in marketing and recruitment of Non-VA Care agencies that provide residential services in areas that are geographically far from Cleveland, yet fall in our VISN."

"1. Need added office space for new staff (see below).

2. New addiction psychiatrist to see added Suboxone patients.

3. New nurse practitioner to complete necessary physical exams and screen new patients for Suboxone induction."

Work on marketing and recruiting added Non-VA Care agencies that are accredited and can provide Suboxone services to veterans in more geographically remote areas.

"1. Need added office space for new staff (see below).

2. New addiction psychiatrist to see added Methadone patients.

3. New nurse practitioner to complete necessary physical exams and screen new patients for Methadone induction."

"1. Increase number of residential beds.

2. Increase number of Dedicated SUD Beds

3. Increase number of Providers and Clinical Staff

4. Increase number of nursing staff on the unit"

"1. Add more residential beds

2. Add more dedicated beds for addiction (e.g. SUD) treatment

3. Hire more Providers and Clinical Staff

4. Hire more nursing staff to run the new/expanded unit"

"1. Add more residential beds

2. Add more dedicated beds for addiction (e.g. SUD) treatment

3. Hire more Providers and Clinical Staff

4. Hire more nursing staff to run the new/expanded unit"

"1. Clinical staff do perform a lot of administrative duties - CPRS documentation and other paperwork is cumbersome

2. CPRS problems result in Open Encounters - glitches in system are known but local says national CPRS will not (cannot?) fix them

3. Program did not have enough administrative support for number of months, recently rectified

4. Problems with scheduling, do not preschedule residential appointments due to vets having other appointments - avoid missed opportunities

5. MHTC Coordinator assignments do not make sense for a Specialty MH service"

"Methadone Maintenance not available in the ECHCS aside from fee-basis to community providers. There are 2 vendors in the [location redacted], both with wait times. Individuals who live in more remote areas often cannot travel to clinics daily for dosing, as is required in the early stages of

treatment. Fee-basis approval can be a slow process as there is limited staff to process consults and limited programs in the community that offer this service"

"There are not currently fee-basis relationships with any treatment providers in the community. Would suggest increasing access to community SUD treatment providers, to include detox services. Currently there are no options to refer veterans to services in the community. Transportation makes it difficult for veterans to attend the level of treatment needed for SUD services. Would like to see Choice Act and/or fee-basis include community providers to allow patients better access to services in their community."

"There is no available VA residential care for SUD in [location redacted]. We must refer to [location redacted] for services. Often there are lengthy application processes and complicated travel arrangements for treatment. There is also not a centralized way to know about waittimes. It would be beneficial to have residential services available in Colorado, be able to reimburse for payment in the community and/or streamline the process for referral/admission for residential programs in other states."

"Alcohol withdrawal is managed by inpatient medicine. There are not currently options for outpatient detox, nor preventative medical detox. Services are only available for individuals who are in acute medical crisis due to withdrawal. Would recommend increasing services for this population, to include reimbursement for community detox facilities."

Opioid Withdrawal Management is not a service provided by ECHCS unless there are complicating medical factors. This is a high request area with little resource to address it. Would recommend increasing availability for this service and/or providing reimbursement for these services to be provided in the community.

"SUD services are not offered in all CBOCs, despite identified needs. Would recommend ensuring all CBOCs offer sufficient services for SUD, or providing reimbursement for community providers in areas where services are not available."

"increasing staffing and room availability would allow for shorter wait times. In addition, more resources in the community would likely increase access to services, esp for people living outside the Denver metro area."

no residential services offered in [location redacted]. Must coordinate with surrounding states.

"increasing staffing and space would allow for expedited access, as would more available community services."

"High rate of no-shows, not enough support staff to make reminder calls. Need additional staffing for urinalysis, breathalyzers, etc. No peer support available."

Limited number of SUD beds for rehab (five beds) leads to gap in time between inpatient care (detox often) and beginning rehabilitation. Need space and funding to increase SUD rehab beds. Need nurses and rehab techs to accomodat patient load.

"Again, bottleneck is seen with small number of SUD beds in rehabilitation program."

need more physician assistant support for assessments

Need SUD residential care which does not require homelessness as part of eligibility.

"decrease ratio of supervisory staff to clinicians in general mental health clinic. Consider adding psychiatrists and allied health staff to SUD program for direct admission capability and team based care within SUD. Increase support for mental health from human resources, particularly in terms of managing employee accountability and hiring."

"1. increase HR speed of hiring
2. increase number of LIPs

3. increase admin and tech support from CO"
"1. increase speed of HR hiring
2. increase # of LIPs
3. increase salaries
4. inform MCD of importance of MH staff and not to hold off hiring in MH becasue of percieved low producitivity"
improve communication to residential facilities.
"train more providers in suboxone
pay suboxone providers more"
improve communication between medical centers and residential facilities
lack of suboxone providers in the community who can take on more patients
increase residential beds and improve communication to residential facilities
lack of beds in residential facilities
lack of beds in residential treatment facilities
"too much admin requirements from VACO, OMHO, VISN and others"

"WE DON''T HAVE A METHADONE CLINIC OR ANY OPIOID SUBSTITUTION CLINIC HERE, NEED TO DEVELOP ONE."
"GIVEN WAIT-TIMES AT ANY AND ALL MHRRTPs, I''D SUGGEST CREATING MORE MHRRTP BEDS NATION WIDE"
ANY QUESTIONS PERTAINING TO DELAYS IN RESIDENTIAL CARE AT THIS FACILITY REVOLVE AROUND HAVING AN INSUFFICIENT NUMBER OF RESIDENTIAL BEDS
"ALOS IN OUR RRTP IS, IN MY ESTIMATION, ENTIRELY TOO LONG"

"Increase psychiatrists, psychologists and SW with SUD training. May need to employ incentives to entice trained and experienced professionals to a rural area. Nurses with specialty training could be very helpful."
"Could use incentives, bring in specialists to CBOCs (psychiatrists, psychologists, social workers, trained in SUD work), there are few fee-based providers in rural areas."
"Hard to get qualified and experienced SUD providers within rural regions, let alone para-professionals able to provide support. Incentives would be helpful but there are few local/fee based providers in rural regions."
Would help to hire professionals by offering incentives and providing support.
Its difficult to comment on local resources in a rural community where there isn''t enough of many resources let alone specialized care for substance withdrawal. Incentives would likely help but they would likely be more than the VA is willing to consider.
"Psychiatrists and support staff would be helpful but also lab equipment that would allow for testing/screening, etc..."
"Psychiatrist/psychologists, social workers, with incentives for moving to a rural area."
"Would cost way too much to build, hire (provide incentive) and support the specialty providers needed for SUD Residential Treatment Program in this rural setting."

"Need new scheduling package
Need to be able to pay and otherwise provide incentives to providers with less restrictions"

"Space, Human Resources support for timely recruitment, autonomy at service level and less mandates from central office"

"Space, Human Resources support for timely recruitment, autonomy at service level and less mandates from central office. Make a policy for MH providers to work from home (telework) if space is issue."
"Space, Human Resources support for timely recruitment, autonomy at service level and less mandates from central office. Approve telework (working from home) for MH providers."

"Hire additional Personnel - psychiatrists, social workers, psychologists, nurses
Improve access within the system rather than improving access to non-VA fee basis or contracted care
Allow trainees to be certified to do telehealth
Patients who decline appointment must have one scheduled when discharged from inpatient which leads to high no show rates and missed opportunities to fill appointments for veterans interested in care"
"Rather than improving referral to non-VA care the best solution to this problem is to improve access within the VA by increasing staff, space, and other support to accomplish this"

Limited suboxone providers in community and on staff at this time.
Provider availability is limited in the community and delays are longer than any delays we have in house.
"We are hiring more MDs who can provide this service, This is the only solution I can see to help improve access to opiate replacement tx."
"Some patients complete detox but they choose to delay entry into residential or opt SUD for variious personal reasons. This may appear like a delay, but it is patient driven."

RRTP requirements change often and take time to implement and track new requirements.

"1. The shortage of office space to see patients at [location redacted] Clinic and [location redacted] is a rate-limiting step in increasing access. There are additional well-qualified clinical trainees who could expand our clinical capacity whom we cannot accept for lack of space. Further, we have no space for any growth in permanent staffing.
2. The parent site and CBOCs will each need an additional MD with buprenorphine waiver to accommodate the expanding demand for office-based buprenorphine treatment.
3. We need additional RN staffing. Currently there is no nursing coverage when our sole outpatient SUD is on SL, AL, or attending meetings or training. Such coverage is essential for providing high quality SUD/MH medical management.
3. Our main use of fee-basis or contracted care is for methadone treatment for opioid dependence. We have tremendous difficulty with these referrals because local providers find the VA payment systems overly cumbersome and slow, such that most will not accept our referrals.
4. There is an acute need for increased physical space and staffing to provide appropriately supervised specimen collection for urine drug testing. The current, inadequately supervised process allows tremendous room for invalid test results.
5. IT: The current "clinic profile"" and scheduling software is overly rigid and restricts flexibility in meeting patient needs. As an attending psychiatrist, it is appropriate for me to see, within the same clinic half-day, both patients enrolled in SUD treatment and those receiving MH care but not active SUD treatment. It should be possible to have a single clinic profile and to designate the stop code (SUD vs. MH) when completing the encounter form rather than limiting any given scheduled clinic to one or the other. This may seem trivial, but it really restricts flexibility in meeting patient needs. It is an example of the over-segmented structure of MH care.
6. We need higher-paid, better-trained and more thoroughly supervised administrative support staff to provide excellent service in as complicated system as ours.

7. The current "matrix management" system is highly problematic. As an SUD program director, I lead a team composed of clinicians from multiple clinical services (psychology, social work, nursing, psychiatry, chaplains). The ability to define staff roles and responsibilities and provide meaningful supervision is grossly impaired by the cumbersome "matrix"" in which these clinicians' supervisors tend to have limited interest in my input our program''s needs and their employees'' performance in the actual care setting.

8. Given our heavy reliance on CPRS, we need much faster and more reliable computer performance. Significant time is lost every day to computer hang-ups, freezes, etc.

9. The process of referring to SUD residential care at other facilities remains problematic. Each of the RRTP''s has an entirely different referral mechanism and documentation requirements, which makes the process extremely cumbersome and inefficient. The basic referral/application process should be standardized across RRTP''s. Admission criteria need to be explicit and consistently applied.

10. I need increased administrative support as an SUD program leader, to be able to access, search and organize existing computer data about our patients and services. I know that a tremendous amount of potentially useful data is being stored, but it feels like a black box in terms of useful access.

11. In all honesty, there are too many top-down external mandates and measures. The effect is to stifle local initiative and creativity when the overwhelming emphasis in on meeting externally defined criteria. I recognize that some of these measures are valid and meaningful, but a more appropriate balance is needed, respecting the intelligence, initiative and professionalism of "the field"""

We need more inpatient beds.

There is a need for more residential treatment beds in VISN [location redacted].

Need more residential beds.

"Pschologist, Psychiatrists, SW, Clerical, Nurses"

"Psychologists, SW, Psychiatrists, Nurses, Clerical staff.

Use of the MH Ste.

Central office policies are sometimes difficult to meet given many factors including local veteran culture, rurality, etc."

"Need for additional MH Prescribers, space and a process which to streamline access"

"Need for additional MH Prescribers,

Need for additional Nursing support, space, Need for streamlined access to clinical care"

"MH Prescribers, Support staff, space for providers"

Multiple and sometimes conflicting requirments and clinical staff required to complete administrative tasks.

[Location redacted] has a dely in residential treatment due to Supply vs. demand. We have 20 beds with a wait list that flucuates between 2 to 3 months. We need to increase beds and staff in order to eliminate this wait.

We need an increase in beds and staff for SATP Residential and or contracts in the community to provide residential SATP in order to eliminate the wait for SATP residential treatment.

Increase beds and staff to make this service available or create community contracts with providers in the local community for this service.

Either increase beds and staff at the main [location redacted] facility to decrease wait and or create contracts in local communities around the CBOC tro provide this service.

Training opportunities within the VHA system has been down to almost zero. We need continuous training to opportunities to keep providers thinking about the most up to date treatment practices.

Availability of contract methadone clinics in [location redacted]

Ease of getting contracts and maintaining with supervision of contracts - staff availability to monitor. Ability to do telehealth with contracted services.
Ease flow with simplified and expedited administrative and transfer request forms(electronic).
Ease of ability of admit for detox of opiates in medicine and psychiatry service
Availability of local fee basis for methadone.
"Availability of LIPs to help refer and ease of referring to community methadone clinics, e.g. contract and simplified fee basis."
"Additional fee basis care available for residential treatment. Additional staff(counseling, social work, nursing, therapy assistant) for monitoring and documentation."
"Additional homeless housing for SUD patients associated with IOP, additional counseling and social work staff for treatment. Additional contract/fee basis for referral for residential."
"Additional homeless housing for SUD patients associated with IOP, additional counseling and social work staff for treatment. Additional contract/fee basis for referral for residential. Weekend or evening services not avail at CBOCs."
"Lack of clerical support staff for patient visits, groups, meeting minutes. Social worker and doctor/NP calling patients for missed appts. Mult new requirements and standards. Need to cancel missed group therapy appointments. Admin done by MDs, counselors, etc."

"b. Buprenorphine providers, LIPs specializing in addiction
c. Addiction treatment presence in CBOCs
d. SmartBoard, TV, DVD, Projector, education materials, reliable stat lab testing
f. computers need to be able to play DVDs remotely; telehealth scheduling is cumbersome; IT separation from VHA is problematic; national helpline is not effective; telehealth training process changes too frequently and communication is poor.
g. Too many inspections, surveys, and suspenses, for example, this survey took 6 hours of staff time (12 patients could have been seen in this time!)
h. Staff are tired of "over-measurement""; more flexibility with small time off awards."

"1. Renumeration for care by community based providers, who provide Medication Assisted Treatment-Methadone, Buprenorphine, Naltrexone injectable should be competitive to encourage them to sign up and provider services when travel and distance makes it difficult for SARP to deliver the care. Most community base providers shierk from medicare reimbursement rate.
2. DEA to increase the number of pts community based providers can treat in Office Based Buprenorphine. Currently there is a ceiling of 100 pt. per provider. This severely restrict access to treatment."
"1. Increase the pt ceiling (presently 100) that community based, office based Buprenorphine providers can treatment."
"1. [Location redacted] VAMC need a Domicilary program that will provide residential SUD care for pt who need a higher level of care. Our Domicilary program has been in gestation nearly 10 years.
2. Contract with community based residential SUD programs to meet this need."
please response for mental health to residential SUD care
"1. Program could benefit from a Health Technician on team who will assist in collecting urine toxicology screen and sent to Core Lab for processing.
2. Program support specialist to help in gathering data, tracking and trending to help improve quality of care."

Our data suggest 2-3% of Vets are delayed 30+ days. Staffing and staff management seem to be the most critical factors.

"again, staffing and enhanced flow strategies seem to be the most likely areas to furhter improve delays. We have been working at this for several years, but still have room to improve."
Telehealth is popular and so flow through these services can create occasional delays. This is related to staffing and to management of flow.
"We have modest delays in this, which are mostly related to capacity and flow. We are actively managing this but have further room to improve."
"We have excellant services in this area, but still have modest delays in this, which are mostly related to capacity and flow. We are actively managing this but have further room to improve."
"This effects relatively few Vets, but is most closely tied to resources and management of flow. We have been working on this for several years, but still have room to improve."

"Beds are full on a consistent basis, requiring a wait time of 2 weeks for patients vulnerable to relapse."
"Delay in telemed based on high demand within the CBOC's. Need for telemed machines, rooms, etc."
"Increase CBOC provider''s willingness to work with SUD Specialty and pharmacy to offer alcohol dependence medication. Typically is ""turfed"" to SATP to handle, when the primary care provider should work with SATP. Providers appear scared or uncomfortable with addiction and treatment."
"Need more inpatient beds in [location redacted], or create inpatient level of care in [location redacted]."
No healthy environment during 2-week wait time to residential.

"Simplifying adminstrative processes would be a benefit to the Veterans.
More space and more qualified clinical personnel would allow for a slight increase the in the number of Cohort groups in simultaneous operation."
Many of these stem from having a system for capturing workload which allows for some required entries to remain blank - allowing for loss of workload unless fixed within 7 days.

"We are told there "isn''t enough bandwith" to increase telehealth services. I do not understand what this means, but we are often not able to provide the amount of SUD services needed because of this reason."
"I do not have enough SUD specialty staff to keep up with the number of Veterans who are recommended to outpatient treatment. I need at least one additional clinician, but I am told this is not an option."
There are significant waiting lists for other residential programs in the VISN. It is difficult to refer people for care as a result.
"We are in need of at least one additional staff member due to a waiting list for outpatient services. We have enough evening hours and telehealth equipment, but not enough providers to take an individual caseload and facilitate groups"
See previous comments. We are in need of additional staff and telehealth availability to increase services that are needed
See previous comments. We are in need of at least one additional staff member and more telehealth bandwith to provide more services
We are in need of additional SUD speciality staff to meet the demands of the services requested.
We are in need of additional SUD specialty staff and offices to meet the demands for SUD services
We use fee basis detox. We are in need of more services for this and more beds.

More expedient referral process to Parent Facilities with residential programs
"Better incentives for Psychiatrist, more clinical staff in parent residential facilities and/or increase funding for more local contracted residential programs"

More expedient process to referr to parent larger VISN facilities residential programs
better pay for Psychiatrist
Very poor patient motivation to enter rehabilitation program

There are not any inpatient detox services within this healthcare system. We are dependent on the providers at the joint venture. They are sometimes reluctant to provide detox to repeat patients. We would need 24/7 detox capabilities within this HS in order to provide consistent services.

It takes an extraordinary amount of time to get administrative tasks done to make improvements to the system. This needs to be streamlined or simplified. It takes months to hire a new staff leaving services shorthanded. It takes months to hold ineffective staff accountable. We have to weigh whether we should get rid of incompetent staff against how long we will go without staff at all. This impacts patient care on many levels. Maybe we need to outsource HR with incentives to get things done in a timely manner.
It just takes a long time for approval for fee-based services and then to set them up. Also it is difficult to find providers due to them not being reimbursed in a timely manner. Many providers simply refuse to serve VA patients.
Often patients are denied entry to inpatient treatment at other VA locations due to their need to serve their patient population first. We also struggle with timing for patients to come from out of town to detox at our hospital then to be able to go directly to out of town inpatient care. Our facility refuses to lodge them for a day or two and it puts them at risk to have to go home and wait for a bed. The other VAs often refuse to set a date for them unless they detox first. It makes the timing difficult and puts the patients at risk of relapse.
We do not have adequate program support. Our PSA has been moved away from the clinic and is working in another building. Clinical staff are now having to do many tasks that are administrative and not clinical at all in nature. This is a waste of highly qualified and paid clinical employees. This occurs in multiple programs in behavioral health. The administrative supervisor has complete control of this situation and moved all PSAs close to her and away from their clinic staff and patients.

"Understaffing is the biggest problem, particularly in CBOCs. Difficulty recruiting when positions are open is also a problem. Office space becomes a factor if more staff are hired."
Recruiting to CBOCs is particularly challenging. Syracuse is understaffed to offer enough telehealth to CBOCs. Non VA Care works and we use it a lot.
"Our experience in referring to residential care is that they all have policies that Veterans must try outpatient first, before being admitted to residential. This is rigid and does not allow for the outpatient provider''s assessment of a Veterans needs related to severity of substance use, available resources, living conditions, ability to travel for appointments etc."
"I cannot speak to staffing at residential facilities, but the policy of insisting on outpatient first is a problem."
"Again, staffing at CBOCS is particularly problematic and understaffing at the main facility makes increasing telehealth services impossible. Space needs are also a big issue in CBOCs"
"Again, cannot speak to why there are problems in residential sud care. My impression is Central Office policies re mandating outpatient first is an issue that leads to delays"
Allow outpatient SUD providers to determine need for residential treatment rather than mandating outpatient first.
"Not enough admin staff, nobody focused on SUD Clinic, SUD Clinician handles scheduling. team lead is split with .5 SUD, .5 PTSD and the team lead also trying to do PTSD clinical work. Staffing money saved, but reduces functioning of the STS Clinic."

Currently all physicians in the program are exceeding expectations for RVUs. In order to expand services will need more prescribers. We have very poor support for appointment creation and our HAS clerks are consistently short staffed. We need both licensed providers and administrative support staff increases to improve performance of our clinic.

"Long waits for transfer for veterans who would like care at another facility exist throughout our area. Our program is not residential and when we try to assist our patients to get into residential care, we have long waits and sometimes are told that our veterans can''t access the desired program because they have too long of a waiting time for their own residents."

We have not had a substance abuse counselor in the primary care clinic for several months due to slow hiring at our facility. We have just hired one and expect to have this issue resolved. Slow hiring is a problem at our facility.

We do not have a residential program. Referrals out can take months for admission.

"While we are meeting our performance measure for bringing a patient in to the program, we would like better case management from the ER to facilitate patient''s transition to care in the interim."

We have poor administrative support in my clinic and we have not been assigned a permanent program support individual. It is extremely difficult to have appointments scheduled due to very poor HAS support.

"We have a facility in which the majority of SUD services are given. This facility is a rented building that has been maxed out in terms of space. We have created offices on what used to be porch space just to make room for more providers. We are in dire need of a new building so we can offer more beds for Residential treatment of substance abuse. We need more space so we can adequately perform outpatient detox, we also need more technicians and clinical staff so we can provide extended hours clinics. We were on the Skip plan for 2017 to get a new building but I am expecting a delay in this because we also have competing space needs for General Outpatient Clinic for Primary Care and Mental Health and this will take precedence over any new plans for space for substance abuse because Government Contracting is notoriously slow and must prioritize all the projects they have. So far we have not offered substance abuse services as FEE base or contractual secondary to the basic needs of this population along with multiple psychosocial issues that only the VA is geared to manage. This include homelessness, getting engaged in primary care, helping with getting the veteran back to work once they obtain sobriety. WE do have Grant Programs in the community as well as HUDVASH vouchers which help transition for our patients. We offer Buprenorphine but do not as yet offer Methadone. This will be costly once the new handbook is published which apparently has the requirement to offer both forms of treatment. When this happens Methadone will have to be FEE to the community as we do not have the resources to provide this. I understand of all the Methadone clinics in this area there is one that meets SAMSHA requirements. Our substance abuse patients are the most difficult to treat. We have had several process improvement and currently I have an ongoing project to try to find ways of managing this population so that the revolving door stops. This is project is ongoing and we are trying to tackle several issues to include making the services quickly available and also using motivational techniques and case management, finding ways to communicate with these veterans (they usually don't have phones or addresses), and making sure their transportation needs are met. This all takes manpower and hence space. The desire is to engage these veterans in this health care system to minimize the morbidity and mortality that this difficult population succumbs to. Feeing them out will only cause more of the revolving door and will increase the likely hood that they will get lost to follow-up."

Please see previous comments. More beds for Substance abuse will improve access to treatment for residential. This would require an increase in Substance abuse counselors. Enhancement of our

outpatient and extended hours services also would be benefited by increase of substance abuse counselors as currently I do not have enough providers to offer this service without fatiguing my existing providers. This again requires more space for providers as well as patients. Using Fee-basis is not an option per previous comments. As you add providers there is need for more computers. With more providers we can offer more vtel to more distant CBOCs but they too must have space available for the patient to be received.

"Delay comes when CBOC provider places a consult for patient to receive substance abuse services and the patient is not yet ready and refuses or no shows the consult or does not respond to efforts to schedule an appointment. There is an ongoing initiative to start anti-craving medications in the Primary Care through the SUD Queri initiative and this is a current research project ongoing at this time. In addition Behavior Health Psychology, which is embedded in Primary Care works with the patient to get them motivated for change. Both these programs need to be enhanced and when growing Primary Care Clinics special attention needs to be emphasized to not forget space for PCMHI is also needed to support primary care CBOCs. Finally Contract CBOCS which are generally Large CBOCS or Less in size do not have PCMHI so either the contracts need to be changed to have MH embedded in Primary CAre in the contract CBOCs or space considerations need to be taken into account when the Mental health needs/Behavioral Health needs of a primary care patient in the Contract CBOC needs attention. because the PCMHI provider is providing services to those contract clinics as well but when adding contract clinics there is no additional space provided for PCMHI. A perfect example is [location redacted] that only has space for 2 full time mental health people but the need is great for more. We have utilized every square inch providing Vtel in space that is not utilized when not seeing patients and also sending MH providers to [location redacted] to see patients in office space that is Vacant because primary care provider is on leave that day. This takes a great deal of coordination of schedules and choreography to make sure we are utilizing space to the maximum but also making sure our providers are also being fully utilized."

"Please see previous comments. Delays from outpatient to SUD treatment are usually secondary to the patient not responding to efforts to schedule the consult or No showing to the scheduled appointment. Anti-craving medications can be started and ongoing conversations are necessary to motivate patients for treatment. Patients that engage with their MH provider have an increased likely hood of following up with this treatment over time. This is another reason that Fee Basis does not work as we do not have time or personnel to manage the care of patients that are sent to the community for services.

I have sent many FEE services out and have been disappointed with the quality of care in the community yet I am responsible for the quality and have to ensure the patient is continued for care if they need treatment. By doing a FEE contract I believe I have delayed the necessary care for the patients. At issue is that I, the Chief of Mental Health, am the one person that has to review these FEE contracts for quality and necessity for continued care as I do not have the clinical staff to do this as they are all trying hard to see the patients that come into the system. This is bad for my morale and is taxing when especially we strive hard to give good quality care and are expected to manage our patients above and beyond personal responsibility of the patient. For instance if a patient misses his mental health appointment the provider has to make three attempts to contact the patient and get them rescheduled. If a patient is High Risk for suicide they must have weekly appointments, have meds controlled (cant be done if sent to the community) and be monitored closely for risk assessments and suicide safety plans. ALL MH patients are required to have a RECOVERY BASED treatment plan using MH SUITE. This software does not lend itself to recovery based treatment plans and is not standardizable and only serves as one more documentation requirement that wastes the providers'' time and the patients'' time. We created template based treatment plans that were felt to be outstanding by JC and CARF and The VACO SITE visitors told us in no uncertain terms we had to use MH SUITE for our treatment plans. TOO much money was spent on this software as it does not help the provider and produces a document that is

miles long and not understandable from the perspective of the patient. The mandated use of MH suite is another paper pushing exercise that makes the provider glue to the computer and spend actual less time face to face with the patient. Also its mandated use requires additional admin time for documentation which the provider has to take out of hide because we have to have them seeing patients. It is not patient centric and destroys morale of the providers.

I would challenge the community to be able to meet all the mandated requirements of the MH Handbook/ I do believe the handbook to be full of wonderful quality initiatives but I also feel the people who created it had no idea of the resources required to meet the mandates in the handbook and are still lacking the basic understanding of what more we need to meet the true intent of the handbook and the costs associated with that. In addition because of the lack of resources for case management (the part that currently my most expensive providers are expected to do) this causes a huge moral issues among these providers and causes them to burn out and leave."

Please see previous responses

"I have already discussed the MH handbook and how it is a wonderful Quality Initiative. However it takes much more administrative resources and support services than we currently have in place to be able to have true quality and intent of the handbook. Mental Health Treatment coordinators are exactly that. Treatment coordinators and currently 90 % of my MHTCs are psychiatrists, who do not have time to coordinate care for their patients. The New BHIP model is designed as a solution for this but it will take me years to reorganize my clinics to get the BHIP model fully staffed and incorporated. And without space I cannot do it at all."

Providers frequently are not willing to prescribe pharmacotherapy for alcohol use disorder. More incentives and education are needed.

More providers need certification for buprenorphine. Very few exist in the local community.

There is only 1 community methadone site in the state. we need more community resources.

Need more residential beds and staffing to have shorter wait times. Contracts with community are used extensively.

Need more staff and residential beds

Need more beds and staff

A barrier to obtaining timely access to care for fee-basis community providers is the difficulty with the VA paying community providers for their services in a timely manner.

VA needs to pay community fee-basis buprenorphine providers in a timely manner so that they will continue to accept Veterans for treatment.

We are desperately in need of more mental health/SUD clinicians (CBOC''s in particular are understaffed).

"We have no SUD specialists at the CBOC''s and limited specialty telehealth. We need support staff to reduce wait times for some services (e.g. more nursing staff in CBOCs would allow them to do Suboxone inductions, thus relieving the wait time for that service, currently only offered at the main hospital."

Create expedited process to get medical clearance for people in need of rehab. The rest of the delays occur at the residential facility and we cannot control that.

We need more therapists and support staff in the CBOCs!!

We need more nursing staff at CBOC''s in order to make it possible for them to do buprenorphine inductions. We may need more psychiatrists to manage increased workload of new patients with weekly appointments.

Veterans need to be sent promptly to local hospitals when they need detox. We have had times in the past where we had to wait for beds or services to be declined from another VAMC and the patient walked out of the ER.
Mental Health Suite is cumbersome.

need a psychiatric/medical provider with SUD experience with time dedicated to outpatient MH SUD services. Management needs to assure those with time intended to be dedicated to SUD services are providing those services in an efficient and effective manner (psychiatry/medical). improved communication and processes between the emergency department and inpatient withdrawal management to understand services and criterion for admission (hospital - non MH).
assign a prescribing provider with SUD experience time dedicated to SUD outpatient services.
management to assure that psychiatry providers engage effectively with SUD outpatient service clinical providers.

we do not have residential treatment at our facility and the demand for this type of service is so high in our VISN that we are unable to get veterans into the treatment facility within our VISN. we are not having to refer outside of our VISN for this type of care
"we need additional resourses for residential treatment. i think there needs to be additional beds and programs opened up and that all 1a, 1b and 1c facilities should have these on campus"
we do not have residential beds and the ones within our VISN are always full and there is a long delay
"we do not have residential beds, there are non in the community and the VISN residential program is always full. recommend that all 1a, 1b and 1c level facilities have residnetial beds"

Need more support staff for scheduling and administrative support for practitioners
"There are not enough residential treatment resources in our area. We have too few beds to support our number of veterans. We cannot rely on other proximal systems, they are also full. We end up utilizing private care, but often this care is below va standards and does not provide the care a veteran prefers."
Need more SUD detox beds
"We need more treatment space, especially space to do private, individual care"
Need to find ways to support outpatient detox in CBOCs
Need more beds...
We need more inpatient beds for detox...veterans prefer treatment in VA...also need streamlined approach to de-escalate inpatient detox to outpatient detox and community beds to support this
"We have delays in our availability of residential treat,net beds mainly for lack of space"

Referrals across parents to other institutions are case-by-case.
Make referral conductable electronically
"Not enough health tech time. No health techs for evening hours.
CPRS has flaws."

"We need more psychologists. We also need more administrative support in the clinics. Scheduling is extremely difficult - we need a centralized, user-friendly scheduling system that tracks both appointments and room availability, because telehealth is shared by multiple providers. We could use more telehealth rooms to increase scheduling flexibility and we could also use more evening and Saturday hours."
"See the previous question, most apply here. We need more psychologists and masters level clinicians - the psychologists to provider oversight and program development for SUD in the outpatient clinics."

"Please see previous 2 questions. In addition, our SUD program at the main campus is sorely understaffed. We need more psychologists and masters level clinicians to meet the need. The scheduling system needs updating, but is not as critical as it is for telemental health. And they literally have NO administrative support, which impacts care as well."
Additional staff devoted to screenings would reduce time from referral to admission.

"Space is at a premium , so having more office space would afford privacy of care to veterans. Increase number of psychiatrists to manage this complex group of patients , to continue to provide ambulatory detox safely . also need nursing support as well as addiction therapists to be able to provide MI and support , to engage patients in treatment even as they are undergoing detox."

"Our contracted residential facilities have very restrictive criteria. Services in the community do not seem to exist with the same emphasis as VA services (e.g., evidence supported use of suboxone and methadone)."
This facility has approved key personnel to improve in this area. We are not yet able to fully make the improvement due to HR related delays in start dates and posting necessary positions.
"A residential sud program for this facility has been approved and positions are being filled. this inhouse capacity will likely address only 1/3 of the demand. approval for more dom sa/sarrtp beds for this facility would be ideal. we''d also need the space and staff, etc for this expansion."
"this facility has already approved staff changes to improve this problem, but in the past year since approved we have not yet been able to have new ftee EOD. this will improve once staff are on board and new structure implemented."

More efficient and timely processes to enroll veterans in RRTPs.
Open and staff all RRTP beds in the VISN. Make standardized screening processes.
Open and staff all RRTP beds. Transparent and efficient screening processes.
Open and staff all RRTP beds. Transparent and efficient screening processes. Could screen by TeleHealth
"As the number of Veterans/Services have increased, we have outgrown the clinical administrative structure. Too much admin burden and "due todays" are coming from CO."

"We could use more Psychiatrists, social workers, and admin support staff. Better incentives and salaries for MDs will help"
Would need additional case managers.

"More addicition trained staff - all levels but especially addiction physicians
Improve drugs of abuse testing capabilities to allow for adequate chain of custody and confirmatory toxicology at each main facility.
Modernize the archaic VISTA scheduling
 system.
"Horinzontal"" alignment and integration at the top (Centraol Office) to be maintained as policies work their way down for Front Line implementation.
The biggest supervisory challenge is not allowing CLINICAL staff sufficient time to perform supervisory responsibilites."
Increasing non-VA care without corresponding CLEAR processes for COORDINATED and INTEGRATED care carries the risk of Veterans suffering from lack of coordinated care.
"Insufficient number of beds for a region. Matter is critical in parent facilities that are mostly rural. Thus, non-VA facilities with required service also likely NOT to be available or existing. Veterans and families

are not well supported (and are often unable) to travel sometimes litreally across the country to where services may be available."

"We are sending out Veterans for care that could (and should) be provided inhouse. It is cumbersome to obtain necessary administrative changes: for example, change designated beds thatwould reduce delay and keep care in VHA."

"We are sending out Veterans for care that could (and should) be provided in house. It is cumbersome to obtain necessary administrative changes: for example, change designated beds that would reduce delay and keep care in VHA."

There is just not enough staff or space for example to properly and safely perform ambulatory detox.

The facility needs to do better in facilitating the use of EB pharmacotherapies that do not require SUD specialty level of expertise.

Residential care is extended length care. Thus there is likely to be delays whether within VHA or outside VHA.

Limited number of facilities providing this care in the community coupled with the limits within VHA make delays inevitable.

Help clinicians be involved in administrative and management by providing adequate non-clinical support.

"Answers to questions about another administrative parent''s programs are estimates. Difficult to say what staffing or equipment needs another site may have.

Typically what we hear is delays are due to lack of space and/or ability to accept referral sooner (possibly related to staffing).

IT system is cumbersome; this likely could improve efficiencies in transferring Veterans to another site for care.

At times arranging transportation is a factor in delays experienced."

Referral system is cumbersome; approval system also. Access to community resources could be improved.

In order to facilitate residential SUD care additional options for referral when facility''s program is full would be helpful.

".Have concerns about standard of care at local methadone clinics. Some ambiguity about how responsible VA staff are for care at outsourced private clinic. The VA system responds fairly quickly to consults.

We just lost an excellent social work SUD counselor to Homeless program because she was able to get GS 12 promotion. Specialized staff should have same opportunity for promotion.

Need build out for a more private space to conduct observed urine toxicology screens."

"We need our own residential treatment program. Our patients have to wait 2-5 weeks to get into residential facility at another site.

Difficult to detox severely alcoholic patients in outpatient setting as this is a rural community and many live too far to come to daily outpatient treatment. Need our own residential program and more support for inpatient detoxification."

There are delays in private residential programs as well do to over flow. Again we cannot guaranty quality care.

Patients with significantly elevated BAL are admitted to medicine overnight and kept if they have co-morbid acute medical conditions. CIWA is instituted while inpatient but often they are immediately discharged often with benzodiazepine prescription. We are a rural community and so many patients live too far to attend IOP. If they live close enough and can be safely detoxed we can do that on outpatient

basis. If we had a residential program we could slow down the revolving door and offer more outpatient detox to those who live too far to come to clinic daily.
WE do not have staff with substance abuse expertise in CBOCS and so CBOCs send them to main hospital. CBOCS are over crowded with no additional space to house new mental health staff.
We do not have inpatient detox capability unless medicine will admit for co-morbid acute medical.
We do not have residential on -site and there is a wait list for other facilities.
We need a build out for residential. Proposal is has already been submitted.

"e. There have been significant problems in establishing telehealth SUD services in [location redacted] CBOC due to space, bandwith, equipment, staff support problems. Not so much the other CBOC"
Same comments as questions number 3.

We are in pro cess of hiring additional Medical staff which will eliminate delays.
Increase available beds for inpatient and residential placement for patients who are not benefitting from outpatient treatment.
Increase supply to meet demand.
Currently hiring so we should be eliminiting any delays in the coming months.
Currently hiring additional staff (Addiction Psychiatrist) which should resolve any delays.
More beds are necessary in the network to allow for timely referral.
Clarify admission criteria and coordinate continuuim of care so that there is no delay between detox/stabilization and start of inpatient rehab or other inpatient care.

"Front line admin. staff are needed to process consultation referrals after triage. There are providers with open slots in their schedules and a backlog of patient who have been accepted for the service but are waiting to be scheduled.
Space and equipment is needed in order to provide our Vets with all ASAM levels of alcohol detox. care.
The appropriate compliment of staff e.g. prescribers, RN, health techs, clerks.
In order for policies to be useful, staff need the required resources to do what is indicated in the policy."
Need to be able to more easily fee-base services immediately un-available at this facility
Need an alcohol detox. program that can treat all ASAM levels of detox.
Need a free-standing SUD treatment center that can provide in-pt. treatment for substance detox. otherwise allow for fee-base treatrment
see previous comment
Need to either provide services within the VA system or allow for fee-based care
need a formal detox. center with immediate transition to residential care
Need to be able to access fee-based care especially in remote areas.

Need more psychologists for assessment of SUD; need more psychiatrists or APRNs for medication management; need more testing materials to properly assess SUD; overworked staff lack any incentives to improve productivity or morale.
"The [location redacted]VA does not have it's own residential SUD unit. The [location redacted] VA is contracted with one agency [location redacted], and beds are frequently difficult to obtain, as the agency serves the [location redacted], etc. The SATP team at the [location redacted] has been ;largely unsuccessful in sending veterans to other VAs for residential SUD care. The ""denial"" of our veterans by other VAs is perceived to be a lack of space/providers, as the reason given is that the VA is already full with patients from their own catchment area."
The [location redacted]VA currently does not have a clinic to address acute alcohol withdrawal. Veterans in withdrawal are sent to the TAMC ER.

The [location redacted]VAs delays in opioid withdrawal has been impacted by staffing issues. This is expected to be resolved within the next 2-3 months by recruitment and hiring of appropriate personnel. The [location redacted]VAs delays in buprenorphine management maintenance has been impacted by staffing issues. This is expected to be resolved within the next 2-3 months by recruitment and hiring of appropriate personnel.

"The [location redacted]VAs CBOCs are [location redacted], varying from [locations redacted]. Delays are typically due to travel and housing arrangements, and are not due to appointment availability in the outpatient treatment facility. Delays in residential treatment are also impacted for the CBOS by travel and housing arrangements, and by available space at the contracted agency. An increased number of contracted residential providers would be helpful in decreasing wait times."

need a functioning fax machine in our building
"once pts are assessed and seen as appropriate for referral to non-VA methadone care, the primary delay in care is getting MH Administration approval for the fee-basis referral."

"Also need second dosing window and dosing nurse for that window, as well as confidential space for dosing line."
"We have no clearly defined admin person in the CVAMC trained, time alotted, and clearly advertised as the ""go-to"" person to send our fee-basis referrals to. As well, our payment rate is low to these fee basis providers such that they are not eager for our business."
"We need to hire 6-7 more therapists, who need offices too. We also need to streamline the fee basis process."
"We need to hire more therapists, give them offices, move our dosing area to a confidential location near our addiction specialty providers, add another doing window. We also need to streamline the fee basis process."
"Our residential unit in small in capacity, relatively speaking. We need to be able to increase our census as we have a typical wait time of 10 days - wherein patients relapse, have complications, or worse. We may consider fee basing some of this volume out."

"We need a more automated system to reduce no shows. We also need tech support staff to collect urine specimens, administer breathalyzers, etc."

We have availability at our facility without delays so we to not need to use contract or fee for service outside providers. We also have more qualified providers at our facility than the providers in the community
We have the above listed treatment options at our facility and there is no need to use outside services
we have no delays in providing SUD treatment at our facility so we have no need to use outside services
Using clinicians to address administrative requirements and reports which removes them from clinical activities - ineffecient care

We need more community detox programs in our rural areas/areas far from medical center.

Space constraints at CBOC can limit access. Adding LIPs would improve access. VistA scheduling package is outdated and does not meet organizational needs. Administrative burdens affect clinical efficiency.
Addiction psychiatry vacancies has affected operations.

"More clinicians who have training or direct experience in dual diagnosis treatment to work in all settings -- inpatient, outpatient, residential. More staff to call pts to remind them of appts or when they are expected to attend groups."

Group space and office space is at a premium at our facility. Groups frequently cannot be conducted at the times we would like to have them because group space is already reserved. We also need more office space for trainees to see patients. Our float office space is not adequate.

The psychiatrists need staff who can take care of simple refill orders rather than the MD/Psychiatric NP having to take care of every request. We also need more staff who can take a phone call to an MD/asking when their next appt is. No shows leave clinicians with unscheduled hours for pts on one day and overbooked hours on other days to accomodate the rescheduled no shows.

"We do have some rural patients who participate in buprenorphine, but there is the expense of time and travel to get to the main medical center. They must travel to the medical center because there are not enough of them to offer psychosocial group treatment via telehealth. If there were more rural community providers of buprenorphine, we could refer rural patients to them and these patients would be able to obtain services more conveniently."

"The problem here is that our VA does not offer methadone therefore if a patient wants that they have to be referred to the community where there are significant delays getting into an approved program. We do not have high numbers of patients requesting or appropriate for methadone at this time, however when we do, it is a long and difficult process. My perception is that there are not enough methadone programs in the community and they have long waiting lists. The other alternative would be to apply through VA channels to have a methadone program here at our VA. However, there are not enough patients requesting the service to support a methadone program."

"We are in critical need of Psychiatrists/NP, RN and LVN in outpatient SUD. In the last year we have lost/will be losing in next 30 days approximately 1.7FTEE MD time, .4 FTEE is TMH SUD, .5 CBOC. It is critically important we are able to fill these positions. We are also in need of RN/LVN assistance in ADTP-OP to fill the need to assist with SUD-OP medical treatment needs (detox/pharmacotherapy). A FT pharmacists in SUD-OP and our SARRTP. A fee basis need is community based detox. Equipment-bed bug oven, breathalyzers, wheel chairs, and vital sign machines with pulse ox. A treatment planning tab in CPRS."

The main needs are to fill recently departed MDs and to hire RN/LVN to support op alcohol withdrawal.
The main needs are to fill recently departed MDs and to hire RN/LVN to support op opioid withdrawal.
The main needs are to fill recently departed MDs and to hire RN/LVN to support pharmacotherapy for opioid use disorder.
There is brief number of delays in detox bed availability.

need more SUD providers and space at CBOC''s.
could use more trained SUD staff
most residential programs have some of the same issues with demand and we probbaly need more of these programs throughout the country
need more incentives to recruit Suboxone certified providers.
if we had more beds i''m sure we could fill them.
we could use suoxone certified providers and it's difficult to recruit them.
screening process and sometimes pts do not want to come in immediately to a residential program
screening process and residential requires committment from pt

"We provide SUD care in our CBOC''s but finding staff with specific SUD experience in large metro area is a challenge and even more so in more rural areas. Psychiatrists with a sub-specialization in addiction medicine are rare, their salaries are rising and many of them have an academic bent which are factors against hiring them in CBOC''s. Then there are space and support challenges that we exp. in general that add to the mix."

We have a very good carf accredited methadone clinic near our main facility that we are lucky enough to contract with. They do an excellent job and I believe they can provide methadone treatment more efficiently than we would be able to. At our CBOC''s the contracting out for methadone is more hit and miss. Suboxone is a wonderful treatment but takes a lot of appointment slots to manage and we don''t have much at all in terms of nursing support in the CBOC''s to help case manage the patients. So if we only have so much in the way of prescriber time do we spend it doing pharmacotherapy for 3 patients with PTSD and Depression whom we see every 3 months or do we see 1 patient on suboxone for the 12 monthly appointments? In this case it has made sense to look to the community to help provide suboxone treatment.

Providers who want to work with veterans who have SUD''s are harder to find than a generalist OP Psychiatrist. We aren'' built to run a SUD clinic at the CBOC''s as we are at the main facility and aren''t staffed with RN''s to case manage the patients.

We had 2.6 FTEE Psychiatrists sub specialty boarded in addiction medicine. One moved to another VA. Our .6 is retiring and we cannot staff our fellowship. Ads have been out for over a year and we have tried co- recruiting with our affiliated medical school and have no applicants as of this writing. Pay does matter but the VA might want to think of sponsoring Psychiatrists who enter this field or be more open and generous with tuition reimbursement. There is a difference between having staff who can treat a problem if they have too and staff who chose to specialize in treating a given problem.

"A PACT model would work great for our SUD clinics. We have tried to emulate this but a national effort to boost staffing of RN''s, MA''s and MSA''s would help. We were fortunate to have a skip plan approved to remodel space which will be primarily for SUD care and purpose built for that population. This is the result of a decades worth of planning and work to get to this point. We hope to have the project start early next FY."

Increasing access to SUD care in CBOCs is critical.
Having personnel in the CBOCs is critical.
More programs are needed.
More staff are needed to offer these services.
More staff are needed in the CBOCs due to increasing demand for these services.
More providers needed to deliver TMH.
More clinicians are needed.
The administrative burden has been steadily increasing. The number of tasks have been increasing and take up significant time to manage.

Working to improve access to care

Working to increase the availability of services

"We need more space and prescribers and psychologists in the CBOCs.   It would likely be good to offer financial incentives to support staff for efficiency, and to have more scheduling staff."
The most important factor is bed availability. Interfacility consults could be more user-friendly.
Increased scheduling staff and increased pharmacy involvement would be helpful. At times more beds would be helpful and at other times there is no delay in getting into our residential program

Having more sud prescribing providers in the CBOCs and offering POC drug screening would be helpful. At times the SARRTP is full and there is a short wait.

scheduling software is not helpful and outdated.

Need to have better scheduling package; need clerical support; need to recognize issues of rural level 3 care facilities when it comes to providing any service; staff need more praise and gratitude from upper management
Need better scheduling tools for MH; need clerical staff for SUD; Need to recognize challenges of level 3 care facilities; Need less staff in VISN and VACO and more in facilities... especially clinicians.
Need to have easier fee out processes for some of the medication management related to SUD; Need specific addictions psychiatrist position within MH if these demands are expected to be met
"Need to have specialized programs at different facilities. For instance, a small rural site should be able to refer to a larger facility for specialty SUD care in some instances. Small sites cannot afford a full time, dedicated SUD psychiatrist when our outpatient clinic in general MH is barely staffed appropriately"
"Need to review the literature to have a system with requirements which are logical, empirically based, and supported by administration; need more admin staff to support clinical functions; need nursing cooperation"

"Space and personnel seem to be the two biggest issues in access. We also need to find ways of decreasing waits for inpatient SUD services, particulalry because we don''t offer them at our Ambulatory Care Center."
Increase in the number of inpatient beds along with sufficient staff to manage the workload would go a long way in improving access to inpatient SUD treatment.

"Space for provision of care is critical as is allowing for overhires in order to maintain access when providers are lost. An improved, user friendly scheduling package is needed. Opportunities for career progression are important to retention."
Same comments as in prior section.
Our Veterans recieve residential treatment in other health care systems due to lack of residential services in our own. The addition of fee based residential care could assist as would adding resources to residential programs in our sister systems.
All our residential care is provided in other VA systems.
Need an improved scheduling package.

"Efficient and timely referrals, acceptance, and transfer to SARRTPs"
SUD intake and evaluation is fast but methadone clinics have delays to their own assessment and lose patients during this interval
"Referral, evaluation, acceptance and transfer takes too long"
Provide local SARRTP
Provide more CBOC personnel to provide more timely SUD treatment
"Delay from ADTP intake to initial referral assessment with fee basis provider, non-VA vendor does initial intakes on one day per week during a limited and specific time, lose Veterans in the meantime"
"Transfer to other VA SARRTPs takes too long, transfer to a local fee-basis vendor is denied many times"
"Not enough inpatient beds are available, refer these to fee-basis when inpatient full"
"Open up local SARRTP, Veterans have to travel far, time to referral, acceptance and transfer takes longer than neccessary"

"Difficult to estimate physical limitations at other facilities.
Autonomy in triaging in selecting appropriate candidates is questionable."
Increasing # of beds.

"ancient and arduous scheduling system creates too many errors, to include process of adjusting clinical profiles to improve access"
none additional
"moving patients from acute detox to inpatient or residential care is the weak link in the treatment chain. Currently, patients are receiving inpatient acute detox, discharged with "regular"" outpatient care wherein they''re very likely to "use"" again and by the time their name comes up for inpatient care, they''re not willing/able to make the decision to engage in care. Its a terrible cycle."
"our hospitalists express lack of competency around inpatient detox services for opiate withdrawal. So much so that some patients are turned away from this care, depending on which physician is working that shift."
DEA restrictions require no more than 100 patients of suboxone patients per provider. which presents a real limitation.

more recently we tried to refer Veterans requiring Methadone treatment into community which is very complex. Hiring should be easier and should be able to hire staff with skill set for a particular job.
[Location redacted]needs residential SUD facilty
[Location redacted]needs a residential SUD program .
we do not have SUD Residential facility.
we do not have personnel to implement SUD Telehealth services but plan to start when vacant positions are filled.
plan to implement Telehealth services in CBOC once vacant positions filled.
we need SUD Residential facility or easier process to refer pts out to the community.
we need Residential SUD facility
needs SUD Residential facility

There is a need for increased clerical staffing through MH Service. We would like to increase psychiatrists for Telepsychiatry but it is difficult to get new psychiatrists as they do not appear to pursue work in this area.
We need more psychiatrists to increase our Telepsychiatrist program. We also need more clerical staff.
"We need more psychiatrists, especially an addictionologist but they are difficult to recruit in this area. We need more clerical staff."
We would like to hire more psychiatrists to increase our Telepsychiatry services. We also need more clerical staff.
We need more psychiatrist to increase Telepsychiatry services. We need more clerical staff.
There are too many MH Initiatives that somewhat overlap making it difficult to give your full attention to the core group of initiatives.

Only reason for delay was transfer of our one-of-one addiction therapist to another positions. Personnel policies and resource limitations lead to delays (can''t backfill before incumbent leaves; can''t recruit without lengthy resource approval process)
"Transfers between facilities for residential SUD care has been a long-standing challenge in our VISN. Not sure what the problem is, or the solution"
"Fix transfer challenges between VISN facilities. Not sure what the obstacles are on their end, but I believe the VISN leadership is working on this"

There''s no community program to which to refer
Fix problems with transfer to VISN partner for RRTP. Not sure what the obstacle is on their end
Same as previously comments

Approving officials increase efficiency in providing approval/disapproval.

"There need to be more beds at he VISN level for residential treatment. VISN beds are always full, and run over capacity. As there is not an RRTP at our facility, I can only estimate what needs there would be at another facility if they were to add beds. Contract beds may be part of a solution to this concern."
See previous comments regarding access to residential care.
See previous comments

We have no Residential Program in [location redacted].
No PRRC in the [location redacted].
No Residential Program in the [location redacted].
We have no Residential SUD care.
We have no Residential SUD care in [location redacted].

need more bandwidth
"most veterans are started on medication assisted therapies for ETOH within SUD services, this could be done in outpt mh as well"
same as answer to previous question
"CPRS and AMS (methadone software) don''t communicate, clinical reminders are repetitive when veterans are seen daily"

VISTA scheduling package hopelessly antiquated.

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- **TBI**

"Appt. booking times do not always work for patients. Often they are involved in school, work or inpatient program activities and cannot make an 8:30am appt or 3pm appt."
We do not offer MRIs on site and have to send pt. to another facility to have this done. This can create a delay in services.
"Currently, the Provider performing the TBI is not allowed to submit a consult for Optometry and must request that this be submitted by patient''s PCP, which lead to a delay in care. The TBI providers need to be able to submit the consult for this service which will decrease wait times and booking for this evaluation."
Audiology services are not currently available on site so patient''s have to be referred out to another VA facility. This contributes to a delay in scheduling and evaluations.
To have more access for TBI evaluations through the development of a full time TBI clinic where patients can be seen and evaluated quickly.
Currently we do not have an active pain management department and staffing. Need to send patients out to another VA for these services.
The completion of the secondary level evaluation and the resulting consults submission is time consuming for the practitioners. More help in this regard would help to streamline the appt. scheduling.

"If there is delay in providing the Second Level Evaluation it is often not because of the scheduling practices of our fcility. It is often times the Veteran''s schedule or other psycho-social barriers that create delays. Veterans frequently cancel or no-show and when the appointments are are re-scheduled per the Veterans request it often gives the appearance of delay on the part of the facility. The facility makes every attempt to schedule within the required time frames, however, we have to take into account when the Veteran is available for that appointment.
In rare instances a technical glitch in the CPRS system may prevent a TBI consult from being generated to notify the appropriate clinicians, however, that too is unique."
The lack of medical records from DoD does not delay or providing the Second Level TBI Evaluation. We always provide the evaluation regardless of records from DoD.
The questions relative to Pain and Sleep Clinics are out of our scope of practice.
Veteran no-shows and missed opportunities are a major issue. The facility is often pernalized for the Veterans missed opportunity. The system could have an improved communication system for centralized scheduling. There are far too many templates in CPRS that ask the same questions in a different way.

"most of the resources were allocated to mental health, however they are not the best ones to evaluate patients for TBI"
"I do not know the delay in this institution, later on they send me consultation requests to evaluate patients for TBI, eventhough this may had happened many years back"
"Here they need more people that are competent enough to evaluate these patients, this does not happens here they limits themselves to fill up templates or just click a filled template already, Quality of the ancillary service is poor, quality of the MRI is terrible and they sent patient have this done outside they do not do the appropriate sequences on MRI, they need here is a 3-5 tesla MRI to obtain better quality images. This service should be and must be available here 24/7. So far as far as have seen this is just virtual reality medicine"
"both do not apply here. The whole place is not equipe and have the qualified personal to do this task.,"

Recently added additional neuropsychologist and technician for test administration. May need to add additional staff if back log not resolved. Fee basis for this testing is difficult in local community as not many skilled providers available in the community.

"Have had difficulty replacing open position, finding psychologist interested in this role at our VA. Currently have candidate who has been offered position, plan to start in august."

"TBI clinic provides numerous processes for reminders to vets regarding appointments, but still clinic has large no show rate. appointments are offered per vet''s preference, letters are sent, reminder calls x 2 are provided. Vet still no show. Vet's offer that they no show for clinic due to forgot, car wouldn''t start, bad weather, have headache, too anxious to leave house on appointment date, etc., despite a phone conversation of day before that they plan to attend."

"For Comprehensive TBI Evaluations, many private sector providers are not as knowledgeable in military expsores to provide a thorough and understanding evaluation."

"My local health care system has a Polytrauma Support Clinic Team. Majority of patients we see are able to be managed as an outpatient. When necessary, referrals are made to our Polytrauma Network Site."

Delays often caused by Veterans having multiple evaluations scheduled after no-showing. Limited slots are available due to staffing in CBOCs as CBOC visit is done by primary care specialist.

"For Veterans with TBI who do not want to seek primary care within VA, they are unable to see metnal health. In some CBOC''s mental health appointments are booked out. If >30 days Veteran may be able to use choice but it is not typically clinically appropriate to switch counselors or mental health providers. Continuity is very important in ongoing mental health counseling."

Very limited options for pain management outside of primary care are available.

Implement team supervision vs. having each team member reporting to different service lines/supervisor.

"[Location redacted] is has limited access to both VA and non-VA comprehensive sleep evaluations, especially as the local private market is already saturated."

Unsure

"Increased access to VA and non-VA resources for comprehensive sleep studies. However, current VA and non-VA markets are saturated."

Need physical and occupational therapists. Need space to conduct therapies and need to streamline ability to provide care for patients. Also need to breakdown barriers and allow people to just get work done rather than constantly responding to NATs

"we have a shortage of space, therapists, equipment and schedulers. With issues at the VA being so compartmentalized when there is a problem at any point along the deliver chain we are unable to properly care for patients."

"Again, not enough therapists, problems with space, scheduling, human resources in terms of bring people on board, lack of computers and equipment."

rehab clinic but evaluations completed by primary care and mental health staff

"Facility is without Neuropsychiatry.

Remote CBOC''s depend on Telemedicine and fee basis to serve Veterans"

"Facilty is without Neuropsych provider, fee basis providers utilized."

Facilty had only very limited case management services. Facilty has since hired 2 case managers and administrative support. Space for these providers is limited. Case Managers and other staff do work evenings to accomodate Veterans.

Typical delay is in obtaining mental health records.

We need to proceed with our space project that has not begun yet to separate TBI to it''s own clinical space. We need to backfill vacancies in OT.
We only have neuro psychologist as part of team. We send referrals to mental health for all other services.
We need approval to backfill the vacant 0.5 FTE Occupational Therapist vacant since beginning FY2015. Approval on hold.

"Demand for sleep studies is such that NVCC & Choice must be used, but administrative policies & practices for use of both NVCC and Choice are challenging."
"See previous response re: NVCC, Choice for sleep studies."
"See previous response re: NVCC, Choice for sleep studies."

Our facility receives approximately 100 consults a months with only 1.5 FTE provider(s) to see those requiring a CTBIE.
"The requirement of how many time to reach a patient to schedule them for an appointment is time consuming and wasteful. We still have a 25% no-show despite these efforts. With the outreach being greater in the outlying areas it is difficult to meat the mandate of completing the CTBIE with no change in staffing for the last 10 years. It makes telehealth efforts harder because one provider is being as decrease in person clinic availability to tele-health. Why do we have to contact the veteran for the an appointment? The veteran should have some empowerment to call and make their own appointments. I know consult have to be tracked, but maybe have veteran know that they have 10 business days to make the appointment or the consult is voided. The veteran often get irritated with us chasing them down for an appointment in order to meet a mandate and at the same fighting a loosing battle in missed opportunity rates. I have found in other clinic where the patient makes there own appointment, they are more likely to show up and most of the time call in a timely manner to cancel if unable to make it. If the process doesn''t change then more FTE is needed to complete the CTBIE in the 30 day mandate. Additionally, what I find problematic is when the veteran transfers to another VA the TBI screen comes up again when patient already had one at a previous VA. Isn't there a way for the screen to auto-populate with last time one was done and ask if there has been new deployment since there last screen?"
Performance CTBIE is heavily dependent on scheduling and re-scheduling particularly no-shows as they are clogging up available slots for new consults and not necessarily delivering quality care.

improve access to sleep speciality assessment
increase clinical staffing and provide the space for them to provide services
increase clinical staffing and provide the necessary space for services
increase clinical staffing and space
Increase clinical staff and space

"In addition to evaluation neuropsychology, treatment psychology services would be advantageous"
"Audiology services are delayed. If C&P audiology could be outsourced, this would help."
Do not recall requesting DoD records
Delays in neuropsych assessment sometimes as long as 4 months.
"the intake packet, paper questionaires, is often lost by patients, Without a completed packet the patient cannot get to their first appointment. Couldn''t this be electronic?"
Newly hired Pain Management specialist having trouble getting started due to lack of clinic space.

"the pain management, audiology, and neuropsych issues."

"These cases are triaged so I am reasonably confident that there are no adverse outcomes, only failure to meet guidelines"
"1. Central Office loves to increase administration and all positions which do not provide direct care, and never adds providers, or people who word directly under the supervision of providers. "Clip board nurses" who provide no patient care are the plague!
2. A national electronic record so that all information is readily available is essential to efficiency and good care."
"The VA is run, to quote a director, so as" "to control the doctors" You cannot run a health care system against the doctors. All the problems mentioned above derive fundamentally from the desire to by CO to control the system not let professionals do their job."
""""""

DOD is uncooperative and condescending.
""""""""""

"we just need more staff in the therapy sections for the outpatient services. Vision for tBI, vestibular and OT staff for the mTBI"
need another OT vision therapists and a full time OT
we have s system in place but one record system would be best
we have some gaps in personnel because of our large inpatient workload
vision rehab done by OT for TBI
make the physicians the highest costs FTE in the VA the most efficient FTE...give them the tools and staff to make them efficient and not to administrators who are not involved in patient care

Timely submission of consults. Providers available at remote sites. Reminder phone calls. Improved NVCC services.
Support clerical staff needed. NVCC services.

Other mental health therapy
"Web-based templates for CTBIE, Mayo Portland and IRCK has been inoperable intermittently and not user-friendly"

Need to decrease clerical staff turn over in dealing with the TBI CTBIE''s. Many rules to be adhered to and takes a long time to train new staff members. This creates the possibility of delays and missed scheduling of veterans.

"Interdisciplinary Team Evaluation, patient not physically present."
This is due to provider shortage and rescheduling. Travel distance is a significant impediment to obtaining timely evaluations. This is a rural/frontier state.
"We are dealing with a shortage of providers, both physicians and mid level providers. There is a shortage of nursing personnel, both RN and LPN. We have a critical shortage of physical space, not enough exam rooms to the point of inhibiting productivity. Telemedicine has increased our ability to reach rural areas, and this should be expanded. Providers other than neurologists and physiatrists are capable of performing the CTBIE. We are currently doing this, otherwise we would not be capable of keeping up with the demand."
"We have a significant shortage of licensed neuropsychologists. Each neuropsychologist needs to have trained technician support. We do not have a Physiatrist, no neuro-ophthalmology capability, no vestibular specialist. Audiology access is limited."

"We have a significant shortage of independent licensed professionals, especially psychiatrists, to provide the care. This impacts available timely appointments, both face to face as well as telehealth."

"VA providers need ready access to DoD health records via electronic medical record systems. There is significant delay in accessing the hard copy records. Additionally, the DoD EMR is cumbersome and not easy to read."

"The PNS is overwhelmed and as a PSCT, we have developed alternative capabilities.."

"As noted previously, most issues are due to shortages of professional staff. Once staff is acquired, the necessary support personnel needs to be hired. We do not have specialists in Physical Medicine or a Pain Management specialist."

"Again, the issue is a shortage of trained personnel."

"We do not have a pain specialist on staff. Availability in the local communities is limited. Again, it is a shortage of personnel."

The problem with scheduling relates to decreased availability of appointment slots due to lack of specialty trained personnel. Space is also limited.

"This is awkward in that I am answering proposed solutions about another department, yet I am not privy to what their specific challenges. I am guessing at my answers here."

"Again, I am not privy to the challenges of another department, so I cannot legitimately propose their unique solutions. However, we have a system wherein Mental Health allows walk-ins only rather than allows for physician to physician referrals to psychiatry. I believe strongly that a TBI Physiatrist should be able to make a referral to a Psychiatrist colleague."

"We can do this here in SPRS, however we need the appropriate personnel. I am not sure whether or not this has been identified as a priority by the supervision in SPRS."

This is my favorite question so far and directly speaks to our inefficiencies. We have a doctor and nurse doing a great deal of clerical work and much of the documentation requirements do not feel meaningful to the actual care of the patient.

Weekend clinics and extended hours have been developed in the MRI section
Extended hours on the weekend

[potentially identifiable comments redacted]

"The time between the consult and the expectation of when the patient will be seen is unrealistic for Veterans many of whom were injured years before being screened. The TBI clinics are designed to be one deep, and that puts an unrealistic demand upon staff to treat as an emergency a condition that is not a recent injury when that one deep provider is expected to perform other duties. The EPRP pulls continue to drive and are used to measure the TBI clinic, and might be the best measure, but all of the other focus has shifted to using SAIL as the most important metric for evaluating clinic efficiency. It seems as if all the resources and hires are primarily based on SAIL data, yet most of the criticism and pressure on clinic performance continues to come through EPRP. It feels like metric mismatch. One hears about SAIL constantly, but all the heat comes from the EPRP pulls. It would be nice to only have to worry about a single metric."

"This is a trick question. Remote data allows you to access DoD records from CPRS. However, those records are rarely relevant to the evaluation. They are often VA records that have been transferred into the DoD database, and almost never contain information about injures that happened in theatre or that involved medical care while on Active Duty that is associated with the reported TBI."

"We are exploring starting a Pain Clinic. Fellowship trained pain specialists need to be hired. You have to determine what expertise they are brining to the facility to determine if additional equipment, like a C-arm, is necessary. But many providers won't come to a place that is not set up to allow them to practice.

We at present have some of the components to manage pain patients, but without the Pain clinic leadership we are still working through issues. We are going to be recruiting a Pain Doctor this year, we hope."
"We lost a provider, lost our social worker and our clinic nurse over the last year. We are just now beginning to fill those positions, but we are still struggling to recruit another TBI physician."

"headed by trained NP,OT, as available neuro/forensic psych"
we meet goal of < 30 days
"planning on second LIP to cover PRN
Vaco actions- MUST have easy way to correct record if pt screens + in error and or end s up on tracking application in error"
"Access to BHS critical, we have lost our dedictaed psych on team with littlehopeof replacement in near future.Our neuro psych was murdered in VA clinic."
for us to be fully functioning team need access to bhs same day as TBI eval done as has been case almost always in past 7 years
I have been granted full access to DoD EMR
I have access to virtually any aspect of TBI care needed in house or fee based to ELP
"I provide on going care if needed, PCP manage vast majority of care"
I need a neuro psych or a trained psych on embedded team
"I do not have a SLP, I have to refer all to community this is vital to have on my team"

radiology

the facility has a poly trauma consult used for referral.
"1 Optomologist in recruitment
2 Opthopic tehnicians currently in recruitment
Program currently triages level of urgency for patient access."
Extend funding for acces to care mental health positions.

Polytrauma Network Site
"1. Delay in PCP or OEF/OIF provider placing consult.
2. Reduced FTE in PNS clinic.
3. Patient''s no showing or cancelling appts."
"1. Increase FTE for PM&R physicians with TBI specialization, potential increase FTE in nurse practitioners with TBI training, increase FTE with nurse case managers and clerks.
2. Improved access/speed of the CTBIE web application.
3. Dueling policies for CTBIE completion and EPRP. If a patient doesn''t qualify for CTBIE, they may qualify for EPRP reporting and this is a waste of resources. Also, CTBIE countdown starts from the moment the primary screen is completed as positive, but TBI clinic has no ability to affect when a provider places a consult or if the Vet chooses to return the call/make an appointment.
4. It would be inappropriate to use contracted care for this patient population as it take as long time to create a rapport with patients with TBI such that they will be forthcoming with information, also, VA providers know the DoD system much better than civilian providers, so can empathize with Vets."
We use at times Janus Joint Legacy Viewer and DoD data is difficult to come by.
"Currently, Vocational Services are provided by Vocational Specialists through the Compensated Work Therapy program. This program severely limits the distance a patient can live (25 miles) from the facility. Anyone further is not allowed to enroll. Also, the program will not allow "underemployed" Veterans to enroll as they currently have a job. One other issue is that the program does not support Vets returning

to school. Vocational Rehabilitation Counselor using a supported employment model with distance restrictions or underemployment restrictions will be ideal."

problems with providers for the service being addressed
lack needed providers and techs

"best guess, veterans no show or cancel appt's"

"This clinic is always staffed by a NP, a psychologist, and a case manager (nurse and social work CM alternate)"
"We get veterans scheduled within the 30 day period, unless requested to do otherwise by veterans."
"As for MRI here in Memphis, we have generally one person who reads them and the facility joke is that one must have a 5 cm or greater hole in the head for it to be read as anything beyond normal for stated age. Personnel is vital, but really here an MRI is only meant to r/o organic change other than TBI, as anyone who has read the literature knows that MRI is not close to sensitive enough for TBI. DTI, SPECT, etc. are better techniques for imaging with better relations with treatment, diagnosis, etc."
"First of all, when related to PT, driving 2-3 hours to go to a PT appointment (especially for back or LE) is a farce. One does more damage driving here than can be repaired while here. Home telehealth could be a strong option if equipment is mobile. Additionally, it should be known that providers understand that central office requirements are often ignored so that a facility can "rob Peter to pay Paul." Finally, providers have some good incentives, depending on how well written evaluations are within a particular service or facility. However, our greatest problem are the clerical staff. They have no incentives to do anything. I would never request them to schedule, as they care far less than I do about our veterans as whole. As such, when one does not have intrinsic motivation, then extrinsic motivation can be of assistance."
"Delay is less important at this level of care than the idea that there was little care within DoD, and the plan was to separate the servicemember to receive care in the VA. Sometimes that delay is more dfficult for the veteran and decreases investment and trust."
"At this juncture, this level 1A hospital has two 0.5 psychologists who treat PTSD. This is far less than prior to 911. This is beyond unacceptable. Consults are resolved through a one-time group setting, the wait for evaluation can be several months, and then most people who are given a dx of PTSD are shuffled to a group, with a trauma-focused treatment that may not be best for them. Anyone with subclinical PTSD is sent back to the mental health clinic, where their needs are not really met. A true trauma-focused clinic where subclinical PTSD is treated would be best. It is important to state that this clinic actually does a very good job with the few providers it has. However, we are losing one provider and will be down to one 1/2 time psychologist. Backfills do not seem to happen in Mental Health, but because of the immense strain on providers, people are leaving in droves."
"Sleep medicine has made great strides and are very receptive and the nurse practitioner in charge is a wonderful addition. However, there are problems with providers and clerical staff. Veteran miss appointments, and often the appointments are made without the agreement of the veteran, which would never be acceptable for any of us were we to be the patients. As such, people are not properly informed of their appointments or they are not scheduled at great times. Again, the clinic is doing a very good job communicating with the TBI team and working with our veterans. We also are piloting a CPAP adherence group which assists with that relationship."
"Again, with such a wide catchment area, fee basis seems to be a far more intelligent idea that asking veterans to drive four hours for physical therapy. For those who can do home exercises, telehealth to home may be a great option to keep veterans on track and to examine their efficacy at home."

"Our greatest problem is provider staffing, specifically with mental health. Next,relationship with neurology is not strong. As such, we are creating an Interdisciplinary Headache Clinic within Polytrauma to better meet the needs of our veterans. No show rates, clerical staff, and the ridiculous CPRS/VISTA interface are interconnected problems. Our veterans are younger, do not listen to messages, and only receive texts. Recent research has demonstrated that no show rates decrease with text reminders (Schnur, P. et al. 2015). MHV can be an excellent way to get in touch with veterans as well, which I use personally in my clinics.

Finally, according to OIG from 2010 visit, Polytrauma was doing quite well and received recommendations on care. However, we did not have a physiatrist associated with our team. At this point, the physiatrist at the medical center does sign off on notes, but does not assist with needs. For example, he has yet to countersign our sole medical provider (NP) on her ability to prescribe narcotics (which she rarely does but should have the ability to do). We will also need the physiatrist's or someone''s support in the continued development of our headache clinic."

 Study ID fagUsw

Often a neurology consult is generated as well as a mental health consult as TBI and PTSD often occur together. Usually an EYE consult and possibly an Audiology consult as well.

"Delays can come from logistical challenges, e.g. patients can not make designated appointment dates due to problems getting gas money to come to [location redacted] or cannot get off from work. Other challenges are ensuring that the right address and phone # are correct and that the patient''s cell phone and voice mail are working."

"1) scheduling so that a patient can be seen at multiple clinics in one day is quite labor intensive and it''s challenging to make work. Usually this requires assigning an administrative person to coordinate the scheduling.

2) More telehealth availability is helpful/important for f/u for patients

3) fee basis consults are still quite delayed for some specialties, although this is improving. Fee basis consults can be lost or delayed for months in some circumstances. The critical consults for TBI are sleep and eye."

"MRI availability is a problem, although capacity expansion is starting to catch up. In the mean time, we have a patchwork of fee basis consults that result in a report. Fee basis takes the report and considers the consult closed. However the referring physician (often me) has to call the MRI center doing the study and get the CD and then have it loaded into the iSite system. Not very efficient and with all these handoffs, things fall through the cracks. A better solution would be for fee-basis to take ownership of the entire process. Another option would be some sort of electronic transfer of the DICOM files to the VA and supervised upload of the files to the iSite system for visualization."

"We currently use a mixture of in-house and fee basis sleep studies. The combination of "sleep study in a box" where the instrumentation is mailed to the patient, the patient hooks up the instrumentation and then mails it back is helpful for a crude first pass, ideally we would have this as an internal capability for integrated scheduling and flexibility. We are also capacity constrained for full in-house sleep studies and have to rely on external labs also. Part of this is due to the distances involved, but we have been short of capacity for about 3-4 years. **Our internal measurements of performance seem to have not resulted in change until about the last year, even though sleep disturbances are highly correlated with TBI (there are a number of studies now showing this, which is consistent with my clinical experience)."

"I''m not sure what I would do differently. We cannot put physical therapy in all facilities, but the driving distances are such that any benefit from the physical therapy can be offset by the driving"

"I can''t even answer this question as I never see medical records from DoD assessments for TBI unless I go looking for them in the CPRS Remote system or in the new JLV system (not rolled out nationally yet, but I have access). I never see the inpatient records from Walter Reed, Landstuhl or Iraq or Afghanistan. I sometimes see the outpatient records from remote facilities in Iraq or Afghanistan, but they are few

and far between. I *never* have access to things like sleep studies or the images from studies such as CT or MRI and usually have to re-image anything that I want to look at. I do not have access to MEB''s or PEB''s. Patients routinely arrive in my clinic room saying "I gave the VA all my records" and I have no idea who has them or where I could look for them. Occasionally I find records in IMaging. I have treated a Coast Guard patient and none of her records are in the system as the Coast Guard seems to have their own EHR, not accessible to me."

"Most of the severe TBI goes to [location redacted] and maybe then comes back to the [location redacted] system. 8-90% of TBI is mild TBI, which we handle in GNV as well as stable moderate to severe TBI."

"We are capacity constrained in mental health due to the number of providers we have and the demands for services. We can see patients quickly, but then they may have a long wait to be seen again. We are might be able to be more effective if we see the same patient more often, but that results in delays in seeing others, As delay is what is being measured, not effectiveness (a tough measure), we end up with many patients being seen, but not very effectively."

"The interventional pain management service''s requirement of the area have an MRI before they will do an intervention is reasonable, but this then pushes the patient into the currently quite long MRI queue. So more MRI scanners might help reduce the delay in being seen by pain management."

"Noted previously, availability of sleep study lab slots and f/u on CPAP fittings or re-fittings and SD card downloads is limited. People, space and hardware are needed. I can''t fix PTSD or even sometimes have clear diagnoses of seizure before I get the sleep understood, if not straightened out."

"My administrative support is limited to someone doing my scheduling for me and taking messages. I end up chasing down MRI CD''s to review as well as returning routine phone calls.
Not having MRI scanner capacity directly impacts ability to sent people for interventional pain consults as well as slows down my workup."

some occur at CBOCs via Telemedicine led by Interdisciplinary TBI team
"we are able to offer visits in timely fashion, patients often opt for later times or no show which impacts care"
improved communication of DoD or civilian sleep study results into the VA record would help to expedite this process

Working on increasing the availability of services

"Access is not the issue, many times Veterans prefer a date outside the 30 day requirement, and that negatively impacts the data. Also high rate of no shows in this population causes the same problem."

Change Central office policies: When we have our EPRP the denomintor is very low and this does not represent our TBI services.
Neuropsych is very important Needed for treatment.
"delays also involve contacting the Veteran.
No-shows are very high with this population.
Should maybe not see until the SC is determined."

". There are absolutely no delays stemming from our PM&R TBI providers or staff. Any delays are the result of a veteran who cancels or no shows his appointment, or cannot be reached despite multiple phone calls and certified letters."
"1.)The process of cajoling the reticent or unwilling veterans who have a positive primary TBI screen into making and keeping an appointment for a secondary screen is inefficient and disproportionate to the

number of veterans served by this endeavor. It ties up staff who could be doing other productive things. Some of our veterans have alluded to the process as approaching harassment in a lighthearted way.
2.) ''No-show' rates contribute to delays in many areas of veteran care, to include those related to TBI.As long as ''no-show'' rates remain high--usually 20-30%--there will be unnecessary delays. Patients who do not really want to come in, despite our best efforts to reach and educate them as to the reason, will tend to ''no-show''.
3.) Eliminate the requirement that the TBI provider fill out a registry tool. It is redundant and adds zero value to the clinical encounter (although I would assume it has statistic, research value for someone.)"
"1.)We have workload analyses demonstrating with near mathematical certainty that our number of PT staff is insufficient to handle the number of referrals in timely fashion. We simply need more PT FTEEs.
2.) The hiring process is fraught with delays and inefficiency. Some is bureaucratic and some is related to poorly performing HR staff.
3.) We are not allowed to use wireless technology that would allow PT (and other) staff to use tablets to document bedside or at the point of care as is becoming common in the private sector. This creates inefficiency and space problems as all of the PTs converge on one area to document on desktops."
Sometimes it is available on ''remote data/Vista' and sometimes it is not.
This is a redundant section. These questions were already answered in a prior section.

"primarily d/t failed attempts at contacting pt; they do not call back or respond to certified letter. Also, once the appt is made, there is a high no-show rate (traditionally almost 50%, improved to 33% d/t overbooks, not because patients are showing up more frequently!!)"
current central office directives are put too much onus on the healthcare system rather than the individual patient.
"cannot comment, as I have no knowledge of TBI assessements in DoD"

PM& R in the Post Deployment Integrated Clinic

The Interdisciplinary TBI clinic is within the PM&R department.
Need more providers and have a reasonable expectation of the length of time it takes to accomplish visits for the VA staff and the community. A better scheduling system is needed with schedulers who work with the clinic to keep it filled not just follow protocols.

"The scheduling system is very antiquated and does not allow for the flexibility that is required in the clinic setting. It is also hard to accommodate individual needs because the performance measures group people. This causes people with low medical priority but high connectability, i.e. OEF/OIF/OND to receive priority care. Triaging of care should be based on medical necessity. Needs to be less layers of supervision and more clinical or patient direct care providers hired."
"The supply versus demand for physical therapy has traditionally been inadequate. The current space has been maximized for treatment. Access is very important but many variables confound the situation, i.e. having a seperate service schedule consults, performance measures that make patients priority which competes needlessly for medical needs. Fee Basis is difficult as it is hard to oversee care and determine necessity without notes and notification. It would better serve our veterans to receive services here for continuity of care"
Our availability of providers and treatment area is adequate. Our difficulty arises in scheduling services. This is a seperate service in our facility which makes it hard to oversee. Would like to see scheduling come back under the services for outpatient to have more oversight. New scheduling program for flexibility and efficiency would be appreciated

WE make DOD patients a high priority for TBI and all related treatment options. Have been highly successful in the past

Part of the delay in care was that we were down a 0.6 FTE in NP. Now that we have the 1.0 FTE we have been able to meet the Veteran''s need in a more timely manner. We have tried pilots of scheduling on weekends which have not been successful with high missed opportunities.

Mental health has the best staffing and office space in the facility. The barrier becomes that competing performance measures that makes triaging/access more diffficult. Improving communication with services is helping facilitate scheduling based on medical necessity.

Some questions have already been answered. The high demand of this service makes it difficult to schedule patients with competing priorities. All of the same suggestions made earlier apply

We''ve had difficulty with the second level evaluation template which has not been functioning this year. this requires extra work in the provider filling out a hard copy and scanning into CPRS.

Barriers can results from layers of bureaucracy at times that distract from true patient care.

Loss of staff created delay in referral. Space and other issues as noted unchanged.

short time without trained staff resulting in patients being referred and delay. Now hired staff and no delays.

Designated "TBI/SCI Clinic""

"If neuropsych is requested as part of comprehensive work up, NP clinic is significantly delayed in scheduling evals."

"Staff need time to refine/update specialty skills, coordinate with TBI/polytrauma staff at VISN level, coordinate with other PCP providers. Need clerical/SW/NP staff to keep program definition sharp vs "any PCP"" can address TBI/SCI issues mentality. Even mTBI pts create a more intensive case load."

Wait list is into NOVEMBER (6mos) due to only on NP on staff. Speech therapy staff pressured to perform outside scope of practice due to shortage which puts pts at risk. Field is moving towards remote administration but we''re not there yet; NPs are hard to come by so fee basing service is unrealistic. Late in day/early evening appts already in place.

"No NP therapy allowed/possible given only one provider on site to meet entire assessment needs of hospital (TBI AND all other consult requests). Again, difficult to fee base due to scarcity of providers. Evening feedback sessions now offered."

"Pain, depression are crucial aspects of many polytrauma veterans. With current Opiate Initiative, adequate staff to treat pain in other ways is crucial (BH chronic pain mgmt./Biofeedback/SCS and other pain strategies)."

High volume demand service and not available in house. Should be considered vs fee basis. Ongoing need for TBI pts with increased comorbid OSA but also need for BH and PC pts.

"Primarily related to delay in scheduling per HAS, not due to clinic availiability"

"There are available providers/appointments however there is delay in getting those appointments scheduled. Additional issue is when primary care, MHC providers or others incorrectly fill out initial screening, when second level is not indicated. This may be a central office issue to figure out how to correct these reports, thus not have that information "counted" as pending appointments when second level screening is not indicated."

"We have only one MRI scanner and I do not know staffing or hours of operation of this service. Additional scanner may be useful, but would require more space, staff and support staff. Currently fee basis is utilized. Also, process of scheuduling not always clear and if order cancelled for any reason,

there is no record of it ever having been ordered in CPRS. (Unlike a consult that still lists as discontinued)."

"The VA of southern nevada has had a lot of turn over in neuropsych. Perhaps looking at compensation or staffing (support staffing/scheduling) may be issue. Currently, new providers coming on board, and flow may improve. Fee basis referrals have been done on occasion."

"Currently there is no ""consult"" that can be placed for MHC services, even when Veteran requests it. The ability to request a consult could improve, because this population of patients not always great about follow through (some memory issues common). Also, in near future, a psychologist will work part time with TBI team, to hopefully provide some MHC support at time of initial TBI appointment as needed."

"There is often difficulty obtaining the DoD data from Vista Web. I have inconsistently had benefit of using Joint Legacy Viewer, and recently have stopped trying to utilze it during clinic, because it is not easily accessible (like VIsta WEb is from CPRS) and if ever the PIV card is not inserted prior to starting to see a patient, then program will not even load."

There can be delay in follow up appoitnments due to scheduling issues.

The main delay with pain management clinic is the scheduling of the initial consult.

"Appropriate staff should be hired and retained (recently no one in pulmonary sleep clinic, as provider left VA.)"

"There have been delays in the past for sleep studies and for neuropsychological testing. I have not seen adverse outcomes for veterans and there is always high quality care when delivered. In fact, I highly prefer our internal consultants over outside providers. These are just two services that seem to take longer to complete relative to others. Perhaps more neuropsychologists or techs are needed. That said, if I ever call and request more clinically urgent services, I am always accommodated especially for neuropsychology as they are active members of our TBI interdisciplinary team."

please see detailed response on previous question

Many DOD records available in Vista Web. I am also a participant in a pilot for the new JLV (Joint Legacy Viewer) EMR that pulls records from DoD and VA health systems into a user friendly interface.

Have never referred to regional PNS. Have referred severe TBI/ABI patients to PRC sites.

see previous comments regarding neuropsychological services.

"I am not familiar with the needs and staffing of the sleep clinic. This service has improved in the last 1-2 years, but anecdotally, does tend to take longer to complete relative to other utilized services. That said, if I feel services are urgently needed, I will call directly for accommodation or pursue non-va referral for which I am always supported."

"The required time to open and fully complete the extensive CTBIE template is inefficient. It is a good system but utilization adds several minutes to the encounter, multiplied by ever encounter and it adds up. Also prone to technical failure but VACO remedies quickly and with good communication. Scheduling/rescheduling requirements add to recurrent no-show rates and take slots that first time appointments could have."

"I think there is much consensus that screening for a condition (mtbi) that is expected to recover in days or weeks for the vast majority is a waste of resources. If this must be done, then requiring 3 no shows before a consult can be closed restricts access. There should be a VA uniform no-show policy for all Veterans. Regarding staffing, we were without a dedicated physiatrist position for over a year which delayed timeliness of CTBIE evaluation."

More neuropsychologists would make for better access.

"I am currently split (SW) 50/50 with SCI, a very needy population of which I have 230 patients to case manage. This leaves little to no time for Polytrauma case management."

"PT has been understaffed, as has administrative support."
I know have access to JLV which is great.
"Again, requiring 3 no shows before completing is excessive and restricts access. More support staff might allow designation of scheduling/tracking functions and free up clinical time for case management."

"Sometimes requesting providers do not enter the consult request, in spite of prompts. Some enter the wrong clinic consult."
"Having a dedicated scheduler to monitor positive 1st-level TBI screens would help tremendously or having that info readily available in real-time; educating PCP's to enter Polytrauma consult has been tried, but should have helped; having faculty who are available on weekends could help;"
I have no idea. Not familiar enough with their administrative policies.
Essentially all sleep studies have to be performed through NVCC -- and these have to be approved by a cascade of people -- incredible delays.
"In all cases, DoD records are unavailable."

nearly half of patients requiring speech therapy services live a long distance from VA and many also have jobs/school which impact ability to schedule. With limited speech staff it becomes difficult to arrange appointments that meet the needs of the Veteran in a timely manner. Having easy access to care in the local community would alleviate these issues.
"The TBI second level screening tool in CPRS is difficult to use, frequently does not work and is very slow. While it may allow VACO to collect data, it adds nothing to clinical care for the Veteran."

previously worked in PM&R clinic in [location redacted] VA
pending filling of several positions: 1) MSA 2) PSA 3) SW and 4) Psychologist. pending new telehealth program.
not fully aware of all of the challenges. service has new space and staff.
center of excellence is being developed. support staff is needed.
need more providers for vets
"flow of info has improved with JLV, but it is not always accessible. would love improved access to records"
difficulty with getting testing completed in a timely fashion.
stringent requirements for scheduling tbi pts (central office mandates). just moved to new clinic space and have added new providers this year.

"VHA needs to move forward with non traditional hours, clinics open until 7PM and on Saturdays. Tele-heath capabilities expanded for secondary evaluations at all sites."
This is a service best delivered by the VHA and is central to the core mission of the VHA

Week end & evening availability of services have been implemented lately. Fee base NVCC consult has to be simplified especially for reporting back MRI results.
Increase sleep eval. through Neurology service other than the Pulmonary service providing the testing. This will enhance collaborative management of sleep dysfunction throughout the healthcare system. .
"There's a need for dedicated optometrist/ neuro opthalmologist for TBI patients due to the specific visual problems. Currently, there''s a short staff in Eye clinic at [location redacted] VAHCS."
The mental health eval. & documents are not readily available through the DoD portal.
Improve patient flow in existing pain clinic. This is already being addressed. New pain clinic areas will soon be activated within the next 4 weeks.

Very tedious scheduling & EPRP process. Patient No show rate remains at about 20-22% due to patient NOT engaging.

Veterans received from DoDO facility usually include medical records in the referral packet.

Polytrauma Clinic
"Clinic access to contract clinics and CBOCs for all mental health services including STS, increase availability of walk-in assessment and medication evaluation, access to acute detox programs, access to Anger Management programs."
"telehealth assessment for medication management in outlining clinic areas, more access to interventional pain management services. Improved communication with DoD regarding pain services received in military."
CO requirement for certified letters for scheduling purposes?

"In order to improve services to Veteran and remain compliant with the timeliness of the CTBIE''s, the Wilmington VAMC needs a dedicated provider who is flexible and able to see patients at their convenience. Veterans are often inconvenienced by having to return to the WVAMC to complete their CTBIE. This provider should be under the PM&R service line."
"For the [location redacted] VAMC, the [location redacted]VAMc was initially doing their Neuropsychological evaluations. This process stopped in December 2014. Now that our providers are responsible for completing them, we do not have enough staff to administer them in a timely manner. Two of our Psychologists are trying to incorporate the NeuroPsych evals into their schedules. It is very difficult to accommodate Veterans who require a Neuropsych eval due to the already overwhelming caseload that the providers have. It is vital that the [location redacted]VAMC have the ability to hire one or two professionals who are capable of providing Neuropsych evaluations in a timely manner."
"This writer, who is responsible for all of the case management services for the Polytrauma/TBI Veterans, has been detailed to other clinics within this hospital over the past year. It has been difficult to maintain timely access and case management services for Veteran when more immediate concerns are present. This writer has begun the discussion of Telehealth implementation with the necessary personnel at this facility."
The majority of Veteran that are seen in the Polytrauma/TBI clinic are already affiliated with BHS. Some of them are already being seen by providers and other are being referred to the intake evaluation after completing the CTBIE. The [location redacted] VAMC could always use additional MH providers to provide specific treatments for our Veterans.
The [location redacted] VAMC no longer has a Speech and Language Pathologist. We have been down to one SLP for the past year. She recently resigned and we are now sending our SLP patients to Perry Point VAMC for evaluation. [Location redacted]only has a few openings for our patients that they are trying to fit in.
"There is no dedicated MSA for the Polytrauma/TBI program. Most of the Administrative paperwork, scheduling and telephone calls are completed by the Polytrauma/TBI Coordinator."

This is not due to access to the TBI clinic however due to Veteran forgetting/re-scheduling clinic multiple times therefore prolonging time from positive screen till TBI eval or the Veterans'' preference on being seen in a certain location. Also at sites where we use telemedicine there has been technical difficulties with the equipment. At [location redacted] we are able to see the patient typically with in 5-10 days.
"It would be helpful to offer one Saturday a month for therapy and CTBIE time slots, and perhaps two evenings a month."
Upgrade their current facility.

C.O. needs to formalize what they define as Pain management. This system would be more holistic and involve not only medical management but also inclusive of C.A.M.

Reduce time from consult for sleep study to actual getting the appointment scheduled in the community

"We need more providers to be able to complete the 2nd level evals in the 30 days. Also need more streamlined scheduling, currently only billing office can do and they do not understand our schedule needs. Working on getting texting available to veterans."
The city only has 1 neurooptometrist. The VA does not have one. Not sure how enthused the Opthamology staff is to send patients out for testing.
A lot of our veterans live over an hour from the hospital. They don''t qualify for fee services but can''t travel for therapy that far. We do have some CBOC services but could use more locations for PT.
"Same as PT. Need to fee more out, too far for a lot of the patients to drive for services. We do not have OT services out in the CBOCs."
We currently do not have a pain provider. It takes a long time to get the services feed out to the community.
"The providers have to put in our own orders, make phone calls, run state drug screens, etc. No nurse to do that for us. The Case Managers do not have time to do it either."

Use of technology to improve or circumvent no show rates such as texting patients or using telehealth. Very limited reception of VA cell phones in our facility makes it difficult to use this mode.

"1) IT - CPRS scheduling is inflexible and is hard to allow admitting patients off regular hours.
2) Change "central office policies"" (a) the filling out of the template is very time consuming; in addition it prevents optimal eye contact with the patient, hence effective communication; (b) the rush to admit patients on time (even when the injuries occured years ago) adversely effects the quality of the time spent seeing new patients
3) ""Increase weekend and evening availability of services" - if the numbers of critical staff can''t be increased, then increasing the hours of the clinic is needed, but difficult yo implement due to staffing inssues
4) "Some other solution(s)"" - Allowing for time of the MD to review new patinets with the LCSW and RN (since the see the vet 1st) would help improve initial insight - but this is not possible since there is a ruch to get patients in and seen"

"which includes PM&R TBI specialist physician, PT, OT SLP, Psychology and Nursing"
"central office policies"" 30 day policy - the community does not have 30 day routine access. CHOICE does not have anything close to 30 day routine access, nor does pc3. PERSONNEL: need more sleep techs who are paid well. VHA pay lags the community significantly. VHA HR PROCESSES ARE ANTITHETICAL TO THE PROVISION OF TIMELY QUALITY CARE."
"""""
personnel actions remain constipated in HR processes that are outdated, too narrowly interpreted and with multiple layers of narrow interpretation (local HR ass't, local HR specialist, local asst chief of HR, local HRO, VISN CCU, VISN HRO, CO HRO). Perfectly designed to avoid onboarding quality personnel in a timely fashion."

"It would be helpful to be able to better utilize technology (text messages, email, etc) to help with scheduling of these young veterans."
currently feeing out some neuropsych evals

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currently feeing out large number of ophthalmology services all all neuro-opthal.
DOD and VA do not have nation-wide systems to share medical recors. This hascontributed to delays in ontaining old medical records.
TBI interface crashes often.

"Delay due to staffing, this has since been corrected."
"Increase LIPs, nursing, and SW. It would be beneficial to have text messaging of reminders for upcoming appointments. Tele-health - provides prefer face-to-face for initial appointment."
Have medical records "talk"" to one another. Our Audiology group expanded weekend hours to accommodate Veterans. Continued efforts to reduce waits for Sleep studies using nonVA care or Choice.
"Audiology noted delays, other services report no problems."

Difficult to recruit area due to rural frontier arena
Non-VA care has limited access capacity in the State.
See previous comment

"NP's or physicians as well as LPN/MSA, improvement in speed/processing of required templates would improve efficiency, scheduling software (VISTA) is incredibly inefficient and cumbersome, our Vets have been surveyed and do not desire evening/weekend appointments"
"Difficult to assess services provided by different departments.
Scheduling package makes scheduling and monitoring difficult across services"
Unable to speak directly to the needs for the service providing MH
Difficult to speak for another service/discipline
Difficult to speak to the needs of another service

cumbersome templates

Our process that led to delay involved lack of speicalty trained provider onsite to complete the CTBIE. We are in process of modifying this to have a PCP trained onsite to complete.

PSCT (Polytrauma Support Clinic Team)
"no delays resulted in adverse effects - however, with only one provider performing CTBIE(and all other assessments regarding TBI) there are inevitable delays and the metric does not reflect the true number of referrals."
"more space is always needed
back up to solo provider for CTBIE
allow use of up to date technology such as text to remind Veterans of appointments
Use Fee basis back up for CTBIE"
We are a Polytrauma Support Clinic Team (part of the Polytrauma System of Care)
see previous comments
I am not conversant with the reasons for any delays in Mental Health
"across the board increase in funding, space and clinical and support personnel needed"
there is too much redundancy in the reporting required by VACO for TBI the CTBIE report is of little clinical value and the use of the Mayo Portland is not appropriate for many settings.

"1) We need for more staff trained in diagnosis and management of TBI.

2) However, there are a number of patients that repeatedly miss appointments, and thus extend the wait time for everybody."
we need more openings in neuropsychology
there are no fee-basis services that are really applicable to these patients

"Timely receipt of referral for Comprehensive TBI Evaluation to PM&R from Primary Care or Mental Health, following TBI Screening, has caused delays in CTBIE"
Providing Medical Supports Assistants(Clerks) to scheduled patients in the required CTBIE time frames is very important
"Increased Sleep Lab Rooms, Technicians would greatly improve Sleep Assessments"
"Increased Mental Health Professionals, and Telehealth would greatly improve Mental Health services to Veterans."
Increased Neuro-Ophthalmologist would greatly improve eye care.
Patients are often received from distant DOD medical facilities with limited medical records.
Increased Pain Specialist would improve care.

Post Deployment Polytrauma clinic

Lots of funding for Polytrauma site- those funds need shared with Polytrauma Support Clinic Sites as that is where the bulk of follow up and long term care resides.

"MRI's main challenge is space. [Location redacted] VAMC needs an additional MRI for a rapidly growing veteran population, but we must build additional space to house the MRI."
[location redacted]VAMC is critically short on exam room space.
"Audiology''s main challenge is a shortage of hearing booths for a rapidly growing veteran population. We can acquire the booths, but need space to place them. We also experience a large Comp & Pen demand for audiology booth time. Perhaps we can relax the VA policies on hearing test requirements in comp & pen."
We must have seamless bi-directional interface between DoD and VA electronic medical records.
Space in PM& R for TBI counseling is our main challenge.
Neuropsychologists are extremely difficult to recruit.
"Pain Management clinic must meet the space requirement for CARF accreditation, which is extremely challenging given our growing veteran population. Psychologists and OIPP Directors are extremely difficult to recruit."
Same comments as in primary care. CPRS inflexibility is a huge issue.

"currently no delays, did have space restraints. Also, training provided to schedulers."
"Expanded hours in optometry. Recently hired additional Ophthalmolist. Currentlyno wait time issues. We have a Center of Balance, with designated team that is able to adress many clincal assessments in one visit."
We have a designated Polytrauma Team working out of the PM& R section that follows patients closely and offer a wide range of services and adaptive devices.

Currently meeting need No show is biggest problem
Vist is 4 hrs and no show biggest problem
Vision therapy not eval feed out
almost impossible to get
more staff

TCM Team

Additional neuropsychology services have been added during the past year. There is no longer a delay.
Problem of delays was addressed during the past year
The TBI screening program is flawed and has resulted in too many veterans being diagnosed with TBI based on limited info. The need to complete Mayo-Portland evaluations for mild TBI patients is not helpful.

Need more MAS for scheduling. Need to improve phone system for faster and more efficient communication for patients. Reminders by text.
see initial comments

Availability of MRI is limited at facility. Fee Basis care is often utilized but the process often gets in the way of timeliness. Our facility needs more equipment to perform MRIs or the process for Fee Basis care should be simplified to provide access to these services more quickly.
"There are no sleep lab services available at present at facility, however, a sleep lab is in development which will improve access to this service. Fee Basis is the current way to access sleep studies and the process gets in the way of timely studies. Fee Basis process should be streamlined."
Facility needs a full time Neurologist to evaluate and treat Veterans. Fee Basis process is utilized but takes time to get approval and an appointment scheduled in the community.
"Sleep studies are not available at facility but are arranged per Fee Basis in community, however, the process takes too long. Sleep study lab is being implemented now which will open access to care once completed. Fee Basis process needs to be streamlined."
CTBIE template is not user-friendly and is periodically updated resulting in errors that lead to inefficient use of provider time as the provider must enter clinical information several times before server will save data. Policy Documentation requirements overlap and result in redundancy in documentation for example: TBI Second Level Evaluation has a plan of care and yet a Rehabilitation and Reintegration Plan of Care is required which has same information noted.

"There is a need for Vestibular Rehab -- combination of MDs, PT and Audiology. Collaborative efforts among these specialists will help in the well-being of our Veterans. Resources are available within the VISN."
"More space need to be allocated for the Audiology section. In 1 campus, the space allocated need to be reassessed for increased efficiency. Additionally, staff coaching can also be instrumental in increasing the efficiency of this section."
Staff training/coaching on gaining balance and vestibular rehab.
Individuals trained in the cognitive and physical aspects of TBI with regard to schooling and employment.
"Reasons for Patients No Show include transportation, clerical and constant reminders."

Greater clarity in national recommendations

"Patients are sent to Physical Medicine and Rehab clinic; however, there is no dedicated provider in this clinic to timely respond to completion of 2nd level TBI evaluation."
Delay due to staffing issue and lack of leadership support to address this issue in hiring appropriate personnel.
"1. Dedicated physician to complete evaluation.

2. Training of primary provider and other disciplines in completion of the initial TBI screen.
3. Backfill TBI Coordinator''s (Social Work) position to manage the process, respond to consults, complete treatment plan, and coordinate appropriate clinical interventions."
Dedicated Neuropsych provider for OEF/OIF/OND Veterans to assist with evaluation and clinical interventions.
"1. Backfilling TBI Coordinator (Social Worker) position to provide adequate case management services.
2. Dedicated schedule to contact patients.
3. Training"
Hire dedicated trained mental health provider in providing care to TBI patients.
"1. Hiring dedicated TBI Coordinator and physician.
2. Hire Nurse to support team and managing care.
3. Hire admin support staff to support scheduling of the clinic."

"PM&R TBI/Polytrauma Clinic includes physiatrists, neuropsychologist, and RN case manager."
"Delays only occur when the person performing the TBI clinical reminder screen fails to send the consult for a CTBIE, which is automatically opened by a positive screen."
"Space and clinical staffing are adequate. Telehealth equipment is available but remote site staffing is not. Current clinic scheduling package is woefully inadequate. Efficient scheduling is difficult when physicians see patients in multiple clinics having different stop codes (e.g., TBI, amputee, EMG, physiatry, and pain), with each stop code requiring a separate clinic profile. Technical definitions for compliance monitors need to change to remove patients who screen positive in error from analysis(e.g., LVN enters positive screen then PACT MD deletes CTBIE consult after determining patient did not understand screening questions and had no exposure). Adding resources should only be considered after the extremely poor selectivity of the TBI clinical reminder screening tool has been addressed. The false positive rate is unacceptable. Section 4 should be reworded to clarify any current symptoms must have started and continued from the time of the exposure, not have developed de novo."
Need another MRI scanner.
One of 3 pain physician slots and a pain PA slot have been vacant > 1yr. New pain physician scheduled to start next month. PA candidate declined due to salary. See previous comment regarding scheduling software.
"Mandatory training, often on material covered multiple times in the past, cuts into clinical time and reduces workload credit. Staff physicians have little administrative/secretarial support. Medical record entries must be typed by the providers. Lack of dictation services (a few providers have Dragon software)."

Need addition of ILP (physiatrist and psychologist) to increase capacity. Central office policies need to be adjusted to allow for repeated no-shows/cancellations with these referrals. Number of Veterans disengage from the process after referral and cannot be contacted for scheduling.
DoD records were not requested on any referrals in the past year.

We generally don''t see acute or subacute TBI

Change the timeframe metric/requirement for Veterans who no-show/repeatedly no-show

Information technology - a better way to track who has received a positive TBI reminder but that a consult may not have been placed.
In the past we have not received any records from DoD assessments. With the roll out of JLV we now have some access to these.

TBI Clinic is held in the PM& R Department with an interdisciplinary team.
Evaluations are generally available in remote data.
Regional polytrauma referrals are made with initial moderate to severe injury and are made on an as needed basis for chronic symptoms less frequently.

"New psychologist was selected and currently ungoing HR processing.
No adverse events occured as pateints were offered appropiate MH treament."
"To prevent delays, if DoD information is not readily available we contact DoD Practioners"

Focus should be on symptoms management and not ''TBI'; mild concussion. I think we do more ''damage control'; with that label . Also manage symptoms in context of psychosocial issues. cannot use a traditional medical model to treat these Veterans with Combat Stress issues. Eliminate Level II TBI evals - essentially useless - uses up valuable time away from symptoms and psychosocial management. Focue on rehab and job school success rather than treat ''TBI symptoms'; Very unproductive and improvements not long lasting until overall psychosocial issues addressee with at least equal importance "The whole Level II TBi evaluation process with perfomrance measures are too cumbersome. Penalized in performance measures if you are ''tenacious'' and able to schedule patients beyond the required three phone calls, certified later. - Median days to level Ii TBi eval is longer despite following ''leave no vet behind''/"

Add addtional in-house MRI capability.
add in-house capacity for main hospital and CBOCS for MH services.
Recruit neuro-opthalmology resource to add to neuro-ophthalmology/Neurology resource already available.
"make the DOD and VA electronic record sharing more robust and comprehensive,this will take the burden away from case managers who have to get paper records.Also,DOD should improve scanning the outside care documents into their electronic records."
Add more in-house MH capacity

Provider covering TBI clinic changed so there was a time when no one was covering TBI clinic.

Speech therapist are vital in the role of moderate and severe outpatient TBI treatment. The use of NVCC is vital for those that live a great distance. Many CO directives do not address the real need of having the ability to schedule and contact Veterans more efficiently. Wait times are arbitrary and rarely reflect clinical need or community standards.
Many Veterans that are screened for TBI are many years past the initial incident. It is important to address their clinical needs but the required templates are not necessary for many of the evaluations. The scheduling system is often down and does not provide an easy scheduling process. The documentation often requires providers to complete encounter information that is purely administrative and adds to documentation time.

- **ACS**

"Because of affiliations with teaching institutions, we need to have more house-staff in ED, Internal Medicine, Cardiology, CT surgery, etc. in addition to professional staff (physicians, mid-level providers, nurses, techs, PSAs, etc.) in well-equipped chest pain units with user-friendly ACS pathways and protocols."

To have ambulances at site 24/7 for possible transfer to non-VA facilities where there is no cath lab available on evenings and weekends.

"To provide funding to make current cath labs 24/7 operations with space, including separate CCU and step-down units, and adequate staffing."

We need 24/7 on-site CT surgery with adequate staffing of a SICU geared towards cardiovascular diseases and postoperative care.

"We were on diversion and no beds were available in the ICUs, telemetry or general wards."

"We need to make our current observation unit to a well-equipped and adequately staffed cardiovascular observation unit with 24/7 operations. Most importantly, we need our own CCU as a separate space with adequate equipment and staffing at all levels."

"Last minute requests (like this survey) detract from patient care time. So do long training modules, and associated interruptions in provider computer access."

"Retention allowances were delayed or eliminated, and consequently sonographers lost."

Need more beds.

Survey is becoming duplicative and tedious. Information from this point on is of dubious reliability.

education that PCI and thorombolytics are equally effective in some patients.

Often we hear "no beds available" for admission of ACS patients -- not so much because of inadequate physical beds -- but because of delays in discharges or transfers out and inadequate nursing staff to open all potential beds.

See preceding comments about inadequate nursing staff to open all potential beds to accept transfers in.

"We have enough medical provider staff- we could use a LMSW to help us move people more quickly out of the UCC so we can can for our ACS and other urgent patients more quicly. We areflexing scedules to better serve during peak hours. We have antiquated space/layout that is in the plan for renovation. We will be working on a method to simplify transfers and may need additinal support assistance after duty hours.Beacuse we are an UCC with an inhouse telemetry unit, admissions or transfers are a hot priority here. We get immediate approval for transfers, delay is on the receiving end.or transportation. Overuse of UCC for primary care continues to plague us as well as the rest of the nation.We need pharmacy support afterhours to improve our flow and service but that generally does not impact ACS. We have routine orders , as soon as they are ruled in or out, they are transferred. If unstable chestpain-immediate transfer. Cut and dried."

Straemline CPRS.

Cardiology services here available M-F 8-1630

"Our hospital is a level 3 facility no invasive cardiology services. We are too far from the nearest VA hospital to offer VA emergent cardiac invasive procedures- all are done locally. Usually the next facility does not have bed availability for emergent cardiac services, if it can wait ."

"Cardiologist is alotted a fair amount of time to review echoes, stress testing. Fee based provider on boarding to increase volume.

UCC poroviders have a fair amount of administrative work- cardiologist 95 &+ clinical."

[Location redacted]does NOT have inpatient medical beds
[Location redacted]does not have cardiac specialty or inpatient medical beds.

"Having more exam rooms, so patients are not waiting and ability to independantly manage patients will help expedite the entire process."
This is not a significant problem for our va.
"documentation, cart notes and imed consent is cumersome. efforts to do urgent cases locally are already in place so we can avoid delay in care."
This is not a significant problem for our va. Delays are rare.
More beds necessary at the accepting VA transfer site ([location redacted]) reason for delay for the most part is no available beds.
"This is not a significant problem for our va, transferring patients to local hospital for urgent care. Delays are quite rare. If a procedure is emergent, every effort is made by both parties to transfer pt for prompt care to non va facility."
"Busy schedules at the accepting VA facility I think cause the delay in care. Lack of spots for surgery, cause delays."
Ability to do echo''s and nuclear stress tests during the weekend can expedite the process.
"Not enough clinic slots, limited providers,
inability for primary care to take care of patients independantly"
"This is a rare problem, our accepting VA makes every effort to accomodate"
lack of beds to accept transfer is the main issue

We would benefit from more Interventional Cardiology FTE and from increasing Cardiology salaries to be competitive with local non-VA salaries.
Increase Interventional Cardiology FTE and salaries
"Our VA referral site for CABG is 4-5 hours away. This is too far for patients to travel and makes appropriate follow care difficult. In addition, the VA we refer to has a very large catchment area for referrals and cannot reliably handle the load."
It would be in the veterans' best interest to be able to undego CABG locally.
"Our facility has too few inpatient beds for busy months of the year, e.g., flu season"
It would improve referral times if we could use local non-VA surgery practices.

Follow-up appointment as outpatient after ACS is too long due to lack of clinic availability.
Access post ACS in timely fashion to outpatient clinic is main bottle neck.
Post ACS access to clinics after hospital Discharge is the key SHORTAGE in ACS.

More provider (physician/NP/PA) coverage may be helpful. Additional tele beds and nursing would be helpful. Reducing paperwork for transferring STEMI and Imed delays would be helpful.
Admitting mid-level support for the teams may be useful on Saturday/sunday and additional provisions for admitting patients during busy times. More nursing for more inpatient beds would also help.
Redirect patients with STEMI and likely higher risk NSTEMI when w/in system cath is not available.
Echo on weekends would be helpful at times. That would require echo techs/cross trained radiology techs and either remote reading or in house reading.
"More nuclear stress testing capacity, both on weekends and perhaps even after hours would be very helpful in risk stratification."

"We find that it is very difficult to transfer patients to other VA facilities for coronary angiography. Building and staffing a cath lab in Boise would help, as would more use of fee-basis service and medically re-directing when in-system resources are not available."

"We usually get our STEMIs out in time and there are no issues with local acceptance. Rarely ED crowding issues might delay STEMI care, but this would be quite rare. When we have had delays, it is purely systems issues like using non-emergent ambulance."

More capacity to do coronary interventions within the VA is essential. We frequently have trouble transferring patients for coronary interventions and wind up using local non-VA care.

"We can usually get non-VA CABG done, but within the VA system getting CABG done can be delayed by bed availability in our tertiary centers."

"On occasion we cannot accept a patient in transfer because of bed availability, but in general we can accept patients if they are appropriate (however we do not have a cath lab)."

"Getting a cath lab here would help a lot, as would additional inpatient telemetry/icu beds."

"More capacity (fee-basis, after hours, etc) for nuclear stress testing would be nice."

More capacity for CABG in our tertiary referral centers and more CCU/telemetry beds would expedite elective CABG.

"Increased cath lab availability and the attendant staffing would improve our access to PCI, either at our facility (none now) or our referral centers."

"We have resolved our situation with the delays in echocardiography scheduling now, but about 3-4 months ago, there were significant issues. This is related to some of the regulatory rules about when we can advertise for new personnel. Specifically, we knew several months ago about the retirement of one of our echo sonographers. However, we were not allowed to post for their position until the person actually left. This left us in an impossible situation where we did not have enough sonographers to cover the entire number of people referred. It took several months before we could hire and bring in a new person. All this could potentially have been avoided if we could post for positions sooner, especially when we have advanced notice about an employees' departure.

The vast majority of Veterans do not want to take advanatage of fee-basis opportunities or the Veterans Choice Act. If the services can be offered at the VA, they seem committed to staying within the VA. So, it would be helpful to provide the infrastructure to help them do so."

"Some ER physicians rotate through the ER on a fee-basis and so they are not as aware of the protocols in place to evaluate ACS patients, particularly the STEMI patients who require rapid evaluation.

Easier and more efficient methods to transimt ECGs to cardiologists to evaluate would be helpful especially during "off-hours." When there are ECGs that raise concern amongst ER physicians, they often would like a cardiologist to quickly read, and facilitating this could improve Veteran care."

"The transfer of patients within the VA happens quite well. However, we do notice that at some VA facilities, there are Veterans who could have been transferred to our VA in [location redacted], but the patients somehow end up going to a local non-VA facility. If this was patient-driven, it may be okay, but our perception is that often times, it is a decision driven by a fee-basis physician working at the outside VA facility."

"The scheduling of preoperative testing does results in some delay in the scheduling of procedures, such as CABG."

"One of our cath labs requires an upgrade, and the time for upgrading it seems quite long due to lack of funds and the number of approvals required. This particular lab does repeatedly break down requiring additional servicing. Fortunately, it has not led to a significant patient-care issue or delay in therapy as yet.

There is occasionally issues with bed availability restricting our ability to quickly turnover patients, though this rare.

The no-show rate is somewhat problematic in the outpatient setting and prevents us from seeing the maximum number of patients possible."

We have physical beds but not enough nurses to take care of patients; hence the wait time for inpatient beds. We cannot transfer ACS patients (to our VA for cardiac cath) easily from outside hospitals or other VAs because of the ''bed situation''
Lack of nursing staff despite adequate physical beds and space. There are plenty of doctors and cardiologists who are happy to care for these ACS patients who are turned down due to low bed availability
No delay for any urgent or emergent cardiac cath or echo services. Occasionally stable patient Echo may be done the next day if schedule is too full.
"Need more OR space and time for CT surgery
Need an additional CT surgeon for CABG"
"CT surgeons may need another day of OR time and space on Sat to manage the workload.
Also easier fee basis transfer to affiliated Univ hospital could be expedited to help manage the workload"
"No physical beds
Poor communication between bed control and AOD
Too much of paperwork/computer work"
"Need better functioning over weekend to enable transfers
Better communication with Bed control and AOD
More weekend personnel to facilitate transfer and care
NEED MOR BED CAPACITY"
"Need more CT surgeons
Need more OR space and time for CABG
Need additional Nurse Practitioner / PA to help manage the CT surgery work load
Better fee basis to Univ for elective cases which could be delayed"
Not a big issue or delay with this aspect
"Need more CT surgeons
Need more OR time and space"
If we have more staffed physical beds and some more personnel we can easily take care of 50% more volume happily

Remains critical to foster community relationships as we rely on community resources to rapidly accept our referrals
Again continuing to foster/nurture relationships with community resources as we fee out all acute coronary care
Currently our only available risk stratification is ETT with or without sestamibi. This is reasonably available (same or next day) M-F. Other modalities (dobutamine echo or stress echo) are done by fee. Improving timeliness of these approvals/referrals would be helpful.
Beds on the receiving end (in a tertiary center) always seem to limit availability to refer within the VA. Our access (via phone or tele ICU) with tertiary facilities is good.
again fostering good community relationships is key to access local care quickly as these are all referred locally within the community.
Still all about local facilities willingness to accept our referrals.
Beds in referral facilities is the key rate limiting aspect of these referrals.
"Stable ACS patient" is an oxymoron. As we don''t cath patients at this facility we don''t generally accept chest pain referrals.

"Don''t think it is reasonable to anticipate the workload for more than a M-F service. In our small facility there is 1 ekg tech and 1 nuc med tech, and their absence (for sickness, leave) derails our ability to obtain ETT with sestamibi, our only modality. Dobutamine echo as an option would require substantial investment in personnel and space, and so long as these are available timely by fee I don''t think it is worthwhile for us to do these."

"Again, as we don''t cath patients most of our process is assessment and referral by fee for care locally either as an inpatient or electively."

"Patient load in ED has increased tremendouslywithout corresponding increase in room, support staff, facilities, medical staff, administrative staff. We've noted the ED has a crisis limit where even a few patients over that limit causes major slowdown in patient care. All services (Hospitalists, Psychiatry, Surgery) affect the flow of ED and are out of control of the ED. Further, a non-urgent acute care department needs to be associated with every ED in order to better serve the patients with serious illness."

"The ED needs to be at least twice as large as it is currently to serve the Veterans. Needs to be staffed with more full time ED docs, nurses, NP/PA, admins, phlebotimists, transport, pharmacists. VA needs a functional schedule system and health record that is based on modern technology-a commercial software used by other hospitals should be fine. Radiology should be available 24/7. Full time psychiatry support in ED is critical as SI/HI patients often require tremendous personnel support and rooms, slowing down ED care."

"Currently remodeling 4th floor which should increase number of tele beds assuming more units will be used once the extra beds are open. Sometimes have to put patients in ICU when tele/SDU beds are full. I think the delays are usually attributable in small parts to several services which add up. Busy MDs need time to eval in ER and write admission orders, busy nurses need time to take report and admit new patient, bed turnover from the last patient takes time."

Our Medical ICU has 6 beds and usually has to use SICU beds for spillover. Being at 2 different ends of the hospital it is inefficient but works for the most part. If MICU expanded nursing staff would have to be increased. Keeping up with monthly data about timeliness would keep it in the forefront of the minds of LIP/nursing/ancillary staff.

"We currently need more echo techs because their schedule is full. If one tech is out the other has a double load. Also, inpatients wait until afternoon behind outpatients to get their echo which can delay discharge. No echo available on weekends so some requiring holding until Monday afternoon to be evaluated."

We would like to hire another cardiologist which would give more flexibility to our current staff. Patient''s with intermediate risk factors admitted over a weekend have to stay until Monday to get their stress test. Don''t think our institution is big enough to justify 7days/week availability.

Currently our cath lab is only used for scheduled cases and emergencies during regular work hours. We are trying to increase cardiology staffing which might allow for more availability in some situations.

"If we have an STEMI after hours it will require transfer from VA to university which will take a minimum of one hour, usually more, to work out. We cannot staff a cath lab 24h, 7d a week."

"Having 24h, 7d/week cath availability here is not feasible. It is a long tedious process to send an inpatient to another facility after hours. Not sure what parts could be simplified or eliminated."

Transferring a Veteran to a larger VA offering CABG services is slow and usually requires keeping the patient on our inpatient service for days until (1) Cardiothoracic surgeon reviews films and agrees to do it (2) picks a day they want him to arrive and (3) travel can be arranged. The answer is to stop requiring us to send people so far from their home and family to get life-altering surgery.

"Transferring someone anywhere from inpatient service requires so much administrative work, however, I''m not sure any of it can be eliminated. Per my last patient transfer--there just weren't any obvious short cuts."

"VA should conduct a yearly market salary analysis for all providers to maintain competitiveness with community standards. We should also be flexible in allowing for incentive pay for physicians based on RVUs or productivity. Regarding recruitment and hiring processes--HR should be able to have a provider start date of 30 days or less. Current practice is 4-6 months before EOD date is given to selected employee. Regarding Contracting issues in relations to equipment purchases, simplify process to allow acquisition of equipment in a timely manner (60 days or less)."

Optimal availability of resources
The cardiac cath lab must be optimally equipped.

"Facility volume in general and the ED''s in particular has greatly increased and without a corresponding increase in resources. We need additional ED exam rooms and the staff to service them including Physicians, Nurses, LPN''s, and techs.
There are an insufficient number of Tele and ICU beds for our population. These areas are often filled to capacity requiring our patients to be transferred out. Additional rooms and appropriate staff, eg; ICU RN''s and so forth are needed.
Everything needs an increase on the order of 50%, and this is simply to catch up to present demand. This does not allow for future growth in our population base, which is clearly going to occur.
We need an X-ray suite within the ED,
Radiology needs additional personnel for staffing on nights and weekends when there is often only one X-ray tech for the entire building and services the ED, ICU and OR simultaneously.
All departments involved in the care of the cardiac patient need improved and increased administrative support at all levels.
Central office rules on Physician scheduling are too restrictive and need to allow for working more than 80 hours in one pay period either with compensation for overtime pay or additional leave days, or by allowing fewer hours to be worked in other pay periods.
An in-house transport service to move patients to and from X-ray and to inpatient beds from the ED would speed flow. This is at present a volunteer staff and at that is inadequate in number for present needs."
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"Ratings apply to patient care in general, as it is difficult to isolate care of ACS patients from the general population in these aspects."

"Employ well trained ED phyusicians. Not newly graduates. Provide ongoing training, feedback, case discussion and follow-up for ED physicians."

I recommend immediate cardioogy consult in the ED for every patient being considered for ACS admission. As done in the private sector.

"Delays may be improved by pre-procedure screening and adhering to ACC/AHA appropriated use criteria. By reducing unnecessary tests, delay would be reduced."

"Staff training, mock drills, in-service for new health care provider, physician feedback"

"Having the PCI team memebers living wihthin 30 min to the hospital makes it easier to achieve 90 min D2B time. Otherwise, the team have to make up time in other process areas."

"dealy due to
1. lack of beds
2. lack of nursing staff
3. inefficient discharge process that ties up beds"

"Blocking patient transfer UNTIL a bed is physically empty. Bed control is unwilling to "anticpate" upcoming discharges and patietn transfer time. i.e. if one knows a bed will be available in two hours, then one should accept pt for transfer that has a transfer time > 2hrs."

The surgical service admits patient 3-4 days for pre-CABG evaluation. An inefficient use to time and beds.

Too MANY nurse administrators (chiefs)monitoring and not doing actual patient care work. Too many repetative documentations set up by administrators to meet JACHO requirement. Too many hospital wide balnket policies that should be taylored to departmental needs.

"All delays have to do with transportation, not the personnel at either facility; and certainly not due to delay of care. I would recommend improving the contracts with services that transport our patients, OR to have our own transport immediately available (although I am aware that this is a very costly service to maintain).
I recall cases (not so much names unfortunately) where there was a 2-3 hour wait for STEMI or NSTEMI - because the ambulance couldn't get there in a timely manner, for a 10 minute drive to the nearest hospital that could perform PCI. Fortunately in all cases the patient had already begun to stabilize clinically, but I wouldn't prefer to rely on luck alone."
"All delays are related to transportation time and availability. I would recommend improving the contracts with services that transport our patients, OR to have our own transport immediately available."

Establish better memoranda of agreement.
Increased bed availability of beds at the receiving hospital.
Bed availability is the primary issue

[Location redacted] VA does not have a cath lab. and it doesn''t make a true business case to have one.
Transfer of patients to other VA is delayed by distances not used in cases of ACS
Delay is lack of bed in different hospital.
Primary PCI in STEMI not usually done at another VA due to distance traveled.
Stable ACS transfer for possible PCI would like to have further testing over the weekend prior to transfer accepting provider from outside hospital doesn''t want to take a patient earlier.

"VA is not competitive (salary) in hiring echo technicians. This results in delays in getting inpatient echocardiograms. Also numan resources process is extremely slow, hiring process takes 6 months or more. An alternate short term solution was suggested at this VA (hire contract echo techs on an as needed basis; it turns out that drawing up a contract for this is also very slow). VA has become increasingly bureaucratic and inefficient in terms of hiring, this is affecting patient safety and care, and is also very expensive as increasing numbers of patients are sent out to community."
"Generally inpatient response is reasonable, problem mostly on outpatient side. Weekend coverage would clearly shorten hospital length of stay for patients arriving on Friday or Saturday. ."
Currently ED is staffed nights and weekends by moonlighting University fellows many of whom are not expert in rapid diagnosis of STEMI. Hiring ER trained and certified staff 24/7 is only way to fix the problem.
The delays in primary PCI are related to delays in diagnosis in the ED (see question 8). There have not been problems with timely arrival of cath lab staff once the STEMI team is activated.
"Our VA needs to recruit and hire additional cardiovascular surgeons, it is currently routine for non-urgent surgeries to be delayed a week or more, and for urgent surgeries to be sent out. Patients with unstable angina are typically sent home to come back for surgery later. Most of this is related currently to shortage of surgeons, in past when more surgeons were available a problem was availability of the OR only 3 days/week (due to lack of CV anesthesia support and OR staff and space). Anesthesia staff resistant to doing more than 1 case/day, need incentives to improve efficiency or hire contract staff to allow a second CV case. Finally night and weekend coverage is non-existent, those cases are routinely

sent out to non-VA facilities. Need night and weekend coverage by qualified CV anesthesia staff (either VA call-back system, or contract call from non VA facility)."

"Delays are common. Mostly this results in extra expense to the VA as patient is treated at a non-VA facility. Reason for delay is shortage of inpatient beds, and no ability of CCU to restrict CCU beds to cardiology patients."

"Main problem is insufficient inpatient beds. At times in past nursing shortages have also been an issue, resulting in not all beds being open; this hasn';t been an issue in past 90 days. There is no consistent effort to prioritize transfers based on acuity of their illness.

Supervision and incentives: Unlike the private sector there is not a "service mentality" in the transfer office. The transfer process is "unfriendly"" to referring hospitals, typically they have to leave a message and get a call back, rather than having a transfer clerk consistently available to answer the phone directly. This is a problem both for referring physicians and in-house physicians trying to get a patient admitted."

"Recently hired CRNPs should help with delays in clinic appointments, especially hospital discharge patients. However, currently no morning clinic space (despite long backlog in patients). We could see more patients if we had more space, would also require some additional physician FTE. Also there are many issues in the clinic that make it inefficient, slowing patient flow:

1) Lack of adequate support staff (certified techs) to do things like medicine reconciliation. Latter currently not happening in any real sense unless the physician does it, which is VERY inefficient use of resources

2) The subspecialty clinics have no control over the support staff to enforce things like med reconciliation (the staff report to nursing service, which is not very responsive to request for change).

3) The electronic medical record is no longer state of the art, and is not well connected to scheduling system, which contributes to inefficiencies in both scheduling and patient thru-put."

More nuclear techs and equipment. Weekend coverage would less hospital length of stay.

"Need more CV surgeons.

Anesthesia is inefficient, difficulty staffing more than 1 CV case per day. Lack of qualified CV anesthesia coverage at night and on weekends. Need fee basis coverage from non-VA facilities for night and weekend anesthesia coverage, and also for second cases during the day. Need additional trained CV nursing staff, need to increase caseload to make job attractive (or hire fee basis contract CV nurses from non-VA facility as needed)"

"Administrative and lack of support staff mostly in outpatient area. Rare delay in inpatient studies due to one of the two cath labs suboptimal for complex procedures, competition for time with EP procedures in same space; replacement lab for older cath lab scheduled to be on-line in next 6 months to address this."

Recedntly opened new cath lab.

"Our single biggest deficiency is in availability of inpatient beds. Most often, but not always, the actual shortfall is in bed staffing (i.e. nursing) and not in physical beds. This results in delays in transfer of patients from the ED to the floor, and creates further bottlenecks for the procedure areas. For example, in the Cardiac Cath lab patients often must be held in the Recovery area for additional hours due to lack of available telemetry beds, which pulls cath lab staff from other duties and affects procedure throughput.

In Cardiology we have a shortfall in technologist positions -- primarily cath lab techs and echo techs. Technologist pay scales fall far below market in high cost of living areas, and we have continual problems attracting and retaining these critical personnel."

"Similar to last question.

Our single biggest deficiency is in availability of inpatient beds. Most often, but not always, the actual shortfall is in bed staffing (i.e. nursing) and not in physical beds. This results in delays in transfer of patients from the ED to the floor, and creates further bottlenecks for the procedure areas. For example, in the Cardiac Cath lab patients often must be held in the Recovery area for additional hours due to lack of available telemetry beds, which pulls cath lab staff from other duties and affects procedure throughput.

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"The echo lab relies heavily on contractors to fill sonographer positions, due to the large gap between VA and community payscales for the technologists who perform echo procedures. This leads to inefficiencies and to some degree of uncertainty with regard to echo lab staffing. Physician staffing is not the issue.

Overall, equipment is very good. However, the VISN recently imposed a change in PACS systems that was un-asked for at the local level. The new system has been inadequately supported at the IT level, such that technical problems in transferring clinical reports from the reading system to CPRS/Vista have led to delays in having these reports available for patient care for hundreds of patients."

"I am told that it is sometimes difficult to add on inpatient nuclear stress tests in an expedient manner - e.g., can''t get a slot for stress testing for a patient who comes in through the ED the afternoon or evening prior."

"Our VA medical center does not have a true page operator who can facilitate simultaneous and efficient contacting of the STEMI team to ensure that everyone is notified in a timely manner for this time-sensitive function. We rely on the nursing supervisor to play the role of page operator, which is an imperfect solution."

"CT surgery at SFVA has difficulty ramping up for urgent inpatient procedures. In general they perform a single operation most weekdays with the exception of Thursdays, when they have clinic. The CT surgery chief has pushed very hard to be able to perform two procedures per day when there are urgent inpatients, so that these patients may be accomodated without necessarily moving or cancelling the scheduled outpatients. Gaining support for this from OR and anesthesia staff has been challenging."

"The issue with accepting transfers generally involves bed availability, and at SFVA the issue limiting beds is more often than not RN availability for staffing those beds. In general, patients with ACS should not wait very long, so when we do not have bed availability, those patients are transferred to other cardiac centers so as not to impact care. The cath lab nearly always has capacity to add on urgent inpatient transfers."

"CT surgery can generally get patients in to clinic within a reasonable amount of time. Like many clinics at SFVAMC, they suffer from a shortage of clinic space, which impacts efficiency and numbers of patients seen. Tele-health can be applicable for some patients. The case manager role is essential for organizing these complex patients."

"Carotid ultrasound can generally be acquired quickly.

Full PFTs (CT surgery generally requests full PFTs, as opposed to bedside spirometry) generally take quite some time (on the order of 2 months, according to the TAVR coordinator) to obtain."

"Insufficient administrative support is a chronic issue.

The number of staffed inpatient beds has long been an issue, which impacts our ability to get patients out of the ED, to bring in urgent transfers for advanced care, and to move patients from the procedure areas to the floor.

Cath lab equipment is overall excellent. The physical space is inadequate for all needs, however -- sterile storage is in several rooms that are physically separate from the cath lab area. This suboptimal situation

was created when the hybrid cath lab/OR was built (which took some space that was previously used for storage), and has not been remedied."

"Need licensed emergency medicine physicians instead of mid-level providers in the ER, more technicians, pharmacists and nursing staff."

"We need more echotechnicians, weekend echo availability, more licensed physicians instead of NP''s in the ER, more bed availability in other VA facilities to which patients are transfered to for coronary angiography, provide an in-house coronary intervention capability so patients don't have their care delayed due to waiting for transfers to other VA or non-VA facilities."

"Our patients are transfered to VAAA for angioplasty and there is invariably a delay secondary to lack of beds at the accepting facility, lack of physicians available to perform procedures on weekends."

We need to have our own ambulance service available at our disposal. We need better clerical staff that can expedite transfer. We need user friendly steps that IT can help us with. We need central office to recognize that we have had approval to increase the complexity of care here in our facility to do high risk coronary angiography and interventions and help us gain support form our local VISN.

"We need to have licensed emergency physicians instead of NP''s and/or moonlighters of other medical fields in the ER to help better recognize ST elevation on EKG. We need the central office to support us in having the ability to have an on-site interventional lab so we depend less on transfers outside the hospital for acute care, where time is money."

"We need the central office to support us in having the ability to have an on-site interventional lab so we depend less on transfers outside the hospital for acute care, where time is money."

"Most of our delays to another VA facility for PCI is lack of beds. In addition there are no physicians available outside work hours and weekends which delays things significantly. Wait for CABG is significantly long in the accepting VA facility. We need central office to support us in having the ability to have an on-site interventional lab so we depend less on transfers outside the hospital for acute care, where time is money."

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We need support to increase complexity of surgical procedures done in our own institution so there is less dependency on outside VA or non-VA facilities so we can better serve our veterans with ACS in a timely fashion.

The delays are usually because of lack of beds. If beds are available there is no other key step that is a limiting factor.

More providers should be hired to improve access. Weekend availability of services including tests would also help. More OR''s and OR equipments would also help improve access.

Availability of tests over the weekend and more equipments and tech availability to help improve access.

"All our inpatient CABG delays are due to lack of beds in the accepting VA facility (VA [location redacted]). Outpatient CABG delays are related to restricted OR time for CABG, eithe rdue to limited availability of CT surgery in the respective VA."

We need more licensed physicians in the emergency room instead of nurse practitioners. We need to have the ability to do on-site coronary interventions. We have been approved for it by central office but not by our local VISN due to local politics which is not acceptable.

"Severe space limitations in ED; delays also due to limited ICU, ward beds

Variable, but ED Clinical staff not infrequently overwhelmed by large patient volume

Need simplified/expedited processes for transfer of care for STEMI patients (we do not have staff to offer PCI 24/7). Collaboating with community to establish better direct routine of STEMI patients to PCI centers without adminitrative delays"

Limited telemetry bed availability impacts delays both directly and indirectly (slows bed transfers from ICU and therefore bed availability there).

Limited number of ICU beds (shared med-surg-cardiac) in consistenly very high demand. Secondary impact from limited ward and telemetry beds to which ICU patients can be transferred.

"Weekend/night coverage only by physician/Fellow performance as emergency. technician staffing currently satisfactory, but chronic problem in recruitment due to grossly noncompetitive salary structure"

"Staffed only with one part-time physician; when on leave, no nuclear cardiology capability and must fee-base out. If services expanded may need more technical personnel support"

This facility provides primary PCI only during business hours if (single) cath lab is available. Delays in intrahospital transfer night/weekends related to recognition and facile activation of STEMI system for transfer or throbolytics+ transfer. Need to work with community to permit transmission of first-contact ECGs and administrative authority to directly route patient to closest PCI center for optimal STEMI care without cost to patient

"Limited bed availability at receiving hospitals can delay care. Referral to other centers would be greattly facilitated by establishing transfer coordinators and centers at each site to coordinate practical aspects of arrangements. High bandwidth data access between sites (including across VISN lines) to facilitate image transmission and discussion (cath films, echo studies, etc)."

Limitation is timely transfer of patients to non-va facilities when needed--ambulance transfer even short distance often delayed. Would be desirable to establish authorization to direct acute STEMI patients to outside PCI facility without having to come to ER when apprpriate

See previous comments. Need more expeditious transfer capabilites as transport is most common source for delay

"Biggest limitations are bed availability and limited surgical staffing at recieving facilities, long distance to referral sites. Limited capabilities to take high risk patients (surgical depth, LVAD access, etc)."

Administrative authorization and cost sensitivies are most common reasons for delays

Ability to transfer here from other facilities limited primarily to access due to limited number of ICU and other beds

"Outpatient clinical facilities, staffing already beyond capacity. Difficult to meet various time metrics given these limitations. Very limited clerical/administrative support for specialty care. More fee-basis access to specialty care for patients at long distances from central facility would be better for patients"

"Need more depth in nuclar medicine staffing, particularly physician staffing."

Limited CT surigical staffing/capacity at referral centers. Arcane and inappropriate travel restrictions for outpatient transfers for appointmens

"1]Install state of the art computer system. CPRS is outdated and full of "patches" which slow it tremendously.. Look at the systems currently used by private sector.

2]Our CPRS is run by 11 years old processors !!! Get new processors.

3] the ER should be staffed by ER trained physicians -not by Primary care and internists physicians."

"1]This facility cardiac nuclear services are run by an employee of the Radiology department who is not capable of doing the job and creates major obstacles .

2] Cardiac nuclear studies should be offered along the weekend."

"1] retire cardiac surgeons who are no longer able to provide state of the art operations and real oncall coverage

2] create maximal cooperation/integration with the private secotr's cardiac surgery program and surgeons[[location redacted]Hospital]"

"1]Cardiac nuclear studies must be done expeditiously

2] CT surgery must employ fully competent,eager to work and energetic surgeons."

"The department of CT surgery requires a substential overall. Employ energetic,eager to work and most importantly-competent cardiac surgerons."

see previous comments concerning the functionality of CT surgery

"Personnel management - when hiring new staff for technical positions, such as echocardiography technician, it is important to test the technical skills of the people applying. With current HR rules, it is difficult to do (if there are no local veterans applying, then you have to consider veteran applicants from across the country but nobody pays them to fly out for an in-person interview)."

"Transfer from ER when patients present with STEMI, is not a problem. The only delay that happens in our hospital when patients have STEMI, is when the patient is already hospitalized (so transfer now has to be inpatient-to-inpatient), especially when STEMI is diagnosed in "off-hours" (nights or weekends) . The issues are following: 1) no available beds in the surrounding community hospitals who accept STEMI, 2) our transfer center is closed on nights and weekends and the Administrative Officer on Duty has trouble coordinating the transfer, 3) STEMI from inpatient requires ACLS transport, and in our locality this may take up to 40 minutes to arrive. RECOMMENDATIONS: 1) local transfer center with ACLS transport on-call 24/7, or contract with ambulance services to provide ACLS transport in a timely manner, 2) better supervision of various AOD and NODs who are on call at night/weekends"

"Significant amount of patients who are stable enough to be transferred to another VA facility for CABG, experience delays due to 1) lack of beds in the referral VA - [location redacted], 2) delay in accepting the patients by the surgeons due to busy OR schedule or the surgeon simply not being available (there have been significant staffing changes and turnover in CT surgery in VISN[location redacted]). For us, it would be better to use contract surgery in the affiliated University hospital where the surgeon (who has an intermittent appointment at the VA) could come over and see the patient for a consult, and the patient can then get the surgery in the affiliated University hospital by contract. This happens now with patients who are not stable for transfer to another VA, with very good outcomes. Using similar process for patients with ACS who require inpatient CABG but are still stable to transfer, would improve quality of care (surgeon would consult the patient before the transfer), timeliness of care, and patient satisfaction."

"In few patients, there can be a short delay in transferring to the non-VA university referral hospital for urgent CABG due to lack of bed in the accepting hospital, or due to their busy OR schedule. This delay has been minor compared to the delays we experience transferring patients to another VA."

lack of ICU/telemetry beds in our hospital

Most of the delay in transferring patients from outside hospital to our VA occurs due to lack of beds. Some of it has to do with lack of nursing personnel though it has been addressed now.

"Patients who are discharged from the hospital after ACS and are referred for outpatient CABG, should get their CT surgery appointment in 2 weeks. [location redacted]VA accommodates this, [location redacted]does not - however, they do see patients in 30 days. I do not know what solutions should be in place for them to see patient quicker."

"Delays in getting outpatient CABG for patients after ACS happen often, partially because the referral center surgeons insist on multiple consults by other services before seeing the patients. Also, I assume because of lack of OR. Often patients wait for months to get outpatient CABG in the referral VA. Better communication between cardiologists at our VA and surgeons in referral VAs may help, and we can work on this on our own. VISN level cardiovascular meetings where the Chiefs of Cardiology or even all cardiologists/CT surgeons get together to discuss pressing issues, would help A LOT."

"There is no "cardiovascular conference" where we could discuss patients with the referring cardiologist (at our VA), the referral cardiologist (at referral VA where they do complex PCI), and the referral CT surgeon could all get together and discuss what to do with the patient. A great solution would be weekly teleconference between 2 VAs where both sides would have access to patient record and medical images, and management decisions for complex patients could be made with all parties participating. Currently the referring cardiologist talks to the referral interventional cardiologist and then has to talk to the CT surgeon separately."

"Our ED is being expanded this summer.
Our hospital is being expanded within the next two years. This should help."
"We need more beds. This is a process, which is ongoing.
We are interviewing for two Cardiology provider positions.
Equipment is sufficient."
"Once we have more beds available, patients will not need to be transfered out anymore, except the few who might need urgent/immediate cardiac catheterization."
On-call Cardiologist must be available by phone within 5 minutes and can direct care even when off-site. There is good communication with the ED physicians.
"The approval of our PCI business plan is overdue. Once approved, we can do PCI here at our facility."
Transfer process works OK for us
We have had a very good relationship with [location redacted]hospital in [location redacted]and all of our urgent open heart surgery patients have gone their quickly and efficiently.
Patients have to travel out of state for cardiac surgery at other VAs. Would be nice to routinely have this done in Las Vegas at a contract hospital.
Would be nice to have CABG surgery done locally rather than traveling to another state to get to a VA offering this service
We need more beds in the [location redacted] hospital to accomodate the increasing number of patients. This is in the planning stage. Any "increase in speed" regarding this process would be beneficial to patient care.
"VA purchasing system is very cumbersome.
Whenever something is being requested, this should start with "Email 1" and be dated and followed at close intervals, with someone being responsible for progress."

"We don''t do ACS evals, since we do not have a cath lab"

Increase awareness of "time is myocardium" for after-hours and weekends to the ED medical staff.
Same as before. Increase awareness of "time is myocardium".
Timely call for STEMI is needed. I am referring to one case in particular.
We need more surgeons and telemetry beds along with Mid-level providers for both CT surgery and Cardiology.
No beds available.
We need more telemetry beds cared by an Attending with mid-level providers. These are stable patients and residents get a max patients they can cover.
We need to increase availability for XR/US studies
We are short on CT surgeons.
Physicians are now asked to be "administrative personnel" and perform multiple tasks for which we have not being trained nor studied for.

"if inpatient beds increased, would likely need more inpatient attendings/hospitalists to staff these patients"

"Our options for ACS are to transfer patients locally (we have a local contract with a community medical center) or to send ~200 miles to [location redacted]or [location redacted]. The patients have to wait on average 2-3 days or longer for beds at those outside facilities. The VA ''preference'; is that we send within the VA rather than the community for financial reasons. however, it is inappropriate for ACS patients (even stable patients, cp free, with mild or no troponins) to wait > 48 hrs. So, either bed capacity, cath lab capacity with staff at those facilities need to increase, or we need to make a permanent contract locally to avoid these delays. We are also working on starting our own catheterization lab as well"

"we don''t currently have a cath lab, so we don''t run into this situation"

"People can typically be seen within a 1 week of hospitalization or certainly within 30 days. However, delay occurs when patient needs a week follow up from an outside community hospital, and that consult request isn''t forwarded to us in good time. Better communication needs to happen between the outside facility and the VA schedulers"

"Typically, if patient getting a CABG for ACS at an outside VA ([location redacted]), they might do it the same admission. If the patient is more stable, they would set that up as an outpatient. At both outlying facilities, it usually is more than a 30 day wait for elective visits with CT surgeon or the surgery itself. I don''t know why the delay is, but assuming they are fully scheduled, they may need more CT surgeons. Again, these facilities are 200 miles away, we need local contracts to take care of this in Fresno. Local surgeons would see these patients within 7 days and get the surgeries scheduled soon thereafter"

"due to old systems, doctors are retranscribing echo reports and holter reports and stress test reports from one electronic system into cprs. secretaries were doing this in the past but there was too much delay and/or errors made, so now physicians do directly but it wastes their time. This applies to all cardiology patients as well as ACS. we are working for upgrades to our systems as well as obtaining the clinical procedures cprs module which is suppposed to help avoid this"

"Hospital needs more beds/space. Often it is difficult to find appropriate type of bed for ACS patients. The number of independent licensed practitioner''s is too small to take care of current patient volume. There is no weekend availability of tests like in house echocardiogram caths
cath lab supplies/ disposables needs to available in timely fashion"

Important that there are adequate personnel that can do the procedures and that are available to communicate easily with physicians and ancillary staff from the referring center. The line of communication must be wide open throughout the entire process so that the referring center is always aware as to the status of their patients.

"In general, there has to be easy access to communicate with the personnel at the VA that is performing the procedure. There have to be an adequate number of surgeons to perform these procedures at this center or additional VAs must be added to the system so that these procedures are done in a timely manner."

"As mentioned before, there have to be an adequate number of surgeons at the VA to perform CABGs. There also has to be an adequate line of communication so that the personnel at referring VA know at all times exactly what the status of their patient is and the rationale behind decisions made."

Improve contracting process at the VACO to make cardiac catheterization laboratory supplies be available in a timely manner

"1)Ability to transmit EKG images immediately to STEMI providers via cell phone /wife fax is not feasible due to privacy concerns

2)Ability to upload the EKG in VISTA immediately is not feasible due to EKG machines not having wifi capacity

3) There is no incentive or on-call pay for physicians on STEMI call - which can be every other day or every third day

4) Process for hiring of staff is too prolonged due to VA regulations

5) Pay for interventional or other cardiologists are much lower than market pay ranges"

"Our cardiologists and CT surgeons are excellence and available 24/7, but nursing staff shortage , availability of operating rooms and perfusionists coverage can be a limiting factor."

"This is a critical issue. Due to central office contracting magnates, we cannot receive cath lab supplies in a timely manner.

Similarly, we cannot get cath labs remodeled or upgraded in a timely manner, having to compete at the VISN level for equipment purchases for CT , PET scan etc."

Need space for a well-staffed chest pain unit with fixed equipment .

Critical need for additional patient''s rooms including telemetry beds. Nursing staff

Need for additional well staffed CCU beds

"Additional well-staffed operation rooms dedicated to CT surgery.

More operating time for CT surgery under current space conditions."

Non VA facilities have limited capacity

"We need more patient beds, telemetry, intermediate and intensive care."

Need more inpatient beds and a more efficient transfer center

More patient beds and more operating rooms.

Procurement issues are serious and affect patient care

Need to expand technology to allow more telemetry beds available at facility and increase number of nursing staff so sufficient should there be a call off due to illness. Some of CO policies do not effectively translate to facility needs or cause unintended consequences such as delays related to obtaining services/personal i.e. contracting procedures.

See previous comments.

Transport to non-VA PCI facility has inherent risks of delays due to traffic patterns and area emergencies. Continue working with local ambulance and EMS systems to assure transport accomplished in a timely manner.

"We need more cardiologists on-site, and more nurse practitioners"

"We need better accountability from our cardiac surgeons, expanded OR time and better scheduling in order to improve through-put, and accountability of the OR team when things don't go as planned."

We need MORE BEDS to accept transfer patients!

"More inpatient beds, nurses to staff those beds, and nurse executives who are invested in success rather than in preserving the (inefficient) status quo."

"We critically need more cardiologists, cardiology nurse practitioners, and bigger outpatient clinic facilities."

Need more CT surgeons!

The OR needs to expand its hours so that more than 1 case per day can be done.

Far too much TMS activity. Too many superfluous E-mails. Leadership sometimes out of sync with clinical realities. Too much top down direction. Not enough input into clinical direction of programs. Residency time requirements have reach levels of intolerance.

Need of an additional CT surgeon
Need of additional CT surgeon
Need for more Internal Medicine Beds

"Maintaining EMS and support staff very difficulty due to low pay, low staffing, difficulty getting staff hired due to HR processes/limitations.
Equipment: very difficult getting new and replacement equipment needed for room turnover and patient care due to obstacles in contracting."
"Cath lab does not have adequate recovery space, especially after hours/weekends.
Inadequate turnover/transport/support staff also concern."
Bed lock.

Improve local ambulance response time to transfer patients in a timely manner
Ensure that local ambulance arrives in a timely manner for transfer
Timely transfer via ambulance
Timely transfer via local ambulance
timely transfer via ambulance

"b. Physicians
c. Nurses
g. resources to reward staff"
More funding for providers and support staff and for imaging equipment.
c. x-ray technician
c. x-ray tech

We do not have a nuclear medicine service hence need to transfer patients fo area facilities causing a delay in this urgent but not emergent testing
Our affiliated referral VA's for cardiac care are sometimes short of beds leading to delays in transfers for higher level care
Increased bed availability at our referal VA's
Planned CABG procedures are done within the VA system if possilbe. NonVA surgeries are often outgrowth of earlier transfer to NonVA care settings with ACS
good relationship with private area hospital
Additional on-site Cardiology FTEE
CT surgery not available at facility. Use either referral VAs or community partners and when elective can be delayed (somewhat)
overall the ACS patient group care model works fairly well

Need access to more tele-beds/obs and same day stress tests if appicable.
need more tele-obs beds and same day stress tests
need to save a few slots each day in nuclear stress test schedule for quick rule -outs
"13. No beds were available to transfer
Valve replacements patients have 10% delay because CABG gets priority."

"- Cardiology clinic needs more suport staff. There is one receptionist who is the "secretary" for all the providers.
-Consider additional session for fellows or support staff, NP RN for fellows. Fellows are only in clinic one day per week, so "

"Stress lab needs more supervision. Scheduling is very disorganized, disjointed.
Flow throughout the nuclear department could be improved and made more efficient, by using a "flow coordinator"."

NEED TO STREAMLINE PROVIDER PROCESSING THROUGH HR AND REDUCE TIME SPENY ON NON CLINICAL ACTIVITIES. TMS IS A WASTE OF TIME
NEED TO MAKE TRANBSFER A PRIORITY
USUALLY A STAFFING ISSUE
NEED ADDITIONAL PROVIDERS
CURENT AREA CLOSED DUE TO CONSTRUCTION
NOT AN ISSUE
ALL PATIENTS ARE TRANSFERRED
PATIENTS ARETRANSFERRED
TRANSFER PROCESS IS IN PLACE
NEED MORE STAFF
NEED COMPLETION OF CONSTRUCTION

Without means to take pt to cath lab at our facility we would not accept ACS; ''stable'' and ''acute'' are not compatable terms.
"need to add an additional nucleay camera with all the support personnel that involves, at a new HCC. Need addition of 2 onsite cath labs. at medical center."

"1- Chest pain unit with protocols based on new high sensitive troponin I; patients could be triaged in 2 hours. (Send home or admitted to CP unit to complete rule out or further testing in house vs out-patients).
2-Increase hospital bed capabilities, including unit beds or better step down units uniquely to cardiology (4 beds for one RN ratio with Tele).
3-A dedicated transport person to Cardiology (Cath lab, Non invasive lab and PM examining Rm)
4-Increase Echo lab personnel 3.5 positions, with increasing VA patient population for Echo cardiograms, Stress test.
5-Ciritcally important now is to increase the Cath lab tech and RN. We are the busiest VA cath lab in the nation for interventions with a skeleton of personnel al least 3 more people to avoid burn out fatigue and mistakes. Currently overtime pay estimates we could hire two extra people, but that''s not enough for our current conditions.
6-New cath lab with EP/Pacemaker implant capabilities with assigned personnel.
7-Hospice beds for terminal heart failure patients (is not available in our institution) and or in outpatient based palliative care.
8-Allow patient who have critical conditions, potentially could be treated with procedure not offered in our intuition, but are offered in local community. (i.e. LVAD''s, cardiothoracic in high risk pts)
9- Extra corporal counterpulsation therapy for angina patients not amenable to coronary interventions or CABG."
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"We could do all the work locally with the appropriate support (personnel equipment and space, currently lacking)"

"Hire more cardiothoracic surgeons to help out with the number of complex cases at least two...and ancillary staff, a surgical SICU person while they are operating to cover 24hrs/7d)"

"the process is done in cumbersome way, cost saving is the goal, not providing the best care possible, in services we cannot provide here but available in local hospitals.

Other VA are in the same circumstances and cannot absorb our volume for complex pts since Nov last year.

Expert in the decision making is lacking."

due to proper bed allocation when small VA health care faciliites

Not enough surgeons for the volume complexity of the cases with support for in house SICU team post CABG while surgeons is operating. 24hrs/7 d coverage

"Too many administrative personnel related to non patient care and too many regulators not dedicated to patient care, too many rules and unnecessary documentation double documentation making the system very inefficient.

Mandates for "Lean projects"" and other charter projects lined to salary incentives which take time away for patient care.

i.e. Lean project take extra times hours per week, making some teams in cardiology stay overtime that had to be paid, and delaying the procedures for pts and discharge.

Is well know in the literature that Pay-Performance doe snot work for improving care, but still embedded in the culture of administration.

Lean projects then have to presented like in " high school" diverting MD from patient care. and not enough people to support them."

"unable to get rid of unproductive or problematic employees
HR is rarely helpful"

"[Location redacted]uses the CCU ICU beds as a holding area for all general ward admissions when the wards are full. These patients, who do not need internsive care stay in the CCU for days and fill up the beds and delaying care for paitnet who need CCU ICU"

the number of STEMIs are small in the VA since ambulance will take these patients to nearest ER.

contract withcommunity hospitals more efficient than developing a STEMI program in the VA

VA refuses to allow physicians to reivew echo images from home during nights and weekends due to "information secutiry reasons" One option is t have "night hawk" readuers similar to Radiology

In most VAs number of STEMI is smal ldue to ambulances taking the patients to nearest ER and not to the VA. A quick transfer to the nearest tertiary center is likely more cost effective

To transfer a STEMI to a non-VA facility three different forms need to be filled out by the physician and records copied ....there may or may not be a clerk in the ER

usual reason for delay is lackk of monitored beds

We have a single cardiac surgery team with limited OR time - resulting in delyas during busey times

"Cardiology has no secretary and the physicians do clerical work and MAS work (e.g., cancelling no-show consults). this is waste of physician time"

"Biggest delay incurred is when wanting to transfer semi urgent cases to tertiary center such as [location redacted], either directly from ED or inpatient. Delays are incurred in requesting interfacility transfer and often require Non Va care due to lack of "bed availability" at tertiary centers."

"Inpatient volume unpredictable, have to balance protected time for inpateients with maximizing outpatient scheduling"

nuclear stress testing requires appropriate nuclear medicine tech staffing

Tertiary referral centers should be adequately staffed/supported with beds to reasonably accomomdate stable Veterans for transfer to avoid Non VA/fee basis transfer.

As before need adequate beds/supp[ort at other facilities ([location redacted])

bed availability/support

"Stress tests are treated as consults and tracked that way, as opposed to a diagnostic test like radiology. For someone who the primary provider wants to have there CAD followed up with an otherwise "routine stress test" should not be given the same priority as a more concerning indication. Once a consult is received, it is scheduled in next available slot. Cancellation slots are used to fill unpredicatable urgent consults, or known urgent consults. Limited overbook abilty on short notice due to need for adequate time to schedule on nuclear camera and obtain nuclear isotope"

Need more nurses who can take care of critical patients and CARDIAC CARE beds

Critical care nurse staffing as well as space and proper financial incentive for the doctors.

Nuclear cardiology should be part of Cardiology and not radiology

Need on call nursing/ Tech. team and need to simplify the regulation from pharmacy.

Need ICU/CCU bed managed by efficient cardiac nurses.

Increase nurses and incentive for the physician.

"Need Left ventricular assist device, CSI atherectomy and critical care beds."

Need contract with accepting Hospital.

The other VA is 120 miles away and they do not take any Veteran who Is not a good candidate. Need local CV surgery program.

Need to let Cardiology MD to decide transfer and VA need to pay its bill on timely basis and not delay due to poor office staff.

Bed shortage .

Need bed staffed by critical care nurses and flexible staff to accommodate pt. needs.

Need local CT surgery program and need accountability from existing CT surgery program.

Need technician and need for radiology to interpret locally.

Pt. should be able to go to local hospital or VA should have its own program.

Need to have nursing and tech. support to help in documentation/ clerical work.

Working to increase the avialability of services

"Many VA employees are not hindered by a lack of supervision or incentives. Their satisfaction comes from helping Vet's. If their ability to help Vet''s is blocked at any level for any reason it creates an environment of consternation. Among the greatest road-blocks are access, double-standard care system(on-tour/off-tour), professional collegiality."
If this VA has available beds and the patient is stable there is no delay in transferring the patient.

Simplify HR and Contracting Process
"Reliability of Pager system notification
Maintaining IT support for notification system
Maintaining ER staff knowledge
Enhancing acute ECG evaluation skills"
"OR time
Midlevel support for CT surgery
Recovery/SICU space"
Very limited bed availability for ACS
"HR process delays
Nursing staffing model problems, VA different from all other hospitals"
"Exam room scheduling flexability needed
Midlevel support for Cardiology
Nursing, tech, Clerical support for clinic
Data entry support for documentation"
"OR Time
Midlevel support for CT surgery
SICU postop care space and staff"
"Contracting limitations (supplies)
Number of inpatient beds"

.[potentially identifiable comment redacted] Acute coronary syndrome patients either present to our urgent care unit or are transferred there from other departments in the facility. Once the decision is made that the patient has an acute coronary syndrome, they need to be transferred by
ambulance to an inpatient facility. Depending on the urgency of the situation as determined by the Urgent Care physician, the patient is transferred to a local
non VA facility or (if very stable) to a VA hospital which is 90 to 120 miles away. Because the VA must pay Medicare rates if
admitted to a non VA facility, there is emphasis on trying to admit to a VA facility
if deemed safe. If our clinic could work out a
financial arrangement with a local inpatient
facility, it would alleviate the need to transport long distances
patients with potential unstable cardiac conditions."
"All of our STEMI patients are sent by squadto local non VA facilities. We generally notify the receiving emergency room that a STEMI
is coming, so they can start preparing"

"ours is urgent care , we do not have ER
we should reduce the time taken to transfer to local Hospital. we should try to reduce the forms we have to fill"
"simplify administrative processes for approval and transfer, we need good echo machine"

The other VA [location redacted]is 2 hrs away hence not applicable. we have to transfer to Local hospitals. the processes takes long time . we have to simply and physicians and nurses need practice .
"we have to increase physicians and nurses in UC or ER or CBOC
administrative processes have to be simplified"
as above simplify the administrative processes
"telehealth for CBOC is imp.
increase qualified physicians and nurses"
"this is same as ACS, simplify administrative processes, telehealth for CBOC"
"increase physicians and nurses , Nurses should help getting local non- va cardiologist and NVCC nurses and other concerned persons on line to physicians who is transferring the veteran"
same more physicians and nurses. good administration

"We need to have more providers at the front lines. Adding adminstrative processes tends to slow the process of taking care of patients. The addition of physician extenders has shown in the private sector to be useful, freeing up the physcians to concentrate on more urgent or complicated patients and issues"

increase in the number of CT Surgeons at our Institution
increase in number of tech''s for non invasive procedures
Our delays for c. cath is due to no weekend coverage
improve night and weekend services
improve weekend and night sevices
improve access to services on Weekends and nights
increase personell and more procedure rooms
increase personel

Need to expedite infrastructure renovations and space
Need to expedite completion of current renovations and acquire additional space for personnel and patients
Need to improve prompt transfer of coronary angiograms from referring site

Nursing shortages/understaffing at VA facilities often result in inability to transfer within VA. Lack of operating room time/surgeons at heart surgery centers result in ability to refer within VA from this facility for heart procedures.
Delays can be result of availability of ambulance service for transfer to PCI capable facility within the community; there is rarely a circumstance for delays due to accepting facility capacity.
Bed availability based on understaffing is the main reason for delays to VA facilities for PCI. As a result almost all ACS patients are referred to the community with little if any delay of transfer.
"rarely, there are delays to community, often related to transfer issues with ambulance service; rarely due to bed availability at the receiving facility."
"Referral to VA facilities from this site is almost nonexistent due to lack of availability for heart surgery procedures within a timely manner. [location redacted], the VISN hub NEVER accepts our patients due to availability or operating times and I cannot recall in my 8+ years at this facility ever having a [location redacted] patient have heart surgery at that center. The other center which has taken [location redacted] patients ([location redacted]VA) now also states no operating times within an acceptable time."
delays may be due to lack of records from referring facility to determine appropriateness of transfer.
True ACS patients who need PCI are not transferred to this hospital as not PCI onsite in [location redacted].

Rarely is a transfer delayed due to bed availability at [location redacted]. Most often these patients require transfer to a PCI capable facility which is often in the community and not VA.

[Location redacted]has been understaffed in Cardiology for 9 years. We are on the cusp of having enough physicians with the recent hiring of a 4th FTEE cardiologist; our other critical limiting factor is physical space in the clinic (exam rooms) to see patients; this is at crisis proportion and creates havoc when multiple specialists are competing for very limited exam room space; often I have cardiology staff to see patient and no rooms to actually see patients.

"Inadequate support staff - providers have to request records;

Inadequate primary care providers - cardiology providers required to complete primary care clinical reminders/teaching/etc during appointments.

Lack of adherence by primary care to existing service agreements for referral to cardilogy that if followed would help facilitate and not hinder delivery of cardiology care.

Chronically overbooked clinics often as much as 200% imposing restrictions for limited time per patient for cardiology evaluation

I cannot emphasize enough the negative impact that these local policies, procedures and deficiencies have on the provision of cardiology care at this facility."

"1. Cath lab RN, (supervisor), cath and EP lab RN as cath lab RN have to cover EP lab, Cath lab Tech

2. 1 Cardiology attending and 2 mid-level (PA/NP) to provide dedicated ER consults and ER advised stress testing for rapid triage of ER patients"

Define time to consult for in- and out-patients clearly in policy documents

"We have been waiting for requested echo tech. echo lab RN, dedicated clerk and MD position for the echo lab. We desperately need more space for the main campus echo lab."

We have been waiting over 4 years to replace frequently damaged cath lab equipment that breaks down along with cath lab RN and tech positions. We have 2 interventionalists taking q24 hours call for over 10 years and need additional FTE.

Multiple Cardiology request for on-site VA based primary CVTS CABG services have been made. Our facility will significantly benefit from VA based dedicated cardiac surgery service.

Need VA based dedicated CVTS surgeons or fee-basis during the transition period working together with university affiliated cardiac surgery team

VISN wide connectivity with interconnected Cardiology PACS is critical in eliminating wait times between VA facilities. Also more specialized fee-basis physicians should be approved and allowed for services that can be provided within existing facilities but are not available just for lack of a specific specialist.

No open beds at our facility to receive patients.

Need more space and providers for timeliness of care. Bed control should be open and available for all to see.

Current clinics are full to capacity without any reserves. More clinic space and mid-level providers are needed. Administrative support is also essential. Need assessments should not be done based on FTEs only but also on what kinds of FTEs are needed and where.

"VAs that we refer to should be electronically linked via intranet so that PACS are accessible to physicians at accepting facilities. This is the number one hold-up and delay causing issue.

Need more availability of fee-basis physicians until VAs are linked and they can see patients referred to them by tele health."

None. Just link the VAs

Contracting and Prosthetics should be on-board

"We are land locked with patient beds. Most delays would be corrected with bed availablity.

We often need to switch patients to make room for another patient from the ED. Many of these patients are identified early in the ED and sent to the community for cardiac catherizations."

We have many ED providers that are not employees. Supervising and setting benchmarks for them is difficult. Hiring a full staff would be what is needed.

"TEchnology has been difficult in getting the interpretations returned. Equipment "matching"" with older versions Windows, XP cause delays in the "handshake" between programs. Very difficult to work with."

It is critical that we have a tiertiary hospital that is responsive to us as a level 1 recently 2 system. When we need to send a critically ill patient we are often waiting 4-6-8 hours for responses. It is critical to have a referral system that works. Incentivize or evaluate the services these hospitals give to us. It is often "near"" less than standard conditions that hold us hostage.

Our ER physicians complete evaluations and assements but often battle with who will accept the patients from our facility.

"If central office could incentivize our teirtiary hospitals to take our patients, incorporate customer service reviews perhaps this could change. Our community hospitals are more accepting and easier to deal with. We have many frustrating calls to make with unorganized responses."

Timeliness is key. We are able to give thrombolytics. When we recognize that a patient needs to go out for higher level of care we often are not able to send to VA facilities.

We do not perform these.

We send out these patients with ease and effeciency.

If these delays occur it is usually a room availablity or nurse staffing issue

Room or space is an issue.

We currently have practitioners without essential support staff. They are performing clerical duties. Maximizing their patient time and adding another provider are necessary.

"Limits exist in sharing a nuclear room in radiology. This is a "growing Pains" situation.
Access would be improved with more scheduled time in radiology."

We run with little to no support for our cardiologists and specialists. The facility is behind the times in structure and function.

"Bed availability is often an issue. The ED services are currently contracted out. While some providers are good, many do not have the basic ability to identify serious cases, or to identify patients in whome a strict time bound protocol needs to be followed. Telehealth need not be a priority, and I am not sure why resources are being diverted to this modality at the expense of the needs of real, tangible ER and workspaces."

"We need more secreterial staff. There is one secretary in all of cardiology. The supervision of services is haphazard. Echo is supervised under respiratory therapy. We would expand clinics, but there are no clinic rooms available. Most patients want to see their provider and are willing to drive long distances. Resources need to be diverted to clinical and support staff rather than to telehealth or multitude of administrators doing little productive work."

Reports do not get transferred to CPRS. We still need to cut and paste it. Unions have undue say in workflow. This should be a clinical decision. Equipment requests are not transparent.

"Cardiology physicians are board certified and willing and eager to read nuclear stress tests, but are not allowed. Need more mid level providers, so that they have defined roles rather than being shunt to areas of greatest need."

There should be ability to read off site EKGs from mobile platforms. Cath lab nurses are nearing retirement. Recruitment and retention is a problem due to poor pay compared to community.

The service chiefs should be involved with personnel decisions. There have been changes in support staff that were not communicated to service chief. This is not an isolated incident.

Bed should be available. All other systems work well.

"Need more inpatient beds, more staffing of nurses. Incentives of management and staff need to be focused on improving throughput. Decreased protections for underperforming employees/dead weight on system."

"We need more night/weekend availability of services, or to make easier the transfer of patients out as needed. Staffing is again a major issue. Management incentives are not sufficiently aligned to provide more services, rather they appear to be to just do as little as the budget allows."

"For coronary angiography, we have minimal delays, but do not have 24/7 hours, and only one shift of two nurses. This is inadequate for the need, and we have to transfer patients out frequently. Need to have several shifts of teams and possibly a second cath lab."

"Need to allow for easier contracting with outside facilities, and easier transfer out for patient care needs."

"Transfers again need to be made easier, contracting process simplified. We need to make 4 calls to transfer someone at this time, and it takes an inordinate amount of time for an acute patient."

"Incentives for VA surgeons are misaligned, to be overly conservative compared with private practice physicians. They should be incentivized to not delay care by asking for more testing. Having alternatives like Fee-Basis has been the only option for some of our patients."

"Need to facilitate payments to outside providers, and expedite transfers."

"Our receiving site cannot see our films or patient records even though they are part of our system. Getting them access to our films/records can be a large source of delay, as the administrative structures/people for this are only there Mon-Fri, and don't respond quickly to requests."

"We have plenty of surgeons on staff at our receiving facility - they are just not incentivized to do more surgeries, and are punished for poor outcomes, so they are very very conservative and this slows patient care."

It would be reasonable to have a MOU of certain cardiology groups in the locality where our clinic is located.

"The voucher process for outpatient care needs to be improved; this is critical, there should be no delays in scheduling patients for cardiac studies/consultations"

We need to be able to offer nuclear stress imaging at our facility; and improve feeing out for studies. Scheduling outpatient cardiac stress tests and consultations needs to be streamlined and much more timely and efficient

"1. Fully implement matrix organization
2. Have a more responsive HR system as the delay in hiring new employees severely hampers our ability to meet the health care needs of our veterans"

1. The critical problem in the ED is the lack of qualified physicians/nurses so that cardiology is notified when an ACS presents

1. The main reason for a delay in the activation of STEMI is the lack of appropriate expertise in the ED physician/nursing staff such that ECGs are often misinterpreted and/or cardiology is not notified in a timely manner.

1. Unfortunately and unacceptably large number of our veterans who need CABG experience delays due to the lack of responsiveness of Columbia where we are obligated to send many of our patients during the ramp-up phase of our cardiac surgery program in St. Louis. We are now sending more patients to non-VA facilities to lower the latency from consult to surgery in these critically-ill patients.

The major source of delay is the availability of beds at [location redacted]VAMC.

The delays in providing care for ACS patients needing to be transferred to JC VAMC from non-VA facilities would be significantly reduced with (1) more available beds; and a better strategy for "turning-over" our existing beds including stream lining discharge policies/procedures.

"Personnel needs; There should be no delay in hiring echocardiographers
Equipment needs: 1) Echo machines, 2) treadmill machines, 3) echo reading stations
Information technology: Biomed and IT are constantly blaming each other when equipment fails, there should be a clearcut policy and physicians should be not asked to figure out their issues
Central office policies: 1) Tests such as echos, treadmills etc should be ordered as tests and not as consults"
Need for second cardiac cathlab and need to develop overtime options for nurses and techs and hire enough staffing
Communication between non VA facility and VA is sometimes the cause of delay
"Physicians should be given incentives for starting new programs.
Development of a second cardiac cath lab and more lab time for cardiology section is paramount in developing the program and preventing delay in PCI"
Cathlab equipment maintenance should be done after hours. Here the cathlab is routinely requested to stop functioning to do maintenance work or to fix something on regular days rather than weekend or after hours as in private sector

EDIS is still glitch. Improvement there would help flow management. Would be helpful to have more discretion and funds to reward and retain high performers.
"Improve EDIS board functioning, reliability, ease of use."
"Need more funds to recruit, reward, retain key personnel - techs and MDs."
"We need another cath lab and more dollars to recruit, reward, and retain cardiologists, cath lab nurses, X-ray techs"

Only reason for delay is no available bed at our facility.

follow recommendations of specialists for referral
same as prior question
robust transfer process and agreements
case management and coordination of care processes.

Decrease dependency on fee-basis ED physicians and move toward ED certified physicians
Need additional sonographer and upgrade equipment
Need more ED certified physicians (less dependence on fee basis
Having dedicated cardiology beds (CCU or cardiac unit)
Need dedicated CCU beds with appropriate staffing
Would like on-site CT surgery program
More assistance from health tech on hospital wards

better scheduling

"Independent practioners-Physicians
Other personneol-Nursing
Information technology- Allow CPRS to implement changs recommended by clinicians that improve pt care

Improve personnel supervison in ER- need better RN, MD supervison of triage staff. This can be an important point of delay when pts symptoms , especially chest pain,
are under-appreciated."
"More physicians in ER to identify the ACS pt with atypical symptoms that a triage RN might miss
More RN staff to focus on the CAS pt
The problem with CPRS is that there are so many mandatory templates that the critical H&P information seems to be under-appreciated
Central office policies need to focus on the promt recognition and triage of ACS pts in the ER. It sometimes seems like once the troponin level is drawn less attention is paid until the troponin comes back elevated.
Need better supervison of triage RN"
"More ER physicians
More ER RN''s
Better supervison of ER traige personnel"
"More echo exam rooms
More echo techs
Scheduling system for oupt Echos is cumbersome this indirectly slows down the accessibility for inpt Echos
Need adequate support personnel for scheduling Echos
Administrative processes for fee basis and contracted care desperately need simplification. There seems to be no coherent central VA policy on regionalizing
acute ACS care"
"Adequate salary competitive with private practice interventionalists and on-call compensation
Need more cath lab RN''s
Simplify administrative processes
Need funding to allow for acth lab RN and technicians to be on call for emergency cases on nights and weekends"
Cardiology APRN''s play a critical role in in expediting pts urgently./emergently needing transfer to non-VA facility for PCI
On-site availability of cath lab on nights and weekends is most imporatant factor id reducing delys in primary PCI for STEMI
"Need appropriate incentives for VA funded interventional cardiologists to be vaailable for emergency PCI on nights and weekends
Initiate on-site cardiac surgery at our VA
Have to have RNs and cath lab technicians availble on nights and weekends"
Need faster contracted amulance resonse
Adequate cath lab RN and technician staffing
Have had problems at times with copying coronary angiography cine done on-site to non-VA interventional cardiologists
Need to havd availability for immediate copying th coronary angiography done on-sit to receiving non-VA CV surgeons
"Need more outpt clinic space for cardiology outpts post ACS to be seen
Need mor cardiologists and carddiac APRN''s
 Having the business office responsible for scheduling outpt cardiology clinic appointments rather than employees of the department of medicine is unacceptable as it is currently organized
" Central office should abandon the use of the business office employees for scheduling cardiology clinic appointments"

"Pt transportation to another VA for elective CABG is currently a major problem. There is currenlty no regularly scheduled transportation transportation for our elective CAG pts to VA hospitals in our VISN who accept our pts for surgery
There should be uniformity among all VA hospitals on which elective CABG pt can be fee based to a local non-va facility (including university hospitals connected by a walk-way) versus having to travel many hours and miles. Also there seems to be no incentive for a VA to accept elective CABG pts from another VA. Our experience is that the cardiologists and surgeons are happy to take our pts but medical center administraors say no. There needs to be a cntral VA policy."

a modest increase (5-10%) in the number of telemetry beds and additional staff to observe patients in a step down unit may alleviate the ocasional shortage of telemetry beds
Timely PCI for STEMI during WHEN hours for thrombolytic ineligible patients would require a plan for transfer from ED to a 24/7 STEMI center
Lack of CCU beds and reluctance to transfer patients on weekends due to concern over LOS leads to some delay
Opening up step down beds and making cath/PCI available on weekends for stable ACS patients would decrease these delays
"minor inefficiencies in the system have little impact on ACS care, but patient difficulties woth travel to our facility lead to a significant no sahow rate for clinic appointments and procedures (10-15%)"

"More nursing staff needed. Increase the number of technicians to support after-hours/weekend non-invasive imaging, with increase in specialty staff needed to handle higher volume. Support upgrading of existing digital imaging infrastructure. MORE BIOMED AND INFO-TECH(IT) STAFF NEEDED FOR ASSISTANCE WITH COMPUTERIZED MED. DEVICES & INFRASTRUCTURE (more incentive pay to retain staff). Increase the number of beds that can be opened in the facility; policy change."
"More nursing staff needed. Increase the number of technicians to support after-hours/weekend non-invasive imaging, with increase in specialty staff needed to handle higher volume. Support upgrading of existing digital imaging infrastructure. MORE BIOMED AND INFO-TECH(IT) STAFF NEEDED FOR ASSISTANCE WITH COMPUTERIZED MED. DEVICES & INFRASTRUCTURE (more incentive pay to retain staff). Increase the number of beds that can be opened in the facility; policy change."
"Increase the number of echo technicians, and Echo Lab Attending''s needed to handle higher volume. MUST have more space available for performing exams, currently no additional rooms availability in the facility. Support upgrading of existing digital imaging infrastructure. MORE BIOMED AND INFO-TECH(IT) STAFF NEEDED FOR ASSISTANCE WITH COMPUTERIZED MED. DEVICES & INFRASTRUCTURE (more incentive pay to retain staff)."
"Comments are only applicable for after-hours/weekend coverage. Cath Lab Attending, Nursing and tech staffing locations/housing do not allow for efficient after hour/weekend coverage of ACS/acute MI interventions. In general the close proximity of a non-VA facility with in-house call of cath lab personnel, allows for <=90min door to cath/balloon time for ACS/MI patients. The limiting factor is transportation service."
Improvement in efficiency and staffing of outside transfer service used.
"Delays can occur due to co-morbidities of patients, often requiring an optimization of medical management before surgery. Medical support services are available to address these issues. Increase in Anesthesia staffing and supporting service is needed."
"Increased social worker or AOD coverage for negotiating the transfer process. On weekends and after-hours an AOD covers for the social worker, in addition their standard duties."

"Lack of available beds lead to placement of facility on temporary bypass status, at times delaying transfers. Opening more beds for use (policy issue), would be important, as is increasing number of nurses, specialty staff and ancillary staff. Resolution of some staffing issues are in progress."
"The progressive increase in patient volumes has not been previously matched with the need for an increase in specialty staff, clerical staff, nursing staff and exam room availability. The Cardiology Service Line Agreement needs to be followed by practitioners, to reduce the number of inappropriate consults and to increase the efficiency of handling clinic requests. The current clinic model in undergoing a Systems Re-design. However the concerns of specialty staff, clerical staff and nursing staff needs a better way of being address by administrative personnel."

"1. Need more space in the ED - always cramped/ on internal diversion
2. Need more hospital beds to transfer patients out of the ED"
need more beds in the hospital to decompress the ER. We are always on internal diversion.
Never happens - we are ALWAYS full

The two main factors that contribute to delays in Veterans obtaining echos as our facility are personnel and equipment. We need to hire a cardiology tech and we need another standard echo machine.
"We need to hire a cardiology tech. If we have this person in place, we could begin nuclear stress testing at one of our CBOCs."
We do not manage ACS patients here at this facility. We have an agreement with the local Air Force Hospital that accepts all of our ACS patients that present to the ED or that need transferring from the inpatient units. To my knowledge there have been no delays in getting these Veterans transferred from our facility to the Air Force Hospital for ACS management.
We need additional nursing support in our Cardiology clinics. Providers spent many hours taking vitals and calling patients with lab and diagnostic test results.

Surge staffing for nursing when inpatients are being held in the ED. Develop alternative temporary bed location for inpatient admission holds. Could agency nursing staff be utilized during periods of high bed occupance. Specific discharge directive specifying early discharges and rules to expedite discharge planning. Increase nuclear med ECHO and stress testing on weekends and holidays.

Need more RNs on telemetry-capable units to fully staff all available beds. Lack of nursing staff delays throughput of patients.
Lack of appropriately skilled nursing staff limits the number of truly available beds on telemetry floors - this is vital. Also needed - more beds in progressive care unit for ACS patients.
Need incentives for leadership that are based on number of veterans being sent to outside hospitals due to unavailable beds due to lack of skilled RNs. Need more RNs to fully staff beds.
Need LIPs to conduct nuclear stress testing
"Need 1) Early recognition of STEMI by ED clinicians and 2) consistent, effective activation of Cath Lab by administrative staff without delay"
Need administrative staff to be adequately incentivized (and supervised) to activate Cath Lab in a timely manner when STEMI patient presents to ED
Need additional cardiologists and nurses to staff additional clinic sessions
Need additional LIP and technician staff to increase availability of nuclear stress testing
Too much administrative burden on physicians including mandatory training that reduces availability for patient care.

"Patients with chest pain should be evaluated in local ER and service should be provided (paid for) by the VA. If patient requires admission, cath, etc stabilize and transfer to the VA. Currently services outside the VA are not paid for unless patient is service connected. This means many patients attempted to drive long distances (hours) to a VAMC for ACS. The result is substantial delay in treatment of ACS"
Out of date equipment (nuclear camera) unnecessary danger in some areas
Need new nuclear cameras to facilitate evaluation of patients. New cameras use less radiation for each test and require less acquisition time.

- **Colon Cancer**

national clinical reminder
our nurses double check the labs

"Electronic Reminders-Pop Ups
However if patient is not seen it may go unrecognized."
We are not offering screening colonoscopies for Average risk patients.
"b-More Endo-Teams needed
c-more schedulers needed
d- more scopes needed
g-consent and starting iv's
k-talk to people involved in these procedures"

clinic reminders to all PCC''s for pt's 50 and older for screening colonoscopy

clinical reminders in primary care
less than 30 days
less than 30 days
as early as indicated
more providers with support staff and better workflow solutions

A GI case manager is in charge of this process
A FOBT positive is picked up by the case mannager
"Better salaries for GI physicians, to recruit to VA."

"In the past 6 months , a process of electronic referral and call back for repeat colonoscopy
(?surveillance colonoscopy?)after colonoscopy, done at this VA, is + for colon adenoma or colorectal
cancer, has been reestablished here by the Chief of Medicine in conjunction with his GI providers and
support staff ."
"All + FOBT areidentified /captured by the lab and routed to the GI providers by secure e-mail weekly, in
addition to the automatic alert which is generated and sent to the ordering provider (usually PCM)
though CPRS."
Wait time for routine screening or surveillance colonosocpy is 42 days (6 weeks).
up to 42 days for asymptomatic patients
FOBT + wait time is 30 days or less.
Depends upon acuity of labs results and associated signs and /or symptoms. Can be as little as 1 day
and as long and 42 days.
1-42 days. Patients are triaged according to clincal assessment of severity of disease. Can be as quickly
as 1 day (inpatient) or as great as 42 days.

yearly fobt
lab contacts provider for every positive fobt

Clinical Reminders section of Med Record

"Need more nursing support, technician support, anesthesia services. Additional physician positions in
addition to the nursing and technician support would enable a greater number of procedures to be

done. We would also need a manager that reports to the physician endoscopy unit manager to facilitate patient flow and to oversee patient scheduling and coordination of services with patient transportation or housing in order to recover those patients that receive sedation."

Reminders are implemented in the Clinical reminder pane. They are initiated by age (automatically at age 50) or by procedure as clinically appropriate.
Dependent on the symptoms/ indications. Urgent cases may be completed in less than 2 days.
"Increasing personnel: physicians/LIP, nurses & techs. Availability of equipment: colonscopes, vital sign monitors. Ensure guidelines/timeframes from Central Office are supported by best available medical evidence."

"I only see pt. w/ Dx colon cancer , I do not screen them ."
We see both IDA and Colon Ca

"When patient turn 50, at the primary care visit."
Hospital encourage FOBT testing over screening colonoscopy.
"VA need to come up with competitive, less complicated ways to hire gastroenterologist. Our VA is struggling to hire a gastroenterologist replacement for last 2 yrs. Hiring process is very much dependent upon local administration perception of market. There is more top down approach, when it comes to implementing work process in individual department, which leaves staff with a feeling that they do not have much say in the process thus no buy in from stake holder, passive behavior and eventually loss of personal."
Close coordination and follow up of patients who are send out on fee basis

clinical reminders via CPRS to primary care PACT teams
"Desperately needed - GI physicians and endoscopy nursing personnel;
Badly needed - more endoscopy rooms"
"GI physicians doing administrative work, including mandatory training that interferes with clinical availability"

Colon cancer screening reminder triggered at age of 50 and every 10 years. There is also a Repeat Colonoscopy reminder to trigger for interval colonoscopy procedure

Clinical reminders appear in the clinical reminder section of the CPRS coversheet. Templated charting in CPRS drives the reminders.
We currently send average risk patients to the community via NVCC process. I do not have access to those wait times.
Currently use NVCC process.
"At Dorn we are limited by nursing staffing, tech staffing, and number and configuration of procedure rooms. I am TOLD that the NVCC process results in long delays of care. Our equipment is up-to-date. The implementation of the electronic consent probably costs 4 procedures a day. However, administration is actively trying to improve in these areas."

Yearly
All +FOBTs are detected by GI nurse who follows up with PCC providers.
Available on request
Available on request
Nurse hiring and retention problematic due to noncompetetive grades/salaries and long HR delays.

Most fee basis delays are due to inefficiency and incompetence in Business Office.
Administrative delays are common due to poor functioning of Business Office.
Understaffing of VA administration and support personnel is a pervasive and longstanding VA problem.
A particular need is cancer care coordinators/navigators which is cost effective.

"uncertain, this is usually done by primary care. most that I see are done by colonscoopy"
this is usually not triggered via oncology but rather through primary care
"uncertain, this is via gi"
via gi
via primary care
via primary care
via gi
This is not a physician centric institution. the physicians are viewed as the problem and the solution is ancillary personal. this is backwards. The focus needs to be on physicians and patients.
Again we need qualified physicians. Not folks who can write notes that say to see physician. The bottle neck is that the va seems to feel NPs and PAs are equivalent to physicians
"Qualified colo rectal surgeons, not PAs or refer to Huntsman Cancer institute as many of us have dual priveledges"
We have in SLC the resources to dual with most things either at the VA or HCI. referrals out really not the issue
Administrative stuff is unmanageable and out of control. Secretaries are unable to order labs. Everything is delegated to physicians. as a half time physician I have a 20hr/wk tour but 60 hours of annual training

THe physician puts in forthe reminder but I am not sure what happens next.

Reminders in CPRS
"Limited number of endo rooms, lack of nursing support and delays in replacing equipment are major causes for delays."
Very limited number of surgical oncologists with very restricted operating time due to lack of OR rooms

Triggered based upon age and no code for FIT in the last year or colonoscopy in last 10 yrs
Secondary clinical reminder also in place for positive FIT
Screening for Colon Cancer in average risk patients is typically completed via FIT.

usually see the GI attending first for consult and then the colonoscopy scheduled from there.

Recall reminders that pop up when patients are seen in the primary care clinic. Colon cancer screening reminders pop up yearly.
In the surgery clinic we have a mid level provider who gets all FOBT/FIT + results and reminds PCP''s and other providers if no action is taken. This serves as a back up.

"Automatic physician reminder
OncWatch"

The clinical reminder is activated for all patients over age 50. The nurse will distribute the FIT tests to the patients and assist in compliance. There is also a clinician in each PACT who reviews outstanding tests and contacts those patients. If a FIT test is positive there is a nurse practitioner assigned to this

project to make sure the PCP has entered a request for colonoscopy within a 30 day period of receiving the positive FIT.

An abnormal FIT test alerts the PCP. In addition the lab sends the results of all abnormal FIT tests to a GI Nurse Practitioner who job is to monitor these results and alert any PCP who has not placed the approrpiate GI colonoscopy request within the designated time period.

"It is critically important to hire additional physicians (Gastroenterologists) and nurses - cannot perform procedures without either. We also need additional mid-level providers to assess patients prior to scheduling, monitor FIT testing and screen and triage consults.

Gastroenterologists must receive salaries on par with the community in order to recruit and retain endoscopists. Salaries are too low and there are never significant increases or incentives.

The Central Office policies need to be revised because obviously non-clinicians are making decisions as to how quickly patients need to undergo procedures. The doubling time in the colon is ~5 years therefore the average patient does not need to have a procedure performed within 30 days or even 60 days. In the community patients are getting screened and procedures performed on an elective basis and often the wait times are >30 days. If a cancer is found it didn''t ''develop'' within the 30-60 days waiting period - it was there most likely year(s) prior.

If Veterans are to receive the appropriate care and screening for colorectal cancer they need to have the same resources (up to date equipment, ancillary personnel staffing must be adequate, and skilled nurses and physicians be must available)"

Need to increase the number of GI sureons at our facility. Three of four are leaving at the end of this academic year (June 2015) and certainly because of higher salaries elsewhere or the chance to enter into a productive private practice. This is crucial! There is also the need for more spaces in the surgical schedule and more anesthesiologists and nursing personnel.

"The oncology section needs to expand - again! They have outgrown a space designed for them ~10 years ago. There is no space for additional patient treatment rooms, physician offices and nursing stations. They also need to consider weekend infusions."

"Radiation Department needs additional skilled providers physicians and nures that will allow them to provide services on weekends, evening times. In addition need to review their equipemt to assure that it meets current standards, etc."

reminders are for primary care they are turned on for all patients 50-75 years of age they are turned off after a colonoscopy for 10 years. They are not adjusted based on path that is up to the PCP or GI to follow. If FOBT is done it will be turned off for a year

a positive FOBT of any kind generated appropriately or inapropriately generates an automatic consult to Gi

Longest wait times are for those patients that need the procedure with the assiatnace of anesthesia- need MAC not just conscious sedation.

"The problem is the patients desired scheduling date is often out further than the available time slots. If a patient needs to be seen we will get them in.

Longest wait times are for those patients that need the procedure with the assiatnace of anesthesia- need MAC not just conscious sedation.-"

"The problem is the patients desired scheduling date is often out further than the available time slots. If

"provide updated technollogy

increase space increases endo rooms, need preprocedure area.

our patients do not do well when sent on to the outside need to improve our abilities. This requires, increased admin staff and clnical nurse supprt not just in the nedoscopy room but all physicians especially procedureal physicians need nurses to follow up with patietn labs, etc and to remind and

educate patients regarding their upcoming proceudre appointments otherwise we have an increase in no show and cancellation rates.
Increase avaialbeility of out of OR anesthesia"
"improve OR room and nursing, anesthesia availability
Improve contracting out for specialty surgeries"
"We need more OR space, more nurses, more ICU nurses for the beds that we have and often our neighboring hospitals don''t want to take our patients so we need to improve our resources."
Residents take time but they also do a lot of work that would otherwise have to be done by the attending staff and that would hae a great impact on flow. Additonally most good providers would not work for this system without trainees.

We have an RN assigned to also receive the positive FOBT view alerts to assist.
"We do not perform colonoscopys on station, and they have to be sent either to tertiary site or community. The time can vary from 15 days to 45 days."
"We do not perform colonoscopys on station, and they have to be sent either to tertiary site or community. The time can vary from 15 days to 45 days."
"We do not perform colonoscopys on station, and they have to be sent either to tertiary site or community. The positive FOBT are a priotrity and can occur quickly."
"We do not perform colonoscopys on station, and they have to be sent either to tertiary site or community. Patients with iron deficiency anemia are sent to a higher level of care immediately without delay."
"We do not perform colonoscopys on station, and they have to be sent either to tertiary site or community. Patients with symptoms are sent to a higher level of care immediately without delay."

Unaware of CPRS alerts to remind providers of screening and/or surveillance(follow-up) colonoscopy.
This question would be best answered by a primary care provider.
"<30 days, based on best judgement"

Most of the delays in our institute is for patients that need an anesthesiologist for MAC (monitored anesthesia care) since we have only one day a week that MAC procedures are done. Our wait time for these procedures is over 90 days. We are in critical need of an anethesiologist who is dedicated to GI procedures. These patients cannot be outsourced because they are considered high risk by community gastroenterologists and they don''t accept them for outpatient procedures. Lot of our time is also spent in documentation at VA. My choice program for Veterans essentially does not work because it puts the burden on the patient to make the phone call. Triaging our consults also takes a lot of time for PA and physicians -we do need additional Gi rpoviders in our hospital.
Increase the number of surgeons
"A lot of time is spent by providers in administartive work, triaging consults etc. No training is given to provders to capture work load properly, coding etc. Every few days there is some "suspense"' to be answered within few days or some such VA document to be completed. We have to drop everyhting and answer that."

all pts 50 and above have reminder on for fecal testing turned off for 7 years if have colonoscopy
several checks in place to assure all pos occult tests are tracked
biggest problem is no shows and cancelled by patient too late to move someone in

By PCP; on computer

Available at VA Togus
BY the PCP and GI team

A GI staff member reviews all positive fobt results to ensure speedy referral to GI
"Elective screening exams are scheduled per patient preference sometime during the year after turning age 50. There is wide variability when these exams are scheduled- I would estimate most are completed within 3 months, but is entirely based on patient preference."
"Elective screening exams, including those for asymptomatic high risk patients, are scheduled per patient preference sometime during the year after turning age 50. The clinician seeing the patient does encourage the patient to undergo prompt testing and appointment slots within 30 days are offered. There is wide variability when these exams are scheduled- I would estimate most are completed within 3 months, but is entirely based on patient preference."
All positive FIT patients are offered an endoscopy slot within 14 days. However scheduling is based on patient preference
"Like positive FIT tests, patients with red flag symptoms are offered appointment slots within 14 days. Patients with other less urgent symptoms, like bloating, are offered slots within 30-45 days. Scheduling is per patient preference for the exam"

"Colorectal cancer screening reminders are implmented and also serve as surveillance reminders. Age 50-75, no colonoscopy within last 10 years or colonoscopy is said to be due again for follow up, no FIT/FOBT in past year, no flex sig/CT colonography/ACBE in past 5 years."
We are no longer using FOBT. It has been replaced with FIT.
change in prep for colonoscopy.We still use Go lytely

Triggered annually in health summary. Last colonoscopy performed and date done is present on Veteran''s problem list.
"Our facility needs additional endoscopists. We also have a delay in pre-procedure processing. We also are challenged with standardizing provider output, i.e. benchmarking productivity through all positions."
"Facility was not performing colon surgery until March of 2015. After returning to Intermediate surgical complexity status, we have been able to meet our clinical load in surgery."
We do not provide Radiation therapy locally and use fee-basis providers. The NVCC unit seems to be challenged by the load of all types of consults that they must address. I do not see clinically significant delays because of this.

"There is a standard alert system to the PCP''s for routine 10 year screens. they order these.
Those with polyps or other conditions discovered on colonoscopy have f/u exams ordered by the endoscopist and these are entered into an approved recall system."
"If we cannot see them in our [location redacted] office within 30 days or due to distance they are either fee based out or if appropriate given ''choice''", predicated on the patient accepting our offer for appointment. Once they are fee based or use choice we have no knowledge if they are seen within 30 days, 50,60,90 etc. This is not tracked as far as I know."

The extensive documentations and requirement for physicians to write all orders regarding return to clinic slows down the procedures. The scheduling and administrative support personnel and their supervisors need to be significantly strengthened.

clinical reminders seem to be based on review of labs and charts for prior screening. Much/most of past CRC screening was out-sourced and this information is often not available so accuracy of the clinical reminders is often flawed

"Need more endoscopists to perform the work with trained, experienced motivated support staff. Primary Care needs education for indications for colonoscopy. Non-VA information needs to be obtained for accuracy in the medical record. IT/CAC support would be great to develop order sets to streamline patient throughput in the endoscopy unit. VA regulations should be reviewed/re-interpreted to assess their usefulness in timely patient care. If the VA is held to the volume of the community, then the same resources and standards need to be considered. There are often too much regulatory pre- and post-procedure processes that delay efficient patient through put in the endoscopy unit."

Additional surgeons will be starting in the next few months. This facility has suffered from the scarcity of trained colorectal surgeons. There are also not enough surgical providers in the local community so some patients need to be sent to other geographic locations; their wait times are based on the resources at those facilities.

More TRAINED surgeons are critical to proper and timely care of our patients. The support personnel (RNs and techs) need to be trained and committed to efficient competent patient care.

Additional experienced physicians/providers would significantly improve patient care with decreased wait times.

"There are too many mandatory regulatory and administrative processes both local and national. Often redundant and cumbersome, sometimes unnecessary documentation. Support staff should be educated, experienced and engaged in performing high-quality efficient patient care"

"After a colonoscopy is completed, the GI provider re-sets the clinical reminder to indicate when colonoscopy is due, i.e. 10yr repeat colonoscopy for repeat screening after a negative colonoscopy in an average risk patient."

"diagnostic colonoscopy for GI bleeding or sudden change in bowel habits, involuntary wt loss or alarm symptoms"

"Currently we need more clerical staff (MSAs), more nurses, techs, and MDs to be able to have all 6 Endscopy procedure rooms at JP VAMC up and running. The Sat colonoscopy clinic worked well in the past. Scheduling package could be modernized and simplified to make it easier for all who use it."

CPRS produces a view alert when the patient turns 50. This is automatically reset if a FIT result is seen for 1 yr. and automatically reset to 10 years if a colonoscopy cpt code is seen. This is modified by the GI section if the colonoscopy found polyps or if the prep was poor.

Every month the lab runs a list of the FIT positive patients and an administrator notifies all primary care providers of any patients that are FIT positive that have not been acted upon.

Urgency is dependent on the findings. Abnormal CT within 2 weeks for example

"We have been blessed with adequate space, close to adequate nursing and technical support, new equipment should be on contract in the next fiscal year. We are short on independent practitioners. Some policies make for less effeciency and consume patient care providers time."

"We have been blessed with a new endoscopy area, endoscopy program, and we will be getting new rental endoscopes in the next fiscal year. We are very short on independent practitioners and to some extent nursing administrative and technical support specifically to our area. Endoscopist can still get significantly more money outside the VA system."

Many of the scheduling and telephone calls to patients that is currently performed by a physician could be performed by a clinical case manager nurse. We have cross trained a number of people in the area to function outside their core responsibilities which has been a great assistence.

Automatic reminders pop up in record when patient comes to PCP

all of the estimates are until the first scheduled date. patients frequently reschedule or request dates farther in the future

varies 14- 45 days ie decreasing hgb and IDA are done sooner whereas IDA and minimal stable anemia may wait upto 45 days

"wait time depends on clinical urgency ie brb with dropping hgb are done w/in 15- days, brb with stable hgb w.in 30-45 days"

"increased MD,RN, LPN and clerical support are crucial, increased Anesthesia support it is needed, At present space and equipment are adequate, the addition of a clinically indicated date has been a help"

"Under cliinical reminders, triggered by age for screening between age 50-75"

FOBT list is printed and addressed with daily pending consult list by GI NPs

Estimate based on clinical observations

30-60 days depending on the severity and urgency of the individual veteran's situation

It would be helpful to streamline the amount of computer clicks that are needed to process a consult for colonoscoy surveillance/screening. Pharmacist in the GI setting would be helpful. An additional NP to provide increased clinic availability.

A big issue is patient no-shows.

Reminder protocols are based on recorded chart findings using age and past screening results.

Abnormal FOBTs are also built into reminder logic.

<;30 days

"<30 days.

Can be triaged to lower number based on medical need."

"<30 days.

Occult blood testing clinical reminders on CPRS cover sheet

It is easy to overlook abnl lab results if they are mixed in with literally hundreds of other abnormal lab results.

If patient has more than one indicator of colon cancer risk patients can sometimes be overbooked if efforts are made.

Need more endoscopy techs to allow more endoscopies per day. Working on a reduced schedule.

Please contact [name redacted] if you have quesitons about reminders in VISN [location redacted].

"However, a staff member actively follows up on all positve tests to be sure they are acted on"

"It takes longer to do the paper work than perform the procedure and MOST of the paper work is not value added. GI procedures are treated like SURGERIES (e.g. special purpose wrist bands, time outs, "gurney consent" etc) Now we are required to put estimated blood loss in our reports. Leadership should realize that GI procedures should not be considered OPERATIVE procedures and the rules/regs should be reaxed"

"FOBT every year, Colonoscopy every 10 years, flexible sigmoidoscopy avery 5 years. Triggered when no longer applicable."

"Triaged by GI, screening intervals of 10 years"

"Triaged by GI, screening intervals 2- 5 years."

"Triaged by GI, sooner if other symptoms."

Triaged by GI for urgency

Urgency determined by GI provider

"VA target of 85% for CRC screening is much higher than achieved the community. Some FOBT are not indicated for patients with co-morbidities and resources not available for such ambitious program. CPRS and inflexibility of interphase between EMR and non-VA endoscopy report system leads to many inefficiencies such as recall and scheduling."
Cancer coordinator/ navigator will help thorough follow-up.
Cancer coordinator will be of help for follow-up. VA processes are cumbersome.
"VA rules /regulation are cumbersome barriers (e.g. fee service paperwork, consent process, CPRS interphase) that further compound insufficient staff."

Lab completes positive obt provider notice note and adds PCP as additional signer to the note
Vast majority of our diagnostic colonoscopies are referred to Buffalo or Syracuse VA as we do not provide the service on site. [Location redacted]monitor the 30 day mark for completion of the study.
Vast majority of our diagnostic colonoscopies are referred to [location redacted]VA as we do not provide the service on site. [Location redacted] monitor the 30 day mark for completion of the study.
Vast majority of our diagnostic colonoscopies are referred to [location redacted] VA as we do not provide the service on site. [Location redacted] monitor the 30 day mark for completion of the study.
chemo and radiation usually require a regular cycle of treatment - for various reasons it is difficult for patients to attend a treatment center that is far from home.

implemented on all patients yearly as part of the standard clinical reminders process
we currently have an efficient system to route patients through colon cancer screening processes

"In Primary care clinic the reminder is automatically turned on at age 50 to start screening. Once a patient undergoes colonscopy, depending on findings and path a recommendation for surveillance colonoscopy is generated. The remined for f/u colonoscopy is activated in CPRS by the nurse navigator who writes the endoscopy follow up report to the patient. The pateitn is also informed about the recommended f/u."
colonoscopy completed within 60 days of request
within 59 days from the date FOBT was found to be positive
these are reviewed by the physician to see if they have had any w/u in past and if so what would be the next best w/u. If no endscopies have been done in past usual wait time can vary from 2 weeks to one month.
these are reviewed by the physician to see if and what w/u has been done and what would be the next best w/u. If no endscopies have been done in past usual wait time can vary from same week (for eg Hematochezia) to one month (vague abd pain).

This is managed by the primary care providers and not the GI-endoscopy providers
"Again, this would be best answered by PCP, but my answer is my best impression."
consent process could be improved with greater flexibility

Reminder is triggered to the Primary Care Provider for average risk patients with the appropriate age characteristics
"8b:physicians and nurse practitioners
8c: registered nurses and clerical staff
8H: improve pay and incentive"
Unclear what their needs are at other VA health care system

Test handed out at CBOCs - sent to parent for lab there

Reminder used that asks for dates/ results and recommended interval for screening
"We do not have GI onsite
All abnormal labs are a mandatory alert
Clinicians receive many alerts - making it easier to miss something"
Clinicians here can speak with surgeons - only discipline doing scopes - if need to expedite something
"Space is adequate for demand. Have no GI - rural site - surgeons do all scopes.
HR support for prompt hiring would be helpful - fee basis/ hard to find providers -remote location and
VA reimbursement is low and often paid late"
I cannot assess why the larger VA we refer to cannot accommodate referrals
This is a small rural/remote community - limited services
"Chronic issues with outdated VISTA scheduling
CPRS - has resulted in excessive reminder use"

"Reminders are implemented, however, all providers are not consistently utilizing them"
"Timeframe depends on the reason for the visit. If we cannot see patients within guideline timeframes
(ex. BRBPR in 30 days), they are sent via Non VA Care"
"Timeframe is dependent upon whether we can see the patient within timeframe guidelines, or if we
send them to Non VA Care"
"Currently, FOBT positive patients are not automatically referred to GI, unsure of wait time"
"Many of our patients are outsourced due to inability to see patients within prescribed timeframes,
timeframes vary between providers"
"Many of our patients are outsourced due to inability to see patients within prescribed timeframes,
timeframes vary between providers"
"The majority of our patients are sent through Non VA Care, due to low number of providers available,
and not enough nursing staff. Increasing physicians and staff would also generate the need for more
space. Increasing providers, staff and patient load would require an increase in equipment (scopes,
towers, procedure rooms, etc.) Since the majority of our GI patients are sent through Non VA Care,
many have wait times for procedures, which we have no control over. The BIGGEST problem with Non
VA Care is that the facilities that do the procedures typically do not send the patient records back to the
facility as they are supposed to do according to the authorization letter. This is one of the biggest
reasons that we have so many consults that are not complete, even if the procedure has been done.
There is a significant lack of timely document return in the community. Lots of time is spent requesting
and re-requesting patient records. For the patients that are seen at the facility, their appointments are
made promptly and consult processing is very timely."
Increasing the hours that a wide range of radiologic services are provided could be helpful.
"Elective/outpatient surgery is very high volume at this facility. Inpatient beds are limited, esp. ICU
beds. Weekend outpatient surgery might be a viable option."
"Unfortunately, we don't have control over what the Non VA providers do. As long as consults are
submitted and processed by Non VA Care in a timely manner, authorized for payment and scheduled,
that is all we can "control"

CRC screening reminders are managed (turned on and off) through the primary care clinics an
appropriate screening exam has been completed
"MAJOR issue is the volume of consults directed to the GI service by primary care. A large portion of
these consults are incomplete (not enough provided information to triage the consult well), duplicates
(consults for established patients; 2 or more consults entered around the same time for the same issue)
or inaccurate/inappropriate (e.g. colonoscopy requested for a patient who just had a normal
colonoscopy). It still takes man power to review all of these consults and focus our efforts to address

the relevant consults, but need to wade through all of the entered requests to do this. Also, consult to GI for colonoscopy for a positive FIT is often not entered in a timely manner, so time to colonoscopy is delayed."
More reliable scheduling system with reminders and follow up calls to patients would be important.

Clinical reminder triggered yearly
We have had gastroenterology positions posted for 5 years; unable to fill due to inability to match community pay

patient reaches age 50
MORE PROVIDERS

Based on patient demographics or prior endoscopy results.
Rules governing moderate sedation require such extensive documentation and chart auditing that we lose capacity to care for patients.
VA pay tables for oncologists are not competitive with community rates. This makes recruiting staff oncologists a challenge.
We generally send these patients to a tertiary VA or into the community.

"Clinical reminder in place when diagnosis code of colon cancer, colon polyps, or family history of colon cancer are entered into problem list for every five years. Otherwise, a reminder of every ten years."
less than 90 days
30-60 days
30 days or less
30-90 days
less than 60 days
Worling to increase the availability of services

"1) Reminder Cohort: Meets age 50 to 75 without Risk Factors with patients over age 75 being assessed if screening is applicable. If applicable, providers are able to turn the reminders off completely Screening, Diagnostic, and Surveillance "not applicable." Resolution: FOBT (every year), Flexsig (every 5 years), FOBT (every year) and Flexsig (every 5 years), DCBE (every 5 years, prior to 10/1/10), CT Colonography (every 5 years), Colonoscopy (every 10 years)
2) Reminder Cohort: Meets age 40 and older with Risk factors (must meet one of the following): Family history of colon cancer, Family history of familial polyposis coli, History of Ovarian or Uterine Cancer. Diagnostic and Surveillance reminders "not applicable;" Resolution: Colonoscopy (every 5 years)"

"Clinical Reminder, Set Age 50-75, turned off when FIT negative x 1 year, colonoscopy x 3-10 years based on results, flex sig x 5 years, BE x 5 years"
GI follows up any +FIT or FOBT that has not been acted on by the ordering provider w/in 2 weeks of test result
High risk patients are usually scoped w/in 30 days
Patients w/ Iron Defic. Anemia are usually scoped w/in 30 day
"Important to understand the clinical meaningful timing for specific indications and not lump all indications together. National standards should be upheld for high risk patients, recognizing that screening for average low risk patients can safely be delayed many many days."
Ability to start and deliver chemotherapy to outpatients over the weekend. Increase provider FTE when needed both at main facility and referring facilities.

"Colon cancer screening reminder pops up for Veterans age 50 and over per USPSTF guidelines/recommendations for colorectal cancer screening when Veterans see their PACT team. When Veterans complete endoscopic procedures, GI results notes link with future reminders so CPRS users including PACT teamlet are aware when procedure is recommended to be performed again."

40 days average wait time for low or average risk colorectal screening. Sometimes patients have a specific preference for day of week or beginning/end of month when they have driver or can clear their work schedule. When this preference is accommodated sometimes that makes the wait time shorter (i.e. we have had a cancellation that we can schedule them into) or it makes the wait time longer because we are honoring their request.

25 days average wait time for higher risk risk colorectal screening or for patients with IBD. Sometimes patients have a specific preference for day of week or beginning/end of month when they have driver or can clear their work schedule. When this preference is accommodated sometimes that makes the wait time shorter (i.e. we have had a cancellation that we can schedule them into) or it makes the wait time longer because we are honoring their request.

25 days average wait time for +FIT. Per our policy these should have procedure performed within 60 days and we work to schedule them this way. Sometimes patients have a specific preference for day of week or beginning/end of month when they have driver or can clear their work schedule. When this preference is accommodated sometimes that makes the wait time shorter (i.e. we have had a cancellation that we can schedule them into) or it makes the wait time longer because we are honoring their request.

30 days average wait time for patients with IDA as traditionally this requires a double procedure i.e. EGD and colonoscopy. Sometimes patients have a specific preference for day of week or beginning/end of month when they have driver or can clear their work schedule. When this preference is accommodated sometimes that makes the wait time shorter (i.e. we have had a cancellation that we can schedule them into) or it makes the wait time longer because we are honoring their request.

"Scheduling urgency (or not) depends on the patient's symptoms or clinical indication. Some symptoms are more of a red flag which triggers providers to request a procedure in 1 week, 2 weeks, 3 weeks or perhaps routinely with notation that patient can safely wait up to 3 months to complete study."

"More clerical staff are needed now that we have moved to live scheduling or negotiated appts for all consults. This is very time intensive. We also need more nursing staff to answer patient questions pre-procedure since our patients come in on day of study. We need expansion of physical exam to interview patients pre-procedure. We need a 3:1 bed ratio between procedure suites and pre and post-procedure recovery space. This requires more patient monitoring equipment and stretchers, stretchers bays or spaces."

"Solid service-level consult review and management DAILY by either MD''s, PA''s or ARNPs so that urgent consults coming in are seen and triaged immediately. This reviewer would have a good working relationship with clerical or RN navigator staff who could contact pt right away to negotiate appt. This handoff and communication should all be documented in CPRS. More CT scan machines and use of after hours and weekends would reduce wait times for these important staging scans which then assist the specialty care provider on best plan of action. if patient cannot travel here for care, simplified referral process for community based care would be appreciated and have this process be as transparent as possible so all providers know when and where this Veteran was seen and what the plan is."

"Increased CT scanners required more radiology staff to read studies, requires more clerical support to call and schedule patients for studies. Would require more Xray staff to walk patients through the scanning appt. Timely electronic notification to ordering provider requiring electronic signature not just a VA viewer alert would be the best way to communicate results."

The clinic nurses often place the order when alert comes up that patient needs screening. More education needs to take place with the nurses re: when screening is and is not indicated per the standards. This would improve patient's quality of care by not putting them at increased risk such as FIT testing a patient 75-80 or older(not recommended due to increased risk of perforation.

Clinical reminders are used. When they show up PCP and PACT teams give out the FIT test kit with instructions

FOBT results inputted into tracking tool and I call the patient if PCP has not already to initiate the consult to endoscopy clinic. Sometimes the PCP will beat me to it and place the consult at which time the consult is answered by a provider and MAS contacts the patient for earliest possible appt.

We do have a problem with managing medically complicated patients here but non-VA resources are financially limiting and IFC is denied due to work load. Is appropriation of funds directly proportionate to the geographical population of veterans ? Might consider.

More practitioners and support staff as well as resources will improve our ability deliver more efficient services. Right now we are SO low on PCP''s that consults for specialty services are down. Active recruiting/ incentives for good quality staff important. Look at the workload and day to day tasks placed on PCP''s. Limited 30 minute time slot for H&P''s is inadequate for providers to access and manage complicated patients but we have been forced to work at that level to increase access to veterans. More NP are not being hired due to the inability to manage pain with narcotics.

We are not provided any time to do mandatory educational training required by the hospital/VA system.

Provider receives a reminder and responds.

We get in any high risk patient.

We are in critical need of GI physicians. We are in a rural community and salary has been a concern.

"CPRS is difficult, often redundant in tasks.

One or two no show in procedures out 40 cases. Not enough support staff, walking patients takes half of the scheduled appointment time."

CRC clinical reminder is triggered for age >50 once a year if FIT testing only. If colonoscopy is completed it triggers every 10 years.

"To avoid any patients slipping through the cracks, we established an interdisciplinary team GI and Primary care running positive FIT testing report regularly and monitor scheduling proactively of the colonoscopy within 60 days of the positive FIT test result. This team reports quarterly to the ECMS."

Within 60 days of the positive FIT

"We have been successful in decreasing wait times significantly by hiring additional GI physician and APNs, nurse coordinator, as well as more RNs and techs.

The vista scheduling package overall need a major overhaul due to inflexibility and being very cumbersome for the clerks. This also applies to the consult package especially since we use Endoworks for colonoscopy reports which does not automatically close the consult as it creates a report in vista imaging instead.

We have a minor project approved to remodel the GI lab and increase number and size of operational exam rooms and efficient recovery room flow."

"Colorectal Cancer Screening

Cohort: Target Group: All veterans 51 to 75 years of age.

Exclusions""

   Life expectancy <6 months

   Diagnosis of Colorectal cancer

   Total colectomy

"Veterans who only receive Behavioral Health Care in the VHA with
explicit documentation of refusal of VHA Primary Care and that primary
care is received in a non-VHA setting*
*This exclusion is an identified variance from HEDIS."
Indicator Statement: Percentage of patients who have received appropriate
colorectal cancer screening

Numerator: Patients receiving appropriate colorectal cancer screening

Denominator: Patients 51-75 years old at the time of the qualifying visit
Technical Description:
This reminder is triggered annually for all veterans aged 51 to 80 years of
age.

The reminder is satisfied for one year by the Lab Test Occult Blood X3,
which indicates that three FOBT cards have been screened. If less than
three cards are submitted, if one is positive, it is accepted as adequate
for the screen.

The reminder is satisfied for five years by entry of one of the codes
contained in the Taxonomy SIGMOIDOSCOPY; or for ten years by the entry of
one of the codes contained in the Taxonomy COLONOSCOPY; or for one year by
indicating FOBT was done elsewhere; or five years by indicating
sigmoidoscopy was done elsewhere; or for 10 years by indicating colonoscopy
was done elsewhere. Progress note must contain date and results of tests
done at another facility."
We have a PA who tracks with lab all +iFOBTs in the system to ensure completed in 60 days.
Using our MR dashboard for all of the 321 stop code wait time. Unable to drill down past 321 stop code
into procedure types.
"Less than 30 days.

"primary care is very aggressive in obtaining FIT for all veterans, often overly aggressive"
Nurse leader who reviews all positive FIT testing and insures that alerts are followed up for scheduling
"not routinely used, some patients will specifically request screening by colonoscopy and we attempt to
accommodate as soon as openings available"
within that time unless the patient requests another date
variable based on when consult is received and if true iron deficiency is present
"individualized, but usually within 60 days, sometimes slower if special needs exist such as a
requirement for anesthesia to deliver sedation or admission for concurrent medical problems"
"we are in the process of hiring adequate GI MD, endoscopy RNs are very important as are well trained
GI Techs- it could be helpful in retention if they could be recognized for expertise by becoming certified
endoscopy nurses (supported by VA). We are frequently short on schedulers to get patients on the
books. CPRS is slow and it is not efficient to use in endoscopy. The time out procedure is not suitable for
endoscopy- you must enter why you did not SIGN THE OPERATIVE SITE!"
critically short on General and abdominal surgeons and we are losing our best surgeon to another VA
same as prior question- losing our best general surgeon we will be critically short
"Oncology service is good, there are plans for a new oncology infusion suite within the next 3-6 months"
if we could anticipate no shows we could attempt to fill the slots with other patients

These automated reminders are answered by primary care providers.

"Depends on indication. If urgent, a colonoscopy can be performed within days - This is based on the clinical judgement of a physician and not generally limited by resources. If not urgent, then it may be longer."

"Space and personnel are key, but we could do many more procedures with existing structural resources of our processes were more efficient/streamlined. There are major organizational and regulatory (VA-specific) impediments to efficient care. Examples: 1) misaligned incentives between nurses/techs and physicians; 2) High nurse turnover; 3) High regulatory burden (i.e. excessive time out requirements, lack of ability for nonphysician consents, etc) 4) antiquated scheduling system; 5) lack of operational data to guide process improvement. This being said, the patients in the VA are MUCH more complicated then your normal community screening patient, and so non-VA benchmarks don''t apply

Re: equipment - the VA needs a national Endoscopy Report Writer that is standardized across the VA and interfaces seamlessley with CPRS. There is such TREMENDOUS effort spent managing software that it has become a serious burden on our staff and impedes effective care."

"You read my mind; all of these items are critical obstacles to improving access to CRC screening. I would love to see a pilot program within the VA to waive some of these administrative requirements, while assuring patient safety, to improve throughput. Much more could also be done to improve flow of information from primary care to gastroenterology. Some of this is limited by consult system in CPRS."

"Case managers follow on results , once returned to lab"

A GI case manager is in charge of this process

"Increase salaries of GI doctors , so they will come to the VA. They make to much money in the civilian world to work at the VA."

"Again very few radiologist want to work@VA. The radiology dept in my opinion is very inefficient!!!!!"

"More OR space , more good and aggressive
surgeons need it"

"We do not have a RT dept. A facility this size
should consider building one. W/ the money
we pay contract radiation oncologist through the year we could have built one"

"Clinical reminders are implemented by a robust system that alerts primary care that a screening procedure is due. Patients are assigned to be informed of the options by the primary care team or are consulted to the GI department. There, the options are discussed. Appropriate notes are required to be entered documenting these elements. The reminders are turned on or off for varying lengths of time depending on the initial path choosen, IE colonoscopy vs FIT testing. Other options including flexible sigmoidoscopy or CT colonography are rarely choosen but are available."

"As part of the C4 initiative, it was noted that at times positive FOBT tests were not enacted upon in a timely mannor by PCP''s for a variety of reasons. We have for several years now routed all FOBT+ results directly to the GI department, reported on a weekly basis to us. We also directly schedule the patients in the GI department and simultaneously in the endoscopy suite, hopefully within 30 days of the date of positive test. This allows there to be rescheduling still within the 60 day time frame should there be a missed appointment. With this system and very close oversight, we have achieved well over 90% of patients getting colonoscopy within 60 days, including those patients that refuse to have it done in that time frame or refuse completely, taking out the studies that are not done appropriately for screening or if there is a contraindication to the procedure at the time."

"During the past 12 months there has been a large decrease in the wait time. It probably started around 90-120 days to now being 30-45 days. A prior backlog of cases was addressed lasst summer by the access to care initiative, with 900 or so procedures referred out to non-VA care. This, in concert with continued efforts to bolster clinical staff as well as nursing support staff in the endoscopy unit has resulted in the much shorter overall time. In addition, we are seeing patients within the required 30 day interval from time of consult more often. At the present time, we are seeing mocheduling presures as the large access to care has ended. We currently have a policy to treat all patients as FIT + patients and have their procedure within 60 days regardless of the indication. As this is a VA wide standard, it seems to make sense that the 60 day time frame would be appropriate and certainly expedient enough for all patients except those with more sever urgent needs, which would be seen much more emergently (within a day or 2 if needed. This was not present in the years past and we did not have the opportunity to send out patients that we could not see in a timely mannor. In late 2013 I noted on a chart review that patients seen in the clinic in Nov were being scheduled the following April or so. tghis was delt wit hin part as I have describved previously with access to care. In addition, we offered only FIT testing to patients with average risk for a time (as had been discussed with National colorectal program director who approved this based on available rescources), but are now back to offering colonoscopy to everyone that wants it"

"These patients would not be offered fit testing, only colonscopy. Again, the time frame for these patients has improved due to availability. On an individual basis they would be stratified as to the need and required time froam for the procedures. For an example, unless they were a new IBD patient, they would have been actively followed in the clinic and would have been seen well prior to their due date for their procedure, thus insuring that they could be easily scjheduled at the appropriate time."

"While this has probably improved somewhat, these patients for a number of years were always given priority and not placed on access to care as that was actually much slower than having their procedure performed in house"

"This is too diverse a group to give a number as it includes some patients with highly urgent required procedures and others with trivial symtoms that most likley were of benign etiology. The range would be from 1-2days to app 90 days. some of these patients would have been sent to acdess to care and again attempt was made to stratify them as to urgency. However, the fee department was overwhelmed and there was a fair amount of time to get these patients in. Despite attempting to manage and follow these patients, many did not get procedures done on the outside for a variety of reasons and were ultimately brought back to [location redacted] to have them performed . I have not included these patients in my estimate of the scheduling her of 2-60 days. Clearly many of these patients were much longer."

"Many of the items in this area have been addressed in Salisbury over the past several years, and thus the answers reflect where we stand in 2015. For example, renovations have generally been completed to allow for increased space for patient care bot in the clinic and the endoscopy units. There will be 2 CBOCS opening in the next year or so with more than enough capacity space wise to perform endocopies far into the future. The availability of increased staff to perform procedures is, however critical and is an ongoing challange. Since coming to [location redacted] almost 8 years ago, there has been a plan to increase the number of GI physicians to 5. They have been hard to recruit and we have just reached that 5 number within the past 6 months. It is likley that we will lose at least one within the next 3 months. While there are many issues here, the physican that is leaving to go to the private sector notes a general lack of respect for physicians in the VA system, certainly at [location redacted], that she had not noted in the private sector, and I agree with her. In addition, the salary range for GI physicians is still far lower than in the private sector. In addition, despite the increase recently in the salery caps, these increases will only be given to new hires which creates striff within the organization, particularly as I have recently learned that at the 2 year review, it is unlikley that existing staff will be paid at even

the same rate as new staff coming on board. This will mean that the seasoned staff including the department chiefs will be paid less than the ''freshman'' One additional staff member of mine is thinking of leaving if his salary does not get at least raised to the level of the new hires at his 2 years review. Due to all thes factors, I think it is unlikley that the excellent new facilities will be abe to be adequately staffed for some time. There will need to be additional support staff to man the clinics, IE NP/PA. These have traditionally not been as difficult to hire. The scheduling for procedures at Salisbury has long been hampered by a lack of MSA''s dedicated to the GI department. There has been an extreme shortage of all MSA''s here. The ones that have done the GI scheduling have not been assigned exclusively to us, and the result has been that the scheduling had been done very poorly in the past. The current administration has been extremely responsive to the needs of the GI department, the busiest in our VA wit h marked growth, and one of the highest volume endoscopy units in the country. As part of their commitment, a system redesign group was formed. the result was marked increased nursing staff, and the assignment of several dedicated MSA''s to GI. The results have been stageringly sucessful. However, the MSA''s are not assigned to clinc, only to procedures. The providers again all feel that these should be more dedicated functions to specific assigned employees. I believe it would also be helpful if the supervision for these employees came from the medicine department. The consenting of patients for procedures is extremely inefficient due to several factors. First, while there are a number of VA''s that still employ this practice, PA/NP are forbidden from consenting patients here for procedures. This is extremely common practice outside the VA in private sector and as stated in many VA''s This is a result of VA regulations enacted some years ago that stated the practitioner who consented for the procedure needed to be able to perform the procedure. The authors of this policy were queried, and agreed that if the PA''s NP''s assisted with the procedure in some capacity that they would be able to consent for the procedure. Despite the approval for this from the authors of the policy, the General Counsel in this Vison felt that the interpretation did not allow them to consent. The second part of this that has hampered work flow is the requirement that the patient remain in street clothes prior to the consenting process by the clinician. This destroys flow as the patients are not able to be gotten ready for their procedure until the clinician is free from the prior procedure. This policy has been streamlined in various VA's by the sending out of brochures and other educational materilal, and these VA''s have been felt to be abiding by the poicy. However, the interpretation has varied from one region to another and this is not allowed here. This entire clothes on consent requirement has had outcries from multiple GI section chiefs including the national VA GI chairman, who points out that this policy was enacted without representation of GI or any surgical groups that are affected. This policy is supposed to be revamped, but that has been markedly delayed. The curent endoworks system employed for documentation has had a good bit of difficulty interfacing with CPRS. There have been a series of breakdowns, and has largely attributed to server malfunction. Periodically reports would not be available for review in the chart, and clinicians would have to go through a very time consumng process of receiving a list of not crossed over cases, and having the procedures copied and scanned into CPRS. Thes images are far from ideal. The current servers are out of date and is a major reason for this. The buying of new ones has been delayed for some time."
"I have no knowledge of other systems to be able to answer this question, and the prior answer was just a guess."
"The non va care department is overwhelmed by the demand created by the new various programs, As in all cases, every effort should be made to streamline paperwork."
"Coordinating patienet care outside the VA can be difficult particularly for veterans that live a great distance, and may not have easy means to get to facilities. The can be difficult for our facility, but even more so when trying to get a Veteran the care needed at various outside places. We have continued to increase oncology resources here, and this will be the best long term solution"

"I have addressed many of these previously. Having more staff to help with administration woul be beneficial. right now a PA is occupying much of her time doing the complex scheduling for all the providers as there is no one else available. The documentation requirements before procedures are of course necessary as required by JCAH. However, there are multiple nursing notes that depend on doctor notes to complete here. We are working on integrating these better for effficiency. Once IT issues arrise, the time required to fix small issues is often excessive. Again, better support here would be beneficial"

>30
Need more personal/clinics in referral sites
Increase providers at referral sites

"While they are available to all currently, we may not be able to cope because of impending departure of one MD in next few weeks. The vacancy is still open without good chances for filling in near future"
Above won''t apply after July 1st due to impending departure of physician and no hiring or locum tenem is on horizon
"The salaries of gastroenterologists are less than half of those in local community. Even our academic affiliate medical school faculty make more. As such, recruitment and retention is a problem. One person has left and another might be retiring in a year. No new recruits are on horizon since we are not competitive financially."
"Unless the VA is competitive financially in a realistic fashion for hiring, things won''t work. National income surveys may not apply to local areas as in our case. In such cases, veterans in those areas may feel the brunt."
"Too many administrative mandatory trainings, meetings, time bound action items on top of limited staff makes people do more than one thing or one patient at a time creating potential for patient safety."

best determined by Primary Care section
handled through Primary Care section
<30 days

all results reviewed by a Nurse practitioner

Reminder becomes active at age 51 until the patient reaches 75 years old. The reminder is managed by primary care providers. The reminder remains active until a screening test is performed and results are available.
Colorectal cancer case manager tracks abnormal tests and coordinates with PCC for timely GI consults and also coordinates appointments for colonoscopies.
If patients does not want to wait for a screening colonoscopy in house are referred to Non-VA care. Access is the community is limited as well
If patients does not want to wait for a screening colonoscopy in house are referred to Non-VA care. Access is the community is limited as well
"Currently we have 3 procedure rooms partly staffed. Even though we have expanded the operation hours from 7 am through 5:30 PM we are unable to cope with the demand. Turnaround time of the procedure rooms is not efficient enough. Besides expediting the down time of the procedure rooms which is currently < 15-20 minutes, we need to increase the number of procedure rooms in order to be able to increase the number of procedures. Furthermore, by changing the concept from GI physician

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directed moderate sedation to an anesthesia administered sedation; we would further increase the number of procedures by just decreasing the amount of time spent by the endoscopist in documentation moderate sedation pre, intra and post anesthesia care. It takes >45 minutes documenting all the required notes (i-Med Consent, H & P, pre anesthesia assessment, airway assessment, ASA, post procedure anesthesia assessment, PACU I, PACUII, Medication reconciliation, procedure note, patient instructions, etc.) while the procedure lasts <30 minutes or less. If the sedation is documented by anesthesia then the endoscopist would dedicate this precious time in doing the procedure and writing just the pertinent documentation associated to it. In summary my recommendation is to standardize how we do GI procedures throughout the nation. My recommendations are to perform these procedures in an ambulatory center where anesthesia is responsible for the sedation. Based on our demands for services we would need twice the procedure rooms (6) in order to have the endoscopist move from one procedure rooms to another and have the appropriate number of recovery beds. Each room would need to be staffed by at least 1 GI technician and an anesthetist to monitor the patient while doing the procedure. At least 2 additional gastroenterologists would be required as well. Clerks and support personnel to help decrease the no-show by routine phone calls reminding appointments would be great.

In terms of information technology, IMed is very slow and prone to down time, intra-procedure recording is also somewhat time consuming as are the thousand and one required notes. Furthermore, procedure documentation software should be developed in order or facilitate documentation, abstraction of quality reports and imaging. Current commercial software (EndoWorks by Olympus) will no longer available which will create additional burden in terms of acquiring quality measures data.

As important to mention is that even though there is a national contract for endoscopes, here at [location redacted] we have been unable to lease scopes due to the fact that we live in [location redacted]. It has taken us 3 years to get included in the lease and now we are in the process of updating all our scopes. We will have to wait to determine if we would finally have the new technology on board.

In terms of incentives, GI physicians remain underpaid and underestimated. It is very difficult to recruit GI physicians using VA pay scales. Private sector is by far more attractive to young graduates.

In terms of Non-VA care; to me this is the worst of all possible solutions. Our experience has been that we end up repeating studies due to poor quality of procedures performed resulting in waste of resources and what is worst delay in diagnosis and treatment. Furthermore, community resources are limited and waiting times are even longer that at the VA. While we devote to high quality procedures; we end up offering substandard care in the community due to lack of capacity to cope with the demand."

"Although there are no major delays in surgery, oncology evaluation and chemotherapy there are severe space and staffing constraints in Oncology. Clinic office spaces, chemotherapy unit and staffing are absent, minimal or insufficient to cope with the demand for services. Furthermore, cancer patients lack social worker, nutritionist, PharmD and psychology support which is extremely important when providing patient centric cancer care. Oncology should be treated as a Specialty PACT team. This population is in extreme need for proper multidisciplinary approach. I understand that VACO should enforce and mandate this multidisciplinary patient-centric approach for cancer care through all VA hospitals. Cancer care is not all about chemotherapy and radiotherapy. We must also care for the mind and soul of those that are in need. Oncologists become the primary providers of cancer patients and should be considered as such when distributing resources. In our station we are in need of additional Oncologist also. Those available are extremely productive and dedicated, but they are not enough."

"Additional space and staffing are required to meet Radiation therapy space and staffing gap. Additional radiation Oncologist and dosimetrist would be required. These positions are very difficult to recruit.

Furthermore additional equipment is required. Penidng purchase of new VarianTrueBeam. Non-VA referral fails to provide timely care. Coordination with few Radiation specialists in the community takes time and there are few providers available."

clinical reminders
we provide procedures on weekends and community providers when available

"How - computer generated
When - no colonoscopy or 10 years or previously determined by provider or FOBT in 12 month and age 50"
Need to be award of provider time/opportunity cost in the mandatory TMS training

This portion (clinical reminders) are managed by Primary Care. The reminders are triggered when a patient visits their PCP.

 Study ID rYEL75
I am not aware if PCP office has a reminder system in place for colonoscopy

The reminder is triggered if there is not an iFOBT within the past year or a colonscopy listed within the past 10 years
increase pesonnel at the hub facilities for these specialties

Alerts section of the cover sheet if over the age of 50
Depends on actual diagnosis/reason for requesting colonoscopy

Reminder activates when patient is due for screening.
Generally within 60 days.
Generally within 30 days upon receipt of consult.
"Physicians are increasingly being asked to do paper work, answering numerous supsension with short turnaround time is one such example. Get rid of some of these hassles and let providers see patients and take care of them. Stop trying to micromanage the providers and tell them what to do. The more you do that, the less enpowered and engaged they will feel. You need to give physicians a chance to do what you hire them to do. Not in front of the computer keep doing" "paper work", filling out documents, attending meetings, developing and revising policy that have no impact on patient care and outcome. I see we are spending time inputing data that are "required" by policy but have absolute no releverance or impact on patient care and outcome. It often left providers wondering who came up with these metrics. Are they evidence based?"

"The reminder is turned on by primary care provider. The reminder is divided in average risk, all patients above 50 years whom there is no contraindication or high risk for example family history or familial cancer syndromes. The positive occult is flagged to ordering providers through view alert H* which means it cannot be turned off by individual providers."
"The occult blood alert goes back to the ordering clinician to order the colonoscopy.
It is H* therefore cannot be turned off."
Some of those were completed by non-VA contract screening colonoscopies (these data was actually collected data from review of 96 reported records.
"Can''t access.
To avoid delays they have been sent out on fee - mostly Atlanta Gastroenterology"

To avoid delays they have been sent out on fee - mostly completed by [location redacted] Gastroenterology"

"Increase number of clinic exam rooms, number of procedure room, incentive pay for full time physicians who agree to work overtime and weekends, improve timeliness of process to classify new employees, post position, obtain certificates and time of hiring for Nurse Practitioners, Physician Assistants. Allow those providers to be trained for procedures and match their salaries with community salaries. Incentive pay to match the salary of gastroenterologist who are procedure oriented to match salary with community (if you wait until they have a formal offer letter for retention bonus, it is too late, they accept the outside job). Fee basis is not ideal. The VA patients are not the private sector highest priority and the results are not available timely on the medical record.

The regular referral pattern change and lend to not ideal continuation of care."

"The system is transferring responsibilities previously performed by MSAs to physicians, ex. enter labs before signature order. The insufficient number of exam rooms and procedure rooms slows down the process of clinic appointments. The entering of time by part time physicians is time consuming, screening and management for minor side effects could be done by trained providers, not necessarily the physicians performing the procedures.

Phone call could be returned by qualified RNs so that the physicians can evaluate more patients in clinics.

MSAs or PSAs can call the patient after they leave messages so that the physicians do not call the patients just to find out that they want to reschedule appointments.

Insufficient staff to call patients. A personal call works much better than any automated system."

Primary care alert
less than 60 days.
less than 30 days.

There is a clinical reminders section which states when a colonoscopy or screening for CRCS is due
Need to have more Gastroenterologists to do the screening colonoscopies for average risk and high risk patients. Also need to have the capacity for more beds to prebed and recover patients thereby avoiding slowing down of entire process due to lack of space
Need to have more OR capacity at our facility and need to have more surgeons to do the required surgeries as they appear to be overwhelmed sometimes as there are not enough surgeons .
We do not have a Oncologist at present and there is need for 2 or more oncologists to handle the chemotherapies needed for the patients.
"We do not have Radiation oncology department at our facility at present. They are sent out. Therefore, it may be critical to get the radiation oncology department at our facility along with the required personnel"

I think. It is in our facility as standard of care. I don''t know about other hospitals in the system.
I believe as part of the Primary Care Physician''s electronic reminder ''package'
Patients who have iron deficiency from a cause other than GI blood loss would not necessarily need a GI workup.
"Our GI group is very attentive and has increased their capacity by holding ''scope sessions' on weekends. Because our hospital is running a budget deficit, these extended services are threatened. The patient load is increasing much more rapidly than the increase in resources - both personnel (physicians and nurses) and instruments."
"The evaluation and initial care of patients with any kind of cancer depends on the availability of physicians/nurse practitioners and clinic space. We in Oncology are hampered by both. We have had

no increase in qualified oncologists in the past 6 years (in fact, we';ve lost 'eighths) while, at the same time, the clinical load increases by 5-10% per year. This is not sustainable. We need more qualified practitioners and more clinic time to see patients with newly diagnosed cancer of any kind, including colon cancer, in a timely fashion."
The patient scheduling system is very inefficient. We also have a heavy teaching load in the clinics. The short answer is that we need more trained (qualified care-givers) to be able to see patients in a timely fashion given the restrictions on clinic sizes (room availability).

Colonoscopy in available at the VAMC. FIT tests can be given at the VAMC and CBOCs.
We do not have a wait time for endoscopy.
"We have expanded our operation to provide more endoscopy to eliminate the number of paitents referred to non VA care, but this has not occured with the necessary increase in space, increase in the necessary clinical staff or reduction clinical duties, such as rounding on inpatient medical service."

Any FIT pos results gets processed by the CRC nurse and tracked to completion
days between GI confirming that request is indeed for average risk screening and colonosocpy
"this category excludes any other high risk, such as listed below."
"includes rectal bleeding, wt loss"

The Clinical reminder is in CPRS. It is reset every time a patient does the FIT test or has a colonoscopy.
The primary care receives a phone call as well from the lab as a critical value.
Our goal is 60 days. Depending of local staffing we have mad this goal 40-50% time.
These are made a priority as well But we do not have the staff or the rooms needed to see patients rapidly in the clinic.
"Need more clinic rooms and gastroenterologists. More rooms for the nurses to do patient teaching and schedule.
We can''t attract GI MD''s at this salary"

'

Need better contracting processes. 24 hour staffing and the amount of providers and clinical staff is important to increase services and decrease wait times. Low staffing is affecting the number of rooms that we can run.
Need more oncologists and oncology nursing staff
Need the ability to provide radiation locally. Currently all of the Veterans need to travel to Philadelphia 1 1/2 hours away

'

by primary care in CPRS template note
"Need more GI physicians who can perform endoscopy, outsource fewer in the community (those are the ones with delays, community is slower), add capacity for high risk patients that need MAC (more anesthesia/critical support available), increase flexibility of nursing staff to be able to assist with multiple patient care tasks & coordination"
"Need surgeons, particularly colorectal trained surgeons.
Shorten/streamline process for pre-op clearance by primary care.
Need OR facilities/inpatient facilities available.
Nursing/clerical support to cut down on clerical work done by providers.
Fee basis in community is often slower than in-house services & there is less communication."
"Need more surgeons, particularly specialty.

Need nursing & clerical staff to be able to assist providers so providers are not spending time on clerical work. Rigid service lines prevent nursing from providing care at their full potential.
Decrease the time from equipment request to obtainment/use."
Create policy to decrease time frame from referral to procedure & require reports be sent back within 14 days instead of 30 or more
There are sometimes adequate numbers of clerical staff but they are not working in a useful capacity. Too much rigidity in service lines & perceived institutional policies & not enough teamwork. Very little support staff that works as team members with providers. Centralized scheduling with very little communication with providers. Large/anonymous system atmosphere. Patient population that tends to have transportation & psychosocial issues.

The CPRS reminders are completed at the PCP appointments.
I'm unsure if the FOBT alert is a "mandatory" alert such as a critical value which can''t be turned off.
We complete the procedure within 60 days of the positive result.
"Variable, each consult is screened by the MD and then the timing is determined by the urgency of the symptoms or findings."
"There is a large disparity between the ratio of the consults received per day to the number of procedures that can be done per day. We have adequate space at this point but we lack the staff to run the rooms--- an additional provider, nursing, and administrative. Consults sent to Fee Basis actually created more work in our area and was extremely disorganized. At this point it is unclear that the results were adequately followed up on as well. In addition many Veterans preferred to stay in the VA system for their procedure and were unhappy about being sent to the private sector. Our scheduling system could also be improved, VISTA as a scheduling system is not user friendly."
I do not work in the area and I''m unclear on the issues present that cause the delay
I am not present in the area and I''m unclear on the issues.
Again I''m not present in the area and I''m unclear on the issues.

"Every PACT visit for all patients 50-75 years of age. It the patient has had positive fecal occult blood testing, colorectal cancer clinical reminder will be turned off for one year. If the patient has had colonoscopy done, CRC reminder will turn off for the length of time as specified by the gastronenterology attending taking into account the procedure findings. This later step is relatively new and representsa very significant improvement to the process that allows the primary provider to fine tune the interval for surveillance or follow up screening colonoscopy."
"FOBT positive tests are considered of high importance and actually generate a call fro the laboratory to the requesting provider with the results, in addition to a CPRS alert. The policy in the ambulatory care area is that no laboratory results should be suppressed by clinicians."
"B- Additional gastroenterology physician (one); Physician extender (one) to take responsibility for non-urgent clinical tasks of division
C- Nursing shortages due to insufficient staffing leads to inefficiency in endoscopy unit functioning and decreased patient volume per day
H- Significant barriers to effective scheduling due to insufficient and unreliable clerical staff"
"1-
Additional surgical and anesthesia staff are necessary. Surgical staff optimally would have expertise in colorectal surgical techniques
2-
Streamine interfacility consult management"
"1- Streamline interfacility consult management.

2- Outreach to community physicians and implementation of policies to allow for fast payment for service without obstructive requirements."
"Unreliable and unmotivated clerical staff lead to difficulties in reliable scheduling. Issues with staff persist despite multiple attempts at reeducation.
Inability to reassign staff or hire reliable staff hinders scheduling."

"reminder shows up on cover sheet as ''due'' when needed. annually for occult acrds, 10 yrs for colonoscopy etc"

"Ability to hire doctors that are not US citizens.
Adequate number of adequately trained Clerical staff."
Typcially no delay in being evaluated by surgeon. Issues with contacting vet and scheduling can occur
Understaffed in Oncology svc
NA to VAPHS
self explanatory

Triggered annual or based on clinical indication after screening.
"Delay in provider availability when general surgeon is performing procedures other than colon cancer screening.
Limited by basic complexity/CRNA service-patients requiring higher levels of care for services, oncology or anesthesia require review and consultation to alternate fee services.
Recruitment for Chief, Surgical services=difficult recruitment."
Consider improving flow administratively for radiation oncology to non-VA care.
Scheduling - difficult to customize scheduling for complex cases or variable appointment lengths.

Yearly reminders in CPRS
"this is after all the factors we have no control of, ie : inability of pt to get a ride, cancelations due to illness, road conditions"
"There are simply not enough people to do the endoscopic exams in [location redacted], both in the private sector and VA, salaries make it difficult for the VA to compete for providers."
There simply are not enough providers and the system is cumbersome in getting things done. Physicians spend to much time doing clerical work
patient guides ie nurse coordination would help patients navigate the system
We need more providers!
system is cumbersome and not enough providers and providers spend a lot on time doing clerical work

"via alerts on the patients electronicmedical records
A GI coordinator oversee the alerts so no patients are missed."
"Our GI Coordinator is alerted, likewise the PMD"
pay physicians especially in the rural settings at the 70-90th percentile range(salary.com).Current Surgeon salary ceiling is below 50th percentile.This is the single most important reason why quality staff recruitment and retention is a chronic VA problem.

These are triggered via automatic alerts in CPRS. They are also being triggered as part of the CONFIRM trial.
Unable to assess - do not have local data
"I can perform colonoscopies every 45 min in my academic practice, and stay on time. If the VA had more efficient pre-procedural policies it would allow for more procedures. The documentation process

takes at a minium 20-30 min prior to each case. In addition, the documentation process after each case is also slow Endoscopy reporting systems should be uniform across the VA. Endoscopists should also be tracked for meeting colonoscopy quality benchmarks."

clinical reminder
an appropriate scheduling system and CONSISTENT guidance from VACO.

Reminders have been in use consistently for 6-7 years. They are mandatory to complete as a part of every screening colonoscopy report and are entered by primary or ordering providers when FIT testing is done. The reminders are triggered to alert 3 months prior to the "due date"" to allow time for renewal of screening tests.
FOBT/FIT positive results are tracked by the lab and routed to endoscopy directly for scheduling. Standard alerts are sent to primaries as noted above.
"We have long struggled with constraints of space and personnel. Currently we have 3 full-time endoscopists. This is inadequate to meet current clinical needs. Hiring a fourth endoscopist (gastroenterologist) is an important step but we need additional clinical space (a third fully developed endoscopy room plumbed for anesthesia services), additional nursing staff to support the room (2 nurses) and additional prep/recovery beds to support the extra room (3 prep/recovery beds for every room). In our current location we SHARE 10 prep/recovery beds with our 3 endo rooms (2 of which we can reliably staff with nurses), cardiac cath, ophthalmology, VIR and our 5 room OR. This is GROSSLY inadequate and huge bottleneck in our process. It might be helpful to offer weekend/evening hours but this would require FLEX TIME or COMPRESSED schedules which administration has resisted. Also helpful might be asking existing providers to work Saturday morning to do endoscopies when on call but absent additional pay for working 6 days a week or FLEX TIME/COMPRESSED schedule arrangements this is unhelpful. Many staff are also resistant to longer hours. Most fruitful then, would be adjusting our physical plant and hiring additional full time staff. We may, in fact, need 5 FTE of endoscopists to fully meet our demand. I made the assumption that VA would like to see procedures done within 30 days in most cases."
Having adequate administrative support for our unit has been absolutely CRITICAL to our achieving the level of success we have managed to date. If we don''t have effective admin support personnel then our nurses take up the slack which hamstrings our clinical activities. We have 1 admin support person to do all our scheduling and could easily use 1-2 more in endo/OR/IR.

Age appropriate but not for followup
Would best be answered by VAPHS Chief of GI
Create a Cancer Service Line for screening through survivorship
"Increase compensation for medical oncology providers to match market pay. This would improve the caliber and intellectual pursuits of applicants and retention of VA oncologists.
Also focus on rebuillding a VA Central Cancer Tumor Registar Team."

triggered annually after age 50 in CPRS via clinical reminder system. provider action closes out if colonoscopy or FIT has been completed
this retrospective average includes many patients who no-show or cancel and reschedule their initially scheduled procedure which was initially targeted to occur within 60 days
Increase efficiency of clinical operations through system redesign and/or fix flow initiatives. Improve VA allowable incentives for tying productivity to market incentives in private sector
Addition of Colon and Rectal trained MD Providers to our facility to avoid need to outsource. Improve numbers and efficiency/productivity of CBO Case Manager staff for non-VA care.

Improve communication and coordination between facilities
based on previously noted need for increased admin support staff

A clinical reminder is set up to remind primary care providers to order FIT testing yearly on patients for colon cancer screening.
"Our full time GI provider does not have a designated office or exam room. We have recruited for a full time GI physician for 8+ years & recently obtained one, but he is currently off on medical leave. If he does not return, it is imperative we recruit & obtain a full-time GI physician. We need a dedicated GI scheduling clerk. Currently we share 3 clerks that schedule for multiple other specialty clinics also. If we are unable to maintain a full time GI physician it would be imperative we have a tele-health GI physican that the two midlevels that work in GI could have available to discuss complex cases and help manage the IBD & cirrhotic patients. We only have 2 part time fee for service GI providers and access to schedule GI procedures timely is very poor. If this pattern continues we need clear guidelines on triaging which patients for GI procedures. We often times lack GI coverage on the weekends if our one local GI fee for service provider is unavailable. Inpatient consults often do not get answered in a timely manner due to this providers limited availability at our facility. We live in a very rural area and in past experience the fee basis referrals are not getting seen any quicker in the community then they are at our facility & communcation is lacking (we often do not get medical records back in a timely fashion if at all). We are limited in how many procedures we can schedule due to issues with anesthesia coverage and the sharing of OR staff between the GI doc and other surgeons that may be doing procedures on the same day. The turn around time between GI patient procedures is very lengthy. There is lots of room for improving the efficiency of our SDS and OR work flow. In the past we have been told to cancel GI procedures if another surgeon was working and anesthesia coverage was inadequate. Our facility has a policy that patients have to be seen within 30 days of their GI procedure date. When access to procedures is so poor, it impacts our clinic access tremendously as we are seeing each of these patients twice and this is taking up access that new consults could be seen in. On the other hand when we continue to see new consults but have no access to schedule them within 30 days for their procedure we need to establish some sort of policy on who refers these for fee basis services (do we cancel the consult and recommend PCP do it, do we see them 1st and the GI provider submits the consult but this does create delays in patients care when they wait to see us on consult first)."
"We need more colorectal surgeons at our tertiary VA centers in order for clinic access to improve. I think establishing tele-health services with the colorectal surgeons at our tertiary VA centers would help. They would be able to review the cases with us and establish what type of pre-surgical work up they need before seeing the patients that we could possibly complete at our facility. This would limit travel and number of patient visits at their facility which in turn would help improve their access. Our current policy is to submit dual consults to two tertiary facilities at the same time and wait and see which facility can see the patient the earliest. However, having a second lingering consult out there creates unecessary work load on the other facility. Often times patients get schedule appointments at both facilities and the patient ends up being a no show at one of the facilities due to keeping the early appointment at the other facility. We do not perform colorectal surgery at our facily so it is imperative we have fee basis options to refer these patients to. But again, we live in a rural community and often times their access in getting the patient in is not timely either. Communication is poor and some of these patients gets lost to follow up. The fee basis department sends fax inquiries to request medical documentation but often times it is not receive timely or at all."
See my comments on prior section.
Please see my comments on prior section.

"Clinical Reminder is turned on for all Vets >50yo. Clinical Reminder logic is turned off for 1 year by a negative FOBT results. For colonoscopy, a letter is generated for all patients post-procedure which triggers the Clinical Reminder to alert the PCP based on guidelines related to the procedure, patient history, and tissue histology."

All screening procedures are Fee Based due to lack of capacity at our facility.

"Our facility currently runs a deficit of 100 procedures every month. We are understaffed with respect to GI providers and nurse/techs to run the rooms. We do not have sufficient Facilitators to schedule procedures, and we do not have enough Nurse Care Coordinators to manage the complex patients we do see."

"The amount of time spent by clinicians to document the pre-procedure and post procedure assessments is 5 times more onerous, tedious, and wasteful than any other endoscopy program in the country."

"Reminders come to PCP in CPRS as pop up. Provider can clear by ordering tests, verifying it was done elsewhere, or stating pt is too sick to merit CRC screening."

We discourage use of FOBT in our system. Colonoscopy is the preferred mode of screening.

We have no wait for colonosocopy. Pts can easily be accommodated w/in 30 days.

as above

"Again, we don''t like FOBT. It''s a poor screening test. We discourage use. BUT, if done and positive, we'll do colonoscopy w/in 30 days"

It will be scheduled w/in 30 days in all cases unless pt desires otherwise.

The key is a charge nurse and physician director who are thoroughly invested - and empowered - to run the unit efficiently.

"Within our local radius, we provide all services at our site w/o delay. For pts living remotely, there simply aren''t sufficient services available to provide high quality chemotherapy or XRT."

"We perform XRT at our University affiliate and get great service. We have no delays in access. For patients who live remotely, we have had problems with VA contracted services with groups/facilities with which we do not feel comfortable, i.e., quality of service is not what we expect. This is an onoging problem for the VA: the quality of care is BETTER at the VA than contracted sites, especially in more rural locations."

"We are suffocating in checklists, tedious consent processes, and documentation requirements. The requirment for a provider to send f/up letters after procedures is incredibly burdensome. It could be automated (as Kaiser does) - but the IT group hasn't deemed that of sufficient importance to move forward. SO, we spend many hours each month sending out individual letters."

activated automatically based on age of patient

Additional space for procedure duties is necessary. Improved scheduling personnel/practices and staff for monitoring of CRC obligations are necessary. Prefer not to fee-base our care as this creates complexities in acquiring results and is unnecessarily costly.

More surgeons needed at our facility.

Available at [location redacted] only

Reminders are used

I do not know about the FOBT triggers or responses

less than 90

"Need additional physicians to perform endoscopy. Need to STOP primary care from performing FOBT tests a year after normal colonoscopy and re-referring the patient for endoscopy. Need to APPLY the guidelines that stop screening at age 75, so that 82 year-olds stop being referred for routine endoscopy

and clogging the system. Need to stop the absurdity of timeline constraints on "open consults""--a patient referred for routine screening colonoscopy because it has been 10 years since his last one should have ONE YEAR--365 days--to get his procedure done sometime in that calendar year.
Need to improve the quality of endoscopy equipment, and make a system where the scope report can be easily moved into CPRS; the electronic health record."
"RESTORE all VA inpatient facilities the RIGHT to perform surgery!!!!!!!!! This, without a doubt, is the biggest stumbling block in the ability to provide care to veterans. The unilateral decision by the NationalSurgeryOffice (NSO) to restrict surgeons from being able to actually perform surgery has crippled the services offered locally to all veterans. In addition, it has made recruitment of physicians very difficult. Why would a surgeon come to my facility only to be told he cannot perform colon resections or other bowel surgery here, and that all these cases must be referred to outside facilities because we do not have a cardiologist or intensivist?? There is not a single medical study which supports this rationale impoised by the NSO. Quite the contrary, studies show that rural surgeons perform just as well as ''centers''. It is not about quantity of work. Plus, the overall hypocrisy of this NSO edict is exposed by the fact that orthopedic surgery IS allowed to continue at these very same facilities which are unable to offer cancer surgeries to our patients. It is pure economics."
"At this facility, to get a colonoscopy:
1.Consult placed for colonoscopy
2.Patient must have 3 appointments:
  **endoscopy nurse
  **anesthesia
  ** surgeon (endoscopist)
3. Await a date from the Endoscopy scheduler
4.Colonoscopy done.
Surgeon must write:
 Brief op note in CPRS
OPERATIVE note
Orders
Endoworks report with pictures for patient--this is done on a completely separate computer, as CPRS does not talk to endoworks, AND at this institution, they are not even allowed to be on the same computer network.
GI follow up letter
Clinical Reminder
Notification of Pathology note.
That''s a lot of steps for a colonoscopy."

"age > 50 annually, FOBT"
"Ex. had pt. identified in CBOC with rectal bleeding and other symptoms last week. That day did telehealth colonoscopy screening with PA at hospital, sched. colonoscopy for this week."

- **Diabetes**

One podiatrist on staff; one APN for foot care/limb preservation. They are available for acute needs but scheduling outpatient tends to be prolonged
All consultants are available for same day consultation in case of urgent intervention. Follow up is good with most. Cardiology does not manage refractory HLD but will offer suggestions to the PCP. Staffing is key in most of the issues related to tx. delays
"Some reminders could be done by staff other than provider. Clinic panels are not well managed eg. providers retired or gone for other reasons with pending follow up needed in panel...and no designated surrogate to follow up. The call back for scheduling system does not work...they are sent a reminder letter to call 30 days in advance to make a call, they call and are told "too early", they call back in 2 weeks and now providers are booked out beyond the 30 days and by that time, patient is out of meds. Even making appointments for 30 days later is a stretch for most of the providers. Patients frequently complain that they want to have an appointment scheduled before they leave the facility". Lots of provider turnover. Long way to go in continuity of care. Long way to go in employee satisfaction. Clerical staff not supportive and numerous complaints re "poor attitudes" and "rudeness" from front desk personnel. Many of these individuals feel protected because they are Veterans. Providers are not given sufficient time to perform exam and "check the boxes" of all the clinical reminders required of them."

"The Medical Center outpatient primary care clinic layout/design does not allow for coordinated, patient-centered care and services. Nursing staff provide basic diabetes self-management education in both the inpatient and outpatient setting but this is ineffective and often leads to delays in follow up communication and care. Multiply factors including space, time constraints, ineffective or poor communication, etc. also contribute to the ineffective delivery of diabetes self-management education and services. Additionally, information technology issues such as, the lack of interface capabilities between diabetes equipment/software and CPRS make the exchange or sharing of information such as blood glucose data cumbersome and inefficient. Use of a diabetes registry would help to improve diabetes care coordination but registries are not available to all facilities. The use of a diabetes registry is frequently limited to very large medical centers or sites who have participated in a pilot study. Incentives should be disbursed among all members of the healthcare team and should be based on the performance rating of the overall team and each individual. Individual and group diabetes education is not offered in the evening or on the weekend. Offering education and classes during non-administrative times is patient-centered and beneficial to those patients who work or have family members or caregivers who work. Telehealth diabetes classes are available from a larger VA facility within the VISN but the class schedule is inflexible. There are 4 classes, one each week, on Tuesday afternoon from at 1 - 2 pm and classes must be completed in consecutive order. Patients must attend all 4 classes and class attendance cannot be tailored to meet specific patient education needs. Additionally, patients are required to wait until the next class series starts before beginning Telehealth diabetes education classes. Within the SVAHCS catchment area, availability of non-VA diabetes education programs and services is limited, thus it is often challenging to provide fee-basis or contracted care services to non-VA diabetes education programs."
"Additional access to tele-endocrinology services could be made possible with the addition of 1-2 tele-endocrinologists, additional Telehealth primary care rooms and Telehealth Clinical Technicians would be needed at each location to facilitate additional appointments. Appointment availability during non-administrative hours would be patient-centered and beneficial to patients who work or those patients who have family members or caregivers who work. The availability of non-VA endocrinology services is limited within the SVAHCS catchment area. Use of fee-basis or contracted care services to non-VA endocrinology providers would be challenging."

"Additional access to dietitians could be made possible with an increase of 1-2 additional dietitians. Specialized nutrition counseling and education related to diabetes self-management is very important because healthy, consistent nutrition is a key aspect of good diabetes self-management and the prevention of long-term complications. Increase use of Telehealth would improve Veteran access to nutrition counseling and education to Veterans who receive care in the CBOCs."

Additional access to optometry and ophthalmology services utilizing Tele-Retinal Exam and fee-basis care would be the best solutions to decrease delays. Additional training Telehealth clinical Technicians (TCTs) and training for TCTs would facilitate increased access to care.

"Additional access to nephrology services utilizing Tele-Primary care and fee-basis care would be a good solution to decrease delayed care. Additional space for Telehealth appointments, additional TCTs, as well as access to nephrology specialists would facilitate improved access to care."

"Additional access to cardiology services utilizing Tele-Primary care would be a good solution to decrease delays in care. Additional space for Telehealth appointments, additional TCTs, as well as increased access to cardiology specialists would facilitate improved access to care."

"We have been challenged with hiring podiatry support personnel, such as nursing. With a growing veteran population, space has become constrained. Central Office must allow for leasing of temporary mobile space to relieve the constraint."

"We can recruit general ophthalmologists, but are challenged with recruiting the ophthalmology subspecialists such as retinal, glaucoma, and oculoplastic sub-specialists. Central office must allow for temporary leasing of mobile space to relieve space constraints."

"We have an under-staffed prosthetics sections because this service line falls under the VISN and not the facility. Prosthetics must come back under the facility. Prosthetics also has an under-performing contractor that has generated a fair amount of patient complaints. Central office must also change the business rules for prosthetics and move towards order sets instead of consults. With a growing veteran population, we have become constrained for space. Central Office must allow for temporary leasing of mobile exam room space."

[Location redacted] VAMC currently has no vascular surgeon. We have been trying over a year to recruit one and have had several declinations in spite of very attractive recruitment / relocation incentives. We are currently pursuing a locums contract.

See previous comments on podiatry. Central Office must allow for leasing of temporary mobile office exam room space.

"Podiatry has been challenged with recruiting adequate support staff, such as nursing. Central Office must allow for temporary leasing of mobile office space for exam rooms."

"Same comments as in "new patients"" in the General Facility Questionnaire [name redacted]. Inflexible CPRS, lack of support personnel, View Alert burden. Space is a constraint and Central Office must allow for leasing of temporary mobile office space for administrative personnel."

Need more nephrologist given increasing demand for these services. Need nephrology nurse specialist. Need more dialysis equipment and space. CPRS needs to be compatible with community standard (Electronic medical record). There is difficulty in coordination of care with NVCC to VA providers.

"Need more nephrologist, nephrology nurses, dialysis equipment and space. CPRS needs to be more compatible with community electronic medical record. Diffculity getting information from NVCC providers on VA patients they treat."

The electronic medical record needs to upgrade and hinders provider''s ability to provide patient care. Providers are given too many clerical dutieis that dedicated personnel could do

"Decisions regarding how soon patients need to be seen by specialists should be made by the specialty clinicians, not administrative non-clinical data analysts."
"This VA had 1 endocrinologist & 2 diabetes nurse specialists 25 years ago. Today, 25 years later, with the incidence of diabetes in veterans now at 25%, we increased to 2 endocrinologists (1 month ago) & 3 diabetes nurse specialists (6 years ago). The [location redacted] VA has 25 certified diabetes educators. There is a critical lack of resources/personnel for the volume of veterans with diabetes at every VA in VISN 15."
Podiatry dept. is grossly understaffed for needs of this facility and throughout VISN [location redacted].
"There are seriously inappropriate behaviors occuring between the nephrologists in the nephrology department. Upper level management needs to step in and take actions to ensure professional communications between these physicians, as it highly impacts patient care."
Administrative changes that dictate how patients must be rescheduled greatly impact efficiency of clinician and patient f/u requirements.

pt. do not keep nutrition appts.

Patient has to be in Move program for 6 months and has to lose certain amount of weight before eligible for surgery. Some patients are not able to lose weight. The policy needs to be changed.

down load of the insulin pump
I tiwould be nice to have a team working together to help manage diabetes which includes dietitian CDE and endocrinologist and NP

"Currently and RN CDE runs our diebetes program. Program includes two dieticians, two part time Pharm Ds. Nutrition appt are back logged."
Limited nephrologist in community. No nephrologist on staff.

"Blanket mandates for timing between consultation request placement and delivery of care cause inefficient utilization of limited resources.
Expanding clinics to non-standard hours is possible but entails simultaneous expansion of ancillary services and clinical personnel expansion.
Patients tend to prefer to be seen at the VAMC rather than the private sector. The private sector does not attend to the combined needs of our veterans as efficiently as a VAMC.
Central Office mandates to manipulate specialty care flow are overly simple and do not acknowledge the complexities of specialty care."
"Expanding podiatry clinics to non-standard hours is possible but entails simultaneous expansion of ancillary services and clinical personnel expansion. Similarly, telehealth podiatry clinics are possible, but require adequate staffing and infrastructure support, which are currently lacking.
The scheduling package available to schedulers is antiquated and inflexible, and produces inefficiencies in access. The facility desperately requires a modernized telephone system that permits monitoring of call volumes, call timing and durations, direction through automated answering trees, lost-call rates, etc.
Patients tend to prefer to be seen at the VAMC rather than the private sector. The private sector does not attend to the combined needs of our veterans as efficiently as a VAMC."
"Screening for diabetic retinopathy is a dual function of primary care access and efficiency. Primary care at this facility is under resourced with respect to both staff and space, leading to excessively large panels, and lack of space within CBOCs for screening equipment and technicians to run them."

"Access to vascular surgery is impaired at many steps, including limited space and personnel to assess peripheral vascular disease, number of vascular surgery providers, space for vascular surgery providers to evaluate and treat patients, and surgical OR time.
Policies that dictate time until evaluation, without consideration of clinical need, exacerbate system inefficiencies."
"Access to nephrology is impaired at many steps, including limited space and personnel to assess renal disease.
Policies that dictate time until evaluation, without consideration of clinical need, exacerbate system inefficiencies.
Expanding weekend services is feasible, only if additional staff were available, and required ancillary services were also available. Outsourcing care to the private sector is possible but undermines attempts to coordinate care across medical disciplines for veterans."
"Delivery of podiatric care is limited primarily by space and staff considerations. Trained technicians, as well as podiatrists are needed, as well as appropriate work spaces. Delivery of care by telehealth would facilitate care, but requires sufficient space, and technician assistance at CBOCs. In addition, telehealth screening modalities typically lead to increased discovery of disease that requires interventions only available at the medical center. Podiatry care is further hampered by limited access to operating room (OR) time by podiatrists. OR efficiency is limited by an antiquated and dysfunctional telephone system that does not permit timely communication with patients with respect to procedure scheduling."

need additional nutritionists
Improve speed with which prosthetic requests are processed and delivered.

we need more endocrinologist or the ability to get people into community clinics faster
we spend too much time on the computer answering clinical reminders that all competent physicians should handle routinely w/o the reminder and most have shown no benefit to the veteran. they are also redundant as these are mostly addredded in the progress note.
we need a cardiac lab and interventionist to use it
we need to find a way to decrease view alerts and just plain make 90% of clinical reminders go away.
clinic cancellation policy is draconian.

Stop code issues with the scheduling system make appropriate appointment making incredibly difficult. Lack of training and high turnover of MSAs makes this problem worse.

"In the pt care are, more full time staff instead of more part time for better continuity of care and coverage"

There is a problem with the culture in Nephrology. They are more invested in the opportunities for education than aligning their resources with care for the entire population of Veterans with renal disease.
The members of PACT beisdes the PCP do not engage in a population management approach to DM nor do they work at the top of their license.

Lack of adequate clinical and clerical support staff limits the efficiency of our services. We have no dedicated nursing staff for the diabetic clinic and physicians must do tasks normally done by nursing support staff. Physicians have even been asked to call patients and schedule their appointments to remedy inefficiencies in the patient appointment scheduling system. Added administrative requirement for the physician to call back or notify patient by personal letter of every lab result ordered by the

physician increases administrative physician time that could be better utilized directly seeing patients. But we do the best we can with our limited clinical support.

"The NVCC process is entirely cumbersome for no reason, simplify the process so care can be delivered more timely"
"the NVCC process is to cumbersome, please simplify so that care can be timely."

"I can truly only comment on what I see in the endocrine division and our associated subspecialty clinics. I cannot comment on the other clinics (primary care, vascular, ophtho, etc) that provide service to our patients."

Planned 6 month appointments with the primary care provider is not adequate for good control of diabetes mellitus. BUT the staffing for specialty care of all diabetics can never be adequate---not enough endocrinologists to do that in the USA or elsewhere. We must have generalists care for many of those patients.
Fee basis podiatry services for nail/foot care for persons with diabetes over age 60 would be VERY helpful
Wound care close to home is important because most are elderly and/or impaired. Increased fee-basis wound care would greatly improve foot care.
"Retinal surgeons are in short supply, so fee-basis services are essential."
Fee-basis services are likely to be needed to get prompt attention to these patients.
Policies are "one size fits all" and patients simply don''t follow those "rules"

"increase the number of support personelle ie clerical, nursing (MA, RN, LPN) as well as assign each group a coordinator whether APN, PharmD, PA etc that works with the providers in the area. Design to be collaborative and to work at top of their training.
Central office policy is understandably changed with new needs. This can at times result in difficulties implementing the mandates without sufficient time to give feed back about the local results - both good and bad.

The VA is easy to have bad PR both from outside as well as inside the VA at times - patients and staff. This helps us do even better but would be nice to have regular focus also on how great the care and services are most of the time."
see question two comments section. Also forgot to answer about improve management etc. Most of us are here because we are proud to serve our Veterans and help with their healthcare needs. Process and meeting the goals of processes has become too large a focus and believe that helping everyone feel the satisfaction of caring for Veterans is very important.
see prior answers also. For retinopathy treatment would also need more providers and technical staff as well as other support people.
"see prior answers also
for these questions, would almost always be taken care of in clinic (theirs or referring) or seen in ER. Those who are missed would relate mostly to process issues that more support staff would be expected to help."
see prior comments. Cardiology needs more space and technical staff. All answers are for new symptoms not refractory hyperlipidemia which is also or primarily done by endocrinology and preventative general medicine.
see prior comments

"Over the past year there were many changes to the scheduling policies that resulted in decreased system efficiency. However, currenlty his is fixed. With less staff, patient flow can decrease efficiency. With better flow, more staffing there would be a likely need for more space. TMS requirments being the same every year and without much if any grace period and similar for all people decreases provider and system efficiency."

More operating room time for surgeons. Additional surgeons experienced in bariatric surgery.
No show or cancelling close to clinic date is significant problem.

Need more primary care providers
Need more nephrology availability with more subspecialists
Need more cardiologists and nurses for improved clinic availability
"Poor patient show rate for DM clinics historically; also - too many administrative duties, including mandatory training interferes with physician availability to patiients"

"Improved and effective Coordination of clinical and administrative services (ie scheduling by business office vs by clinic staff)
May need a designated advanced MSA who can understand the process and the options available for open spots
Also syncing patients preference and clinical priority.
patient accountability for multiple no shows (over 3) .
Having more rooms for multidisciplinary clinics
Telehealth services will certainly improve no show rates and is excellent for diabetes follow up appointments
Availability of sensors for type 1 diabetics(equipment /device)
Diabetes Section providers
We have set up clinics for high risk diabetes patients (ie frequent admissions and ER visits and complications) staffed by our diabetes NP .
we alos have insulin pump clinicstwice a month.
Fee basis may not be a great choice for chronic diseases such as diabetes.
VA has great national guidelines, policies and resources for diabetic patients and we just need to streamline the care from prevention to managing complications."
"RTC notes take time
Can we make it an order instead?
Also it takes time to explain locations of labs, radiology,pharmacy ,prosthetics etc to pt
To improve flow and time ,can we have nursing staff or trained MSA explain disposition details so provider can move on to clinical duties.
Also having a CDE available at all clinics is quite helpful to explain about insulins, review injections and meal plans."
"In my experience veterans who use the VA access VA system prefer to get all their specialty care at the VA for reasons of communication and continuity.Fee basis does not help, since care is fragmented."
as mentioned previously midlevel provider trained in diabetes will be helpful

Have CDE certified nutritionists
Concurrent clinic activity
Enhanced interface of clinical activities

 Study ID EkfhJJ

"These opinions are entirely my own, based only on my perceptions and experience.
RE:Reducing delays in PACTs.
I did a quick survey of random PACT clinics in [location redacted]. Out of 15 clinics seven had an open appointment in 1-4 weeks and in eight clinics the next available appointment was > 1 month away which I consider a ""clinically meaningful delay"" in the treatment of poorly controlled diabetes. Since 50% of the clinics I sampled can't see any patient for > 1month some people would say that''s an indication we need more providers but I disagree and I make my point below.
ADDITIONAL SPACE: Space is a peripheral problem. I worked in our primary care clinics >10 years, during that same time I was also working part-time in a primary care private practice night clinic. The 2 physical and functional models were totally different and definitely had an impact on efficiency. In the private practice I saw 20 patients in 4 hours. In the VA, then and now, I can''t see more than 12 patients in 8 hours. From a quick survey of the PACTs it seems PCPs have from 10-18 slots per day. The model the VA follows does not support the PCP. The PCP is burdened with too many non-medical ancillary tasks that in private practice are done by clerks, MAs and nurses. The PCP spends an inordinate amount of time on non-patient care tasks, as a result the number of patients we see is limited. We don''t need more PCPs. We just need to give the PCPs we have more support. Ordering of tests, looking up results, entering consults, etc should be done before and after the appointment by the ancillary staff. At one time CPRS was helpful but that system is now antiquated, inefficient and simply burdensome.
LIP: As I said above compared to a private practice we have plenty of LIP but they are burdened with too many non-patient care duties DURING CLINIC time that decreases their efficiiency
OTHER PERSONNEL: PharmDs and TMC clinics are a very efficient means of getting pts quick evaluation and tx of diabetes.
YES we need more ancillary staff, MAs, LPNs, and RNs trained to support the
PCP by taking over more of the pre-appointment and post-appointment duties and free the PCPs time to see more patients. The VA needs to more closely follow the private practice model.
EQUIPMENT: Diabetes research has firmly established that good diabetes control depends on frequent home monitoring of blood sugars and patients being knowledgeable in diabetes self-managment. The VA policy that restricts patients not on insulin to 150 strips/year is a direct barrier to helping a patient get faster control of their diabetes and necessitates MORE clinic visits. Since my patients can't test as much as I need them to I have to depend on the A1C which necessitates the patient make more trips for lab and more f/u time in clinic. Medicare-B covers 1 strip/day for pts not on insulin and any number of strips as Rxd for pts on insulin. Many of our patients have Medicare-B and can get strips outside the VA if the provider will write a RX. However the general understanding among PCPs and other providers is that NO outside RXs can be written. This prevents patients from benefitting from their Medicare-B coverage and increases the VA cost because it means ALL strips must be provided by VA. In addition to test strips pts need education on how/when to test and how to use that information. Our pts are not under any obligation to participate in diabetes education and the majority choose NOT to participate in education which results in inefficient use of test strips, poorly controlled diabetes, more diabetes complications, more use of primary care clinic time and all VA resources/equipment. ALL OF THIS RESULTS IN MORE CLINIC VISITS REDUCING THE OVERALL EFFICIENCY OF OUR PRIMARY CARE CLINICS.
TELE-HEALTH SERVICES: We have several diabetes/metabolic telehealth clinics. Yes, tele-health can take the place of some primary care clinic appointments if the patient is comfortable with the technology.
INFORMATION TECHNOLOGY: CPRS is antiquated, slow and inefficient and greatly decreases the efficiency of all providers. It''s also unusual in this day and time that providers can''t access a patients record from home. It''s common practice in private practice to be able to review records from home.
CENTRAL OFFICE POLICIES: If this refers to Performance Measures then YES changes need to be made. Current research supports that PMs do not improve patient care and PMs should be limited in their use.

If you look at the typical PCP note it's full of redundant information and PMs with little pertinent personal information about the patient.

PERSONNEL MANAGEMENT: Business Office personnel and practices are the weakest links in the efficiency of our PCCs.The system needs a new model and new leadership. BO personnel do not preceive themselves as part of the care team. They seem to function as independent entities and do not think of themselves as "support"" staff. In fact some BO clerks resent the title "support staff" because they don''t believe they are here to support anyone but just to do the job they are assigned. I''ve observed some very, very poor customer service from BO staff but even a tactful suggestion on what might be a better approach is resented. Basically BO staff have never been encouraged to be part of the PACT team. BO supervisors and staff do not attend staff meetings so are not part of the conversations on customer service and clinic efficiency. The BO clerks are the face and voice of our clinics. They set the tone for the entire clinic visit but they are often the least polite, least professional and least efficient members of the PCCs.

INCENTIVES: Yes, they work if they are based on significant and objective measures and if they have real value to the employee. Our own surveys have shown that employees place most value on cash awards and PTO. I also personally believe the awards must be given frequently enough for employees to feel they may actually have a chance to be recognized. The reasons an employee is recognized must also be widely and publicly announced so others will know what is necessary to earn an award. I''ve received substantial cash awards for "achievement" that I only knew about because I looked at my LES. The public recogniton and appreciation would have made me feel even better than the cash and would give other's incentive to work towards an award. [location redacted]'s Clinic has been voted "Best Place to Work"" and I''ve recently been a patient for multiple visits at 2 of their locations. The employee spirit and camaradie was noticeable from the minute I walked in the door. The staff was friendly, smiling, polite, professional from the beginning to the end of every one of my visits. Talk to their HR I''m sure they can give you some ideas.

WEEKEND AND EVENING CLINICS; YES!! Providers and patients have been asking for evening clinics for the entire 30 years I''ve been here! Years ago we had semi-annual Diabetes Health Fairs on Saturday mornings. Over 200 patients attended each health fair. One of the survey questions asked if pts preferred Saturday or a weekday for the health fairs. Over 90% responded they preferred Saturdays. We have many vets in blue-collar, labor and part-time jobs that do not offer the luxury of PDO. Vets should not have to sacrifice pay to come to the VA for their health care or be forced to come to the ED. We are doing ourselves and our vets a disservice by not providing evening clinics.

INCREASE FEE-BASIS OR CONTRACT CARE AND SIMPLIFY ADMIN PROCESS: The answer to this question just seems too obvious to answer."

I am familiar with only one patient who has had bariatric surgery and it seemed to me it took her a very long time to go thru the evaluation process.

"The bariatric surgery process is something that could clearly be streamlined. it''s hard to say the delays are clinically significant because the procedure is ultimately elective, but there is a huge burden on referring providers trying to make bariatric surgery referrals

Re: fee basis care, my opinion is that this is a poor solution because of the care discontinuity it creates - e.g., when my patient sees a non-VA eye care provider, I seldom receive the results"

No-shows - I deliberately overbook my endocrinology clinic to 9-10 patients in a half-day expecting that 1-2 will no-show. This takes appts away from other patients - having admin support to improve apt confirmations with pts would be helpful.

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contract out recruitment process; increase the number of credentialing personnel to facilitate the entry on duty
considering expanding a nurse run foot clinic for nail care; implement point of care scheduling established patients

"Only a small percentage of patients medically eligible for bariatric surgery end up with the procedure. This is true not just at our VA (where bariatric surgery is not performed), but is also true in the private practice setting. This is a bottle neck in our health care system; locally, nationally, private, and government."
"There seems to be an issue with scheduling. Often, when I''m in clinic my panels aren''t full; yet, I keep getting reports about backlogs. Scheduling is moving from a centralized model to a clinic-based model in the next few weeks. Perhaps this will help."

"Staff and Space are always an issue and the lack thereof leads to specialty care of the most complex diabetics being refused or deferred back to PACT where there is less expertise. Specialty care providers lack adequate admin support and nursing support to traffic feedback from patients on glycemic control and to redirect treatment plans and so providers are relying on mailing letters that are often not received or the patients lack sophistication to interpret them or translate them into functional self care plans. Patients have had the most success with high quality RN level care coordination (which is uncommon), especially in groups and 1 on 1 and we have too few nurses to manage the population and they are not well skilled at diabetes management and delegating the varied elements of care to other memebers of the team, so diverting too much of the work of chronic diease management back into the providier visits. They would benefit from more treatment protocols and/or NP/PA extenders to support their efforts. Clerical staff perform poorly in general on all domains and elements of their jobs. This is an opportunity for developing ''specialty'' PACTs for diabetes, coalescing the most complex patients in fewer numbers with more richly staffed and trained teams."
Not sure how this question is any different from the one prior?
"Specialty care such as Podiatry is not held to the same standard for access, efficiency, care coordination, access, etc as Primary Care. Clinics could use total review and redesign for efficiency and ideally Podiatry should have a presence in the PC clinic and not be so remote and inaccessible to the teams. Since so many podiatric needs are acute, with poorly controlled diabetics finding their way to PC clinic with infections and injuries, there needs to be a clinic flow with more carved out urgent drop in capacity"
"Nephrology as a service is poorly reponsive to PACT and veterans, generally declining or deferring care and participating minimally in it. Care coordination is poor at the nursing level especially in dialysis patients and there is much that could be done with virtual care modalities and a more comprehensive and welcoming approach by the specialty especially regarding management of blood pressure, dialysis related medication &nutritional needs, and timely intervention in stage 4 CKD to plan for future dialysis. Ideally Nephrology should have a clinical pharmacist and an NP supporting their efforts."
Podiatry has moved to another building and is very difficult to reach and communicate with. Patients who present with acute foot needs are often delayed while too many staff spin heels trying to get help and often have to defer to ER. Ideally there should be a podiatrist rotating thru primary care and ample capacity set aside in podiatry clinic for acute diiabetic foot disease
"Culturally PACT is failing locally as non-provider staff and services have failed to increase their performance towards top-of-the license care, still walking away from or poorly performing too much work that then ends up on the provider''s plate. Scheduling accuracy is poor and clinic staff have to spend additional time working around scrubbing of bookings to protect access. Nursing often pushes back against patients seeking care and defers them to provider visits, ER, etc. Clinics are too small with

too few rooms, buildings are poorly designed and delapidated and Primary Care areas have received the least and most delayed attention in remodels compared to all specialties. The growing burden of clinical reminders and performance measures that tasks to providers to document for the sake of QM and other admin staff has so strangulated the office visit that it has negatively impacted the care experience and patient satisfaction"

hiring of RNs certified as diabetes educators; the use of diabetes planned visits as a way to efficiently bring togethe the diabetes care team around the patient during one clinic visit; create nurse protocols around insulin titration to ensure appropriate dosing and adminstration of insulin especially for poorly controlled; partner with community based organization to develop relevant self-management educational strategies that involve the patient and family; decrease barriers such as criteria for referral to those specialtly services who address dm complications; increase access to opthalmologic services either by expanding VA staff or partnering with high quality community providers; use telehealth to expand home access to education and acute care services - RN Call Center with Telehealth capabilities; Create templates in CPRS with decision support capabilities and registry access; create policies around care coordination to make transitions of care seamless
"Additional ophthalmology services needed; mechanism by which to easily capture opthalmology services received in community; a look at workflow and use of PACT to optimize patient wait times, communication between providers and creation of multidisciplinary plans of care"
similar to previous question; to prevent treatment delays processes around care coordination that are interdeparmental not just limited to primary care
"Given the prevalence of macrovascular complications is patients with diabetes, access to vascular consultation and on going care is critical. a dedicated wound care center staffed with physician, nurse and physcian extenders would create a team approach to preventing and treating vascular complications."
"Yearly retinopathy screening drives high demand for ophthalmologic services. Therefore, appropriate staffing is required in order for screening practices to be appropriate. Expanding these services with the addition of space and personnel is recommended"
"Expand interventional cardiology services and diagnostic cardiology, to ensure timely access."
"Creating processes that optimize patient flow, work roles and clinic processes so that team members work efficiently and at the top of their licenses. Automate process so that they are less provider driven and more driven by the TEAM and or the clinical guidelines of the patients diagnosis. Example, flow sheets to ensure that recommended testing and DM goals are met"

"For patients with uncontrolled Diabetes, a more focused approach with emphasis on self-management education and support are critical. We are very good at providing medical care and high risk psychiatric care (suicide, PTSD, etc...) But when a moderately depressed patient has no motivation to change behaviors that directly impact his/her chronic conditions (watch TV all day, poor sleep, erratic eating patterns, poor dietary habits, sedentarism), we have very little to offer them. This may be one of the most important interventions and are very limited in most places."
"In our case, we"require"" that patients coming to the diabetes clinic, have previously received "basic diabetes education" in primary care. (We standarized such a process). When consults without such documented education process are received, scheduling of appointments suffer delays."
We have a referral process to the [location redacted] VA which patients are not very keen of.

"Improving and increasing space for Primary Care clinic will allow for additional providers and nursing staff and improve access to care, health behavior teaching and support. This will help improve diabetes management."

"The lack of endocrinologists available for diabetes care of high risk patients has hurt our care of patients with uncontrolled diabetes. There are several additional or newer medications available that could help with diabetes management, but without the endocrinologist eval and approval, Primary Care is unable to prescribe these."

We have a lack of podiatrists available for routine foot care of diabetics including nail care. Part of the criteria to be seen by the Podiatrist is to have an insensate foot however many patients would benefit from more routine evaluation than waiting until advanced diabetic foot care.

We have a backlog of cases that need evaluation and follow up by ophthalmology and many NVCC referrals to the community because of this back up. This is the service most in need of growth at [location redacted].

"We have way too many alerts that are not needed to be reviewed by providers. This leads to rushing and missing important alerts. Many clinical reminders can and should be done by ancillary staff, yet are left to providers to complete and this takes time away from patient care responsibilities."

"Space is very tight here. If we were to grow in-house services, we would need more space to support those programs.

Biggest difficulty is getting Endocrinology/Diabetologist expertise. VA salary ranges are generally below what''s being offered in the community.

Currently most PCP''s just try to manage diabetic control on their own because there isn't endocrine capacity to assist them.

Pharmacist support for poorly controlled diabetics needing insulin titration has been helpful, but is far from comprehensive.

Central office policies and procedures just make care overall more inefficient, decreasing capacity further.

Fee basis and Choice program are too complicated and have too many "rules" that only serve as barriers to care."

"Currently our facility does not offer this service. This service is only available outside our VISN (in another VISN) and they accept very few veterans and have numerous requirements before even considering a referral.

The community has LOTS of resources, but we do not refer patients for this service under Fee or Choice that I know of.

The easiest and most cost effective strategy might be to refer these folks into the local community unless an in-house surgeon with skill/experience could be recruited. In that case, compensation becomes a major issue."

"We only have limited Vascular Surgery support from the community. Most vets who need surgical intervention (e.g. bypass), are referred to VISN tertiary facilities where there are delays. Community providers exist, but in general Fee does not support those referrals unless it''s acute limb threatening ischemia. Again, salary ranges for the VA fall below community compensation, so getting surgeons to join the staff is nearly impossible."

"For many years we were unable to recruit enough opthalmology staff need to meet our demands. Fee basis referrals into the community still occur for people with retinal issues, which can lead to delays and fragmented care. The Eye Clinic as plans to expand. That said, the demand is huge. There needs to more shaping of this demand, since PC staff and patients choose opt for eye care even when there''s no clear need for it. In clinic screening (e.g. visual acuity and glaucoma testing) might be a better way to provide eye care while decreasing demands on Eye Clinic specialty services and providers. Fee basis care in to the community has been good for patients but again only leads to fragmented care."

"Currently we have only limited Nephrology support in the outpatient arena (PA one day a week, MD one half day a week). Inpatient support is available and provided by outside nephrologists who consult

as needed. The clinic often doesn''t have enough space when it runs. Fee basis outpatient consultation is generally not available, so patients wait for in-house consultative support/appointments. Ideally the facility needs at least a half time MD and a full-time NP/PA to allow for more frequent and earlier interventions (hopefully to prevent ESRD events). Dialysis support when it is needed is generally good and provided entirely out in the community which is appropriate."

"One of the biggest barriers to diabetes care in our VA is resources. The primary care providers are overwhelmed with large patient loads and can''t attend education sessions to help them improve their DM care. There is a lack of certified diabetes educators to help with the massive education load. Our patient population is very complex and requires extraordinary amounts of education re: diet, exercise and management of complex medical regimens. If PCP';s could have more time with diabetics (60" vs. 30") or if they had qualified diabetes educators to help it would make a significant difference."
The biggest issue is that we spend a lot of money sending people to the private sector because they can
From the minute the patient is checked in the delays begin. Our LPN''s recheck out of range BP''s multiple times because they are trying to meet a performance measure of BP''s <140/80. This delays patients getting back to a room in time. The provider is given 30"; patient slots so if the vitals are delayed the provider is delayed and forced to provide quick care. This extra documentation is often not necessary because the pt is just hypertensive. We don't have enough staff to do this and it delays pt care.

"Need more providers: endocrinologist, NPs or PAs. Currently only one endocrinologist at [location redacted] VAMC. Need better reminder system for Veteran to keep consultation appointments, because ""No-show"" wastes precious consultation time. It is not necessary to split Diabetes from Endocrine consultation."
"Need more ophthalmologist, and nurses to work at eye clinic.There is only 2 opthamologist in our facility."
"Need more podiatrist. In our facility, currently all podiatry consuiltation was sent out to non-VA provider, since we only have on part-time podiatrist. Cannot give any care if no provider!"
"Need more endocrinologist and NPs or PAs. Frequently we do not have a nurse (RN or LPN) in the diabetes/endocrine clinic; high turn-over rate, no continuity. Paper works (CPRS) took 1/3-1/2 of our clinical time. Need better reminder system to decrease no-shows."

The number of overall clinical reminders are excessive.

"Policies should allow triaging of patients - some don''t need to be seen urgently, others do"
pharmacist would be good

"The main problem is lack of adequate professional personnel to see the patients, and also the need for increased numbers of treatment rooms."
The two biggest problems or lack of adequate professional help from MDs and there'' practitioners and lack of space if and when we can get these practitioners.
"Again, the main problem is lack of adequate Eye doctors to see the patients."

To allow nurse care managers to be nurse care managers. Streamline clinical reminders and consults. Stop providers from being clerks and allow them to be providers. Active recruitment of healthcare professionals instead of passive recruitment.

Some times it is hard to communicate with a veteran before scheduling an appointment. This has cause delay in scheduling even though an appointment is open & available.
At this point we have to call a veteran before scheduling. This policy has cause delay as some times it is not possible to reach a veteran
Schedule a veteran for appointment in case he cannot be reached by 2 telephone call within a week
More ophthalmology staff will be helpful.
You get the job done from Monday to Friday if you have enough staff based on demand
More patients can be seen if progress notes are dictated than typed.

"No case manager for division; only clerk and MDs are available to assist patients. Questions from patients sometimes lost since providers not sure whom to contact. Also, other clerks allowed to schedule into clinic, making clinics sometimes difficult to manage. Would be helpful to have case manager assist with streamlining services."
Same as previous comments.
See previous comments

decrease involvement by CO and distractions related to requirements that do nothing to improve care

"We have 1 endocrinoloigist and several pharm d in DM clinics. PC access is better, still improving. fee base access to community needs improvemnt, elp is a health shortage area and spec are in short supply"
"1 endocrinoligist on staff meaningful changes require more 1deepMD. have several Pharm d but need support staff, rooms,space."
need to be more than 1 deep in MD position.
"we do not have vascular in house all cases go to army/fee base, a smooth process is critical but a shortage of providers exist on outside"
"we have access to limited nephrology care in house, most are fee based to community in an area where there are staff shortages. Pts get care with limited delay"

Increase personnel in spec clinics at ref centers

METER AVAILABILITY

"Currently at the [location redacted] VA there is a critical shortage of available space in the primary care clinic for current staff and thus new staff become a bigger issue for space.
The current consult system is totally ineffecient often requiring 2-3 consult rewrites to obtain timely care. This is further compounded that there are 4 different pathways for our patients and often all 4 are tried causing delays in care. Those are internal, NVCC, IFC, and choice counsults. Patients often spend months in the consult system trying to obtain care. The consult system should have only on consult for all four pathways."
Simply the consult system in "broken" causes significant delays in care.
Again consult system is responsible for almost all delays

"CPRS is an antiquated EHR. It is nearly impossible to identify high risk diabetic patients within CPRS. High risk population mangement only becomes possible by exiting CPRS and creating "work around"" data extration programs i.e. patient registries, that having various level of reliability and validity. We need real time testing, outcomes and consult management programs.

The VA';s scheduling program is archaic and should have been updated years ago. We spend too much time implementing strategies specifically designed to work around the systems limitations in order to become compliant with CO requests.
Gluccometer download software incompatibility and malfunctions is rampant esp at CBOCs"
"High risk diabetic podiatric patients need rapid, multidisciplinary access and intervention in order to optimize outcomes. Care remains disjointed and uncordinated more often than not secondary to limited leadership, antiquated EHR and staffing.
Easy access for patient initiated contact needs improvement"
We have no Bariatric surgeon nor support staff or OR space. The closest facility is greater than 300 miles away. There currently is no fee basis model locally
CPRS does not provide real time updates or scheduling info (i.e. missed appointments) of high risk nephrology patients
Cardiology while providing excellent care in face to face situations is understaffed and thus unorganized and like diabetes is faced with an epedemic of high risk patients
View alerts and Clinical Reminders are without rationale and burdensome

"Primary Care need to take more ownership of the patient. They cannot be a traffic police sending patient to sub-specialties.
Software to download and create useful report from the glucose meters used by patient is critical for appointment at Primary Care and Metabolic Clinic.
Continous Glucose Monitoring equipment is very important to facilitate an efficient evaluation and management of patients."
"Dietitians trained to teach carbohydrate counting is very limited at PACT.
Food model are in great need.
The policy has been that the patient see the dietitian when they come to see the primary care but if the dietitian is busy or not available that date then the patient does not see the dietitian. Schedule appointment are needed for some patients. Open acess does not work for everybody. The patient may be re-evaluated by the PCP in 4-6 months and that is too much time for re-evaluaton with the dietitian if the patient is not in adequate glycemic control."
"We do not do Bariatric Surgery at our Station. There is very limited availability in the community, frequently having to wait 6-8 months. The system requires pre-approval by Chief of Surgery, who requires patient going thru MOVE program. The MOVE program has several months delays. Therefore, is a roadblock after anothter one taking at least 1-2 years before finally getting a patient to realy close to be schedule for bariatric surgery."

"IT: The ability to write to CPRS from the Primary care Almanac to quickly flag patients for rapid follow-up and order needed labs would be of great assistance. Clinical Reminders developed locally are currently used for DM management. They are poorly designed and hinder care.
Policies: Recall policy makes regular follow-up scheduling in Primary care unreliable.
Supervision: Direct supervisors for the PSAs are needed to better train and supervise clerks in scheduling processes."
"Information Technology: New scheduling package
Policies: Providing diabetic foot wear is delayed due to the requirement that patients be evaluated by a podiatrist first.
Personnel: Scheduling clerks"
see my prior comments

"Need more clinical space.

Need another Endocrinologist or dedicated practitioner.
Need a CDE and dedicated nurses.
Need a more facile EHR for diabetes care.
Need a case manager -especially for PC
PCP need to take diabetes more seriously and learn tools to treat"
"It is very difficult to get bariatric surgery approved - it is almost an obstacle course for the patient
There should be a patient navigator
Our program asks that the patient lose 10% weight before consideration - which essentially excludes almost all patients"
Vascular Surgery is very Hands-Off - the surgeon rarely sees the patient - usually it is resident or licensed physician extender
"Need an ophthalmologist - almost all work is contracted out
There are delays in care"
Nephrology is over-burdened
"Endocrinology clinic has been promised more Nursing support through a PACT system - which has not happened due to staffing and space
There is no single number that patients can call for help
Our medical center abandoned ADA recognition many years ago
A diabetes educator is a critical need"

"Allow staff podiatrists in system to be able to provide podiatric care at CBOCs, where podiatrists are contracted."

more LIPs and support staff
need to recruit additional qualified certified diabetic nurse educators and registered dietitians as well as support staff to allow them to function efficiently
"more podiatrists, more administrative and clinical support staff more space"

"CBOC&'s have struggled more with deficits in administrative and support staff; No show rates are moderate, but higher than desired. We have identified issues with patient cancellations."

Primary Care panel sizes are to large. operating at 100% of capacity increases risk of burnout and leads to lapses in care. Therefore more pact teams are needed. Additional resources are also needed to expand clinical pharmacy specialists to support PACT. There needs to be stronger link between what program offices require and the funding to the field. Currently the requirements of program offices are often unfunded mandates. Program offices need to understand that incremental change ultimately requires re-thinking staffing models or the field dies a death of a thousand cuts.In our location night and weekend hours are not desired by our patients and requiring continuing these activities is wasteful. Some of the changes coming in the IT and EHR world like active notes could be game changer. Tele health has been oversold as a potential solution. Smaller panel sizes and more PACT teams imply more space. the current space planning process is so lengthy that space is often too small by the time it is opened.
see responses to the primary care section above.
Bariatric surgery is difficult to obtain within the VA system (limited number sites performing the service and a lot of barriers to utilize it). Need more bariatric surgeons and locations.
more access to cardiology testing and technology. this means both more cardiologists and associated support staff and all that this implies include space.
Need more and better foot care support which is finally on the way here. same issues as related before.

Providers are saddled with to many things to do for each patient and are drowning. mandatory education detracts from patient care and needs to be required more thoughtfully. Need to find ways to augment providers with more support for basic activities.

Need adequate number of rooms for specialty services. Guidelines suggest one room for each provider which is very inefficient.
See previous comments

"Need more providers to see patients more quickly. In our specialty (Endocrinology/Diabetes), long waits for appointments are not uncommon since there are many people with endocrine problems especially diabetes, the kind of advanced diabetes patients we see are those who cannot be discharged from our clinics, and there are not enough endocrinologists. This is not just a problem in VA; it is a problem in private sector as well. Obviously, more providers require more space. As the number of patients is increased, more clerical staff is required not only to help schedule patients, for instance, but also to provide triage for providers. Scheduling is a problem. The recall letter system implemented several years ago has not improved things, simple made them worse, in my opinion. Centralized call in centers tend to be impersonal and might be better replaced by local systems where people answering the phones know the providers. In any case, such clerical personal need better supervision. Central Office has to be more realistic on access times. I now understand that all new consults (non-emergent) must be seen within 30 days of request. That sounds great, but probably is unrealistic. Private sector does not do that, as assessed in my non-scientific survey of many endocrinologists outside VA :). There should be incentives especially for clerical people who are critical to smooth flow of the system. Weekend and evening availability is not critical since many patients are retired and coming during the day is not a problem. If late or weekend services are offered, they need only be limited and all involved should get incentive pay. Fee basis, in my opinion, should be limited to people who are very, very far from VA facilities. There are unanswered questions about fee basis -- how long does it last, who writes the scripts, will VA pay for meds acquired outside VA, how will VA oversee the outcomes?"
"Often, though not always, time spent in calling patients or writing letters about lab results could be done by others. Obviously, there are some sensitive, serious situations in which the provider can/should call. The scheduling system needs to be simplified and upgraded. The patient should have a appointment date for the next clinic given at the clinic visit. The recall letter system wastes time and is inefficient. Unnecessary documentation refers to answering clinical reminders. The reminders are usually helpful and some (but not all) need to be answered. No-show is a chronic problem both here and at our university affiliate. I was on a committee to solve the problem but we could not! Patient flow in clinic needs to be faster. There are too many things that have to be done at each visit. This is where more clinical support is necessary"

"Safe and quality diabetes care CANNOT be delivered to all veterans who need it in the current care delivery paradigm. We have strong data that system based diabetes case management models work well but facilities must provide sufficient qualified personnel (diabetes case managers) AND support medical directors (e.g.MD, DO) to oversee these programs. The type of effort involved in effective/safe diabetes care that is well established to be time-intensive MUST be able to be captured and recognized as effort (beyond current RVU based methods) . the number of Primary care MD''s are also currently insufficient to provide diabetes care to patients who are not high-risk (that diabetes case management and endocrinologist see)."
We have strong bariatric surgery programs regionally.
schduling grid archaic. we need more space to see patients on days with many rotaters

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Personnell are doing the best they can w/ their resources. Having more PharmDs to help manage diabetics aggressively would help.

we only have one endocrinologist in a state with huge numbers of patients with diabetes. Having additional specialists and pharmDs to aggressively manage patients would help.

same as previous comments.

delays occur due to staffing shortages. fee basis is used but there is delay there too. we do not get reports back from fee basis providers.

cardiologists at our facility do not see patients for lipid issues..this is a primary care providers job. They see acute cardiac issues promptly.

"Providers are taskes with doing everything. Despite PACT, this stil occurs. View alerts keep providers doing admin work. They are not focused on face to face patient care."

"often times directives/madates/policies from central office bring challenges from a clinical standpoint, this makes it difficult to provide care"

we do not have ophthalmology on site so cannot answer for their issues. for retinal attention

would be helpful to have access to contract providers for extended leave issues; and local podiatry access to community is strained

"staff shortages, delay in hiring, Many dm 2 treatments can be nurse protocol which are being developed now"

"We need more endocrinologists at [location redacted] Section of Endocrinologist. Candidates were interviewed however annual salary was not attractive for them to accept the position.

Nursing staff- At this time, we have 3 nurses with 2 full time endocrinologists but when we have a third endocrinologist in the future, nursing support staff is needed. It does not have to be an RN that will be helping the section. A health tech or LPN is enough for nursing support staff."

"We are in need of more endocrinologists.

There were a number of candidates who interviewed however annual salary was not attractive for them to join the VA [location redacted]Section of Endocrinology.

Re:Nursing staff. At this time, nursing service provided a 3rd support staff for 2 full time endo mds but when the third endo md will come in- Nursing support staff will be needed. It does not have to be an RN. LNP or Health tech is good for us."

We need more podiatrists at [location redacted] VA. There were at least 2 podiatrists left and have not been replaced. More technicians are need for toenail trimming. Choice care is being offered as the section can't cope up with the demand

"Section of Nephrology: Inpatient and Dialysis unit were added to the services offered by the section however the number of Nephrologists were even lower. One nephrologist left for almost a year and no new nephrologist came on board. One is leaving in 6 weeks. We are down to 2 nephrologists. Waiting time for a new consult to see them is around 3 mos.

Same holds true with podiatry staff as previously stated."

Having more Foot and Ankle surgeons would decrease the delay of patient care. More Technicians for toenail trimming would decrease the back log .

"Certain Nursing staff unwilling to help out medical provider eg: faxing outside prescriptions or going thru Prior authorization for a certain drug to be approved. Front desk staff takes care of the flow of the patients coming in and checking in and receiving phone messages thus medication related issues should be done by nursing staff.

From 3 full time endocrinologists down to 2 full time providers and absorbing the patient pop'n on top of our patient population, the no-show rate is low. It''s difficult to reschedule because there are no slots available ."

"Additional clerical support needed for scheduling and consult management.
Scheduling software is one of the biggest impediments to patient care. VISTA based package is bulky, not user friendly, and unqueriable in a meaningful fasion.
IT support for glucometer downloads is lacking in terms of manpower and capabilities."
Please refer to clerical support and scheduling software comments from previous section.
Clerical and scheduling issues are same as previously. Additional vascular surgery MD FTEEs required to manage the volume of vascular burden that this facility sees. Unable to recruit fulltime vascular surgery MD staff due to marked discrepancy with community salaries.
"MDs spend inordinate amount of time managing alerts, 50% of which could be handled by lower trained staff. Scheduling package is immensely cumbersome and impedes patient care. Difficult to cancel and reschedule without getting penalized due to performance measure standards relate dto canceled by clinic standards. Space is major impediment to care impacting pt flow on a daily basis. Insufficient exam room space and cumbersome clinic layout not conducive to robust patient flow. Insufficient clerical staff to support the volume of patinets being seen in clinic. CPRS requirements have rendered chart documentation almost useless unless there is free text somewhere within the note. Administartive burden is heavy with documentation requirements, TMS requirements, etc.... that have no bearing on direct patient care."

"The endocrine section at the [location redacted] VAMC lack administrative support staff for diabetes related patient care activities. More administrative support in this area would be greatly appreciated on behalf of the Veterans.
A large amount of administrative requirements such as clinical reminders and view alerts which focus on directives and policies take away the ability to concentrate more on the Veteran''s overall health care."

Hiring additional staff to do nail care for veterans with Diabetes which fortunately is being done now.
"Numerous requirements for bariatric surgery, not all of which are consistently clinically relevant"

working to increase the availability of services

"Scheduling is often not appropriate and there are few dedicated, capable individuals to accomplish this. I have gotten certified to perform scheduling simply because I cannot rely on our system to provide appropriate, adequate scheduling assistance, clearly beneath the scope of my practice as an APRN, CDE specializing in the treatment management of patients with diabetes. We need dedicated clerks and provide incentives to keep them in their positions so they won''t always be seeking more money elsewhere in the system."
"Fee basis is not an option I would consider. I think veterans should be seen within their facility. I think more trained clinicians should be available to see these patients and more support staff to ensure adequate use of the clinician''s time/expertise.
All persons from the top down to the bottom up should be held accountable by ensuring their time is not spent surfing the web, watching movies on their phone, making personal phone calls, or yucking it up."
"This is not available for patients and should be. They must jump through hoops designed by "Dietary?!"" Why not Endocrine of APRN specialists? Absolutely they need to show accountability prior

to surgery, but nutritionists decide whether or not they should be given the go ahead. I think Endocrine of APRN specialists should have this responsibility"

"veterans need to be seen immediately when limb threatening lesions present; they are often sent to ER where trained staff are not available. They will often call for vascular surgery to evaluate, but not always."

"Must merely monitor and manage lipids more rigorously, either by more personnel to see and counsel and treat the patient, or specialty clinics for this."

"Need more podiatrists or foot nurse specialists to see, treat and manage LE wounds, DM problems immediately."

"More nursing would facilitate calls regarding bg management advice

Dopplers at all clinics where I perform telemedicine visits

I just went from 70% to 100% endocrine practice. Not sure yet how good my access will now be. Previously poor

I am also increasing my telemedicine (CVT)availability. Good resources are available.

telehealth (CCHT) is readily available and very helpful.

Out-sourcing endocrine care tends to fragment care, since communication is less good.

Group medical education and group medical visits. We have implemented a multidisciplinary comprehensive diabetes education course. Group medical visits for patients with diabetes are likely to be helpful."

group medical visits

We have urgent care such that urgent issues can be treated. The delays when patients call before they can speak to the call center is a real barrier to their calling when having difficulties. The CCHT nurse will often pick up on problems and notify me.

"Delays in being seen in boston. Challenges in reaching service due to need for more clerical personnel make facilitation difficult. For vascular procedures, due to the cost of eval, outside referral is likely not cost effective"

"We just increased cardiology, which should help

more use of econsults."

"WE need a certified diabetes educator for hospitalized patients. We need at least a second diabetes educator for clinic patients.

We need a behavior health person to help us while we are in clinic

We need a dietician present when we are in clinic.

We need a full time nurse case manager who is a diabetes educator to help manage our patients.

We need our own nurse to room our patients- often the nurses rooming our patients are inadequate.

WE need more SPACE- we need an area designated for classes for our patients,

THe diabetes educators space is abysmal- she is working in a closet.

THe exam rooms are not well stocked- we stock them ourselves.THe exam tables are facing the wrong way.

THe scale and height measuring is inadequate.

WE need to be able to do a point of care a1c.,

WE need new dragon systems in all the exam rooms.

We need a secretary who will have time to help the patients more - who they can call and will be assured the doctors receive their messages.

We need to have bariatric surgery done locally - bariatric surgery cures diabetes, it needs to be an easy process without a lot of hurdles to jump through before the patients can speak with a program."

Patients need to be able to have bariatric procedures easily and locally.

"Patients must be able to call and speak with someone and schedule an appointment to see a primary care physicain within 14 days. From that point the patient can start treatment and be referred to the proper specialist, if needed. Communication between the patient, HAS staff, and primary care must be improved. The number of no show appointments need to be reduced by proper scheduling. They also should have a separate walk in clinic for veterans with urgent needs (not part of primary care) that can triage patients appropriately."

Patients should have access and in some cases same day access to a dietitian which would require an increase in number of staff. Also need to improve scheduling procedures to reduce the number of no show appointments which impact all veterans.

Patients should be scheduled efficiently and expeditiously. The number of no show appointments needs to be reduced. There should be podiatry designated to see scheduled appointments but should also have podiatrists available for same day access.

"Currently, at this VA center we do not have immediate access to surgery on site because there is no inpatient services. All surgery is fee based out to the community. Between the time the consult is placed and the patient is scheduled with outside surgery should be within 14 days, but that does not always happen within that time."

"Our clinics have a 10-15% no show rate which impacts negatively on patient accessibility. We have some nurses who are RNs who do not practice at the level of their training and only check patients BP and weight. We have multiple issues with scheduling with not utilizing all of our clinic availability, not rescheduling patients within a reasonable amount of time."

"There is not adequate space for the increased capacity of patients we should be seeing. It would be ideal to have a check in space, then 2 exams rooms for the providers. This would allow for increased flow and increase the amount of patients we could see. At this time, we only have one endocrinologist and one full time CDE working in the diabetes clinic. This is grossly understaffed for the needs of the facility. At this time the PACT teams have inadequate follow-up for their patients with uncontrolled DM. Better staffing could improve this. Would also like to see closer monitoring to make sure providers are acting within guidelines. Well trained clinical pharmacists to help with patient management would also be useful"

"Need more endocrinologist, psychologist to support the diabetes service, midlevel providers to extend endocrinologist, RN to assist providers, clinical pharmacist, additional health technician for patient check in and support with scheduling. Also need to increase space."

"need increased eye providers to do exams and treat growing population; need techs to support providers and schedule patients. Need full eye lanes to be able to evaluate patients. Clarification regarding the retinal exam policy would be important. If teleretinal imaging could be done as screening every year, it might free up time of the eye providers to see those that truly need an exam"

We do not have our own vascular surgery department. We utilize fee basis to receive care. Delays typically occur when providers don''t refer early enough to vascular surgery

"Space is a significant issue. Lack of space prevents growth of the service. We currently have only one full time cardiologist for the main facility and surrounding CBOC''s. Much care is sent to fee. With additional physicians, additional support staff would be needed."

Staffing and space shortages limit the ability to see more patients. Increased use of telehealth would help to support the CBOCs

Physician and nursing staff shortages have increased patient wait times; hence the above answers
These questions better answered by Medicine service Chief

"dedicated diabetes clinic
support staff (RN/LPN, CDE, Foot Care) for chronic disease management"

"Most services for diabetes care are provided in a timely and effective manner. The one area where delay continues is in opthamology where issues exist due to lack of providers, clinic space, and clinic flor. More assistance is needed to help them organize their current system and expand given the huge patient need."

"Current process to refer to bariatric surgery is cumbersome. Patient must complete a 5 step MOVE! program and often "drop out" of hte program before moving onto steps in pharmacologic treatment, meal replacement, and surgery. Because of this, the number of bariatric surgeries done are incredibly low compared to outside hospitals. Further, no meal replacement program exists- a key step in the process."

Please comments for retinopathy. Same comments exist for opthamology referrals. Too few providers and space given the need. Further organization within clinic is lacking per patient report.

Our endocrine section is small requiring clinicians (MDs and NPs) to take on more administrative responsibility than elsewhere. However; recent changes to admin help in past 6 mos (MSA supervisors and 100% MSA coverage to endocrine) has helped this immensely.

"increase number of pact members-pcp, rn, lpn and msa in some clinics. patient compliance is a primary issue in glycemic control success."

increase endocrinology f2f appts. patient compliance is a primary issue w/glycemic control.

no available routine appts >90 days. need more staff-podiatrist and support staff. not familiar w/space in podiatry but suspect increased staffing needs more space and equipment. patients are being fee based to private sector but many patients are choosing to stay w/the VA-will take next aa.

"need adequate staff including LIP's to do the exams, functional equipment and physicians to read the reports."

need adequate staff and providers to schedule and evaluate the patients

scheduling staff need to be efficient. all trained professionals need to function at their highest level. RN''s could monitor the problematic uncontrolled patients under the guidance of the pcp.

We do not have endocrine onsite - I cannot assess why the larger VA we refer to has delay

Cannot assess why the larger VA we refer to has delays

We are trying to recruit a podiatrist - federal pay scale (podiatry/optometry and chiropractor are on one scale) is ridiculously low. Remote/rural area - fewer options for fee care here. We are also recruiting a nail tech

I cannot assess why the larger VA we refer to has delays on consults from us

"Cannot assess why the larger VA we refer to has delays

Limited care in rural location on fee service"

"We have a 0.2 cardiologist - not adequate for 17k pts

Refer to larger VA- cannot comment on their issues"

Too many measure put in place by CO just distract the frontline provider from actually getting time to see patients.

Too many administrators creating tasks for front line providers that distract from patient care.

More clinical space needed!

Retinal specialists are a highly paid specialty - huge wage disparities significantly hinder ability to hire

Increasing salary and CME training opportunities and reimbursement

"Regarding licensed independent practitioners though not critically important, adding mid-level provider with diabetes management to primary care could improve the patient care and the level of care provided by existing providers
Is even more important than other personnel such individuals greatly increase the tailored individualized pa is even more important than other personnel such individuals greatly increase tailored individualized patient car and increase the knowledge of the PC providers.
A huge concern is the EHR. Our system is not good for efficiently allowing providers to input info and to have point of care decision support. It is too soloed. The customized regional data warehouse reports that have developed across the Enterprise are a testament to how good the integration of info can get but a good EHR would allow that with greater ease and at the point of care. (From what I have seen, the new eHMP does this. PUT ALL POSSIBLE RESOURCES INTO COMPLETING AND RELEASING IT)
Regarding central office policy, let''s use our nationwide innovative resources to recognize our best practices, the facilitate their dissemination. E.g. In 2008 after seeing it demonstrated hands on at a veHu conference, I came back to my site with a proposal to create a process whereby incoming faxes would not be printed, circulated as paper then scanned back in to the EHR. Keeping the documents in electronic format and ""capturing"" them into Vista has so many benefits. Despite receiving a cash award for the idea we have made no change (in 7 years). The stated concerns related to information security and stumbling blocks included purchasing fax/copy machines that were incompatible. It''s being done elsewhere in VA but we languish with an archaic process, a champion who has spent his enthusiasm, and resources wasted on equipment that did not facilitate progress.
I am taking this survey at 6AM on a Sunday. We don''t need more supervision and incentives. Sure I want more money for what I do, a asked for it and got little, but one cannot develop the perfect set of incentives to drive the progress. Just remove some barriers to efficiency, provide the type of support mentioned (space for one on one teaching and for groups, excellent diabetes educators, and a facile EHR) FYI it take roughly 30% of the time allotted for office visit to document,place orders etc. there''s room for improvement when our highest paid personnel are doing this...."

Also, since fm specialty care is not strongly reliant on the physical exam, telehealth is certainly appropriate"
Teleretinal even in clinics co located with an Opthamology service
"Comments regarding CPRS were already made. The scheduling system was developed shortly after the Rosetta Stone was created. Need I say more? Having the space and team let functional support to allow the provider to do, in their time directly with the patient, what only a provider can do is the goal to be sought."

"space is critical to accomodate needed eye techs, pharm D''s and clerks, Endocrinology is a very difficult to recruit specialist in our area, t few local FEE providers accepting veterans due tothe cumbersome process to get authorizations approved and paid, The CPRS system needs a complete revision, the amount of time Providers use on clerical duties and clearing view alerts could be better utilized in direct patient care."
"Additional space needed for more LIP''s and group appointments,use of tablets for nursing will increase the availability of clinical space ,the fee process requires incredible amount of time on the PCP''s for entering information, consult requests create multiple unnecessary alerts and create a bottleneck in providing timely response to the veterans needs/
Nursing needs training on how improve triage skills. and need more diabetic educators."

"We have the resources but have not improve the workload, have room for improvement on supervision and employee training and education"

"Need space for Ophtalmology, need at least 2 ophtalmologist not able to recruit, support personnel is available but retention is poor, perhaps incentives to stay will increase VA committment"

"Providers are tasked with menial clerical duties ,(i.e. manually entering all lab orders because MAS now is not "authorized"" to transcribe orders from a progress note to the orders tab in CPRS) . In our HCS Unscheduled visits are allowed all day long, creating disruption of the PCP''s schedules flow, the fact that we do not have a Hospital or Emergency Room gives the patients the impression that they can come in at anytime for anything urgert or not, perhaps the creation of an Urgent clinic in each of the 3 largest clinic will work , but again we are in a geographical area difficult to recruit and retain Providers.
  The non va care consult system has created an extraordinary amount of clerical/administrative time consuming duties that PCP's devotes less and less time with face to face or direct patient care. decrease job satisfaction and burn out is also more frequesnt now than before non va care was initiated, we need administrative coordinators of these visits."

decreased training requirements and increase provider clinic time
increased provider access in CBOCs
this service is not available at all locations but is a referral
to much mandatory training

"We need more endocrinologists at the VA to take care of our veterans'' needs. More support staff such as nurses, dedicated diabetes educators and pump specialists are needed to help support physicians take care of veterans."

"To help with patient wait times and improve diabetes care, more endocrinologists and support staff such as diabetes educators and nurses are needed."

"As mentioned earlier, with more staff, more veterans can get better quality care."

More nephrologists are needed to take care of more veterans

More staff will help patients be seen sooner.

"With more opthalmologists dedicated to treating diabetic retinopathy, that will help veterans to be seen sooner."

Organization and reporting structure is not aligned ideally to facilitate team function
Availability of vascular surgery providers within facility would aid process
Having additional providers either by telehealth or comunity referals is important to providing timely care
We need access to additional providers to meet targets for timely evaluation
Providers report that 20-40% of time is spent on tasks that can be done

Our local VA is acutely short of specialist Local. Non VA endocrinologist are already overworked
need more endocrinologist in the VA. Local non VA endocrinologists have long wait time

"Question licensed independent practitioners: this refers to physicians, MD
Question personnel supervision, management, or incentives: I think that it should be given emphasis to the fact that VA is a premiere medical institution and the culture should not be "well this is the government" but "this is the best medical provider of the country". In the context of creating a culture of excellence there should be rewards and incentives when established performance measures are reached

Question Increase weekend and evening availability of services: by not restricting our activities strictly Mon Fri 8-4 we will be able to amplify the number of encounters/activities/procedures. Specialists should travel from tertiary centers to community clinic and have weekly clinic.
Generally speaking I do not believe I increasing fee base services. If the mission of serving the veterans is presented in an attractive fashion, VA labor force will develop a loyalty toward the veterans, and services will be of higher level when given in-house rather than by a fee-based facility"
Comments here are the same as in the section of the previous page
[I work at a large VA hospital], and yet it does not have a bariatric program. This is a serious lack, because ~ 40% of our patients are obese and prospective studies have shown that bariatric surgery decreases CV morbidity and overall mortality, and cures diabetes. We refer our patients to a dysfunctional bariatric program in our VISN, which from what I understand (unofficial information) handles 10-20 patients per year. The threshold to send our patients to this center is very high, many are refused after they complete a very large number of tests -some of which invasive-. It is a loosing enterprise and the consequence is suboptimal or no patient care. In my opinion every tertiary VA hospital should be given funds to generate an internal bariatric programs. I do not think fee base initiatives are the answer to this problem."
Patient with acute vascular problems are usually seen right away. Patient with sub-acute problems may experience delays. I have not been able to determine if the changes in personnel promoted by VACAA have implemented changes in this area. No need to increase fee base services in this area if the philosophy of the agency is to generate a culture of loyalty to customers (i.e. veterans).
"A problem is that nephrologist are very well paid in the private sector, and it is difficult to recruit and retain nephrologists at VA hospitals."
Like for nephrologists there are not too many podiatrist working at the VA.
"One of the most frequent comments I hear is that we are spending a lot of time being our own secretaries. Mid levels (PA''s and NP''s) and administrative personnel (PSA''s) are usually doing excellent work. The agency does not do enough to attract PA''s, there should be a well outlined career path for PA''s. The agency has been at the forefront for the use of technology, but has an incredible fear that there will be a leak of private information, and so use of technology some times is delayed. For instance, we do not have wifi."

executives need to be more proactive in access problems solved

we have made efforts to improve flow but space per provider remains rate limiting. Each provider has only one exam room and this limits ability to increase number of patients seen
Actively recruiting for ophthalmologist. New chief has been recruited and will start in 3 weeks. Delays in getting equipment and software. Getting trained Eye tech support challenging from a HR standpoint.

- **Gynecological Surgery**

We are currently trying to hire a part time gynecologist.

OB/GYN services did not participate in teaching training requirement as there was not enough clinical space for the students.

[Location redacted] does not refer any Gynecology patients to other VA facilities. I cannot comment on any Gyn clinic scheduling/access issues another facility may be experiencing
"[Location redacted] refers gynecologic cancer patients to the community, typically to our academic affiliate. Care delays occasionally occur. Typically these originate out of the Fee office e.g. due to delay in authorization, non-receipt of authorization via fax by outside vendor, or delays in scanning outside records in for VA provider review. Solutions include increasing Fee office FTE, streamlining fee processes, and adding RN care manager FTE to ''ride herd'' on critical patients being referred out into the community"
"[Location redacted]has 1.5 FTE Gynecology, which is more than many VA facilities. Gynecology is present at 4 sites including our VAMC, and hopes to expand to 6 sites in FY16. Owing to our geographic reach, occasionally clinically signficiant delays in care occur. The main determinant in delays is Gynecology FTE - a Gynecologist can only be at one site at a time. Additional determinants include lack of a RN care manager for Gynecology, OR access constraints, antequated scheduling software, and burdensome documentation requirements that take time away from direct patient care activities."
"VISN[location redacted] has two robust Gyn surgical programs: [locations redacted]. [Location redacted] closed its Gyn surgical program in 2014 due to a single adverse outcome. [Location redacted] has a non-operating Gyn. [Location redacted] is highly selective in what they do and refer harder cases to [location redacted]. Solutions for delays at other facilities include restoring [location redacted] Gyn surgical program, and increasing Gyn pay to attract high quality surgical Gynecologists that can perform surgeries locally. The number of Gyn FTE in VISN [location redacted] is an issue, but also the quality and capabilities of existing FTE"
"Same comments as for fee appointment access - need to improve Fee office processes, can hire RN care manager FTE to ''ride herd'' on Gyn surgical patients referred out into community"
"Occasionally, [location redacted] women Vets experience clinically significant delays in getting surgery. Any emergent cases are done on a same-day basis. Main determinants of delays include Gyn FTE and OR access. [Location redacted] has a small main OR (4 rooms) and runs at >80% capacity utilization. To improve OR access, would need to add more OR personnel, which would allow us to open up more rooms on Fridays and perhaps do weekend cases"
"Main determinants that adversely impact Gyn clinic and surgical care include Gyn providing care that could/should be provided by others (this clogs up our clinics with routine care items), slow IT systems, documentation requirements, and lack of adequate support staff. In my opinion VA should take the PACT model and apply it to all specialties in a modified format i.e. relax the 1:1 provider to care manager ratio. Administratively, too often we are assigned duties without adequate data reports, and without staff well versed in how to generate that data. So we spend gobs of time figuring out how to get the data we need. IMO every administrative duty assigned should be accompanied by a list of the data reports that will be needed, and a plan to generate any new reports that are needed but do not already exist."

"The reason for delay at our local VA is that I am not approved to do laparoscopy or laparotomy at [location redacted]. I have to take these cases to [locations redacted]. I have to cancel a day of clinic to

go to those locations, so I often will schedule the surgery for 6 wks or more from the time of the consultation. This is to avoid having to reschedule already booked patients in my clinics."

"The biggest improvement could be made by allowing gynecologic laparoscopic procedures (for ovarian cysts, endometriosis, adhesions, etc) and laparotomies (hysterectomies, myomectomies, etc) and vaginal surgery (vaginal hysterectomies, cystocele, rectocele repairs) to be done in the [location redacted] ORs. I could block a 1/2 day/ week for such cases. It would be SO much easier for the patients than driving 1-2 hours further for their procedures, with an additional day to get anesthesia beforehand at [location redacted]. I would not have to cancel as much clinic time. Patient care would be more stream-lined, efficient, and more accessible to the patient.

In response to the first question above, we could use another gynecologic procedure room, so that when both gynecologists are in the clinic at the same time, we can both see patients. Right now there is only one room.

If allowed to perform procedures here, we have most all the equipment initially needed already. Exception is suction D&C equipment, which would need to be acquired.

I need a new exam table. There is no height adjustment, and it needs to be wider to accommodate our bigger patients."

"I start appointments at 740am. If my RN calls in, there is no one in the clinic in the morning to assist me or chaperone.

If iMed consent link with CPRS is not working, it significantly impacts my clinic as many of my appointments involve procedures - all of which require an iMed consent. There have been at 3 occasions that this has occurred in the past year. One of them lasted several days, despite many work order requests. I had to do written consent forms, and this delayed the clinic and increased work burden.

There are many TMS requirements that do not seem effective or useful. They require a great deal of time to complete each year."

"We need another physician, nurse, and medical support personnel"
simplify administrative processes for approval and transfer to care in the community.
Too many administrative requirements

"Typing takes a lot of time that culd be spent with teh patietn, a dictatoin or transcriptoin systme would allow more patients to be seen per hour."
"we need two providers, one a gynecologist wiht each ahving a RN assistant-chaperone
At our facility equipment is not a problem"
The private sector can not see refferals in < 30 so why does the VA system think it can see patients < 30d for appointments
This is a very poor survery. Questions are not specific enough or easy to understand. I feel this is another wate of VA funds that will not benefit the veteran.
"I think this is a very poor survery. The questions are not specific, and many are redundent. Another waste of VA funds that wont change anything to help the veterans"

We are in process of selecting an additional Gynecologist and will add surgical care as a new service line with this provider
Streamlining fee basis care will lessen delay

"A support person is needed. Currently, the coordinator does pre-opt teaching, pre- and post-op calls, triage patients, triage consults, schedule, coordinating with ancillary services, etc. It can sometimes be overwhelming"

"A support person is needed. Currently, the coordinator does pre-opt teaching, pre- and post-op calls, triage patients, triage consults, schedule, coordinating with ancillary services, etc. It can sometimes be overwhelming."
No Gyn on staff.
Additional staff is needed to facilitate the initial approval of fee-based referrals.

"This Facility has a tremendous shortfall in surgical space, resources, & management of such. Consequently, GYN is only afforded ONE DAY PER MONTH of block time in the OR. This allottment is not close to sufficient for the volume needed. Additionally, given the oft requirement for timing surgery with menstrual cycles or simply offering Veteran centric availability for working women & families, this is obviously inadequate. Resultingly, 50-60% of our GYN surgery is done on days other than ""block time"", using other surgical services time who are on leave or are underutilizing there time. This practice is inefficient & demoralizing.
Despite the above circumstances, the GYN service manages to avoid most clinically meaningful delays in surgery by using the strategies outlined above or alternatively, if it is determined that our surgical schedule or lack of resources will not allow care at the local VA Facility, prompt referral of Pts to Fee Basis is done on their initial GYN surgical consult."
"The scheduling packages for both clinic appointments as well as surgery scheduling are in a word, abhorrent. They are inefficient, user unfriendly, & realistically, a decade or more outdated.
Data management is woefully inadequate. We have reams of data but no section or service administrative managers to present meaningful summaries to Section Heads or Service Chiefs that can be used to show what's working & what''s not.
Contracting for purchasing specialty operative equipment is terribly difficult. Often this equipment is ""one of a kind"" & requires sole source justification. That process and methodology appears to be materially flawed. For instance, we purchased a proprietary electrosurgical unit generator (ESU) to do a certain type of endometrial ablations. Sole source justification was performed and approved including full transparency regarding anticipated volume for ongoing use of the proprietary single use disposable handpieces that are used with the ESU. Purchasing these handpieces continues to be an ongoing saga of duplicative futility with contracting requiring repetitive sole source justifcation. I have had to make extraordinary arrangements to get equipment to do timely procedures at the VA that if I were in the Private sector, would never even be an issue.
Support staffing for GYN clinics is way below what''s used in the private sector. We are often operating at a ratio of Nurses/Providers of < 1/1. Considering the following issues: 1. EVERY EXAM requires a chaperone, 2. EVERY PROCEDURE requires a chaperone plus pre & post procedural teaching/monitoring, etc., 3. Checking in Pts, 4. Phone calls, walk ins, and triage..........we do not have required support staff to allow Providers to be efficient."
"The scheduling packages for both clinic appointments as well as surgery scheduling are in a word, abhorrent. They are inefficient, user unfriendly, & realistically, a decade or more outdated.
"Most telephone triage, f/up, call backs, and lab result calls fall on the physicians.
In the private sector, the vast majority would be done by support staff."

"I answered this question based on delays due to gynecology, not delays due to patient's not getting a medical clearance through their PCP"

"I have not seen a significant delay in patient care in our community. The referral process can be approved by not canceling consults that are placed, but instead communicating with the referring provider to correct any problems with the consults. This would decrease delays in care."

It is sometimes difficult to find providers that will accept VA patients in the community because of low reimbursements and delays in reimbursements.

"The VA''s fee basis staff need better training. Some staff workers lack the knowledge to make referrals to appropriate specialties. We have had patients that were sent out for maternity care but instead of being referred to a obstetrical provider they were sent to a perinatologist, who usually don''t provide general obstetrical services. There is also a significant delay from approval to scheduling with community providers. We have had some patient''s with significant menorrhagia that have had long delays to be scheduled to see the community provider in their area. A consult should never be cancelled, but instead the referring provider should be contacted and asked to correct any deficiencies in the referral. In other words instead of canceling the consult it should be ''worked'' by the feed basis personnel to completion. This process would keep physicians from overlooking canceled referrals."

The process would be greatly improved if we could get someone in the Fee service department to answer the phone or return phone calls promptly.

"Definitely could use a Gyne NP to help the gynecologist and also could use a full time gynecologist, only having gyne 1.5 days a week can be somewhat limited, especially if one of those days is a surgery day or a holiday. Also, would be better if the gynecologist was an employee of the VA and not contracted"

Need to have competent employees to help simplify the scheduling system

Our business office can not process our non-VA care requests fast enough and do a miserable job at bill paying. Female vets need to fend off collection agencies and fight damaged credit due to non-payment of maternity care bills.

NON-VA care in our area is saturated. Doing more in-house is the solution

"1)OR time/space, a more welcoming attitude from the established surgical services will be key to getting started.

2)updating the tier pay panel salary max with delay/impede recruiting GYN docs. 250K for a MIGS fellowship trained GYN is insulting and gender biased.

3)Women's health at CO has been very focused and successful at outpatient PC MD/RN training. We need to get our OR nurses and inpatient nurses the same level of nationally uniformed training."

Scheduling for all services is moving to a central location. it''s hard enough for our own clerks to know which provider can place an IUD and which can do a PAP...mischeduled patients is a chore

We do not offer GYN surgery at this facility

We utilize surgical providers at WNY and [location redacted] VAMC sites or refer locally to fee basis providers.

"We do not have a gynocologic surgeon, so all patients are sent out via NVCC/fee-basis."

be able to schedule apptmts with vendors directly by relatively independently functioning PACT teams
This is due to vendor associated lead times for scheduling
Be able to schedule vendor apptmts directly by PACT teams

[potentially identifiable comment redacted] space is already too small to accommodate all of our current providers. In addition, the location which was originally intended for gynecology services is going to be utilized for a different service. Unfortunately, there does not appear to be an alternate area for gynecology services which has the appropriate number of procedure rooms and examination rooms along with appropriately located restrooms.

Number of licensed practitioners: Our greatest impediment to providing prompt gynecologic services is that we do not have an adequate number of well-trained primary care providers"

"If a patient needs gynecologic surgery but has other complicating medical conditions, it is frequently difficult to have those conditions addressed in a timely fashion. For example, preoperative medical clearance for surgery, optimization of management of hypertension, diabetes, hypothyroidism, etc."

"Our biggest problem in providing gynecologic surgery in a timely fashion is having an adequate amount of well trained primary care women''s health providers to identify patients with gynecologic problems and refer them to the gynecology service for further evaluation and treatment. It appears that many women are not being asked if their menses are regular, if they are having pain, if they are having incontinence, etc. In addition, many of our non-women's health primary care providers are ordering mammograms but not performing or referring the patient to a women''s health provider for breast and pelvic exams."

"Our department of surgery has not had a permanent AO (administrative officer) for 2 years. This makes it nearly impossible to get needed equipment, staffing, and resolution of problems.
Our scheduling system is getting worse with numbers of ""no shows" or last minute reschedules. The patients need to be contacted by phone several days in advance so that if a patient cancels her appointment, we still have time to schedule a new patient in that time slot."

Problems with getting another surgeon to assist in major cases. Very limited support from mid levels as well.
Fee basis is the best option for gynecological emergencies. It is important to make it easy and seamless.
"Our biggest problem has been having surgical assistants and OR time for one of the newer providers.
Need MD surgical assist for major cases.
Mid level surgical assistant for both surgeons; adequate block time for both providers in the operating room.
Telehealth hopefully will be utilized in future for consent signing for patients that live far away.
Need provider friendly scheduling system.
Need significant assistance from Department of Surgery and incentives for getting procedures done in a timely fashion (pay for performance measure maybe!).
Need ability to do hysteroscopy and LEEP procedures in the clinic. We have the space but we need more LPN support and ACLS certified RN support to do so.
Need another MSA in clinic to support gynecological services. PACT MSA is supporting gynecological services at present.
It is very difficult to handle gynecological surgery cases in an emergency. Both our gynecologists are part time and do not take call. We need to have a contract with a gynecology group for all these services ideally. That could be our academic affiliate or a private practice group.
Getting equipment is a very tedious process and left up to the gynecologists who do not know the process or do not have the time to do so. We have a Innovations project at present and hopefully learn the process and put it on SharePoint.
We need more training for OR technicians and nursing in post operative period for gynecological cases.
VA should pay the bills in time so that private contracted service providers do not opt out of providing service to our veterans. It is a major problem with our OB patients."
"The process of getting surgery done is long and tedious. We have a 0.2 gynecological surgery coordinator but still there are many barriers to getting surgery done.
Poor support from affiliate for gynecology.

There is a lot of paperwork in the VA that physicians are expected to do as compared to private sector. It is a major barrier for recruitment of quality providers. New providers need a lot of administrative training to function optimally."

Increase communication in electronic consults.
"Improve coordination of fee basis care, getting appointments made, communicating results."
Improve communication.

fee based process is too slow
fee based process takes too long

"increase number of gyns on staff
provide orientation of MODs on womens issues and for new providers as well"
"Having additional gyn md availability.
Being able to schedule an appt after hours
streamline credentialing process
address womens issues at part of MD /provider new orientation process as well as MODs"
"increase number of gyns
 provide training on womens issues to MODs and new providers"
"MD finds paperwork burdensome esp with biopsy and specimen questions that don''t appy to gyn but are required to fill out.
Understaffed due to budget"

"We need more primary care providers, nurses and some specialty care. Once our women get in our system there is no delay in patient care. Getting into the system initially takes too long."

We desparately need more space and more providers. We are being blamed by our congressman for appt delays and they are his fault for not appropriating money to make it possible for us to see more veterans without delay.
[name of contracter] seems to be a borrle neck in approving veterans for non VA care!
[name of contracter] is the bottleneck in getting Veteran care at non VA locations

"Increasing work space would allow the hiring or an additional provider which would decrease patient wait times for an appointment.
Hiring of a part-time Gynecologist would decrease wait time for surgical initial evaluations and wait time for surgical procedures to be performed.
A nurse tech as a chaperone would increase productivity because the nurse would be able to screen the next patients in line for an appointment.
An a electronic tracking system for preventative screening would increase productivity of current staff. Women"
Creation of additional space would allow the hiring of a nurse practicer or gynecologist to be hired to assist with the clinic. The hiring of a nurse tech to chaperone patients during exam instead of nurse so that the next patient may be triaged and checked in. Currently the process through [name of contractor redacted] in Fee-basis and contracted care is causing delays. In addition when [contractor] calls facilities to schedule appointments they have no medical knowledge or ability to look up the answers. This leaves the facility in the dark on exactly what is needed for the appt and whether the appt is considered more urgent than the consult was written for.
Delays due to [contractor]

All Gynecological surgeries are fee-based

"When we do a fee basis consult, we do not get direct immediate feedback as it is being processed because GYN here only 0.15 FTE. The two times there were delays, the patient had to check in with the LPN in the WCCC to assure that the fee basis consult was moving along. It would be helpful to have a nurse care manager assisting with this process."

we have 2 part time GYN Providers and they have been able to manage the workload without delay Women''s Health clinic has a higher no show rate and or patient clinic cancellation rate than any of the primary care clinics. MSA Staff work with patients on appointment dates and a reminder letter is sent to the patient about the appointment date and time about a week ahead of the appointment. We are working with the PACT Teams to establish other ways to decrease the no show or clinic cancellation rate.
"To streamline the Non VA Care for Reproductive Endocrinology, Infertility, Gynecological Oncology and Maternal Fetal Medicine, the Veterans needing these services have been underserved in the past and their care has been delayed. Moving forward, these Veterans should be evaluated with 7 days by VA Point of contact to identify appropriate referral, education of the Vetran and get all the necessary pre-workup in house."
Simplify administrative process by educting providers.

"[Location redacted] VA only has limited GYN resources and have only recenlty reinstated GYN surgeries at the site Wait times for appts are long and not realistic for someone with an urgent need , these veterans are referred to community thru fee basis though now being told should be VA Choice , providers must enroll and this is not a timely process"
[comment redacted because potentially identifiable]

"b: increase # of GYN providers at [location redacted] (Facility that we refer to)
f: need more efficient scheduling system that includes texting capabilities"
scheduling is not efficient for VA nor Non-VA appointment
obtaining records/documents can cause a delay at times
obtaining records and/or documents can cause delays

"We have no in house GYN, getting records back in a meaningful way into our system does not exist."
Need more providers in rural areas lack of providers is worst problem

"We will be required to hire and support FTE in Gynecology. In the interim we need to increase the efficiency and productivity, which may include increasing numbers, of Case Managers while we are exclusively outsourcing. Streamlining records management will certainly help."
W lost our only Gynecologist in 12/14 and we are primarily outsourcing care. We need to continue recruitment efforts and will hire ASAP; and have the equipment and support staff to run the section efficiently if more than one provider is obtained.
"The best way to improve this is to not have to rely on it, in other words to hire and retain our own FTE in Gynecology and support those FTE. In the interim we need to improve the efficiency of the fee process and the efficiency and productivity of case managers involved in that care."
Hire and retain FTE in Gynecology

Create incentives for providers performing more than expected RVUs.
Improved transportation to sister facility VAs for patients traveling for surgery.

Improve electronic communication between non-VA care providers and VA providers to facilitate timely transfer of patient information.
Create incentives for providers who perform more than expected RVUs.

Improve primary care pract. referral process so appropriate cases referred and other abdom pain worked up before assumed to be GYN
acquire more instrument sets for the OR

Having specified NVCC consult services. For example Gen Gyn vs Gyn-Onc or REI. Patient''s often have to go through another generalist on outside to get to specialist they need.
"More streamlined and helpful consult templates.
Holding primary care providers to completing paps so consult spots not clogged."
Limited OR services and days do not allow for many surgical cases. Also OR process inefficient and time consuming for doc and patient.
"Again, more specified fee consult tabs."
"- Less paperwork to schedule.
- Less convoluted scheduling process.
- Better trained OR staff.
- Higher level of OR services to reduce number of fee-based patients"
- Hard to get a return appt for preop planning b/c no return spots left in schedule. Schedule overfilled with new consults. Mays f/u and planning difficult.

'

"Increase the number of other personnel - Fee needs to have more nurse care navigators to coordinate care and ensure resolution.
Improve information technology by allowing the record systems to communicate with one another. If this is not possible then the nurse navigator would be most useful here.
Change ""central office policies"" that affect workflow and efficiency - VA Choice was not rolled out very well. It is not standardize and it is still quite vague."
"Increase the number of other personnel - We need the auxiliary staff to support the providers. We need LPN, RN and a MSA or a chaperone that is separate from the LPN/RN, particularly for this patient population. We are currently functioning with one or the other but not all 3.
Improve information technology - Dhcp is outdated and does not merge well with CPRS.
Change ""central office policies"" that affect workflow and efficiency - The current system for measurement of success does not correspond with Direction or mission of the agency. One example, If we are to fully implementing PACT then the clinic utilization should be low. We continue to stuff successful PACT clinics with more patients to meet access numbers. We implement PACT or missions without the infrastructure to be successful.
Improve personnel supervision, management, or incentives - Our salaries are not competitive to the private sector. Our nurses cannot bonuses or pay for performance which is positive incentive.
Improve access to care by increasing the number of designated women's health providers and ensuring all the clinics are properly supplied. We also need to have access and time to attend regular training. Lastly they need POC pregnancy testing."
"Increase the number of other personnel (e.g., nursing, technicians, pharmacists, clerical staff). - Increase the number of nurse navigators and MSAs for NVCC.
Central office polices as per previous discussion."

"nursing, technicians, pharmacists, clerical staff and a gynecologist"

there is limited resources in the community that accept VA vouchers
"physicians, nurse practitioners, nursing and support staff"

"we have a university and excellent private community however hard to refer because of cumbersome mass fee and one unit refers to private drs through their primary care system
we consult for the current need 2 days per week and prn as needed so servie may change with increased numbers"
"we need uro gynecology services
less hassle with referring infertility patients or referring patients with complex gyn urology needs a limiting factors is rooms, privacy, chaperones and if we get urogyn we need more clinic time ultrasound vaginal series should be available on the clinic we need urogyn equipment for diagnosis in the office we need a microscope for teaching and diagnostic purposes we also need diagnostic hystersocopic equipment and training and we need to be able to perform sonohysterograms for diagnosis rather than needlessly putting all people to sleep"
it snafus are always very common and overburden our efficiency
we do the best we can for the load alwys looking for better ways to offer more on sight services and to avoid delays biggest issue we always need more nursing staff and other support for exams and organizing care
overburden with enormous administrative bureaucratic t time taking away from patient care

It is difficult to say what another VA facility needs to provide more services but the biggest problem to accessing gyn surgical care at another facility from the view of this referring facility is inadequate number of gynecologists that have surgical privileges. One or none at a facility is inadequate. Recruitment would be significantly easier if salary was more in line with the private sector - about 50% more than currently offered.
"Same as previous recommendations, hire more gynecologists at a salary that is competitive with the private sector. If that is not possible use fee basis for care in the private sector. I have no knowledge to comment on what other needs another facility has."
"Other than no-show rate, no problems here. Patients receive appointment letters and automated call and still high no-show/last minute cancellation rate."

"-personnel responsibilty and accountability for specific work loads only.
-avoiding cross coverage of staff for a long period of time, where short term is acceptable.
-pharmacy and drug availability
-supplies availability"

"Access is available within 2 weeks even though our current consultant provider only works 3 days per payperiod. However, some appointments are scheduled greater than 30 days.
We are looking to provide better access by hiring a part-time provider (0.6FTEE) rather than continue with a part-time (0.3FTEE) consultant."
All surgeries are scheduled as needed and always within 30 days unless the patient chooses otherwise.
"Patient no show rates have always been about 50% higher than other surgical specialty clinics despite multiple automated and direct calls to the Veterans.
The consultant is paid as a ”fee for services” provider and we often have to cancel clinics to complete mandatory and other TMS training."

We have one part time GYN physician on staff who does not perform surgery at this facility. We lost one part time Family physician in Women's clinic. We are awaiting one full time GYN physician to come on board in the fall. All GYN surgical procedures (other than minor procedures) are sent out by contract.

"Availability of in-house female provider for women requesting a female physician.
Classification of reports by clinical priority would assist in triage of and timely review of reports by providers"
Availability on in-house female provider for patients requesting a female provider
Additional operating rooms to keep up with surgical demand; additional nursing staff

"The No-show rate, scheduling and administrative questions are regarding gynecology clinic. We do not perform gynecologic surgery at our VA."

"Space is not so much an issue, but increasing funding, staffing and supervision for the fee basis office is of the essence. They are severely understaffed and quite overwhelmed with the increased volume of fee basis appointments. There is also a need to streamline the system and make it less bureaucratic. The latter is a serious flaw and problem in our system. Expectations of many middle managers are completely unrealistic and not aligned with clinical realities."
Delays in surgical scheduling were primarily related to our limited OR time. We have one major surgery day and one minor day. Juggling patients'' and surgeons' schedules around 2 OR days/month can be difficult. Because GYN is a small clinical service competing for OR time with much larger and more politically powerful services this is not always seen as important (though I must add that immediate supervisors and Surgery admin staff are very responsive and try their best).
"In general, scheduling patients for GYN surgery goes smoothly especially since we have excellent support in Anesthesia''s preop testing area. The [location redacted] VA really needs more space (inpatient beds, ORs) and while this is said to be in the works the challenges are significant.
I would like to say that fee basis care is not the solution. Many of our patients use the VA for their health care because it''s their safety net and because of their social and psychiatric problems. Our experience is that many have not done well being seen outside the VA. Also, the fact of the matter is that delays for appointments in the private sector are usually much longer for routine care (the exception is for GYN oncology surgery) than in VA."
"Space is a problem. We are very very limited insofar as rooms, especially procedure rooms."

patients are sent out only for GYN Oncology surgery

Cannot comment on why the larger VA we refer to has delays on consults we send
Remote/ rural area - limited amt of are in community available
limited availability in community - cannot assess the larger VA we also refer to
Cannot assess the larger VA we refer to
cannot assess community issues - remote/rural area with limited amt of providers in community
No gyn surgery at this facility

"We very rarely use outside GYN services. They might include GYN oncology, obstetrics, mammogrma and Ultasound imaging"
"IF a patient is snet out to the community, I personally am uanware of how long it takes as I am not involved in that process"
?
GYN surgeries are limited by lack of adequate equipment and personel avaliable

"Improve OR scheduling package
Improve fee-basis referral system and options and eliminate HealthNet!
Offer in-vitro fertilization when appropriate
Increase funding for gyn surgical equipment"
too much mandatory training

Additional OR space and support staff to run additional rooms. Streamline HR hiring process and incentives to hiring WH designated providers. Over hire when know staff leaving to avoid access issues when staff turnover. Incentive need to be in place for sterile supply staff and surgical techs as with out them can not run. Need to look at the pay scale for the staff including program assistants who schedule our appts. We currently cover 24/7 for GYN via call and Womens clinic offers weekend primary care appts at our main facility. Streamline process for equipment purchasing for clinics and OR. Even the few patients we have placed on Veterans Choice list had appts with GYN sooner than outside providers.
"We have been able to get appts very quickly with outside providers when specialty care- ONC, REI, ob. Sometimes wait time for non specialist is the same as here and patient wants appointment sooner but it is not clinically indicated. Travel to specialist is issue but there are limited GYN ONC specialists and we have a large physical area in our system"
"More OR time allocated to GYN is needed at main facility for major procedures. Or space/allotment is related to support staff- Nurses, anesthesiology and sterile supply staff.
Turn over in staff in CBOC''s and Women''s Clinics and lack of designated WH providers primary care can delay patients getting to GYN or referred appropriately out of system for services not provided in house(GYN ONC and Reproductive endocrine) We do currently have a good referral process to non va care for Onc, OB and REI. Delays in ability to order equipment and that new equipment requests go through long approval process and are done centrally delays getting new technology in OR as well as getting outpatient or sites up and running. Need additional support staff. No clinical coordinator. Delays in HR in hiring when staff turnover whether MD or Midlevels. Phone system and accessing care for veteran can be difficult."
Delays have been for elective surgery but has never put patient at risk If suspect malignancy sent out side VA for care via non VA care. Only delay I am aware of is a delay in diagnosis that was not recognized as soon as came to attention to GYN provider addressed and appropriate care.
"GYN's do not need to be doing routine annual exams they can be done by Designated WH provider. To much time spent on admin tasks as very little clerical and admin support. RN do not order tests and consults so lots of ordering. Redundant documentation also on admission and preop paper work. High no show rate and if occurs at last minute difficult to fill slot.
Hard to reach patients by phone. Providers spent lots of time with patient result letters, coordinating care and redundant documentation. Also have to order equipment and deal with deadlines placed by administration for items. (survey's, action items etc) These take away from patient direct care."

Nights and weekend coverage for ob/gyn in the ED is currently being addressed. We plan to contract to [outside institution redacted] Gynecology for this service.

we try to avoid sending pts outside our institution as it is not necessary in the vast majority of cases
"Again we try to avoid sending patients out as we have the capacity from provider standpoint to take care of nearly all gyn issues. The problems are the few patients we want to send out, for example for pelvic physical therapy, the fee basis process is so onerous and time consuming they often do not get the therapy at all or not in conjunction with appropriate additional therapy"

"having policies such as if a surgical date is more than 30 days out that they HAVE to be put on a list is ridiculous, especially for elective procedures. Prioritizing patients is important, so making policies that ALL pts have to be seen within a certain time period precludes thoughtful triaging. Admin staff and scheduling staff can help with no shows, we need to be able to provide incentive to the staff, the physicians should not be held accountable for things outside their control when it comes to their incentive (eg no shows).

We should consider instituting a no show fee to improve utilization. We need more space, an outpt surgerical center would be best"

"our no show rate is a significant impediment to good clinic utilization. Additionally, there needs to be a centralized process for alerting patients to normal lab or pathology results as we have significant amount of these. Additionally, fact that there is only one person that can create appointments is ludicrous. Each section should designate a person that can help with scheduling so that full utilization of the provider and clinic time and space is possible."

"We need adequate trained nursing support staff, enough exam rooms for providers, proper equipment for in-office procedures."

"We need enough trained support staff, enough exam rooms for providers, enough equipment for in-office procedures."

Fee-based care would take care of waiting/backlog

"C& P could be fee-based out, thus freeing up the only gynecologist in the [location redacted] region."

"At our facility, there were plans when our Women''s Clinic was being designed to include a treatment room for procedures such as LEEP. However, a female administrator at the time changed the plan to a conference room without notifying the medical staff. We have been unable to do these planned procedures since that time 7 years ago."

[potentially identifiable comment redacted] There is no delay, if Veteran needs a service not available in [location redacted], they are sent to another VA, usually [location redacted]or through Non-VA Care. There is no delay in sending patients where they need to go to receive care."

"[Location redacted]has a space issue due to adding more staff in anticpation of the hopsital which is necessary. This cause some problems on all medical services, but staff worked together. [Location redacted] Medical Director handled most administrative tasks for the Gyneologist so they were not tied up in these things."

"As we rebuild our program it will be important to have some general gynecology on staff and then add fee basis or NVCC/contracts for specialized care in the community. As volume, predicted to grow increases, will be able to justify expanding in house services. As in house services expand will likely need additional clinic and OR equipment and support personnel."

We have a low number of female Veterans accessing GYN services. Over the past year had only office based GYN and utilized NVCC for operations. Working with affiliate now to establish more robust GYN program. Difficult secondary to volume. If we build it correctly (space/clinics/staffing) I suspect the program will grow.

Our facility is not currently performing GYN surgery on site. Fee basis GYN services are utilized and provided in a timely manner.

"There are occasional challenges with nonva providers who do not have access to CPRS and exchange of information. This includes timeliness of lab results, ability to contact staff by phone.

We do not have a Gynecologist on staff. We are a smaller facility with a broad geographical catchment area."

Increasing the number of providers and exam space will correct our issues with access. Extending hours has not been beneficial in this speciality
We would prefer to keep our patient's in-house.
"VAGINAL ULTRA SOUND EQUIPEMNT(PROBES) - NEED MORE.
Increase accuracy of coding of surgical procedures so that work load can be better measured."
Mandated TMS is 290+ hrs for a gynecologist - that plus vacation takes up 2 months a year.

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Section 201: Independent Assessment of the Health Care Delivery
Systems and Management Processes of the Department of Veterans
Affairs

Assessment C (Care Authorities)

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Assessment C Authorship Credits

Michael D. Greenberg

Caroline Batka

Assessment C Study Directors

Carrie Farmer

RAND Study Director

Susan Hosek

RAND Study Co-Director

Lauren Skrabala

Communications Analyst

Section 1: Introduction

Michael D. Greenberg

Caroline Batka

Phil Carter

Section 2: Methods

Molly Dunigan	Samantha Cherney	Caroline Batka

Section 3: Authorities and Mechanisms for Purchased Care

Nicholas M. Pace*	Samantha Cherney	Lily Geyer
Geoffrey McGovern*	Joseph Thompson	Maya Buenaventura

Section 4: VA Purchased Care Authorities and Mechanisms in Practice

Molly Dunigan*	Parisa Roshan	Amy Grace P. Donohue
Samantha Cherney	Steven Simmons	Caroline Batka
Joslyn Hemler	Eric Apaydin	
Jonathan Welch	Clara Aranibar	

Section 5: Procurement and Episodes of Care

Susan Lovejoy*	Phil Carter	Michael D. Greenberg

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Section 6: A Review of Whether the Secretary Needs New Authorities for Purchased Care

Michael D. Greenberg	Caroline Batka	Samantha Cherney
Lynn E. Davis	Nicholas M. Pace	

Section 7: Alternative Government Health Care Payer Models

Francesca Pillemer*	Christine Buttorff	Amy Grace P. Donohue
Kayla Williams*	Eric Apaydin	

Section 8: Conclusions and Recommendations

Caroline Batka

Michael D. Greenberg

*Denotes task leader

Acknowledgments

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Preface

Congress enacted and President Obama signed into law the Veterans Access, Choice, and Accountability Act of 2014 (Public Law 113-146) ("Veterans Choice Act"), as amended by the Department of Veterans Affairs (VA) Expiring Authorities Act of 2014 (Public Law 113-175), to improve access to timely, high-quality health care for Veterans. Under "Title II – Health Care Administrative Matters," Section 201 calls for an Independent Assessment of 12 areas of VA's health care delivery systems and management processes.

VA engaged the Institute of Medicine of the National Academies to prepare an assessment of access standards and engaged the Centers for Medicare & Medicaid Services (CMS) Alliance to Modernize Healthcare (CAMH)[1] to serve as the program integrator and as primary developer of the remaining 11 Veterans Choice Act independent assessments. CAMH subcontracted with Grant Thornton, McKinsey & Company, and the RAND Corporation to conduct 10 independent assessments as specified in Section 201, with MITRE conducting the 11th assessment. Drawing on the results of the 12 assessments, CAMH also produced the Integrated Report in this volume, which contains key findings and recommendations. CAMH is furnishing the complete set of reports to the Secretary of Veterans Affairs, the Committee on Veterans' Affairs of the Senate, the Committee on Veterans' Affairs of the House of Representatives, and the Commission on Care.

The research addressed in this report was conducted by the RAND Corporation, under a subcontract with The MITRE Corporation.

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[1] The CMS Alliance to Modernize Healthcare (CAMH), sponsored by the Centers for Medicare & Medicaid Services (CMS), is a federally funded research and development center (FFRDC) operated by The MITRE Corporation, a not-for-profit company chartered to work in the public interest. For additional information, see the CMS Alliance to Modernize Healthcare (CAMH) website (http://www.mitre.org/centers/cms-alliances-to-modernize-healthcare/who-we-are/the-camh-difference).

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Executive Summary

One of the core responsibilities of the Department of Veterans Affairs (VA) involves providing health care services to eligible Veterans. Although VA has traditionally carried out its health care role primarily by operating a national network of hospitals and other facilities, the agency also administers a purchased care function through which it pays for health care services from outside providers. VA's purchased care function has evolved primarily to address situations in which VA's direct-care resources are unable to offer needed services to Veterans. Moreover, the function is bounded by the fiscal context of a discretionary VA health benefit funded by a limited annual budget appropriation.[2] Although purchased care has accounted for only a small fraction of VA's health care budget over the past decade, that fraction is growing. In the wake of the recent crisis in access to care through VA facilities, stakeholders and policy-makers are revisiting the role and performance of VA purchased care. Specifically, they are considering whether modifications to VA's purchased care approach might be desirable, given broader goals of expanding access to care, enhancing trusted partnerships, and improving VA operations to deliver seamless and integrated support for the health of Veterans.

The Veterans Choice Act and the assessment mandate for this report were passed into law in the summer of 2014. Broadly, the act represented a congressional response to an acute access crisis in Phoenix and other parts of the country. In some important respects, the Veterans Choice Act spotlighted purchased care both as a device for ensuring Veterans' access to services and as a focal point for policy-makers' attention moving forward.

The assessment mandate for this report was established specifically by Section 201(a)(1)(C) of the Veterans Choice Act. That mandate called for a study to address "[t]he authorities and mechanisms under which the Secretary may furnish hospital care, medical services, and other health care at non-Department facilities, including whether the Secretary should have the authority to furnish such care and services at such facilities through the completion of episodes of care."

Purpose and Methods

The purpose of this report is to respond to the assessment questions posed by Section 201(a)(1)(C) of the Veterans Choice Act. In particular, we describe the legal authorities and operating mechanisms by which VA carries out its purchased care activity, related challenges and opportunities for VA, and insights regarding the question of whether the Secretary should have more, less, or different authority for purchased care than he or she currently has today. In addition, given the explicit language of the assessment mandate, we also evaluated VA's authority to purchase episodes of care and the relevance of "episodes" in VA's approach to the outsourcing of health care services.

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[2] As we discuss in the body of this report, the fiscal context for VA purchased care changed somewhat with the implementation of the Veterans Choice Act, particularly given the $10B appropriation for the Choice program that was made under the act.

Our research methods included a review and analysis of statutory, regulatory, and legislative history materials, as well as VA policy materials and related commentaries and guidance documents; a review of relevant secondary literature, commentary, and prior studies pertaining to VA's purchased care activity; consultation and interviews with expert stakeholders within VA and in relevant outside organizations and agencies; a forward-looking analysis of potential changes to VA authority; a survey of VA health care facilities; and the solicitation and analysis of local-level VA policy documents.

Findings

VA Has a Complex Set of Authorities to Purchase Care, Reflecting Tension Among Implicit Aims

Prior to the passage of the Veterans Choice Act in 2014, the Secretary of VA held long-standing authority to purchase care, scattered across many statutory and regulatory provisions. Although the basic grant of authorities to the Secretary is expansive in some respects, it is not unlimited. It involves significant controls on when, how, and for whom medical care may be purchased. These controls implicitly reflect several competing aims beyond simply making outside care available, including restricting costs and maintaining a balance between VA's provider and payer functions. In sum, not only are VA's authorities for furnishing purchased care complex and scattered, but they also embody more than one aim, and those aims operate in tension with each other.

In a related vein, the answer to whether the Secretary should have more or different authorities for purchased care is, it depends. More explicitly, it depends on what policy-makers most want to accomplish through purchased care in the future. Different objectives for purchased care reform could easily lead to different conclusions about the need for revision to existing authorities.

The Episode of Care Defines the "Unit" of VA Authorization and May Help Shape Purchased Care in Practice

In Section 201(a)(1)(c) of the Veterans Choice Act, Congress posed the question of whether the Secretary should have the authority to furnish care at non-VA facilities through the completion of "episodes of care." The authorities for purchasing care tie into episodes primarily through program requirements for authorization (for example, as specified under the Veterans Choice Act). However, in principle, an episode conceptually bounds a clinical problem for which a Veteran might require outside services, so it might therefore make sense to outsource care as a coherent "unit." Future refinements in defining episodes of care, and an authority framework that allows the Secretary to adopt such refinements, may be critical to supporting VA's adoption of bundled payment and value-based purchasing mechanisms in the future.

The Purchased Care Landscape Is in the Midst of Transformation

As of this writing (in summer 2015), numerous changes to VA's authorities and mechanisms for purchasing care were being proposed, planned, or implemented. These developments included new administrative pilots for administering the Choice and Patient-Centered Community Care (PC3) initiatives, modifications to the eligibility criteria under Choice, revisions to VA's procurement authority for purchased care, the extension of the Choice program and reallocation of funding, and the consolidation of existing purchased care mechanisms and initiatives under a unified programmatic umbrella. With these facets of purchased care authorities and practice in flux, the full landscape of VA purchase care is not just complicated, but dynamically so. Moreover, while the proposed policy changes seek to address many different problems and issues, their sheer multiplicity suggests the drawbacks of a piecemeal approach and the lack of guiding orientation and strategy for VA's purchased care enterprise as a whole.

Recommendations for Purchased Care

Overall Strategy

Define a Strategy for Purchased Care. Policy-makers and VA should articulate a clear strategy and set of goals for how purchased care should be used and how it fits into VA's broader health care mission. The strategy should also establish benchmarks for success in VA's adoption of purchased care reforms. Specifically, the strategy should provide a foundation and structure for purchased care authorities and procedures, as well as flexibility to support surge needs and Veteran-centered care.

Address Cost Control More Explicitly and Systematically. Existing purchased care authorities have established a set of indirect cost controls through eligibility requirements and other stipulations that limit the use of the discretionary health benefits. VA and policy-makers should address cost control in purchased care explicitly and directly through a more rigorous performance evaluation of existing purchased care contracts, better and more systematic data collection on purchased care costs, and stronger cost-control mechanisms, such as co-pays, deductibles, and utilization review.

Collect Better Data to Accurately Estimate the Demand for and Use of Purchased Care. In addition to strengthening its data collection on purchased care costs, VA should also strengthen its data collection on other aspects of purchased care processes and outcomes. At present, VA lacks systematic data on these various facets of purchased care, particularly at the local facility level. A stronger base of data and analysis could help VA to improve its monitoring of purchased care processes and improve outcomes for Veterans.

Management Structure and Processes

Develop a Stronger Management Structure for Purchased Care and Allocate Responsibility and Authority to the Most Appropriate Levels. VA purchased care activities require improved program management, with responsibilities assigned to organizations at the appropriate level

of VA's administrative hierarchy. For example, referrals should be managed locally, while large contracts (such as those under Choice and PC3) should be managed centrally. VA leadership should issue clear policy and procedural requirements while facilitating appropriate flexibility in the field at the local level.

Evaluate the Third-Party Contractors Administering PC3 and Choice. As the PC3 and Choice programs are fully implemented and continue to grow, VA should establish an ongoing process for evaluating third-party administrator (TPA) performance. VA should also assess the adequacy of the provider networks, the efficiency of claims and other processes, and Veteran experiences with the programs.

Develop Clear and Consistent Guidance and Training on VA's Authority to Purchase Care. Existing VA guidance pertaining to purchased care is scattered, sometimes outdated, and inconsistent in setting clear standards, leaving local facilities to develop their own policies and procedures. VA should create a consolidated manual on purchased care, together with associated training and external messaging that explains VA's authority to purchase care, and that clarifies eligibility standards and processes to both inside and outside audiences.

Ensure That Purchased Care Contracts Include Requirements for Data Sharing, Quality Monitoring, and Care Coordination. VA has limited visibility into the quality of services that it purchases, and related standards and processes for coordinating care between VA and outside providers are inconsistent. To provide better oversight and ensure the high quality of purchased care services, both new and existing purchased care contracts with outside providers and third-party administrators should include appropriate requirements for data sharing, quality-of-care reporting, and care coordination.

Consider Adopting Innovative (but Tested) Ways to Purchase Care. TRICARE and Medicare offer useful lessons in how to purchase care efficiently. VA should consider incorporating some of these strategies, including outsourcing administrative functions and offering performance incentives to contractors.

Authorities and Mechanisms

Eliminate Inconsistencies in Current Authorities and Provide Flexibility for VA to Implement a Purchased Care Strategy. Policy-makers and VA should address and resolve specific points of tension and ambiguity in existing purchased care authorities, such as inconsistent standards for defining an episode of care, the subjective nature of some elements of 38 U.S.C. 1703 (the core statutory authority for VA purchased care), differences in definitions of geographic inaccessibility and wait time, and the conflict between the language and intent of what constitutes a "medical facility" for applying the 40-mile rule under Choice. Congress and VA should also consider the more ambitious step of simplifying purchased care authorities and mechanisms generally, such as by seeking to consolidate and harmonize them. At least in principle, such a step could help reduce the complexity and ambiguity now associated with purchased care authorities and mechanisms.

Revise How Episodes of Care Are Defined to Better Accommodate Veterans' Needs. Under the Veterans Choice Act, VA is obligated to allow Veterans who use the Choice program to seek

outside services through the completion of an episode of care, "but for a period not in excess of 60 days." The legal requirement for a fixed-term reauthorization of an episode runs contrary to evolving clinical practices and standards in the broader health care community. A revision of this authority could help improve the monitoring and coordination of episodes of care while reducing the administrative burden on VA staff and Veterans.

Adopt a Consistent Strategy for Reimbursement Rates Across Purchased Care Initiatives. Building VA purchased care networks in certain regions of the country may be difficult because some providers may not accept reimbursement rates at or below the rates set by Medicare. Current authorities generally set upper bounds on provider reimbursement rates but do not establish a floor. To address these types of reimbursement problems, we recommend that VA and policy-makers adopt a coherent strategy for setting reimbursement rates across VA purchased care initiatives, balancing cost and access considerations. In setting reimbursement rates, VA mechanisms and contracts for purchasing care should reflect the reality of local competitive market conditions.

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PART I: Introduction and Methods

This report is divided into three main parts. Each part is composed of several sections, which together address a common topic.

Broadly, this report summarizes the findings of a congressionally mandated study of U.S. Department of Veterans Affairs (VA) purchased care, responding specifically to three basic questions posed by Congress:

- What authorities and mechanisms does VA have to purchase care?
- Does VA have the appropriate authorities and mechanisms to purchase care?
- Should VA have the authority to purchase care through the completion of episodes of care?

In answering these research questions, we undertook an extensive investigation of VA's current authorities and mechanisms for purchasing care, as well as of potential changes and alternative models that stakeholders and policy-makers might consider in the future. Parts II and III of this report deal with the current landscape and future possibilities for VA purchased care, respectively.

Part I of this report offers an introduction to our assessment task and to our methods of research and analysis in carrying out this study. We provide here an overview of the broader context of our research and mandate, including how purchased care fits into the larger health care mission, organization, and recent history of VA. We also discuss the message, audience, and purpose of this report.

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1 Introduction

One of VA's core functions involves providing health care services to eligible Veterans. Although VA has traditionally carried out this role primarily by operating a national network of hospitals and other facilities, the agency also administers a purchased care function, through which it pays for health care services from outside providers. VA purchased care evolved primarily to address situations in which VA's direct-care resources were unable to offer needed services. Although purchased care has accounted for only a small fraction of VA's health care budget over the past decade, that fraction is growing. In the wake of the recent crisis in access to care at VA facilities, stakeholders and policy-makers are now revisiting the role and performance of VA purchased care. Specifically, they are considering whether modifications to VA's purchased care approach might be desirable, given broader goals of expanding access to care, enhancing trusted partnerships, and improving VA operations to deliver seamless and integrated support.

The Veterans Choice Act and the assessment mandate for this report were passed into law in the summer of 2014. According to some commentators, the act was a congressional response to misconduct and mismanagement in the VA health care system, in which delayed access to services was allegedly associated with the deaths of dozens of Veterans and falsified wait-time data collected at the VA medical center (VAMC) in Phoenix, Arizona.

The access crisis in Phoenix and other parts of the country led Congress to require a series of corrective actions under the Veterans Choice Act. Perhaps most notably, the legislation established the new Choice program, an initiative to increase access to purchased care for eligible Veterans who met new enrollment, wait-time, and driving-distance criteria. Another major provision of the Veterans Choice Act served to reorganize payment authority and budgeting for purchased care, shifting responsibility from VAMCs to the Veterans Health Administration's (VHA's) Chief Business Office. Both measures under the act reflect policy-makers' view of purchased care as an important tool for ensuring comprehensive access to medical services by Veterans.

1.1 Objective of This Report

Pursuant to Section 201(a)(1)(C) of the Veterans Access, Choice, and Accountability Act of 2014, Congress mandated an independent assessment of VA, specifically to address "[t]he authorities and mechanisms under which the Secretary may furnish hospital care, medical services, and other health care at non-Department facilities, including whether the Secretary should have the authority to furnish such care and services at such facilities through the completion of episodes of care."

The first clause of the assessment mandate broadly addresses the legal and policy contours under which VA is empowered to provide health care services at non-VA facilities. We interpreted the phrase *health care at non-Department facilities* as synonymous with *purchased care*—or actions taken by VA to pay for outside medical services for Veteran beneficiaries, rather than providing service directly through VA-employed or VA-contracted providers and at

VA-owned or VA-contracted facilities.[3] Although the language of the Veterans Choice Act mandate could be interpreted more broadly to encompass other aspects of VA practice related to the delivery of health care services, such as facility leasing, the primary focus of this assessment is on purchasing health care for Veterans from non-VA sources and on the authorities and mechanisms that support this practice.

The second clause of the assessment mandate asks whether the VA Secretary should have the authority to furnish health care services at non-VA facilities through the completion of episodes of care. At present, VA has established a patchwork of policies, programs, and mechanisms to furnish health care at non-VA facilities. Thus, for this assessment, we were asked to assess the various elements of the purchased care system and to envision what the array of laws, programs, and policies might look like in the future. The language of the Veterans Choice Act mandate asks a forward-looking, normative question about VA authority and implicitly invites comment on an array of potential policy changes to the VA purchased care landscape. The mandate also invites specific comment on *episodes of care* and their relationship to other aspects of VA authority and purchased care in practice.

One additional aspect of the assessment mandate deserves particular note: the focus on authorities and mechanisms. We interpret *authorities* to refer to the statutory and regulatory framework that empowers VA to purchase care, while we interpret *mechanisms* to refer to uncodified VA policies and to the actual practice by which VA carries out its purchased care activity. In essence, the mandate involves addressing several basic research questions about purchased care:

1. What authorities and mechanisms does VA have to purchase care?

2. Does the Secretary have the appropriate authorities and mechanisms to purchase care?

3. Should the Secretary have the authority to purchase care through the completion of episodes of care?

1.2 Historical Evolution of VA Purchased Care

The landscape of VA purchased care authorities is complex, largely because the act of purchasing medical services is inherently complicated. Purchasing care minimally involves screening Veterans to determine when outside referrals for services may be appropriate, initiating those referrals, and establishing contractual relationships with outside providers. It also involves defining the scope of authorization for outside care in specific situations, monitoring the services provided, sharing records appropriately and coordinating care with non-VA providers, and paying claims for outside services. VA purchased care does not involve

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[3] Note that *purchased care*, as we define it here, may also include actions taken by VA to obtain services from outside care providers at non-VA facilities without directly paying for them, as through strategic resource-sharing arrangements between VA and the U.S. Department of Defense (DoD). With this being said, much of our focus is specifically on VA's role and authority as a payer for outside services. Hence, we use *purchased care* as an umbrella term in describing the scope of this assessment.

just a single function and mechanism, but rather a whole series of interlocking ones. For the system to operate effectively, all the parts must work together efficiently and consistently.

As shown in Figure 1-1, VA has had the core statutory authority to purchase care for decades. We characterize this authority, originally established by what is currently 38 U.S.C. 1703 and programs enacted thereunder, as *traditional purchased care*. Over the years, VA has purchased inpatient and outpatient services through a mix of individual authorizations and contracts with outside providers at external facilities. As with health care services provided through VA directly, purchased care has evolved to cover both service-connected conditions and non–service-connected conditions. There was a similar expansion in coverage with regard to the purchase of or reimbursement for emergency care services. In part as a response to the recent conflicts in Iraq and Afghanistan, VA has been compelled to apply and refine its purchased care tools to meet increased demand. For example, in 2001, Project HERO (Healthcare Effectiveness through Resource Optimization) was instituted as a pilot program designed to enhance the coordination of care delivered by both VA and external providers. Project ARCH (Access Received Closer to Home) was originally fielded as a pilot program to increase the coordination and cost-effectiveness of care provided to rural Veterans, and the pilot was continued under the Veterans Choice Act. PC3 (Patient-Centered Community Care, sometimes referred to as PCCC) was subsequently created to further expand access and was based on lessons learned from the prior pilot programs.

Figure 1-1. Timeline of VA Purchased Care Mechanism Development
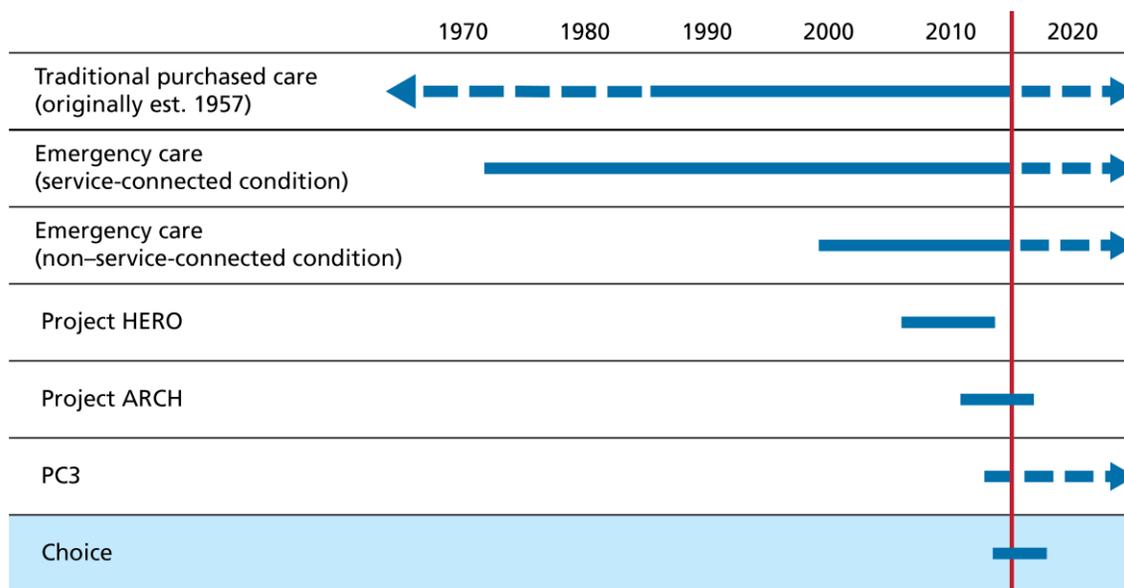
NOTE: Dashed arrows indicate mechanisms established prior to the start of the figure's timeline or anticipated to continue indefinitely. The vertical red line indicates when this analysis took place (2015).

Each of the multiple VA purchased care programs and initiatives that exist today has different criteria for Veteran and provider eligibility, different guidelines for VA discretion to furnish

care,[4] and different rules governing payment. Table 1-1 compares four primary mechanisms involved in providing purchased care.

Table 1-1. VA Purchased Care Rules for Eligibility, VA Discretion, Providers, and Payment

Feature	Traditional VA Purchased Care	ARCH	PC3	Choice
Eligibility	VA not able to furnish necessary care (per 38 U.S.C. 1703)	Driving time to VA facilities (pilot sites only)	VA not able to furnish necessary care	Wait time, geographic distance to VA facilities
Does corresponding authority *permit* or *compel* VA to furnish care at non-VA facilities?	"may"	"shall"	"may"	"shall"
Providers	Contract/ agreement	Network	Network	Medicare-eligible[a]
Typical Reimburse-ment rate	VA fee schedule, Medicare rate, or contracted rate	% of or full Medicare rate	% of Medicare rate	% of Medicare rate

[a] Health care providers from DoD, the Indian Health Service (IHS), and federally qualified health centers (FQHCs) would also be qualified under Choice.

Unsurprisingly, the multiplicity of mechanisms and programs in purchased care has sometimes created confusion and inefficiency. Although a single purchased care provider might deliver care through more than one of these mechanisms, the corresponding reimbursement rates, requirements for record sharing, and other conditions of participation vary by mechanism.

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[4] Some VA authorities specify that VA *shall* furnish care, while others specify that VA *may* furnish care. In this context, *shall* represents VA authority and a congressional mandate to provide or pay for the care required, as long as the eligibility criteria are met. *May* implies greater discretion on VA's part, in that VA has the authority to furnish the necessary care but not a specific mandate to do so.

Individual Veterans may be eligible to receive purchased care through multiple mechanisms. For Veterans and VA staff, determining the appropriate route to access purchased care is sometimes difficult. Referring VAMCs must select from among these options according to one or more goals, including optimizing ease of access, lowering costs, leveraging preexisting contractual relationships with providers, and optimizing Veteran choice.

1.2.1 Purchased Care Continues to Evolve

As of this writing (in summer 2015), about 10 percent of VA's annual health care budget went to purchased care. VHA's Chief Business Office estimated that purchased care costs in fiscal year (FY) 2014 totaled $5.6 billion, after steady and significant increases year after year (Figure 1-2; VA, 2014c). Other VA sources have provided different estimates of purchased care expenditures during this time frame, with VA Deputy Secretary Sloan Gibson testifying before the Senate Veterans' Affairs Committee on May 12, 2015, that VA had spent more than $8.5 billion on purchased care in FY 2014 (Exploring the Implementation and Future of the Veterans Choice Program, 2015). The difference in these estimates is likely because Deputy Secretary Gibson included Civilian Health and Medical Program of Veterans Affairs costs in his totals. Using another metric of purchased care utilization, Deputy Secretary Gibson noted that Veterans completed 55.04 million appointments at VA facilities and 16.2 million appointments in the community (through purchased care) in FY 2014 (Exploring the Implementation and Future of the Veterans Choice Program, 2015).

Figure 1-2. Growth in VA Purchased Care, FYs 2002–2014
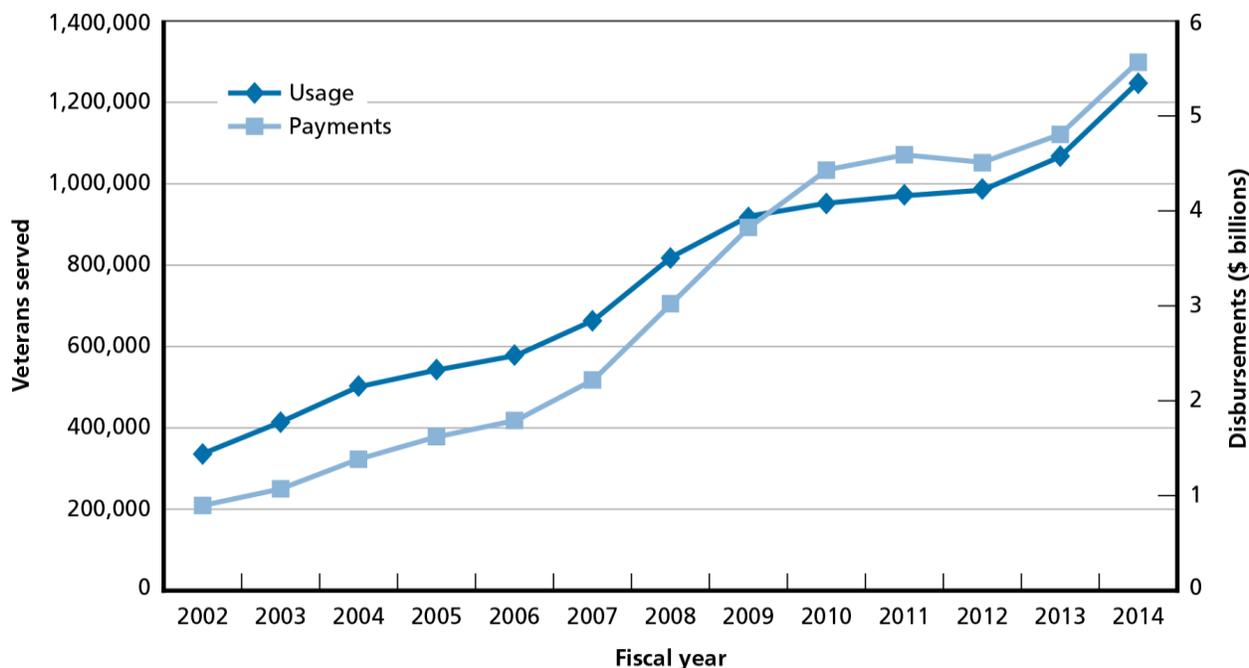
SOURCE: Data obtained through a request to the VHA Chief Business Office, May 12, 2015, and originally derived from VA Central Office fee payment files.

Rising expenditures over the past decade reflect only one of the ways in which purchased care has evolved. The research for this assessment began in November 2014. Since that time, there have been major changes to VA's authorities and mechanisms for purchasing care. For example, as required by the Veterans Choice Act, VA mailed "Choice Cards" to Veterans to seek care in the community, reorganized the VHA Chief Business Office, and consolidated the purchased care budget. In addition, in April 2015, VA promulgated a revised regulation that changed its interpretation of the access standard used to determine Veterans' eligibility for the Choice program from a geodesic line to driving distance using the fastest route (VA, 2015d).[5] This roughly doubled the number of Veterans eligible to receive care in the community under the Choice program (Exploring the Implementation and Future of the Veterans Choice Program, 2015).

This assessment represents the status of VA purchased care as of early in 2015. There were many changes to the purchased care landscape that were implemented, planned, or proposed while we were writing this report. The changes to the Veterans Choice Act mentioned above were just a few examples. Throughout this report, we have attempted to incorporate and address the most recent developments in purchased care authority and mechanisms as of May 2015.

1.3 Overview of VA Purchased Care Funding

Beyond the programs and mechanisms of VA purchased care, it is also helpful to recognize that purchased care is bounded by some basic features of VA's structure as an agency. Perhaps most important, VA health benefits are notably *not* a legal entitlement or a benefit to which Veterans are automatically entitled and for which the government must pay. Rather, Veterans may obtain VA health care services according to a priority scheme for eligibility established by Congress.[6] In addition, VA's capacity to provide health care benefits is limited by its annual appropriations allocated by Congress.[7] As such, VA's health care mission involves not only providing health care services with "integrity, commitment, advocacy, respect, and excellence"[8] but also doing so while simultaneously keeping expenditures under a restrictive resource ceiling.

This basic funding reality for VA's health care operations is central to understanding purchased care. One historical implication is that dollars spent on purchased care by local VA facilities have sometimes been viewed as a direct offset to funding available for other local health care purposes. From this perspective, purchased care may sometimes involve a resourcing trade-off against strengthening the capacity of VA's own provider facilities. While this is beyond the focus

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[5] We discuss this change in more detail in Section 3 of this report.

[6] We describe the priority scheme for enrollment for health care benefits in Appendix E of this report.

[7] As we discuss in Section 3, funding for purchased care in particular shifted somewhat with the Veterans Choice Act, which established a specific reserve of $10 billion to cover costs associated with the Choice program established by the act.

[8] These are the five core values articulated by VA as an implicit part of its mission statement (VA, 2014b).

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of this report to address in depth,[9] for stakeholders concerned with VA health care more broadly, the potential for a resourcing trade-off between VA direct care and purchased care is an important consideration for the future.

Another implication of VA's funding constraint is that some of the basic features of purchased care are implicitly tied to limiting spending. Such features include eligibility and authorization requirements for purchased care, Veteran co-pays, requirements for outside provider reimbursement rates, and restrictions on who can participate as an outside provider.[10] Collectively, these have the effect of giving VA more control and influence in restricting purchased care expenditures. Achieving an optimal balance between access and quality on one hand and cost control on the other presents a fundamental challenge for VA in purchased care.

The discretion to purchase care has traditionally resided with VA rather than Veterans. This has changed somewhat under the new Choice program, which confers more power on eligible Veterans to elect to pursue purchased care, as well as a direct mandate for VA to pay for that care when wait-time or driving-distance criteria are met. Together, these features of the Choice program are likely to enhance access, but with the implicit trade-off of reducing VA control over related expenditures.[11] Here again, purchased care involves striking a balance between the competing aims of enhancing Veteran choice and access and containing related costs.

All of these considerations spotlight the importance of VA's funding context in shaping the operation of purchased care. Purchased care fulfills a limited function within VA's health care mission, and it does so primarily through discretionary funding from Congress. Recent changes to purchased care under the Veterans Choice Act invite some reflection on this context, and on how changes to the context might influence the balance between access, choice, and cost containment in the future.

1.4 Scope of This Report

The contents of this report adhere closely to the assessment mandate posed by Congress in Section 201(a)(1)(C) of the Veterans Choice Act. To address components of that mandate, we undertook a broad investigation of VA purchased care authorities, policies, and mechanisms.

Authorities and *mechanisms* are terms drawn directly from the assessment mandate in Section 201(a)(1)(C) of the Veterans Choice Act. We interpret each of these terms in accordance with its plain meaning and in view of the act's objectives. Here again, a*uthorities* refers broadly to federal law, the powers and responsibilities delegated by Congress to the Secretary, and formal rule-making undertaken by the Secretary, consistent therewith. *Mechanisms*, by contrast, is a

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[9] Note that a separately mandated assessment under the Veterans Choice Act is addressing issues of VA health care capacity, and focuses more directly on this particular issue.

[10] We discuss these features in more detail in Sections 3, 4, and 7 of this report.

[11] Regarding the latter point, it is noteworthy that the Veterans Choice Act established a $10 billion funding pool for benefits under the Choice program. Thus, although the congressional mandate for Choice program benefits has the effect of reducing VA's control over costs, the budget mechanism and additional resourcing serve to balance that.

less formal term. We construe mechanisms to include (uncodified) VA programs and initiatives, VA guidance documents and policies, and VA operating practices for furnishing purchased care. Generally speaking, mechanisms are not formally codified by law and regulation, but they nevertheless reflect VA practice and VA's efforts to furnish purchased care consistent with the framework established by formal authorities. Both concepts are central to understanding the landscape of VA purchased care.

Although we describe laws and regulations pertaining to VA purchased care in detail in Sections 3 and 4 of this report, it is important to emphasize that this report is not intended to offer an academic review of the law or a legal treatise.[12] Rather, this report was written for a broader policy audience (including Congress and VA, as well as other interested stakeholder groups) and in direct response to the assessment mandate in Section 201(a)(1)(C) of the Veterans Choice Act. VA purchased care is a complicated topic, and a discussion of the statutory and policy issues surrounding VA purchased care requires an understanding of the legal framework that defines it. However, the law also reflects an underlying set of policy objectives and economic relationships that are the substance of purchased care, both as it exists today and as policy-makers might choose to refashion it in the future. This report aims to speak to this broader policy context, not just the legal aspects of it.

It is equally important to highlight what is beyond the scope of this report. As we noted earlier, the assessment mandate of Section 201(a)(1)(C) refers to the phrase "care at non-Department facilities." For the purposes of this report, we interpret this phrase as being largely synonymous with purchased care. However, the same phrase could be interpreted in other ways. VA facility leasing, for example, involves "care at non-Department facilities."[13] Likewise, it could also include VA's long-standing collaborative relationship with DoD to provide health care services to Veterans. Although we do touch on the latter topic in some parts of this report, we do not address it at length. VA and DoD have a unique, long-standing collaborative relationship that has been the subject of intense scrutiny and comment elsewhere (see, for example, Military Compensation and Retirement Modernization Commission, 2015).

More generally, VA purchased care authorities and policy are closely tied to many other aspects of VA's health care mission, structure, and operations. For example, the types of health care services purchased by VA are implicitly determined by the contours of the agency's health care benefit, since the latter defines the services that Veterans may be eligible to receive. Likewise, Veterans' ability to obtain purchased care services is contingent on initial eligibility to receive VHA benefits. Other examples of collateral features that have some relevance to purchased care include the anatomy of VA's national infrastructure of health care facilities, the structural and command relationship between VA's local facilities and its regional and national

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[12] It is also important to underline that this report does not offer formal legal advice to VA or to Congress. Formal legal advice can only be given by licensed attorneys operating within the scope of their professional practice in response to legal consultation sought by a client. The RAND Corporation is not a law firm and is unable to give formal legal advice. If the sponsors of this report would like to receive legal advice, they would need to consult internally with their own counsels or seek assistance from an independent law firm.

[13] VA facility leasing is a focus of other assessment mandates in the Veterans Choice Act in Section 201(a)(1)(K) and (a)(2)(B).

administrative offices, and the composition and evolution of VA's internal provider capabilities. We do not address these ancillary aspects of VA in much detail in this report, though they do shape the VA purchased care landscape in various ways. Some of these topics are addressed by other mandated assessments under the Veterans Choice Act.

One additional scoping note deserves particular mention here. Veterans' eligibility for health benefits, broadly construed, is outside the scope this report to address. However, VA's purchased care authority does involve an important interaction with Veteran eligibility: the Secretary's discretion to purchase services when VA facilities are unable to provide those services directly versus the Secretary's obligation to provide care to specific categories of Veterans as designated by statute.[14] In Section 3 of this report, we discuss the tension between these two basic authority provisions and the implications for actual practice in VA purchased care.

1.5 Organization of This Report

This report is organized into three parts. Part I includes this introductory section and an overview of our study methods (Section 2). Part II focuses broadly on authorities and mechanisms for VA purchased care and includes sections on these authorities and mechanisms prior to and since the passage of the Veterans Choice Act (Section 3) and in practice (Section 4), along with a discussion of procurement and episodes of care (Section 5) to help frame a strategy for VA purchased care going forward. The report concludes with Part III, which examines potential reforms to VA purchased care practice (Section 6) and alternative government payer models (Section 7); it also presents our overall conclusions and recommendations (Section 8). This report includes five technical appendixes providing additional background and detail on rates of VA purchased care utilization and authorizations (Appendix A); statutory and regulatory authorities for the provision of VA purchased care (Appendix B); characteristics of the policy documents received through our request for data on VA purchased care in practice at the local level (Appendix C); pertinent questions included in the 2015 Survey of VA Capabilities and Resources that was fielded to all VAMCs, as well as data on responses to those questions (Appendix D); and VA health benefits and priority groups, to provide a fuller picture of the context in which VA purchased care mechanisms operate (Appendix E).

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[14] We refer here to 38 U.S.C. 1703 and 1710, respectively. See the discussion in Section 3 of this report.

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2   Methods

Consistent with the assessment questions posed by Congress, our research methods included statutory, regulatory, and legislative history research and analysis. We supplemented this analysis with a review of the published literature, including commentary and prior studies of VA's purchased care activity, consultations and interviews with expert stakeholders representing VA and other agencies and organizations, a review of local-level VA policy and procedural documents, and a survey of VA facilities. Section 2 reviews each of these approaches in more detail.

2.1   Statutory, Regulatory, and Legislative History Research and Analysis

The primary research methodology involved cataloging and analyzing statutes and regulations related to VA purchased care, along with associated legal commentary and cross-references from those materials. Much of the authority for VA purchased care appears in various provisions in Title 38 of the U.S. Code, while corresponding regulations appear in Title 38 of the Code of Federal Regulations. We conducted an initial review of these primary legal sources to identify the provisions that were relevant to this assessment; we then used the themes drawn from these provisions to structure our analysis of VA purchased care authorities in Section 3. We also reviewed and analyzed the relevant provisions under the Veterans Choice Act. Where appropriate, we consulted legislative history materials to better understand the interpretation and intentions of Congress with regard to the Veterans Choice Act and relevant pieces of legislation affecting how VA furnishes purchased care. We also searched and reviewed relevant case law.

2.2   Review of Relevant Published Literature

Beyond our direct research on statutes and regulations, we also reviewed the published literature on VA's purchased care authorities and programs. Specifically, we searched for pertinent reports published by the U.S. Government Accountability Office (GAO), the Congressional Budget Office, and the Congressional Research Service; by previous independent commissions and panels that have studied or commented on VA purchased care practices; and by entities within VA, including the central offices, VHA, and the Office of Inspector General. We also sought to identify, retrieve, and review copies of all publicly available VA policy documents pertaining to purchased care, including directives, manuals, and guidance documents. Finally, our review considered findings published in scholarly papers and commentaries, which we accessed through several databases, including PubMed and the Index to Legal Periodicals.

2.3   Interviews with Expert Stakeholders

To construct a more complete picture of VA policies and mechanisms pertaining to purchased care in practice, we conducted a series of interviews and background discussions with a range of VA personnel and representatives from other stakeholder groups. Interviews were formal

meetings during which we asked questions informed by prior background discussions with other stakeholders. These meetings were guided by research protocols and formal consent documents. Interviewees were informed that their responses would not be attributed to them in any way. Interview questions probed stakeholders' professional experiences with and perspectives on VA purchased care authorities and mechanisms. Background discussions were informal meetings and were not guided by research protocols. These discussions, which focused on basic facts and the structure of VA purchased care authorities and mechanisms, were used to inform the development of research protocols for the formal interviews.

Interviewees included VA officials and administrators spanning a variety of offices at VA headquarters, as well as senior officials at VAMCs and Veterans Integrated Service Networks (VISNs). Outside of VA, we spoke with representatives from seven Veterans Service Organizations (VSOs); officials with the third-party administrators (TPAs) responsible for administering the PC3 and Choice programs; subject-matter experts from the Congressional Budget Office, the Congressional Research Service, GAO, and other organizations; and congressional staff of several committees with responsibility for Veterans' affairs. Within these varied categories, we selected interviewees who had considerable familiarity with and expertise on the issues surrounding VA purchased care, drawing on our own prior knowledge and familiarity with these stakeholders and on the recommendations of the respondent organizations and interviewees themselves. Although we make no claims about the representativeness of the opinions proffered by our interviewees, we made a concerted effort to talk to a diverse selection of individuals with expertise on the issues pertaining to this study and ensured that we spoke to individuals who would have differing perspectives and opinions.

Over the course of several months, we conducted a total of 41 conversations with both individual stakeholders and small groups. These interviews were both telephonic and in person. The majority of interviews were one hour in length, though a small number were conducted in conjunction with Assessment B (Health Care Capabilities) and thus were slightly longer. Of those, 11 were background discussions with subject-matter experts and VA officials that served to increase our knowledge of the subject material and help refine our formal interview protocols. The remaining 30 were formal interviews.[15] Because many of these conversations were with small groups of interviewees, we ultimately collected input and insights from more than 50 individuals. Recognizing the methodological risks of overreliance on a relatively small sample of qualitative interviews, we bolstered our utilization of these data through triangulation with a variety of other qualitative and quantitative methods, as described elsewhere in Section 2.

2.4 Review of the Secretary's Authorities

To investigate the authority implications associated with a range of different possible future changes to purchased care, we employed a method derived from scenario analysis. Starting from a set of potential objectives that VA and Congress might bring to changing purchased care, we defined a series of illustrative *implementing steps* that they might choose to pursue, which

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[15] RAND's Human Subjects Protection Committee approved this research.

are broadly responsive to one or more of these objectives. We then analyze the implications for authority—specifically, the need for legislative action, formal rule-making by VA, or revisions to VA guidance or policy documents—for each potential implementing step. The objectives and implementing steps were developed through discussions with a panel of experts, as well as through a review of the literature and from interviews with stakeholders.

2.5 Review of Local VA Policy Documents

As described in Assessment B (Health Care Capabilities), VA health care facilities are overseen by overlapping management structures. At the basic level, VA's 21 VISNs manage all resources within their service areas. On top of that, "administrative parents" oversee clusters of health care facilities. We requested policy documents related to purchased care from all of VA's 141 administrative parents, a management mechanism responsible for care in a group of health care facilities.[16] We specifically requested written documentation (i.e., policies or guidance) on when, how, and for whom VA purchased care is contracted at the local, facility level (as distinct from national-level policies). We clarified that the purpose of the request was to understand local variation in the implementation of national policy. In response to our solicitation, we received a total of 664 files from 78 VAMCs and one VISN (see Figure 2-1).

Figure 2-1. Local Purchased Care Policy Documents Received
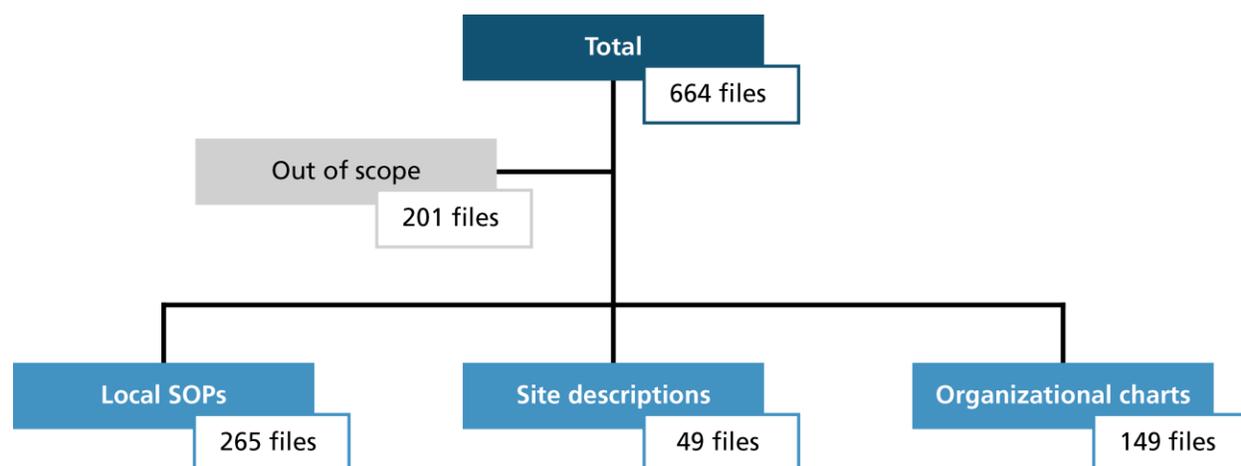
NOTE: SOP = standard operating procedure.

We reviewed and categorized the documents we received into three categories: (1) descriptions of SOPs related to purchased care (n = 265), (2) detailed VAMC site descriptions (n = 49), and (3) organizational charts (n = 149). We did not receive any policy documents from

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[16] According to VHA Handbook 1006.02, *VHA Site Classifications and Definitions*, an administrative parent is defined as a collection of all the points of service that a leadership group (medical facility director, deputy medical facility director, chief of staff, associate or assistant director, and nurse executive) manages. The points of service can include any institution where health care is delivered. All the data originating from these points of service roll up to a single station number representing the administrative parent for management and programmatic activities (VA, 2013b).

22 of the VA administrative parent organizations to which the data request was issued. The overall response rate to the request was 86 percent. We calculated response rates for each of the document categories, with 49 percent for SOPs, 30 percent for site descriptions, and 67 percent for organizational charts.

Not all of the policy documents were dated, but among those that were (205 of the 664 total documents), the vast majority predated the August 2014 passage of the Veterans Choice Act and the November 2014 establishment of the Choice program. Those dates ranged from January 2008 to April 2015, with the majority issued in 2012 and 2013. Moreover, the bulk of the documents issued after the establishment of the Choice program were quite short and less useful for describing variations in key policies, processes, and SOPs pertaining to purchased care. For instance, many were simply one-page documents containing screenshots showing how to enter a purchased care consult request into various computing systems, with little or no accompanying text.

To assess the local policy documents, we coded the SOPs received by the following criteria: date; their level of detail in describing VA purchased care policies and procedures; number of pages; terminology used to refer to a non-VA care provider; authorities cited; level of detail; whether they encouraged the use of VA purchased care, or, alternatively, staying within the VA system; which VA staff were listed as responsible for various steps in the VA purchased care referral and authorization processes; and whether and to what extent they discussed "episodes of care." We then used the themes extracted through this coding exercise to draw preliminary conclusions about how purchased care decisions are made at the local level. Additional detail on our request for data and our assessment of the documents received is provided in both Section 4 and Appendix C of this report.

2.6 Survey of VA Capabilities and Resources

The 2015 Survey of VA Capabilities and Resources was fielded as part of RAND's assessment in response to the mandate in Section 201(a)(1)(B) of the Veterans Choice Act (Assessment B, Health Care Capabilities). The survey was designed to identify clinically meaningful delays in care for seven illustrative clinical populations and for primary care more generally. The survey's sample frame was all of VA's 141 administrative parents (again, local health care systems with at least one hospital and its affiliate clinics), and the field period for the survey was two and a half weeks (May 7–26, 2015).

Assessment C included seven questions in the survey. Three of these questions concerned referrals for VA purchased care, two asked about how episodes of care are defined in practice, and two asked about various internal processes and practices at the VAMC level (including data collection) and the use of the Non-VA Care Coordination (NVCC) program. Response options varied, with two yes/no questions, two questions asking about the frequency of various practices, one question asking respondents to rank the options by importance, and two questions asking the respondent to select the best answer among several provided responses. Each question also included a small comment box in which the respondent could elaborate on his or her answer. Additional details of the survey's fielding, full text of the survey questions pertaining to purchased care, and response data are presented in Appendix D of this report.

We received survey responses from 117 out of 141 administrative parents—an 83-percent overall response rate.[17] However, several respondents chose to exit the survey before answering every question, leaving 111 respondents answering those questions pertaining specifically to Assessment C (a 79-percent response rate). In analyzing survey responses, we explored respondents' estimates of the frequency of referrals to purchased care, as well as the reasons for these referrals. We also assessed respondents' feedback about their knowledge of and experiences with episodes of care and electronic record sharing.

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[17] VHA Handbook 1006.02 defines an administrative parent as "collection of all the points of service that a leadership group (Medical Facility Director, Deputy Medical Facility Director, Chief of Staff, Associate or Assistant Director, and Nurse Executive) manages. The points of service can include any institution where health care is delivered. All of the data that originate from these points of service roll up to a single station number representing the administrative parent for management and programmatic activities" (VA, 2013b, p. 1).

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PART II: Current Authorities, Mechanisms, and Framework for VHA Purchased Care

This part covers three sections: 3. Authorities and Mechanisms for Purchased Care, 4. VA Purchased Care Authorities and Mechanisms in Practice, and 5. Procurement and Episodes of Care. These sections describe the current landscape of purchased care authorities and mechanisms.

These three sections describe the range of authorities and mechanisms for VA purchased care, as well as the strengths and challenges of implementation on the ground. The first section in this part (Section 3) examines features of the laws governing purchased care and the evolution of the various purchased care mechanisms. Its purpose is to offer policymakers a detailed view of the inner workings of VA's purchased care authorities to facilitate understanding of the existing laws. Those descriptions lay the foundation for Part III, in which we discuss possible future authorities and mechanisms for VA's purchased care. Existing authorities were developed over time in piecemeal fashion. Future changes to purchased care authorities should consider the potential detriment of further incremental development without the guidance of a centralized strategy or supporting mechanisms. Section 4 provides a detailed discussion of purchased care mechanisms in practice, derived from analysis of multiple primary data sources collected specifically for this study. The section describes the strengths and shortfalls of purchased care mechanisms and offers findings and recommendations aimed at VHA management and reform. Section 5 concludes with framing material that describes some of the critical elements underlying VA's purchased care authority and mechanisms, including procurement policies, definitions of episodes of care, and the health benefits structure.

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3 Authorities and Mechanisms for Purchased Care

Overview of Methods and Data for Authorities and Mechanisms for Purchased Care

- We traced the history of authorities and mechanisms for VA purchased care through a review of relevant statutes, regulations, VA policies, and associated guidance documents.
- Supporting the legal analysis, we reviewed in detail the provisions of Title 38 of the U.S. Code, and of legislative initiatives governing VA purchased care prior to the Veterans Choice Act. We also reviewed data on purchased care programs implemented prior to the passage of the Veterans Choice Act, including key features of those programs and VA's role thereunder.
- We examined changes to VA purchased care implemented by, and under, the Veterans Choice Act.

Although the Veterans Choice program received considerable attention in 2014 and was considered a novel mechanism for using non-VA facilities and providers to meet Veterans' medical needs, similar authority had already been in place for nearly six decades.[18] Such explicit authority was necessary for acquiring medical services from external providers because VA operates within considerable statutory and regulatory limits. Given that this underlying authority is based on myriad legislative initiatives, each addressing different concerns for different Veteran populations at different times and under different conditions, understanding what is and is not permitted under current law can be a daunting task.

The mandate for this study (Section 201 of the Veterans Choice Act) called for an examination of the "authorities and mechanisms under which the Secretary may furnish hospital care, medical services, and other health care at non-Department facilities." For our purposes, *authority* can be understood partly as the set of statutes passed by Congress, which define, guide and constrain VA purchased care activity.[19] In addition, *authority* also includes regulations promulgated by VA, consistent with its authorizing statutes, which also operate with the force of law. Relevant regulations and rules can also be promulgated by other federal agencies.

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[18] The key legislative foundations for purchased care prior to the Veterans Choice Act are as follows: Veterans' Benefits Act of 1957 (Pub. L. 85-56, Sec. 501); the Veterans Health Care Expansion Act of 1973 (Pub. L. 93–82, Sec. 106); Consolidated Omnibus Budget Reconciliation Act of 1985 (Pub. L. 99–272, Sec. 19012, 1986); the Veterans' Health Care Eligibility Reform Act of 1996 (Pub. L. 104-262); and the Veterans Millennium Health Care and Benefits Act (Pub. L. 106-117, 1999). The use of non-VA facilities and providers actually dates back prior to the original establishment of the agency.

[19] Federal statutes sometimes involve direct mandates to executive branch agencies, and also sometimes involve a delegation of power and discretion to agencies. As we describe in this section, some of the core statutory authorities for VA purchased care involve considerable discretion for the Secretary in determining when and how to apply them. Note that pursuant to *Chevron v. National Resources Defense Council* (467 U.S. 837, 1984) and as a general matter of administrative law, the courts typically defer to a federal agency in the interpretation of its own empowering statutes, so long as the agency interpretation is not unreasonable.

Together, statutes and regulations establish the legal framework within which VA carries out its purchased care functions.

Another important focus of our analysis involves examining the *mechanisms* by which VA carries out its activities in practice. Beyond the formal legal authority embodied in statutes and regulations, VA and other executive branch agencies also exercise considerable interpretive discretion in carrying out their functions on a day-to-day basis. A *mechanism* refers to the specific means by which an agency acts, or intends to act, within the bounds of its authority. For example, a mechanism might involve a program that is created with government facilities, personnel, and funding, such as for the provision of basic medical services through VHA facilities. Some aspects of VA's operating policies and practices are recorded in internal guidance documents, handbooks, or directives that provide direction for staff when carrying out VA business. Other aspects of VA's operating practices may not be written down at all, or may be described through a range of other types of documents of narrowly focused-application, such as a contract entered into by VA with an outside health care provider.

In Section 3, we describe the authorities and mechanisms that have been available to the Secretary for furnishing medical care to Veterans in non-VA facilities and from non-VA providers. We first review those that were in in place prior to the passage and implementation of the Veterans Choice Act. We provide an overview of programs developed in light of such authority, such as the *traditional* approach utilized by VA under 38 U.S.C. 1703 for preauthorized inpatient and outpatient services, reimbursement for *emergency* care provided to Veterans by non-VA resources, certain types of *contracting authorities* that provide VA with the ability to establish formal relationships with certain entities for sharing or purchasing health care resources, the acquisition of *specialized* services or the provision of purchased care to specialized Veteran populations, and four *key initiatives* that have helped shape delivery in the current environment. We then address the Veterans Choice Act*,* attendant changes to VA's authority in this area, and the features of the *Choice Program*. This section concludes by comparing the authority and mechanisms of all of these programs, both before and after the Veterans Choice Act. Additional detail on the legal and regulatory provisions relating to VA purchased care can be found in Appendix B.

We note that over the years, externally provided medical care has been referred to in a number of ways by Congress, VA, and others, under such labels as "Non-VA Outpatient Fee Care," "Non-VA Care Coordination," "Fee Care," "Fee Basis Care," "Purchased Care," "Non-Department Care," "Fee Program," "Preauthorized Care," "Non-VA Care," and "Non-VA Medical Care" (see, for example, VHA Directive 1601, 2013a, p. 1). In this report, we generally refer to externally-provided medical care simply as *purchased care* in the broadest sense to characterize health care professionals and facilities that are not part of VA and the care they provide, regardless of the underlying authority, purpose, or circumstances of such utilization.

3.1 Pre–Veterans Choice Act Authority and Mechanisms

While what constitutes purchased care may seem relatively straightforward, the concept covers a wide-ranging set of circumstances with different goals, mechanisms, and target Veteran populations. For the purposes of this discussion, purchased care available just prior to the

passage of the Veterans Choice Act can be divided into two categories. The first is *broad-based external services*. This type of care is generally available to any eligible Veteran, covers the widest variety of medical and dental services, and can involve treatment in inpatient, outpatient, and emergency settings (though we describe it more fully elsewhere in this Section 3, the Veterans Choice Act's Choice Program is intended to deliver broad-based external services as well). The second category is *specialized external services*. These services involve the use of purchased care resources to address the needs of specific subsets of Veterans, sometimes to provide specialized services available only from selected types of health care providers. While specialized external services can address critical aspects of an individual Veteran's health needs, broad-based external services are most relevant to a discussion of authorities and mechanisms for furnishing care at non-VA facilities if the underlying goal is to increase access for Veterans generally. The following sections provide a brief overview of the authorities for both broad-based and specialized external services, though we generally focuses on the former.[20]

3.1.1 Broad-Based External Services

3.1.1.1 Traditional Authority Under 38 U.S.C. 1703

The core statutory authorities for broad-based external services can be found in the U.S. Code at Title 38, Section 1703, as implemented by VA regulations set forth in the Code of Federal Regulations (C.F.R.) at Title 38, Sections 17.52–17.56. We characterize this authority as that for "traditional purchased care" because it has been the primary means of utilizing non-VA facilities and providers since the late 1950s. VA is authorized under 38 U.S.C. 1703 to contract for medical and dental care when VA facilities are "not capable of furnishing economical hospital care or medical services because of geographical inaccessibility" *or* when VA facilities "are not capable of furnishing the care or services required." If either condition is met, the types of care that can be authorized include the following:

- Hospital care or medical services for the treatment of a service-connected disability, a disability that led to a discharge or release from service, or any disability of a Veteran who has a total and permanent service-connected disability (38 U.S.C. 1703(a)(1))
- Medical services for the treatment of a Veteran with a service-connected disability rated at 50 percent or more, a Veteran who has already received medical care for a disability but requires additional medical services to complete treatment, or certain types of

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[20] It should be noted that we do not treat community-based outpatient clinics as specific providers of non-VA medical care for Veterans. Though such clinics may be owned and staffed by VA or may lease space that is also staffed by VA, some do include contracted facilities and personnel, often provided through a health care management organization. Nevertheless, there are no fundamental restrictions on Veterans obtaining health care services through a community-based outpatient clinic. The Veteran does not have to seek prior authorization nor make any upfront payment of out-of-pocket expenses (at least not for services similar to those received at a traditional VAMC), and all such clinics are affiliated with a specific VAMC in terms of administrative responsibility. As such, we characterize community-based outpatient clinics in the same manner as any other VA medical facility.

Veterans whose medical condition precludes appropriate treatment in VA facilities (38 U.S.C. 1703(a)(2))

- Emergency hospital care or medical services in situations that pose a serious threat to the life or health of a Veteran who is already receiving nursing home care in a non-VA facility or already receiving medical services in a VA facility (38 U.S.C. 1703(a)(3))

- Hospital care for female Veterans (38 U.S.C. 1703(a)(4))

- Hospital care, or medical services in place of hospital care, for Veterans outside of the contiguous 48 states (38 U.S.C. 1703(a)(5))

- Diagnostic services needed to determine eligibility or appropriate course of treatment at an outpatient clinic for medical services in place of hospital care (38 U.S.C. 1703(a)(6))

- Outpatient dental services, treatment, and appliances for former prisoners of war (38 U.S.C. 1703(a)(7))

- Diagnostic services for determining eligibility for a VA benefit or service (38 U.S.C. 1703(a)(8)).

The legislative grant of power to VA to contract with outside providers is broader than it might appear from the granulated categories in the statute. A key provision in the enabling statute is the one that addresses medical services for the treatment of any disability of a Veteran who has already received VA medical care but nevertheless requires additional medical services to complete treatment (38 U.S.C. 1703(a)(2)(B)). What widens the reach of Section 1703 is that the terms *disability* and *medical services* have expansive meanings under Title 38 of the U.S. Code. Under 38 U.S.C. 1701(1), a disability is defined as any "disease, injury, or other physical or mental defect" (rather than the more common conceptualization of an impairment that limits one or more major life activity); thus any Veteran who is already receiving VA medical services for nearly any type of medical condition would clear at least one statutory threshold for external health care provision. Moreover, 38 U.S.C. 1701(6) defines medical services in a very broad way, going beyond examination, treatment, and rehabilitation to include surgical services, dental services and appliances, optometric and podiatric services, preventive health services, and non-institutional extended care services. The language of 38 U.S.C. 1703 allows the use of external services for *any* Veteran if (1) he or she has already been seen by VHA providers and (2) it can be determined that non-VA resources are required to address the Veteran's medical needs in some way (assuming that there is a lack of capacity on VA's part to furnish the care at all or to do so economically as a result of geographic inaccessibility). Table 3-1 describes key aspects of the authorities and mechanisms related to the traditional authority under 38 U.S.C. 1703 for purchasing care.[21]

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[21] We refer to the purchased care authorities granted by 38 U.S.C. 1703 and programs established thereunder as *traditional purchased care.*

Table 3-1. Key Features of Traditional Purchased Care

Feature	Description
Situational eligibility	VA not capable of furnishing . . . (1) *economical* care/services because of "geographical inaccessibility" **or** (2) *required* care/services
Status eligibility	Many conditions and situations qualify, but two may be most commonly utilized: (1) treatment of any service-connected disability/condition; **or** (2) treatment of any disability if (a) Veteran previously seen by VHA providers **and** (b) non-VA resources are required to complete treatment
VA discretion to utilize or pay for non-VA care	VA **may** employ if eligibility criteria are met
Provider qualifications or requirements	None, as long as (a) existing contract is in place, **or** (b) individual authorization is granted in instances where need is infrequent
Veteran input into provider choice	None specifically authorized
Additional requirements for inpatient treatment	VA or other federal facility must not be " feasibly available," defined as when (1) "urgency" of condition, (2) "relative distance," **or** (3) treatment required make use of external resource is "necessary or economically advisable." Stay limited to time needed to stabilize/improve condition
Additional requirements for outpatient treatment	None

Feature	Description
Payments	If *inpatient*, "prospective payment system similar to that used in the Medicare program"; in practice this means (1) The non-VA hospital rate (2) The VA cost-to-charge rate If *outpatient*, (1) the amount described on any contract or negotiated agreement, **_or_** (2) if no contract or agreement exists but there is an applicable "Medicare rate", the lower of (a) the "Medicare rate", (b) the "repricer" rate, **_or_** (c) amount the provider bills general public; (3) If no contract or agreement exists and there is no applicable "Medicare rate", the lower of (a) the local VA Fee Schedule;, (b) the "repricer" rate, **_or_** (c) amount the provider bills general public
Direct payer of provider	VA
Medical record sharing requirements	Implemented programmatically
Coverage	National
First year implemented or authorized	1957, though authority most similar to current form was enacted in 1986
Status	Active
Key statutes or laws	38 U.S.C. 1703
Key regulations	38 C.F.R. 17.52–17.56

38 U.S.C. 1703 states only that the VA Secretary "may contract" with external providers, not that the Secretary must. As such, VA has considerable discretion to define the circumstances under which it will pay for such services, and it can place additional conditions on external provider utilization if it so desires (and it has done so in the past).

VA-promulgated regulations implementing 38 U.S.C. 1703 are found at 38 C.F.R. 17.52–17.56, "Use of Public or Private Hospitals." These regulations impose additional requirements on Veteran eligibility and describe the circumstances under which the use of non-VA resources would be appropriate. Notably, 38 C.F.R. 17.52 states that any such exercise of authority under

38 U.S.C. 1703 would be possible only through contracts with non-VA facilities or, when "demand is only for infrequent use," the use of "individual authorizations."[22] In other words, VA must have a contract in place before an external resource can be used, or, in the absence of such an existing relationship, it must issue an explicit authorization for an individual Veteran for a particular course of treatment. Furthermore, 38 C.F.R. 17.53 restricts inpatient treatment by external providers to instances in which any VAMC or other federal facility where the Veteran could conceivably be seen is "not feasibly available," in other words, when the (1) "urgency of the applicant's medical condition," (2) "the relative distance of the travel involved," or (3) "the nature of the treatment required" make the use of an external provider rather than a VA resource "necessary or economically advisable." In addition, the authorization is limited to the "period of time required to stabilize or improve the patient's condition to the extent that further care is no longer required to satisfy the purpose for which it was initiated."

3.1.1.2 Emergency Services

Services under 38 U.S.C. 1703 are often referred to as "preauthorized care" because the Veteran must receive explicit permission from VA prior to visiting external health care professionals or facilities or else risk being personally liable for the costs of services rendered. In a crisis situation, however, obtaining appropriate VA approval prior to arriving at a hospital's emergency department or calling for paramedics may be impractical or put the Veteran's life or health at risk. Two key statutes provide the legislative authority for VA payment of external emergency care without prior approval, differing by whether or not the event was related to a service-connected condition.[23]

The first of these statutes is 38 U.S.C. 1728, under which VA will reimburse a Veteran for the costs of emergency treatment (or pay the provider directly) as long as the event was related to a service-connected disability (either directly or indirectly) or the Veteran had a service-connected total disability. While the statute does say that the VA Secretary "shall" reimburse, any reimbursement will be "under such regulations as the Secretary prescribes."[24] Such regulations can be found at 38 C.F.R. 17.120–17.121, with Section 17.120 limiting 38 U.S.C.

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[22] We have been informed that VA is moving away from the use of term *individual authorizations*; instead, VA will refer to these as *other forms of agreements*.

[23] There is also additional authority in the U.S. Code for utilizing non-VA emergency care. First, 38 U.S.C. 1703 (a)(3) authorizes the use of non-VA resources in emergencies posing a serious threat to the life and health of Veterans in nursing homes or while receiving treatment at VA facilities. In addition, Section 1703(a)(2)(B) and its associated regulations address situations in which VA can preauthorize the use of external emergency resources and when the emergency involves treatment already being received by the Veteran. Second, 38 U.S.C. 1728(a)(4), which covers emergency services provided to Veterans participating in a vocational rehabilitation program. Our discussion in this section focuses on the perhaps more common circumstances constituting an emergency—one in which prior approval would not be practical, involving a condition not previously treated by VA, and the Veteran is not in a nursing home, participating in a vocational rehabilitation program, or at a VA health care facility at the time of emergency.

[24] The original version of this statute, the Veterans Health Care Expansion Act of 1973 (Pub. L. 93-82), Section 106(a), indicated only that VA may reimburse.

1728 reimbursement to claims "timely filed" by Veterans. Furthermore, the emergency must be one in which "a prudent layperson would have reasonably expected that delay in seeking immediate medical attention would have been hazardous to life or health," thus "placing the health of the individual in serious jeopardy, serious impairment to bodily functions, or serious dysfunction of any bodily organ or part." Moreover, any VA or other federal facilities providing health care to Veterans that could have theoretically provided emergency services must not have been "feasibly available," and any attempts to use them would "not have been reasonable, sound, wise, or practicable" or the treatment authorization "had been or would have been refused."

The other main avenue to reimbursed external emergency care is 38 U.S.C. 1725, which does not require a Veteran to have a service-connected disability. The enabling statute, created as part of the Veterans Millennium Health Care and Benefits Act (which is why payments for non–service-connected emergency services under this provision are popularly known as "Mill Bill" reimbursements), does have some important restrictions, however.[25] The Veteran must be enrolled and have received some type of VA health care in the previous two years (though not necessarily related to the conditions that led to the emergency) and be otherwise "personally liable" for the charges. The personal liability requirement means that the Veteran has (1) no entitlement to any health care plan or contract (such as private health insurance, Medicare or Medicaid benefits, or workers' compensation benefits) that might cover some part of the charges and (2) no recourse against any "third party" (such as an automobile liability carrier following a motor vehicle collision, an employer or an employer's insurance carrier) that could pay the entire bill for services. Put another way, VA must essentially be the resource of last resort to cover the costs of the emergency care.[26] The statute's provisions are clarified by 38 C.F.R. 17.1000–17.1008. Section 17.1002 generally mirrors the language in 38 C.F.R. 17.120 for assessing the reasonableness of service-connected emergency claims. It also contains a version of the "feasibly available" and "prudent layperson" standards described earlier with regard to defining a true emergency and whether a VA facility should have been used instead.

Appendix E includes a more complete overview of the key features of these two types of emergency care authorities for purchased care.

3.1.1.3 Related Contracting Authorities

External services provided to Veterans under 38 U.S.C. 1703, 1725, and 1728 are often acquired on an ad hoc basis; in other words, a Veteran has a medical issue that requires only one or perhaps just a handful of contacts with specific non-VA health care professionals or facilities, and the Veteran may be the only patient (or one of just a handful of patients) treated by the

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[25] Pub. L. 106-117 (1999). This original enabling statute was later amended by Pub. L. 110-387 (2008) and Pub. L. 111-137 (2010), with both amendments easing the requirements somewhat for reimbursing emergency care.

[26] When a third party is responsible for paying part of emergency services (such when a Veteran is 50 percent responsible for a motor vehicle accident), VA will act as a secondary payer and cover only the Veteran's share of the expense (38 U.S.C. 1725(c)).

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professional or facility whose services would ultimately be paid for or reimbursed by VHA. In such instances, VHA receives a statement from the provider or a request for reimbursement from the Veteran that itemizes the costs of each service delivered and indicates whether the circumstances and the services rendered are appropriate uses of non-VA care according to statutes and regulations. If so, VHA pays the bill.[27] Increasingly, however, VA appears to be moving away from such a "fee-for-service" model requiring individual authorizations toward one in which external care is delivered by health care providers who have an existing and ongoing relationship with the agency and the costs of services delivered are determined in advance. The three main vehicles for establishing such relationships beyond the traditional fee-for-service approach—purchased care contracts, sharing agreements with DoD, and sharing agreements with VA's "academic affiliates"—are described in the following sections. It should be kept in mind, however, that these three contracting vehicles do not constitute an expansion of basic VA authority to purchase care for Veterans, beyond that in 38 U.S.C. 1703, 1725, and 1728.

3.1.1.3.1 Purchased Care Contracts

The "sharing of medical facilities, equipment, and information" by VA is addressed by 38 U.S.C. 8151–8158. The key statute of interest here in terms of purchased care is 38 U.S.C. 8153, which allows VA—when it determines that it is "in the best interest of the prevailing standards of the Department medical care program"—to "make arrangements, by contract or other form of agreement for the mutual use, or exchange of use, of health-care resources between Department health-care facilities and any health-care provider, or other entity or individual." Although this language may seem to imply a reciprocal agreement in which VA offers its services in exchange for those provided by others, in actuality, the statute is commonly used as the basis for *directly* purchasing services and supplies from a wide range of health care providers.[28] Examples include contracting for dialysis services, organ transplants, anesthesia services, diagnostic radiology, and psychiatric care.

Section 8153(a)(3)(B) allows VA to enter into such commercial medical care contracts, which may involve services delivered over a relatively long period of time and for considerable sums of money, through the use of certain "simplified" contracting rules "without regard to any law or regulation that would otherwise require the use of competitive procedures for procuring the resource" (48 C.F.R. 873.101–873.118). 38 U.S.C. 8153 plays a key role in recent initiatives that VA has rolled out to deliver purchased care, with third parties essentially administering all aspects of the referral, including choosing the providers, scheduling appointments, processing claims, and coordinating care. The language of the statute permits VA wide latitude to contract

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[27] When there is no existing contract or agreement in effect (as might be the case when external health care is sought only on an occasional fee-for-service basis), 48 C.F.R. 801.670-3 (part of the set of VA Acquisition Regulations, or VAAR) allows certain officials at VA medical facilities to order medical, dental, and ancillary services when the amount authorized is less than $10,000. In such situations, 48 C.F.R. 813.307(c) and 48 C.F.R. 853.213 describe the forms that must be executed when ordering the services under the simplified procedures for VA acquisition set forth in 48 C.F.R. 873.101–873.118.

[28] As described later, VA often enters such reciprocal agreements with DoD and certain academic institutions.

with managed care organizations and other entities that oversee (or directly employ) entire networks of providers.

VA contracting for outside health services under Section 8153 implicates the area of law pertaining to government procurement activities more generally. In Section 5 of this report, we discuss VA contracting for purchased care generally, and related authorities, in much greater detail.

3.1.1.3.2 DoD Sharing Arrangements

Another statute concerning the acquisition of external services is 38 U.S.C. 8111, under which VA and DoD can enter into arrangements for utilizing each other's medical care facilities and providers: "The Secretary of Veterans Affairs and the Secretary of Defense shall enter into agreements and contracts for the mutually beneficial coordination, use, or exchange of use of the health care resources of [their respective Departments.]" Unlike 38 U.S.C. 8153, which can be used with any public or private provider, Section 8111 focuses exclusively on DoD as VA's intended partner. Moreover, the flow of services and products under Section 8111 has been in both directions, with VA "selling" (i.e., treating DoD patients and seeking reimbursement later) and "buying" (i.e., sending VA patients to DoD). Nevertheless, compared with other means of acquiring external health care, VA's use of existing DoD facilities and personnel is a minor contributor to the overall cost of addressing the medical needs of Veterans at slightly more than $100 million per year.[29] Issues related to the physical distribution of such facilities (which may not be located near population centers) and potential interruptions due to security concerns or DoD priorities may limit the utility of these arrangements for VA (see GAO, 2008).

3.1.1.3.3 Academic Affiliate Sharing Arrangements

The authorization under 38 U.S.C. 8153 to establish sharing agreements and other relationships with external entities offers minimal guidance on which entities should be prioritized. That said, 38 U.S.C. 7302 separately mandates VA to "carry out a program of education and training of health personnel" in cooperation with schools of "medicine, osteopathy, dentistry, nursing, pharmacy, optometry, podiatry, public health, or allied health professions." Section 8153(a)(3)(A) reflects that policy by allowing the use of noncompetitive sharing agreements (in other words, sole-source contracts) with affiliated academic institutions, such as medical schools, teaching hospitals, and associated clinical practices. The enhanced ability to enter into sole-source contracts without competitive bidding, in combination with VA's underlying mission to "assist in providing an adequate supply of health personnel to the Nation" (38 U.S.C. 7302(a)), has been an important factor in the growth of arrangements with academic affiliates. While the program is primarily one where non-VA health care professionals (such as medical school residents) receive training at VA facilities, VA purchases more than $1 billion dollars in

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[29] In FY 2013, for example, DoD purchased $152 million in services and goods from VA; in turn, DoD provided $119 million in medical resources to VA (VA, 2015b, p. 200). To put these numbers into perspective, VHA's Chief Business Office's estimate of total spending in FY 2014 for all purchased care was $5.6 billion (VA, 2014c).

services each year from their academic affiliates (for example, a VA patient may be sent to a medical school for certain radiological services).

3.1.2 Specialized External Services and Specialized Veteran Populations

There are many other programs that could be characterized as VA purchased care, since they also rely on external providers and resources to deliver health care to Veterans. However, their utility as a means of expanding a wide range of health care services to Veterans generally is limited. These programs include, for example, agreements to reimburse IHS and Tribal Health Program health facilities for services provided to American Indian and Alaskan Native Veterans;[30] the authority under 38 U.S.C. 7409 to enter into contracts with medical and nursing schools, "clinics," or "any other group or individual" for the provision of "scarce medical specialist services"; and the Foreign Medical Program under 38 U.S.C. 1724, which is used to reimburse medical expenses incurred by Veterans with service-connected disabilities who require treatment while residing or traveling abroad. Appendix E includes a comprehensive list of these programs.

3.1.3 Pre–Veterans Choice Act Initiatives

VA has implemented a series of programmatic mechanisms in recent years with various goals, such as better utilizing purchased care resources, containing costs, enhancing the coordination of care, and addressing the needs of underserved Veterans. These programs' origins range from congressional mandates to internally developed VA initiatives. Some seem to have been specifically directed at various concerns that have been raised regarding purchased care generally, while others were intended to be the primary templates for VA's purchased care activities in the future.

The following discussion addresses four such programs: a pilot to explore using provider networks for purchased care in certain VISNs (Project HERO), expanded eligibility rules for certain rural Veterans in selected locations to also employ provider networks (Project ARCH), a nationwide rollout of a provider network approach (Patient-Centered Community Care, or PC3), and a more centralized approach to administering purchased care (Non-VA Care Coordination Program, or NVCC).[31]

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[30] IHS, part of the U.S. Department of Health and Human Services, provides health services to members of federally recognized American Indian and Alaska Native tribes. VA reimburses IHS and the Tribal Health Program for care provided to Veterans through reimbursement agreements authorized under 38 U.S.C. 8153.

[31] Not included in the discussion in this section are demonstration projects for expanding access for rural Veterans authorized by Section 307 of the Caregivers and Veterans Omnibus Health Services Act of 2010 (Pub. L. 111-163). Among the projects contemplated by Congress were partnerships between VA and the IHS, U.S. Department of Health and Human Services, and CMS, among other agencies, for non-VA facilities and providers. That said, it appears that the primary vehicle for expanding access for this Veteran population has been the use of grants to fund enhanced transportation to both VA and non-VA medical facilities for highly rural Veterans, as described in 38 C.F.R. 17.700–17.730. Because these grants simply facilitate rather than authorize or direct the use of non-VA providers, we do not include them here as a relevant recent initiative.

In the discussion below, we use some key terminology in explaining these purchased care initiatives. By *provider*, we mean any health care professional or facility that might render medical services to Veterans in connection with one of the programs described in Section 3. By *network*, we mean a group of providers who have executed agreements with the same organization to deliver medical care under predetermined rules and conditions. Such an organization is a *network administrator* and may be a preferred provider organization, insurer, employer, third-party administrator (TPA), health maintenance organization, or health plan. A provider who agrees to join the network is said to be "participating" as an "in-network provider." A provider who does not join the network but nevertheless is utilized for purchased care services is said to be an "out-of-network provider." Generally, network administrators and the providers within that network are independent of each another and not agents (or principals), employers (or employees), or other legal representatives. The predominate type of network administrator in VA's current purchased care programs is a TPA.

We also use the term *contractor* for any organization or individual under contract with VA to deliver some type of medical service. For example, in some of the programs described in this section, a network administrator makes its network of providers available to VA under contract to supply medical services. Thus, a network administrator can be characterized as a type of contractor.[32] The term *contractor* can also be applied to a medical facility that delivers contracted medical services to VA, typically using its own employees. Individual providers can also contract with VA (and, as such, can be contractors). Still another type of contractor would be any organization that has contracted with VA to provide administrative services for VA purchased care, such as claims administration.

3.1.3.1 Project HERO

Project HERO (*Healthcare Effectiveness Through Resource Optimization*) was created in response to a House Conference Committee report issued in connection with the 2006 Military Quality of Life and Veterans Affairs Appropriations Act (Pub. L. 109-114). While Project HERO is no longer an active initiative, we describe it here because many of its features were subsequently used as a model for later programs, in particular PC3 (Jones, 2012). The committee report urged VA to explore new medical case management strategies, though what VA ultimately implemented was less an exercise in fully managed care than a means of enhancing the existing purchased care program (House Report 109-305, 2005, pp. 43–44; Panangala, 2010, p. 4). The pilot program went live in January 2007 and was tested in VISNs 8, 16, 20, and 23. It employed provider networks under contract to VA for supplemental referrals when similar care was not available at local VAMCs or VA clinics. The goal, according to one observer, was to make "contracted providers virtual, high-quality extensions of VHA" (American Legion, n.d.). VA contracted with Humana Military Healthcare Services, Inc. (for medical services) and Delta Dental (for dental services) to operate as network administrators. These contracts terminated in September 2012 and March 2013, respectively. Table 3-2 describes Project HERO's features.

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[32] We have been informed that VA's currently preferred term for a TPA is *contractor*.

Table 3-2. Key Features of Project HERO

Feature	Description
Situational eligibility	Same as for traditional purchased care
Status eligibility	Same as for traditional purchased care, though specialty required must also be one offered by a HERO contracted provider
VA discretion to utilize or pay for non-VA care	Same as for traditional purchased care
Provider qualifications or requirements	(1) Provider must be part of the HERO network (which may impose additional credentialing requirements); **_and_** (2) Provider is located within a "reasonable distance" from the Veteran
Veteran input into provider choice	Presumably limited; HERO contractor sets up appointment with provider within network
Additional requirements for inpatient treatment	Same as for traditional purchased care
Additional requirements for outpatient treatment	Same as for traditional purchased care
Payments	Presumably at or below the amounts allowed for traditional purchased care; reportedly a negotiated percentage of local Medicare rates
Direct payer of provider	HERO contractor
Medical record sharing requirements	Contractually required
Coverage	VISNs 8, 16, 20, and 23
First year implemented or authorized	2007
Status	Final contracts expired March 2013
Key statutes or laws	Same as for traditional purchased care
Key regulations	Same as for traditional purchased care

VA fee staff (in consultation with the contractor) would determine whether referral to Project HERO was appropriate, assuming all other criteria for purchased care were satisfied. That

determination would be driven by (1) whether the specialty required was one offered by the HERO contractor and (2) whether the HERO provider selected by the contractor was located within a "reasonable distance" of the Veteran.[33] If both criteria were met, the contractor would be responsible for contacting the Veteran to set up an appointment. The contractor would also act as the conduit for exchanging clinical information between VA and the provider, both before and after the service was provided.[34] Payments to providers were simplified, coming from the contractor rather than the U.S. Department of the Treasury.[35] Presumably, such payments would not exceed those allowed under existing statutory and regulatory authority for purchased care. Reportedly, however, providers were paid a "negotiated percentage" of CMS rates, according to "local market rates where the services are provided" (Panangala, 2010, p. 12). As compensation for managing the provider network and administering the payment and information exchange, the contractor was paid a value-added fee equivalent to just under 8 percent of total billings in FY 2009 (Panangala, 2010, p. 13, Table 2).

3.1.3.2 Project ARCH

Project ARCH (*Access Received Closer to Home*) is an effort to explore a more patient-centered approach to the use of purchased care in a coordinated, cost-effective manner. ARCH is the result of Section 403 of the Veterans' Mental Health and Other Care Improvements Act of 2008 (Pub. L. 110-387), which required VA to test the subsidization of health care costs for rural Veterans in locations other than those testing Project HERO.[36] The pilot program was first fielded in 2011 as a three-year test in rural VAMCs and focused on selected medical services.[37] The services would be provided "through contracts," presumably in contrast with individual payments to external providers for fee-based care. VA selected the Cary Medical Center (in Maine) and Humana Veterans Health Services (all other sites) to act as the initial network administrators. The pool of providers available under ARCH was limited to those who had executed agreements with the network administrators (VHA Chief Business Office, 2014). The

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[33] While a reasonable distance standard was not specifically defined, as a matter of practice, the contractor would inform VA staff whether the available network provider was more than 50 miles from the Veteran's residence. If so, VA staff would have the option of canceling the HERO referral and using another means to supply the required care. The distance standard appears to be the result of an internal VA business practice rather than a formal feature of Project HERO (Panangala, 2010, p. 11).

[34] As a contractual requirement, the network administrator sent the medical record of the treatment back to the originating VAMC (Panangala, 2010, p. 7).

[35] The contractor would seek reimbursement from VA at a later point.

[36] Authority for the pilot program was later amended by Section 308 of the Caregivers and Veterans Omnibus Health Services Act of 2010 (Pub. L. 111-163).

[37] The program was officially called the Pilot Program of Enhanced Contract Care Authority for Health Care Needs of Veterans in Highly Rural Areas. The pilot was implemented in VISNs 1, 6, 15, 18, and 19 (Caribou, Maine; Farmville, Virginia; Pratt, Kansas; Flagstaff, Arizona; and Billings, Montana). Under the Veterans' Mental Health and Other Care Improvements Act of 2008, VA had the discretion to include other VISNs in the program, but it appears not to have done so.

Veterans Choice Act extended ARCH an additional two years, and it now has a termination date of August 2016.[38]

The Congressional mandate included a clear expansion of the eligibility rules set forth for traditional purchased care, albeit only for a geographically-defined set of Veterans (Table 3-3). A Veteran living in one of the pilot sites would be eligible for ARCH under one of the following conditions: (1) the Veteran's home was more than 60 minutes driving time from the nearest VA primary health care service facility (if the Veteran was seeking primary care); (2) the Veteran lived more than 120 minutes driving time from the nearest VA facility offering acute hospital care (if acute medical care were sought); or (3) the Veteran lived more than 240 minutes driving time from the nearest tertiary care VA health care facility (if tertiary care were sought). The original enabling statute determined eligibility based on distance rather than time, so the maximum travel criteria to the three facility types were 60 miles, 120 miles, and 240 miles, respectively. That language was subsequently changed by Section 308 of the Caregivers and Veterans Omnibus Health Services Act of 2010 (Pub. L. 111-163).[39] The original statute also included language that would have expanded the pilot program to Veterans who lived within the driving limits but who nevertheless faced "such hardship or other difficulties in travel to the nearest appropriate Department health care facility that such travel is not in the best interest of the veteran, as determined by the Secretary pursuant to regulations prescribed for purposes of this subsection." The subsequent revision dropped that alternative eligibility definition (Pub. L. 111-163).

Table 3-3. Key Features of Project ARCH

Feature	Description
Situational eligibility	(1) If seeking primary care, Veteran must reside more than 60 min. driving time to nearest VA primary health care facility; _**or**_ (2) If seeking acute hospital care, must reside more than 120 min. driving time to nearest VA acute hospital care facility; _**or**_ (3) If seeking tertiary care, must reside more than 240 min. driving time to nearest VA tertiary care facility.
Status eligibility	Veteran must be (1) Residing in a pilot site; _**and**_ (2) Currently enrolled for VA health care Services required must be offered by an ARCH contracted provider

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[38] The extension gives VA the ability to rely on existing ARCH contracts or to enter into new ones, presumably including those now utilized for the Choice program.

[39] Nevertheless, the language in the current version of the statute continues to use the phrase _driving distance_ rather than _driving time_, even though eligibility is based on minutes of driving.

Feature	Description
VA discretion to utilize or pay for non-VA care	VA **_shall_** provide covered health services to eligible Veterans (if electing) through ARCH provider contracts (assuming qualified providers are available)
Provider qualifications or requirements	Provider must be part of an ARCH network or facility VA determines whether provider is "qualified"
Veteran input into provider choice	Presumably limited to providers within ARCH network
Additional requirements for inpatient treatment	Presumably none if Veteran is otherwise eligible
Additional requirements for outpatient treatment	Presumably none if Veteran is otherwise eligible
Payments	Reportedly a negotiated percentage of local Medicare rates for four sites managed by a vendor, while full Medicare rates for the site directly contracting with VA
Direct payer of provider	ARCH contractor
Medical record sharing requirements	Mandated by statute
Coverage	Certain rural VAMCs in VISNs 1, 6, 15, 18, and 19
First year implemented or authorized	2011
Status	Now scheduled to terminate in August 2016 as a result of a Veterans Choice Act extension
Key statutes or laws	Pub. L. 110-387, Sec. 403; Pub. L. 111-163, Sec. 308; Pub. L. 113-146, Sec. 104; Pub. L. 113-175, Sec. 409
Key regulations	None that can be identified

Eligibility is based primarily on the patient's status as a "highly rural" Veteran, determined by a simple drive-time test related to the specific medical need rather than "geographic inaccessibility" or other Section 1703 criterion. VA calculated drive times for every Veteran in each of the pilot sites, so eligibility had essentially been determined before the program was

under way.[40] That said, the Veteran's VA provider would still need determine that a service available under ARCH was needed, even if the Veteran met one of the drive time criteria. In addition, Veteran participation is voluntary and could be withdrawn if other types of purchased care were preferred or if the Veteran were willing to tolerate drive times exceeding the ARCH-qualifying standards.

Besides simply offering purchased care to Veterans with geographical access limitations, ARCH mandates that the care be provided on a timely basis. Section 104 of the Veterans Choice Act requires that medical appointments under ARCH be "scheduled not later than 5 days after the date on which the appointment is requested" and "occur not later than 30 days after such date." It is not clear what the consequences might be if an appointment is not delivered within these limitations, however.

One important aspect of ARCH is that it was funded by VA's Office of Rural Health rather than the VAMC where the consults originated.[41] In FY 2012, for example, the office allocated $35 million for ARCH-related needs (Veterans' Rural Health Advisory Committee, 2012, p. 3). In FY 2015, funding for ARCH, like for all VA purchased care, was moved to the VHA Chief Business Office budget.[42] Thus, referrals to purchased care throughout the ARCH experience would have had a minimal direct impact on a VAMC's budget, essentially eliminating any significant financial disincentive at the local level to use non-VA providers. In contrast, funds expended for purchased care as part of Project HERO were sourced from the VISNs where the pilot programs operated.[43] Another important aspect involves provider reimbursement rates. In four of the five ARCH sites, the managing organization made arrangements with its network providers to pay, as was true under Project HERO, negotiated percentages of Medicare rates (Tester, 2014). But because Cary Medical Center in Maine directly contracted with VA as a provider, 100 percent of applicable Medicare rates were paid (Dickson, 2014b; Non-VA Care: An Integrated Solution for Veteran Access, 2014).

3.1.3.3 PC3

PC3 (Patient-Centered Community Care, sometimes referred to as PCCC) was created by VA in 2013 based on what was learned from Project HERO and other pilot/demonstration programs. The first contracts with regional health care networks TriWest Healthcare Alliance and Health Net Federal Services were awarded in September 2013 for the delivery of external health care in a manner similar to a private employer's TPA for managing health care benefits. This particular initiative was being fully rolled out when the Veterans Choice Act was passed.

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[40] The Veteran would nevertheless have to "submit to [VA] an application . . . containing such information as [VA] shall specify for purposes of the pilot program" (Project ARCH, n.d.).

[41] While management of ARCH originated in VHA's Chief Business Office, the Office of Rural Health reportedly assumed operational oversight in October 2011 (Veterans' Rural Health Advisory Committee, 2012, p. 3).

[42] See Section 106(b) of the Choice Act.

[43] In FY 2009, for example, Project HERO payments were 0.43 percent of total budgets for the relevant VISNs.

A key point to keep in mind is that PC3 (like Project HERO) does not provide any expanded authority for VA to utilize non-VA resources (see Table 3-4).[44] It simply addresses administrative aspects of existing authority, such as that available under 38 U.S.C. 1703 related to geographical inaccessibility or when VA facilities are incapable of furnishing the care that the Veteran requires. VA medical center staff determine whether PC3 resources are appropriate.

Table 3-4. Key Features of PC3

Feature	Description
Situational eligibility	Same as for traditional purchased care
Status eligibility	Same as for traditional purchased care, though specialty required must also be one offered by a PC3 contracted provider
VA discretion to utilize or pay for non-VA care	Same as for traditional purchased care
Provider qualifications or requirements	(1) Provider must be part of the PC3 network; **_and_** (2) Provider is located within a "reasonable distance" from the Veteran.
Veteran input into provider choice	Presumably limited; PC3 contractor sets up appointment with provider within network
Additional requirements for inpatient treatment	Same as for traditional purchased care
Additional requirements for outpatient treatment	Same as for traditional purchased care
Payments	Presumably at or below the amounts allowed for traditional purchased care; reportedly a negotiated percentage of local Medicare rates
Direct payer of provider	PC3 contractor
Medical record sharing requirements	Contractually required
Coverage	National
First year implemented or authorized	2013

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[44] In contrast, Project ARCH had a congressional mandate expanding Veteran eligibility beyond that set forth in 38 U.S.C. 1703, 1725, and 1728.

Feature	Description
Status	Active
Key statutes or laws	Same as for traditional purchased care
Key regulations	Same as for traditional purchased care

The initial focus was on medical and surgical services other than primary care, dialysis, and mental health, but the program has been expanded over time to include inpatient specialty care, outpatient specialty care (such as home infusion therapy), certain types of emergency care, and some care for newborns of enrolled female Veterans. In August 2014, the program was expanded considerably, at least in terms of potential scope, when primary care was added (see VA Office of Public and Intergovernmental Affairs, 2014). That said, PC3 remains a program in the early stages of implementation, and, while the country has already been divided across two administrators (TriWest and Health Net), provider networks are still being developed.

One characteristic that distinguishes PC3 from purchased care (at least before the advent of the relatively recent Non-VA Care Coordination Program discussed subsequently) is its concerted effort to provide current clinical information about a patient to the health care provider at the time of service, regardless of whether the Veteran is treated by a VA or external provider. In addition, PC3 providers are required to schedule an appointment within five days of initial contact and hold the appointment within 30 days of receiving authorization, with the patient being seen within 20 minutes of arrival. There are also contractually imposed requirements regarding turnaround times for returning medical documentation (14 days for outpatient and 30 days for inpatient). Like the practice adopted during Project HERO, the health care professional or facility must be located within a "reasonable distance" of the Veteran (Health Net, n.d.-a).

As discussed in greater detail in Section 4, TriWest and Health Net act as TPAs of provider networks. Individual health care professionals and entities register with the TPAs to become preferred in-network providers.[45] When VA staff decide that referral to a PC3 provider is warranted, a request is sent to the appropriate TPA which, in turn, sends an authorization to a network provider (TriWest, n.d.). After treating the Veteran, the provider sends a claim to the TPA (or, in some instances, the claims processing vendor appointed by the TPA). As required in the network provider agreement, to be paid, the claim must be accompanied by the medical record of the treatment (see, for example, TriWest, 2015c, p. 15). If the provider believes that additional or different treatment is needed, it must contact the TPA for a supplemental authorization. Ultimately, the TPA seeks bulk reimbursement from VA for all PC3 payments it has made.

Another important aspect that differs from traditional purchased care is that providers in the TPA networks (outside of Alaska) receive amounts that are, on average, less than the full Medicare reimbursement rates—reportedly 94.5–97.5 percent for medical and surgical services

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[45] Assessment I's report details the responsibilities of PC3 providers.

and 92–97 percent for skilled home health (Robinson, 2014; VA OIG, 2015, pp. 11–12). The rate is contractually set, and some providers have agreed to even lower levels of reimbursement.[46]

PC3 is VA's preferred mechanism for external medical services, though actual utilization (as far as we could determine) is far smaller than other paths to VA purchased care. VA materials suggest that in cases of geographical inaccessibility or a lack of availability of services through VHA, a PC3 authorization should be used unless direct contracting with providers is a "definitively" better method:

> Local contracts may be used on an exception basis. The intent is to purchase all services included in PC3 through the resultant contracts. However, a local VAMC may contract directly if needed services are not covered by PC3 or if the local contract can *definitively provide benefits above and beyond* those offered by PC3. (VHA Chief Business Office, 2014b, emphasis added)

3.1.3.4 NVCC

NVCC (*Non-VA Care Coordination Program*), the current administrative mechanism for many aspects of VA purchased care, was first rolled out as a pilot program in VISNs 11, 16, and 18 and later system-wide. Again, we note that NVCC is not an expansion of VA's ability to use non-VA medical care resources. Rather, it can be viewed as a change in internal business processes, especially with regard to standardizing referrals to external providers. Some aspects of NVCC administration now apply to all VA purchased care delivery, including PC3, Project ARCH, and the Choice Program, but the program's primarily role at the outset was to standardize procedures related to external medical care under 38 U.S.C. 1703, 1725, and 1728.

Again, it is challenging to characterize the process by which purchased care is provided under NVCC because policies, guidance, and lines of authority have changed frequently. One key difference from past practices is that VA Central Office staff now play a larger role in coordinating the delivery of external services to the Veteran: Not only does VHA make the referral, but it also sets up the appointment (see Chapter 4 for a more detailed discussion). As of January 2014, the process for obtaining an authorization for external care appeared to begin with the submission of a non-VA care consult, presumably by a VA health care professional who has been working with the Veteran.[47] That consult was then reviewed for the Veteran's administratively eligibility for external health care and whether the proposed services were medically necessary. If approved, NVCC staff would determine which purchased care option would be most appropriate (e.g., individual authorization or referral to the PC3 network), an authorization was issued and sent to the Veteran, while a separate authorization was sent to

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[46] For example, the EmpowerChiro preferred provider application states, "Provider agrees to accept a percentage discount off the current applicable Medicare Fee Schedule, as updated from time to time, as follows: 85% of Medicare" (EmpowerChiro, 2014, Exhibit 1).

[47] This description draws heavily on VA Form 10-7078/10-7079 (VA, 2014a). Presumably, the VA health care professional has been designated by the facility's chief of staff and by VHA's Chief Business Office as an official authorized to approve purchased care consults. See VHA (2013b, 2013c).

the provider along with information about the services being authorized, the time frame for the services, and other guidance.

NVCC also marked a fundamental change how provider claims are processed. Previously, responsibility for reviewing claim eligibility and moving the paperwork was at the local level, with "fee staff" (personnel charged with claims processing and other purchased care duties) based at each VAMC. The VHA Chief Business Office is now in the process of consolidating these tasks so that only a small number of sites will be used to handle purchased care paperwork (though fee staff at individual VAMCs will continue to perform this function for the foreseeable future). When there was no preexisting contract or negotiated agreement with the provider, claims are paid in accordance with 38 C.F.R. 17.55 and 17.56, which closely follow Medicare guidelines.[48] With a preexisting arrangement, the reimbursement would be at the negotiated rate.

There has also been a focused effort under NVCC to track the flow of clinical documentation from external providers and add it to the Veteran's electronic medical record.[49] Finally, there is more standardized guidance to field the inevitable requests for appeal and to ensure compliance with statutory and regulatory requirements for the provision of external care.

NVCC continues to be VA's primary avenue for managing external care, at least in the near future. Indeed, the Veterans Choice Act clearly anticipates that the NVCC process will provide the administrative structure for the Choice option: "The Secretary shall coordinate, through the Non-VA Care Coordination Program of the Department of Veterans Affairs, the furnishing of care and services under this section to eligible veterans." As a result, NVCC staff will determine whether a Veteran would be best served by the Choice Program, PC3, fee-for-service preauthorized medical services, or another option.

3.1.4 Available Guidance for VA Purchased Care Prior to the Veterans Choice Act

The bulk of broad-based external services prior to the Veterans Choice Act were the result of decisions made at the VAMC level to authorize a Veteran to go outside of VA for nonemergency medical or dental care. It is difficult to describe the decision-making process because the guidance available to VAMC staff evolved over time and was not always consistent or up-to-date. Although the identification of controlling statutes and regulations is straightforward, internal VHA policies and procedures that define the day-to-day applications of the VA purchased care program appear to have developed piecemeal over time. In theory, staff should have been able to turn to VHA's main operation manual (Manual M-1, "Operations, Part I, Medical Administration Activities)—specifically, Chapter 18 ("Outpatient Care-Fee") and Chapter 21 ("Authorized Non-VA Hospitalization in the United States"). They would also be able

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[48] If not applicable, the 75th percentile methodology described earlier would be used.

[49] Authorizations under NVCC put the provider on notice that submission of the medical record would be a prerequisite for payment. See VA Form 10-1079 (VA, 2014a).

to draw guidance from VHA Directive 1601 (VHA, 2013a). However, as VA's Office of the Inspector General noted in 2009,

> VHA does not have a centralized source of comprehensive, clearly written, current policies and procedures for the Fee Program. Instead, fee supervisors and staff rely on an assortment of resources including the CFR, Manual M-1, other VHA directives, procedure guides that contain some policy, technical guides for the VistA Fee system, training materials, and informal guidance, such as conference call minutes. (VA, Office of the Inspector General, 2009, p. 10)

Our own summary review of publicly available VA guidance materials describing purchased care mechanisms is broadly consistent with the foregoing observation. The last published update to Chapters 18 and 21 in Manual M-1 appears to have occurred in 1995. Although much has changed in VA purchased care, and in the broader U.S. health care landscape, in the last 20 years, each of these legacy chapters offers guidance to VHA staff on when, how, and under what terms they may seek to purchase outside health care services. While VHA Directive 1601 (" Non-VA Medical Care Program") dates from 2013, its short summary of the rules for Veteran eligibility for purchased care services lack the level of detail needed for assuring consistency in practices across VISNs and VAMCs. VA Directive 1663 ("Health Care Resources Contracting—Buying") does provide guidance on contracting practices in purchased care, and describes the roles and responsibilities of various local and regional officials in carrying out such contracting, but it has not been updated in nine years.

The shortcomings here are obvious. Despite the fact that there has been significant development in VA purchased care authority and mechanisms since these documents were published, important aspects of VA purchased care practice in 2015, are simply not included in these documents. Consequently, local VA officials seeking relevant purchased care guidance would need to look in more than one place to find it, and some aspects of current VA practice may not be captured in published guidance at all. Moreover, the content of the chapters in Manual M-1 in particular is simultaneously noteworthy for being detailed and fairly technical in some respects (e.g., concerning "Invoice Processing" under the "Fee-Basis System"), while leaving considerable discretion to local officials in other respects (e.g., concerning "When to Make Contracts" with non-federal hospitals).

Taken together and in context, even these limited materials suggest that relevant VA guidance pertaining to purchased care is scattered, outdated in parts, and inconsistent in setting clear standards for local VA officials to follow. Our subsequent findings in Section 4 suggest that local VAMCs have indeed struggled with ambiguity, in seeking to develop their own local policies and procedures for purchased care.

3.2 Veterans Choice Act Authorities and Mechanisms

With broad bipartisan support, Congress passed the Veterans Choice Act in August 2014 in part to address widely reported issues related to wait times at VA facilities. The Act covered many areas related to Veterans' medical care, along with such topics as housing loans, awards and bonuses available to VA employees, educational benefits, medical facility leases, and the removal of certain VA senior executives. The key centerpiece of the Act, however, are the

provisions that concern the delivery of medical services to Veterans through the use of non-VA entities, a topic primarily covered by Section 101 and implemented through what is popularly known as the Choice program. As its title implies, the Act was intended to give Veterans additional options when confronted by lengthy delays in obtaining appointments with VA health care providers or challenged by difficulties in traveling to VA facilities. Reports often portrayed the new Act as providing Veterans with markedly expanded discretion to select a local doctor or other caregiver, free from the bureaucratic constraints that had led to a headline-grabbing scandal earlier in the year [50]

In the sections that follow we highlight the key changes to VA purchased care triggered by the legislation. We conclude our review of authorities and mechanisms by drawing comparisons across the purchased care initiatives previously discussed and the Choice program. Additional detail on the legal and regulatory provisions relating to non-VA care can be found in Appendix B of this report.

Amendments to the Veterans Choice Act were made by Section 409 of the Department of Veterans Affairs Expiring Authorities Act of 2014 (Pub. L. 113-175), Section 242 of the 2015 Consolidated and Further Continuing Appropriations Act (Pub. L. 113-235), and Section 3 of the 2015 Construction Authorization and Choice Improvement Act (Pub. L. 114-19). Unless noted, these amendments did not significantly change the language or meaning of any of the Veterans Choice Act sections cited here.

Also of interest for this discussion are certain regulations promulgated by VA in response to the Veterans Choice Act's mandate that interim final rules implementing Section 101 be published within 90 days of enactment (Sec. 101(n)). On November 5, 2014, such rules were indeed published in the *Federal Register*, creating nine new sections in Title 38 of the Code of Federal Regulations specifically addressing the Choice program.[51] We reference the regulations in the November 2014 interim final rule here only when they differ in some meaningful fashion from the language used in the Veterans Choice Act.

3.2.1 Basic Eligibility

Under the Veterans Choice Act, a Veteran's eligibility for the Choice program is a function of both the Veteran's status and his or her personal situation (Table 3-5). The status component can be satisfied if the Veteran was already enrolled in VA's patient enrollment system as of

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[50] For example, Representative Bradley Byrne of Alabama said in a blog post, "[U]nder most circumstances, our local veterans can now choose to visit a specialist or hospital of their choosing close to home. I cannot overstate how much this freedom of choice will mean to our veterans" (Byrne, 2014).

According to Representative Tim Huelskamp of Kansas, "Thousands of Kansas Veterans who live further than 40 miles from a VA facility— or those who have to wait more than 30 days for care—will soon be able to call their local doctor and get their healthcare needs met" (Huelskamp: Kansas Vets to Receive Their Choice Card Soon, 2014).

[51] This refers to Expanded Access to Non-VA Care Through the Veterans Choice Program, 79 Fed. Reg. 65571-01, November 5, 2014, amending 38 C.F.R., Part 17. Section 101 in the Veterans Choice Act is addressed primarily in 38 C.F.R. 17.1500–17.1540.

August 1, 2014, or if he or she is a recently discharged combat Veteran under certain circumstances (Sec. 101(b)(1)).[52] The situational component under the act as originally adopted required that the Veteran meet one of the following requirements:

4. The Veteran was unable to schedule an appointment with VA for hospital care or medical services within VHA's "wait-time goals."

5. The Veteran resides more than 40 miles from any VA medical facility.

6. The Veteran resides more than 20 miles from any VA medical facility if his or her state of residency lacks a VA medical facility providing hospital care, emergency services, or inpatient surgical care.

7. The Veteran resides 40 miles or less from any VA medical facility but either is required to travel by air or water or is faced by an "unusual or excessive burden" in accessing those facilities due to "geographic challenges" as defined by VA (Sec. 101(b)(2)).[53]

Some of the conditions attached to situational eligibility have important implications for the size of the eligible Veteran population. Sec. 101(s)(1) of the Veterans Choice Act provides a default definition for VHA's wait-time goal: not more than 30 days from the date a Veteran requests hospital care or medical services from VA.[54] However, the law also provided an option for VA to use a different standard if it submitted a report to Congress setting forth different wait-time goals within 60 days of the act's passage (Sec. 101(s)(2)). Such a report was submitted on October 3, 2014, establishing a standard that, while nominally holding to the default 30-day period, markedly changed the points at which the clock may start to tick:

> Unless changed by further notice in the Federal Register, the term 'wait-time goals of the Veterans Health Administration' means not more than 30 days from either the date that an appointment is deemed clinically appropriate by a VA health care provider, or if no such clinical determination has been made, the date a Veteran prefers to be seen for hospital care or medical services. In the event a VA health care provider identifies a time range when care must be provided (e.g., within the next 2 months), VA will use the last clinically appropriate date for determining whether or not such care is timely. The Department anticipates that the Under Secretary for Health periodically will consider changes to the wait-time goals of the Veterans Health Administration as appropriate. (VA, 2014c; see also 79 Fed. Reg. 62519–62520)

As such, the standard for situational eligibility under the Veterans Choice Act, if based solely on delay, would first depend on whether a VA provider had made a clinical determination of when necessary medical services or hospitalizations would be appropriate. If no such determination

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[52] A recently discharged combat Veteran presumably would have to sign up for the patient enrollment system before participating in the Choice program.

[53] Eligibility based on non-road travel or geographic challenges does not apply to Veterans residing in Guam, American Samoa, or the Philippines.

[54] Under VA's interim final rule, the request for care or services from which the 30 days is measured must be affirmatively communicated to a VA employee who is responsible for scheduling appointments or to a VA health care provider (38 C.F.R. 17.1505).

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has been made, the clock starts on the Veteran's preferred date of service.[55] When the determination involves a specific date, the period begins on that date. When the determination involves a range, the period begins on the last day of the range. Under the revised time goals, the original default standard described in the act would be in effect only when there was no clinical determination of time frame and the Veteran requested that the appointment be scheduled for the same day VA was contacted.

Table 3-5. Key Features of the Veterans Choice Program

Feature	Description
Situational eligibility	The Veteran . . . (a) was unable to schedule appointment within "wait-time goals"; (b) resides more than 40 miles from any VA medical facility; (c) resides more than 20 miles from any VA medical facility if state lacks a VA "standard" level inpatient facility; (d) is required to travel by air or water to all VA medical facilities within the 40 mile limit; **_or_** (e) has "unusual or excessive burden" due to "geographic challenges," "environmental factors," medical conditions, or other VA-defined factors
Status eligibility	Veteran must be (1) Already enrolled in VA's patient enrollment system as of Aug. 1, 2014; **_or_** (2) a recently discharged combat Veteran under specific circumstances
VA discretion to utilize or pay for non-VA care	Hospital care and medical services **_shall_** be furnished to an eligible Veteran at the election of such Veteran
Provider qualifications or requirements	Provider must . . . (1) Participate in Medicare;[a] (2) Meets or exceed the credentials and licenses required of those within VA; (3) Submit verification of credentials and licenses annually; (4) Have entered into agreements with VA or third-party administrators of program; **_and_** (5) Be "accessible" to the Veteran

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[55] A threshold issue here would be VA's interpretation of the phrase "the date a Veteran prefers to be seen" as used in the interim rule. It is not clear whether such a preference is completely up to the Veteran's discretion (e.g., any day and time that is convenient for the Veteran) or whether it is constrained by the dates and times eligible providers are actually available.

Feature	Description
Veteran input into provider choice	Presumably limited to providers who have previously entered into agreements with VA or third party administrators of program ***and*** who VA judges to be "accessible" to the Veteran
Additional Requirements for Inpatient Treatment	Presumably none if Veteran is otherwise eligible
Additional Requirements for Outpatient Treatment	Presumably none if Veteran is otherwise eligible
Payments	Rates are to be negotiated, but may not be more than (a) Medicare Fee Schedule rates; (b) A negotiated rate greater than Medicare rates but only for Veterans residing in a "highly rural area"; (c) The rates available under the NVCC formula but only if the Medicare Fee Schedule is not applicable; ***or*** (d) An alternative set of rates in certain locations
Direct payer of provider	Choice contractor
Medical record sharing requirements	Mandated by statute
Coverage	National
First year implemented or authorized	2014
Status	Scheduled to terminate in August 2017
Key statutes or laws	Pub. L. 113-146, Sec. 101; Pub. L. 113-175, Sec. 409; Pub. L. 113-235, Sec. 242; Pub. L. 114-19, Sec. 3
Key regulations	38 C.F.R. 17.1500–17.1540.
[a] Health care providers from DoD, IHS, and FQHCs would also be qualified under the Choice program.	

Another important question regarding the potential Veteran uptake in the Choice program involves what constitutes a VA medical facility for the purposes of calculating the distance standard. According to the Veterans Choice Act, the "term 'facility of the Department' has the meaning given the term 'facilities of the Department' in section 1701 of title 38, United States Code" (Sec. 2(1)). The statute defines *facilities* as "(A) facilities over which the Secretary has

direct jurisdiction; (B) Government facilities for which the Secretary contracts; and (C) public or private facilities at which the Secretary provides recreational activities for patients receiving care under section 1710 of this title" (38 U.S.C. 1701(4)). Conceivably, this definition could include a parking lot operated by VA, though the Veterans Choice Act narrows the application to "medical facility of the Department." Thus, the VA facility providing medical services or products closest to the Veteran would be the end point in the distance assessment. The key issue here is that the Veterans Choice Act does not distinguish between medical facilities that meet a Veteran's specific needs (in other words, the reason for requesting the appointment) and medical facilities that do not provide the necessary care.[56] For example, the Veterans Choice Act specifically mentions "a community-based outpatient clinic" as one type of medical facility considered for the 40-mile test. A Veteran who needs hospitalization and inpatient surgery could fail to meet the distance test set forth in Section 101(b)(2)(B) if such a clinic were within 40 miles of his or her residence, even though the closest VA hospital where the surgery could be performed was 100 miles away.

Notably, the July 28, 2014, conference report accompanying H.R. 3230 (the bill that was eventually enacted as the Veterans Choice Act) and jointly issued by the bill's managers in the House and Senate assumed that VA would not use technical proximity to block access to the Choice program if the facility did not provide the necessary services: "The Conferees do not intend the 40-mile eligibility criteria included in this section to preclude veterans who reside less than 40 miles from a VA facility from accessing care through non-VA providers, particularly if the VA facility the veteran resides near provides limited services" (House Report 113-564, 2014, p. 55). Nevertheless, VA has stated that it lacked options under the Veterans Choice Act on the issue of *any facility* versus *a facility that provides the actual care required*: "Absent a statutory change, VA does not believe that it has the flexibility to adopt an alternative approach" (VA, 2014c, p. 2).

It should be noted that VA's final interim rule does narrow the definition of medical facility from the potentially broader usage found in the Veterans Choice Act. Currently, 38 C.F.R. 17.1505 states, "VA medical facility means a VA hospital, a VA community-based outpatient clinic, or a VA health care center. A Vet Center, or Readjustment Counseling Service Center, is not a VA medical facility." The comments to the final interim rule noted, "We have included these types of VA facilities because they provide medical care or hospital services that may be provided as part of the Program." However, VA documents routinely refer to a fourth category of medical facility beyond hospitals, community-based outpatient clinics, and health care centers: outpatient clinics that are not community based (for example, the Sierra Foothills Outpatient Clinic in Auburn, California, the Johnson County/Radiation Oncology VA Clinic in

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[56] In contrast, the corresponding criterion for Veteran eligibility under Project ARCH is the distance from the type of medical facility from which the patient is seeking services.

Overland Park, Kansas, and the Zachary and Elizabeth Fisher Medical and Dental Clinic in Great Lakes, Michigan).[57] It is unclear how these facilities would factor into the distance calculations.

At least for calculating distances, *medical facility* is defined more narrowly in the special case where a Veteran's state of residence does not have a VA medical facility capable of providing hospital care, emergency care, and inpatient surgical services rated by VA as "standard" in complexity. In such cases, a 20-mile criterion is used, and the facility must meet the hospital/emergency/standard surgical competence test. However, the Veteran's specific need is not a consideration here with regard to facility type, and, moreover, the 20-mile rule is likely to affect only a small percentage of the Veteran population.[58]

How the distance between residence and facility is measured is also critical to the size of the eligible Veteran pool.[59] The Veterans Choice Act did not describe how to calculate mileage from a Veteran's residence for the purpose of determining Choice eligibility, only that the test involves varying criteria, such as "more than 40 miles," "more than 20 miles," or "40 miles or less." The July 28, 2014 conference report for H.R. 3230 stated that it was "the Conferees' expectation that VA will use geodesic distance, or the shortest distance between two points" (House Report 113-564, 2014, p. 55). VA's interim final rule met that expectation by promulgating regulations related to the Veterans Choice Act using straight-line distance (i.e., "as the crow flies") (38 C.F.R. 17.1510(e)). Such an interpretation might have meant that a Veteran who lived 70 miles driving distance from a VA medical facility would not satisfy the test if the facility was 30 miles away by helicopter.[60] Reacting to criticisms from multiple quarters, VA announced on March 24, 2015 that it intended to issue an interim rule so that "this criterion will change to the driving distance calculation between the Veteran's home and the nearest VA medical facility," adding, "VA believes that revising the calculation will still be in the spirit of the law and allow improved access for Veterans" (VA, 2015c). It did so a month later, announcing that it would use driving distance to determine eligibility for the Choice program (VA, 2015d). In May 2015, Congress eliminated any remaining uncertainty about this aspect of the 40-mile rule

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[57] In California, for example, there are nine VAMCs, one VA health care system, 36 community-based outpatient clinics, and 24 facilities characterized simply as "outpatient clinics." Of the latter group, only one is clearly a health care center. Presumably, the outpatient clinic group excluding any health care centers would not qualify as "a VA hospital, a VA community-based outpatient clinic, or a VA health care center." See VA (2010).

[58] Only Alaska, Hawaii, and New Hampshire are currently without any VA inpatient surgical facilities rated at standard complexity (VHA, 2014a).

[59] A threshold issue here is what constitutes a Veteran's "residence." Although the Veterans Choice Act does not address this issue, VA's interim final rules define it the legal residence or personal domicile at the time the Veteran is seeking external medical care through the Choice program (38 C.F.R. 17.1505).

[60] The commentary in the supplementary information section of the interim final rule indicated that there was "strong support for this interpretation" because the conference report accompanying the Veterans Choice Act noted that in "calculating the distance from a nearest VA medical facility, it is the Conferees' expectation that VA will use geodesic distance, or the shortest distance between two points" (79 Fed. Reg. 65577, citing House Report 113-564, 2014, p. 55).

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calculation with an amendment to the Choice Act calculating the mileage "based on distance traveled" (Pub. L. 114-19, Sec. 3(a)(1)).

Finally, VA was originally given considerable discretion in how it would define "geographic challenges" with regard to Veteran eligibility based on "unusual or excessive burden" in accessing medical facilities 40 miles or less from a Veteran's residence.[61] The interim final rule essentially equated "geographic" with geological or topological, specifically, "a body of water (including moving water and still water) or a geologic formation that cannot be crossed by road" (38 C.F.R. 17.1510(b)(4)). The May 2015 congressional amendment to the Choice Act retained the geographical challenge test for eligibility based on burden, but it also expanded the potential factors to include environmental ones ("such as roads that are not accessible to the general public, traffic, or hazardous weather"), a medical condition ("that impacts the ability to travel"), and any "other factors, as determined by the Secretary" (Pub. L. 114-19, Sec. 3). The change broadened the range of possible interpretations available to VA, and, conceivably the time needed to travel to VA facilities on clogged urban highways or by public transit could be taken into account.[62]

3.2.2 Elections and Providers

The Veterans Choice Act intends that when a recently separated combat Veteran signs up for the patient enrollment system, when a Veteran is unable to schedule an appointment within the wait-time goal maximum, or when a Veteran becomes eligible under criteria related to travel, he or she be provided with information about the availability of Choice-related care (Sec. 101(g)). Once eligible, a Veteran, at his or her election, can receive the types of hospital care and medical services that would normally be furnished by VA via health care providers participating in the Medicare program, any FQHC (for example, a nonprofit community health center), DoD, or IHS (Sec. 101(a)(1)).[63] As indicated previously, the process would be managed through VA's existing NVCC program, and VA is charged with ensuring that the Veteran's appointment with the external provider occurs within VA's wait-time goals (Sec. 101(a)(3)).

Under the original language of the Veterans Choice Act, Veterans who are unable to obtain a timely appointment with a VA provider have the following options: (1) keep the appointment despite the delay, (2) be placed on a prioritized waiting list for available VA services, or (3) elect to use external providers and obtain an authorization to receive care for "for a period of time specified" by VA (Sec. 101(c)(1), as modified by Pub. L. 113-175, Section 409(a)(1)(A)). If the eligible Veteran chooses the external provider option, he or she also has the ability, at least in theory, to select a specific provider (Sec. 101(a)(2)). The Veterans Choice Act's original language

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[61] "[A]s determined by the Secretary," per Section 101(b)(2)(D).

[62] The Assessment B report examines many elements related to Veterans' geographic access to care, and how various alternative standards affect determinations of access.

[63] FQHCs are facilities that qualify for enhanced reimbursement and other benefits under Medicare and Medicaid. They must meet several service and quality criteria, including offering a sliding fee scale, engaging in continuous quality assurance, and providing services to underserved populations (Health Resources and Services Administration, n.d.).

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did not grant this option to Veterans who are eligible for external care solely on the basis of distance and other travel challenges. VA's final interim rule was intended to fill "this gap in the law by providing these Veterans the same opportunity to select a particular provider as Veterans eligible based upon the wait-time standard. Eligible Veterans may nevertheless choose not to make such a selection, and in such a situation, those Veterans will be referred to an eligible entity or provider identified by VA." Accordingly, 38 C.F.R 17.1515(a) makes no distinction between time- and travel-based Veterans when it comes to available elections.

While the Veterans Choice Act (as interpreted by the interim final rule) appears to suggest that the specific choice of provider is essentially up to the Veteran as long as the provider falls under one of the four allowed categories, in actuality, a much narrower set of external health care resources is available.[64] Focusing here on private providers and FQHCs (rather than DoD or IHS providers), participation in Medicare is an initial requirement. Another requirement is that the provider must meet or exceed the credentials and licenses of VA providers and submit verification of these qualifications annually (Sec. 101(i)).

The provider pool is even more limited than the set of health care professionals who accept Medicare and who possess the necessary qualifications. An important characteristic of the Veterans Choice Act is the existence of "agreements" between VA and providers, suggesting that some preexisting legal relationship must be in place before a provider can render services to an eligible Veteran and expect reimbursement (Sec. 101(d)(1)).[65] Such an agreement anticipates that the provider would be willing to accept no more than standard Medicare program reimbursement rates for Choice-related services, except in situations involving Veterans residing in counties with a population density under seven persons per square mile (Sec. 101(d)(2)(B)). The technical amendments to the Veterans Choice Act through the Department of Veterans Affairs Expiring Authorities Act of 2014 added to Section 101(d)(1)(A) an explicit preference for using existing agreements with providers before entering into new ones:

> Before entering into an agreement pursuant to this subparagraph, the Secretary shall, to the maximum extent practicable and consistent with the requirements of this section, furnish such care and services to such veterans under this section with such entities pursuant to sharing agreements, existing contracts entered into by the Secretary, or other processes available at medical facilities of the Department. (Pub. L. 113-175, Sec. 409(a)(2))

Given that VA already had extensive contracts with TriWest and Health Net for PC3, the amended language opened the door to having these two TPAs effectively become the functional administrators of the Choice program.[66] If a health care provider wishes to be

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[64] VA's interim final rule states that while an eligible Veteran may specify a desired non-VA entity or provider for Choice services, in actuality, the entity or provider must meet certain requirements set forth in the regulations to be eligible to participate in the program (38 C.F.R. 17.1515(b)). If the Veteran does not specify an eligible provider or entity, VA will make the decision.

[65] Indeed, the title of Section 101 describes its purpose as "Expanded availability of hospital care and medical services for veterans through the use of agreements with non-Department of Veterans Affairs entities."

[66] Every state and the District of Columbia is already assigned to either TriWest or Health Net.

classified as Choice-eligible, it would have to either join an existing TriWest or Health Net network or enter into a special provider agreement with a Choice TPA. At least for the short run, a Veteran's ability to select a specific provider would, as a practical matter, be limited to those already a part of one of the existing networks.

The interim final rule addressed another aspect to Choice program provider eligibility not discussed at length in the Veterans Choice Act: accessibility from the perspective of the Veteran (38 C.F.R. 1530(c)). The Veterans Choice Act indicated only that Veterans eligible due to appointments exceeding wait-time goals "may select a provider . . . from among the entities . . . that are accessible to the veteran," without actually defining what accessibility involved (Sec. 101(a)(2)). Besides expanding the scope for this section to include Veterans eligible due to distance, the interim final rule noted that the amount of time the Veteran would have to wait for an appointment with a provider, the provider's qualifications, and the distance from the Veteran's residence to the provider's facilities would all be taken into account in VA's unilateral decision about whether a provider is appropriately accessible to the Veteran. The interim final rule does not specify the exact criteria for making such assessments, though the comments to the rule indicate that "VA will consider these factors together," balancing competing interests and "the preference of the veteran," and make "accessibility determinations on a case-by-case basis" (79 Fed. Reg. 65580).

Prior to receiving any external care, the Veteran must inform VA of any other medical benefit plans, contracts, or agreements (other than through Medicare, Medicaid, or TRICARE) that might provide coverage (Sec. 101(e)(1), (4)). VA, in turn, discloses these details to the external provider, along with information about any non–service-connected disability that could result in payments or benefits from collateral sources (such as workers' compensation, insurance recoveries related to motor vehicle accidents, victim compensation funds, or health care plans) (Sec. 101(e)(2), (3)(C)). Such information is required because the external provider is responsible for first seeking reimbursement from collateral sources or health plans, and the Choice program is secondarily responsible to the extent that the rate does not exceed the allowable amounts (Sec. 101(e)(3)(A), (B)). The act does not address the issue of primary or secondary responsibility when the payments or benefits are related to a service-connected disability, but the interim final rule states that VA is solely responsible for covering hospital care or medical services for a service-connected disability (38 C.F.R. 17.1535(b)(2)).

The final interim rule also aligned the Veterans Choice Act's provisions with VA's existing but informal policy of not requiring co-pays from a Veteran at time or point of service but, rather, only after VA has processed provider billings and determined the net amount owed (38 C.F.R. 17.108(b), (c); 38 C.F.R. 17.110(b)(4), (b)(3)).

3.2.3 Scope of Care

A Choice authorization to receive care at non-VA facilities can cover more than just a single visit to an external doctor or hospital. The Veterans Choice Act requires VA to allow a Veteran to obtain "hospital care and medical services from [the non-VA] health care provider through the completion of the episode of care," which includes "all specialty and ancillary services deemed necessary as part of the treatment recommended in the course of such hospital care or medical

services" (Sec. 101(h)). The Veterans Choice Act does not define *episode of care*, though it does limit the provision of care from any health care provider under a single Choice authorization to a maximum of 60 days (Sec. 101(h)). Thus, whatever the Veterans Choice Act considered an episode of care to be, Choice would only cover the first 60 days thereof without follow-up authorizations. See Section 5 for a more detailed discussion of the legal contours of episodes of care as currently defined by VA authority. See also Section 4 for a discussion of how this concept is applied locally, and its practical implications for purchased care administration.

3.2.4 Program Application

Choice is a very recent initiative. Despite a clear congressional desire to roll out the program as a fully featured option for Veterans within a few months of the act's passage, key rules and agency practices are still evolving and undoubtedly will continue to do so for the foreseeable future. The April 2015 decision to measure the distance between a Veteran's residence and a VA medical facility according to highway mileage provides an excellent example of the dynamic nature of the program's implementation. Materials describing how Choice works in practice may be out of date as soon as they are made available, and the specific policies and procedures used by one VA location may differ from those used by another as the system moves toward a unified, stable approach. That said, we can nevertheless describe in broad terms our interpretation of how the Choice program operates.

The process begins with a VA health care provider deciding that a course of treatment or a particular service is needed. A Veteran who wishes to take advantage of the Choice program initially calls a hotline that connects him or her with a representative of either TriWest or Health Net (depending on the location). At that point, the representative will confirm basic eligibility according to distance, appointment delay, or other criteria.[67] If eligibility is confirmed, the types of services available depend on the *type* of eligibility. Veterans who meet only the wait-time criteria can use Choice solely for the service that could not be scheduled within the time standard. Veterans who meet distance or other residence-based criteria can use Choice providers for any services that are "clinically necessary" (VA, 2014d). The TPA determines clinical necessity (VHA, 2015a, p. 9). The Veteran is then asked for the name and address of his or her preferred non-VA provider (if one is preferred), though, ultimately, that choice is limited to participating providers. The TPA representative then formally authorizes the referral and schedules the appointment with a Choice provider.

Providers who are interested in becoming eligible for Choice are informed that "VA has expanded its Patient-Centered Community Care (PC3) contracts with Health Net Federal and TriWest Healthcare Alliance to include implementing the Choice Program," noting that Choice "supplements PC3 and allows coverage for more services for eligible Veterans and provides Veterans more flexibility in their choice to receive care in the community or through VA" (VA, 2014e). They are told that existing members of either PC3 network are already eligible to participate in Choice. Moreover, if a provider is interested in joining a PC3 network (and thus becoming automatically eligible for Choice participation), they must execute a contract with

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[67] Some of the information used by TPAs to confirm Veteran eligibility is periodically received from VHA.

TriWest or Health Net. If they would prefer to remain independent from a PC3 network, they must nevertheless execute an out-of-network provider agreement with one of the two TPAs. Such agreements require the provider to meet Medicare conditions for participation and coverage, accept Medicare rates, and submit a copy of the Veteran's medical record to the TPA after services are rendered.

Review of the Health Net and TriWest web portals for provider inquiries suggests that there is little pressure to choose a PC3 contract rather than a Choice provider agreement and that the process for executing a provider agreement is not particularly onerous.[68] That said, the selected path to provider eligibility (via a PC3 network agreement or an out-of-network provider agreement with a TPA) does have important economic implications. Recall that PC3 network providers are paid about 3–8 percent less than full Medicare reimbursement rates. Presumably, those operating independently under a Choice out-of-network provider agreement (assuming less-than-Medicare reimbursement rates were not required to enter into the agreement) would incur no such loss.[69] It should be noted that the rules for calculating rates under Choice vary depending on whether a contract or provider agreement is in effect, the location of the services provided, and a number of other factors. For example, there is a specific authorization for the use of "the Alaska Fee Schedule of the Department of Veterans Affairs" for the Choice Program in Alaska, and in states like Maryland where an all-payer model agreement between the state and the Centers for Medicaid and Medicare is in place, the reimbursement rates are those in effect under the agreement.[70]

Not surprisingly, given its connection to PC3 administration, the Choice process from the provider's perspective is similar to that under PC3. An eligible provider (either selected by the Veteran or assigned by the TPA) receives the care authorization from the TPA (TriWest, n.d.). When the authorization is based on excessive wait times, it is accompanied by clinical/consultation information provided by VA; when patient eligibility is based on distance, supplementary information is included. Unlike PC3 and other VA purchased care programs, the provider is responsible for initially billing any health plan or other collateral source for initial reimbursement. Any residual claim (and any claim without another payment source that could be considered primary) would be then presented to the TPA or the TPA's payment processing vendor. The Veterans Choice Act specifically requires providers to supply VA with electronic medical records describing the treatments rendered (Sec. 101(l)). In addition, provider agreements with the network contractor are likely to require the submission of medical records prior to payment for services rendered.[71]

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[68] For Health Net's portals, see Health Net Federal Services, n.d.-b, n.d.-c, & n.d.-d. For TriWest's, see TriWest Health Alliance, 2014, 2015a, & 2015b.

[69] A sample Health Net Choice program provider agreement—presumably one that would not be required for health care professionals and facilities already associated with Health Net through the PC3 program—indicates that the default rate of reimbursement would be "Rate Agreed Upon: 100% of Medicare rates," and, when there is no published Medicare rate, it would be "Rate Agreed Upon: 100% of the VA fee schedule rate" (Health Net, 2014).

[70] See, for example, Pub. L. 113-235, Sec. 242.

[71] See, for example, Section 9 in Health Net's participation agreement (Health Net, 2014).

It is important to remember that the Choice program is a stopgap approach taken to address the circumstances that led to the passage of the Veterans Choice Act. In the words of VA Secretary Robert A. McDonald, "The Choice Program is a new, temporary benefit allowing some Veterans to receive health care in their communities rather than waiting for a VA appointment or traveling to a VA facility" (McDonald, 2014b). Moreover, it is a supplement to existing VA purchased care authorities and not a replacement. As the commentary to VA's regulations implementing the Veterans Choice Act specifically noted,

> Nothing in this rulemaking modifies VA's existing authority to furnish non-VA care, such as under 38 U.S.C. 1703, 1725, 1728, 8111, or 8153. The requirements of those statutes and their implementing regulations continue to apply, and VA will use those authorities when appropriate. Any veteran currently receiving non-VA care who is eligible for the Program will be provided the opportunity to elect to participate in the Program or to continue being provided care under VA's other authorities. (79 Fed. Reg. 65571)

3.2.5 Other Changes to VA Purchased Care Triggered by the Veterans Choice Act

3.2.5.1 Lines of Authority

The Veterans Choice Act addressed a number of areas that relate to the use of external medical care providers and facilities not necessarily tied to the Choice program. One involves the lines of authority for all VA purchased care. Traditionally, VHA's Chief Business Office had nominal control over all aspects of care provided externally, while VISNs maintained operational authority and responsibility. Nevertheless, it was the VAMCs that handled the day-to-day administration of purchased care, with staff at each center essentially having an independent hand when authorizing, managing, and paying for such care. The arrangement was said to provide "flexibility to meet local needs," though some have commented that the "decentralized nature of this program produces inefficiency" (AMVETS, Disabled American Veterans, Paralyzed Veterans of America, & VFW, 2013, p. 168). Some critics were more direct in their assessments of the existing arrangement, noting that this "highly decentralized mode of operation across VA hospitals and networks is a primary factor in the [VA purchased care] program's inefficient operations and high payment error rates," which was marked by significant variation in "organizational alignment, staffing, grade profiles, education, training, proficiency certification, performance standards and performance expectations" (National Academy of Public Administration, 2011). In addition, because payments to non-VA providers came out of VAMC budgets, the conference report accompanying the Veterans Choice Act noted that there were built-in disincentives when authorizing the use of external care, a situation that "in some cases has led to the determination of eligibility as subject to facility budget considerations rather than to the determination of what is best for the veteran" (House Report 113-564, p. 60).

Section 106 of the Veterans Choice Act was an attempt to address these concerns. Within a few months of the act's passage, VA was required to transfer all authority to pay for externally provided care from the VISNs and VAMCs to VHA's Chief Business Office (Sec. 106(a)(1)). VISN and VAMC employees who were tasked with claims processing, appeals, clinical reviews, and other functions associated with VA purchased care programs would be transferred (at least on

paper) to an independent division of VHA's Chief Business Office known as "Chief Business Office Purchased Care."[72] To reduce direct financial disincentives for VAMC provider staff when making external referrals, Section 106(b) provided that all funding for VA purchased care would be handled by the Chief Business Office rather than the VISNs and VAMCs where the services would actually be obtained.

3.2.5.2 Prompt Payment

Some criticisms lodged against VA purchased care programs prior to the passage of the Veterans Choice Act related to delays in processing claims and reimbursing external providers. Congress moved to address these criticisms through the Act.

In theory and more broadly, the Prompt Payment Act (codified at 31 U.S.C. 3901–3907) is designed to discourage federal agencies from such tardiness when they owe monies under federal contracts. The Prompt Payment Act requires the government to pay valid invoices on commercial obligations that are properly submitted within specific time frames; if the agency fails to do so, it must pay interest to the contractor and, in some instances, penalties.[73]

While some federal agencies fall outside of these requirements, VA does not. Internal guidance acknowledges VA's responsibilities under the act: "VA will follow the Prompt Payment Act for accepting goods, establishing the payment due date, and calculating any applicable discounts or interest required for procurement contracts, vendor payments, and utility payments per 5 C.F.R. Part 1315 and other regulatory guidance" (VA, 2013, p. 2). However, VA has traditionally interpreted the applicable statutes and regulations as exempting purchased care invoices from interest and penalties when payment is delayed. VA's position was that the Prompt Payment Act "applies to payments incurred as the result of a procurement contract," which means "any enforceable agreement, rental and lease agreement, purchase order, delivery order, requirements-type (open-ended) service contract, or blanket purchase agreement between VA and a vendor" (VA, 2013, p. 19). While the definition of a *procurement contract* is broad and would presumably cover instances in which VA purchased care is acquired through competitive bids for long-term services (such as contracting for establishing one of the PC3 networks), VA nevertheless asserted that payments "for medical and dental services which fall under non-VA care and are not covered in a contract or sharing agreement" are specifically exempt from these protections (VA, 2013, p. 20). Under this view, an individual authorization for purchased care under 38 U.S.C. 1703 (and the subsequent invoice VA would receive from the non-VA provider or facility) would not trigger Prompt Payment Act requirements.

The Veterans Choice Act took steps to clearly tie Prompt Payment Act requirements to VA purchased care invoicing. Section 105(a) states that it is the "sense of Congress" that VA comply with the prompt payment regulations set forth at 5 C.F.R. 1315 et seq., though it continued to

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[72] It appears that some NVCC care coordination functions will remain at local VAMCs and other VHA facilities.

[73] Regulations implementing the act are found at 5 C.F.R. 1315.1–1315.20. Assessment I's report details the issues surrounding these interest penalty payments.

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characterize the underlying relationship as contractual.[74] Moreover, Section 106(a) required VA (presumably VHA's Chief Business Office) to establish "a system to process and pay claims" from non-VA providers and mandated that the claims system be compliant with the Prompt Payment Act statutes.

3.3 Key Themes in Pre- and Post-Choice Purchased Care

In this section, we examine the four current methods for acquiring external health care for Veterans outside of emergency settings: three programs that rely primarily on established provider networks (Project ARCH, PC3, and the Choice program) and one "fee-for-service" mechanisms that can essentially utilize any eligible health care professional or facility (traditional purchased care). Note that the descriptions of these programs reflect our best assessment of how they work in practice, not simply what has been legally mandated by applicable statutes and regulations. The descriptions focus on services provided by physicians and inpatient facilities, as other types of services and products—such as clinical laboratory work, ambulances, dialysis, outpatient facilities, anesthesia, dental, pharmaceuticals, and ambulatory surgical centers—may operate under special rules for calculating payments and other criteria that would significantly increase the complexity of any cross-program comparison.

The basic statutory requirement for providing hospital, nursing, and domiciliary care for Veterans at VA facilities can be found in 38 U.S.C. 1710. That statute directs the VA Secretary to furnish certain types of care to specific classes of eligible Veterans (e.g., those with service-connected disabilities), and grants discretionary authority to the Secretary for providing medical care contingent on the availability of resources and facilities.[75]

With this mandate to provide care at VA facilities as background, the traditional authority for going outside VA—38 U.S.C. 1703—establishes the authority by which the Secretary "may contract with non-Department facilities" to furnish certain types of medical care and services (Table 3-6). The interplay of the two statutes—one mandating care at VA facilities for some groups of Veterans, and one permitting contractual arrangements to provide care at non-VA facilities—is the foundation for VA's current and historical programs for externally provided care.

A key point on the interaction between 38 U.S.C. 1703 and 1710 is important to recognize. Section 1710 includes a mandate that "the Secretary *shall* furnish hospital care and medical services which the Secretary determines to be needed," particularly to Veterans in specified groups. One question that arises is, how does the statutory mandate for VA to provide care

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[74] Prompt Payment Act regulations would come into play only with regard to "health care pursuant to contracts entered into with non-Department of Veterans Affairs providers."

[75] Specifically, the statute requires the Secretary to "furnish hospital care and medical services which the Secretary determines to be needed to any veteran for a service-connected disability; and to any veteran who has a service-connected disability rated at 50 percent or more" (38 U.S.C. 1710(a)(1)(A and B)). In addition, "the Secretary may, to the extent resources and facilities are available, . . . furnish hospital care, medical services, and nursing home care which the Secretary determines to be needed" (38 U.S.C. 1710(a)(3)).

under Section 1710 interact with the Secretary's discretion to purchase services under Section 1703? The answer is complicated. When read together, these two statutory provisions imply that for Veterans entitled to receive care under Section 1710, the Secretary has an obligation to provide that care, and if unable to do so through VA, the Secretary would then presumably have an obligation to exercise his discretion to purchase care from the outside. However, the wording of both statutes gives the discretion of the Secretary in making threshold judgments, including the determination of need for care under Section 1710, and VA's inability to provide care directly under 1703. Whether in practice VA has fully met this obligation in the way that it historically carried out purchased care, however, is open to debate.[76]

Table 3-6. VA Discretion in Key Purchased Care Programs

Program	Rules
Traditional purchased care	VA ***may*** employ if eligibility criteria are met
ARCH	VA ***shall*** provide covered health services to eligible Veterans (if electing) through ARCH provider contracts (assuming qualified providers are available)
PC3	Same as for traditional purchased care
Choice	Hospital care and medical services ***shall*** be furnished to an eligible Veteran at the election of such Veteran

Choice moves the pointer ever further, with a clear mandate upon VA to utilize non-VA resources when certain conditions are met. However, as our earlier description of the regulatory environment in which Choice operates suggested, that "shall" comes with important modifiers in terms of who can be used as providers and the circumstances in which the external care will be provided. Note that Choice was not groundbreaking in regards to providing the Secretary with an unambiguous charge to utilize purchased care under specific conditions; the Congressional authority establishing Project ARCH contained equally strong language, albeit applicable only for a fraction of the Veteran population.

As Table 3-7 suggests, the rules for Veteran eligibility across all four programs are a complicated mix of distance, time, medical conditions, travel challenges, issues related to local internal VA capabilities, issues related to statewide VA facility types, and Veteran residency. Navigating this jigsaw puzzle of rules would be difficult enough for administrative law attorneys, but for a Veteran whose primary concern is receiving adequate care on a timely basis, and not legal scholarship, the challenges would be formidable. Project ARCH has the least ambiguous (from the perspective of the Veteran) definition of what constitutes eligibility (requiring a certain amount of driving time depending on the facility desired), and traditional purchased care under

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[76] As we noted in the introduction to this report, the lead-up to the passage of the Veterans Choice Act in 2014 involved a crisis in access to services through some VA facilities. Presumably, some or all of the Veterans denied timely access to care ought to have been given access to purchased care as an alternative, based on a superficial reading of Sections 38 U.S.C. 1703 and 1710.

Section 1703 is the most (requiring knowledge of VA's internal ability to furnish economical car). Some of Choice's rules regarding eligibility are straightforward, but given the current debate over what constitutes a "medical facility" for the purpose of measuring distance, there is still some confusion even among well-informed stakeholders.

Table 3-7. Eligibility in Key Purchased Care Programs

Program	Situational Eligibility Rules	Status Eligibility Rules
Traditional purchased care	VA not capable of furnishing . . . (1) economical care/services because of "geographical inaccessibility" or (2) required care/services	Many conditions and situations qualify, but two may be most commonly utilized: (1) treatment of any service-connected disability/condition; or (2) treatment of any disability if (a) Veteran previously seen by VHA providers and (b) non-VA resources are required to complete treatment
ARCH	(1) If seeking primary care, must reside more than 60 min. driving time to nearest VA primary health care facility; (2) If seeking acute hospital care, must reside more than 120 min. driving time to nearest VA acute hospital care facility; or (3) If seeking tertiary care, must reside more than 240 min. driving time to nearest VA tertiary care facility.	Veteran must be (1) Residing in a pilot site; and (2) Currently enrolled for VA health care. Services required must be offered by an ARCH contracted provider
PC3	Same as for traditional purchased care	Same as for traditional purchased care, though specialty required must also be one offered by a PC3 contracted provider

Program	Situational Eligibility Rules	Status Eligibility Rules
Choice	The Veteran . . . (a) was unable to schedule appointment within "wait-time goals"; (b) resides more than 40 miles from any VA medical facility; (c) resides more than 20 miles from any VA medical facility if state lacks a VA "standard" level inpatient facility (d) is required to travel by air or water to all VA medical facilities within the 40 mile limit; or (e) has "unusual or excessive burden" due to "geographic challenges," "environmental factors," medical conditions, or other VA-defined factors	Veteran must be (1) Already enrolled in VA's patient enrollment system as of Aug. 1, 2014; or (2) a recently discharged combat Veteran under specific circumstances

Veterans are clearly provided with greater discretion to choose a provider under the Choice program than under the other three purchased care programs (Table 3-8), but given that the provider pool is essentially restricted to those with preexisting relationships with the TPAs administering Choice, assertions made at the time of the act's passage that eligible Veterans can go to any doctor of their choosing markedly overstate the actual situation. This condition could change with the continued rollout of Choice, though the VA-defined requirement of "accessibility" could further narrow Veteran discretion.

Table 3-8. Veteran Input into Provider Choice in Key Purchased Care Programs

Program	Rules
Traditional purchased care	None specifically authorized
ARCH	Presumably limited to providers within ARCH network
PC3	Presumably limited; PC3 contractor sets up appointment with provider within network
Choice	Presumably limited to providers who have previously entered into agreements with VA or third party administrators of program ***and*** who VA judges to be "accessible" to the Veteran

These programs also differ dramatically in regards to what providers might receive for treating Veterans (Table 3-9). As discussed in Section 4, these differences may play a significant role in program uptake, if indeed the payment rules reduce the pool of available providers and services in a region. There does appear, however, to be some flexibility built into the rules, and ultimately provider reimbursement levels may be driven more by market forces than statutory and regulatory mandates.

Table 3-9. Payments and Payers in Key Purchased Care Programs

Program	Payment Rules	Payer Rules
Traditional purchased care	If inpatient, "prospective payment system similar to that used in the Medicare program"; in practice this means (1) The Non-VA hospital price rate (2) The VA cost-to-charge rate. If outpatient, (1) the amount described on any contract or negotiated agreement, or (2) if no contract or agreement exists but there is an applicable "Medicare rate," the lower of (a) the "Medicare rate," (b) the "repricer" rate, or (c) amount the provider bills general public; (3) If no contract or agreement exists and there is no applicable "Medicare rate," the lower of (a) the local VA Fee Schedule; (b) the "repricer" rate, or (c) amount the provider bills general public	VA
ARCH	Reportedly a negotiated percentage of local Medicare rates for four sites managed by a vendor; full Medicare rates for the site directly contracting with VA	ARCH contractor or facility
PC3	Presumably at or below the amounts allowed for traditional purchased care; reportedly a negotiated percentage of local Medicare rates	PC3 contractor

Program	Payment Rules	Payer Rules
Choice	Rates are to be negotiated, but may not be more than . . . (a) Medicare Fee Schedule rates; (b) A negotiated rate greater than Medicare rates but only for Veterans residing in a "highly rural area"; (c) The rates available under the traditional purchased care formula but only if the Medicare Fee Schedule is not applicable; or (d) An alternative set of rates in certain locations	Choice contractor

The statutory and regulatory references described here suggest several potential reasons for allowing Veterans to obtain care outside of VA (Table 3-10). In some cases, the underlying objective originates with VA, such as when it considers the use of outside providers to be in its economic self-interest or a way to avoid having to develop a capacity that may have little ongoing utility. In other cases, it is the Veteran's preferences or interests that are at stake, such as the inconvenience or expense of accessing medical care in highly rural areas. The line between the two sets of interests is not a bright one, and even when an authority allows the Veteran to see a much closer non-VA physician, VA's interests are nevertheless in play, because VA would ultimately be responsible for covering the costs of traveling to a VA facility.

Table 3-10. Objectives For Utilizing Purchased Care

Area of Concern	Congressional Approach	Authority Provided
VA does not have expertise or facilities to provide needed care.	Provide VA with limited discretion to determine whether it has the capacity to deliver needed services.	Authorizations issued under 38 U.S.C. 1703
VA has expertise or facilities required, but external provision would be economically advantageous to VA.	Provide VA with limited discretion to determine whether it has the capacity to deliver needed services economically.	Authorizations issued under 38 U.S.C. 1703
VA has expertise or facilities required, but wait time for Veteran would be excessive.	Allow Veteran to use non-VA resources if an appointment cannot be scheduled within wait-time standards.	Eligibility for Choice program based on whether appointment can be scheduled within VA-defined time standards

Area of Concern	Congressional Approach	Authority Provided
VA has expertise or facilities required, but Veteran's life or heath requires immediate delivery of services.	Allow Veteran to use non-VA resources in emergency situations.	Reimbursements under 38 U.S.C. 1725 and 1728
VA has expertise or facilities required, but travel time or effort for Veteran to access care would be excessive.	Allow Veteran to use non-VA resources when he or she meets objective distance, time, or geographic criteria.	Qualification under Project ARCH for residing more than 120 minutes driving time from needed acute care facility
VA has expertise or facilities required, but Veteran would prefer alternative provider.	Allow Veteran option of using VA providers or going outside VA, but only if certain conditions are met; offer limited pool from which providers can be chosen.	Optional use of Choice program providers under Veterans Choice Act
VA has expertise or facilities required to some degree, but demand for specific services exceeds supply.	Allow contracting to augment available pool of providers.	Agreements under 38 U.S.C. 7409 to purchase services from local medical schools
Use of collaborative arrangement for sharing resources is believed to further VA mission.	Permit the use of reciprocal agreements allowing VA to treat other entities' patients and vice versa.	Sharing agreements with DoD under 38 U.S.C. 8111
Development of sustainable/widely available expertise or facilities believed to be a less-than-optimal use of VA resources.	Carve out specific conditions or treatments for facilitated access to external resources.	Treatment of children with spina bifida under 38 U.S.C. 1813(b)

What is clear from Table 3-10 is that VA has never been given *unfettered* discretion by Congress to purchase external health care. In every instance, the authority to do so is limited in some way, sometimes by objective criteria (such as minimum distance from the closest VA medical facility) and sometimes by narrowing the pool of potential patients (such as Veterans with service-connected disabilities). There are likely many reasons for these legislative constraints, such as controlling costs, discouraging VA from shifting from its traditional role as a specialized health care provider into a health care payer, or ensuring that resources for purchased care are targeted towards specific goals. Whatever the reason, Congress has repeatedly declined to grant VA with unrestricted ability to spend Department funds in this area as it sees fit.

Additional layers of constraint upon purchase care use are essentially self-imposed by VA. Regulations it has promulgated often serve to more narrowly define the circumstances in which

Veterans are eligible to receive care from external sources than what the underlying statutory authority required. Regulations also have been used to place additional restrictions upon the qualifications of providers who might be eligible to deliver such services, and to limit the scope and duration of any treatment given during the course of a referral. Ultimately such regulations provide VA with powerful tools to control when, where, and how it utilizes outside medical services.

Given that they have been developed over many decades, it is not surprising that these authorities are marked by an array of eligibility requirements and, sometimes, idiosyncrasies.[77] Over the years, revisions to the basic authority for purchased care provided by 38 U.S.C. 1703, as well as the expansion of permissible uses of external resources brought about by Project ARCH and the Veterans Choice Act, have created a complex structure for service delivery. Table 3-7 provides a hint of this intricate maze of statute and regulation that has developed over time at least with regard to situational and status eligibility requirements. Navigating that maze is not only a challenge for Veterans, it can also be a challenge for VA staff, especially given that key sources for guidance do not always reflect the most current legal framework for purchased care.

This overview of purchased care authorities and mechanisms before and after Choice program implementation demonstrates that existing statutes do provide the Secretary with authority to use a multitude of purchased care options to accomplish the mission of serving Veterans. However, various restrictions on the use of these resources create a convoluted pool of criteria that can limit how external providers are used if VA so chooses. Statutory limitations and VA's interpretive rulemaking could both benefit from clarification to facilitate the more effective and efficient use of VA purchased care.

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[77] One example is a specific provision in 38 U.S.C. 1703 allowing VA to use non-department facilities when a female Veteran is in need of hospital care. The authorization appears to date back to the 1950s. No similar authority exists for male Veterans.

4   VA Purchased Care Authorities and Mechanisms in Practice

Overview of Methods and Data for Authorities and Mechanisms for Purchased Care in Practice

We assessed barriers and challenges to purchased care in practice by:

- Reviewing documentation from 79 VA facilities, describing their purchased care policies and processes at the local level
- Reviewing relevant VA policy documents and guidance at the national level, as well as related secondary literature
- Conducting and analyzing data from stakeholder interviews
- Analyzing relevant data from the Survey of VA Capabilities and Resources.

As discussed in Section 3, VA can purchase care through a series of different mechanisms. Figure 4-1 illustrates the array of purchased care mechanisms in use as of the writing of this report. In Section 3, we explained how differences in purchased care programs' key elements create inherent challenges to implementation by VA. Section 4 discusses VA purchased care authorities and mechanisms in practice and how the multiple programs for purchasing care may contribute to confusion and inefficiency within VA.

Whereas Section 3 primarily addressed the federal authorities and mechanisms by which VA purchases care, in this section, we focus on challenges in the implementation of purchased care and on the experiences of local VA facilities and personnel in striving to overcome them. We drew on our review of the relevant literature, as well as original data gleaned from stakeholder interviews and the Survey of VA Capabilities and Resources. We also examined the balance between standardization and flexibility in local VAMC and VISN purchased care policies, procedures, and training, drawing on original source materials we received from VA and the Survey of VA Capabilities and Resources. In the process, we identified models that could inform revisions to various local policies in purchased care. Section 4 highlights leverage points for policymakers to consider that would help to streamline the administration and practice of purchased care in the future.

Figure 4-1. Purchased Care Mechanisms in Practice
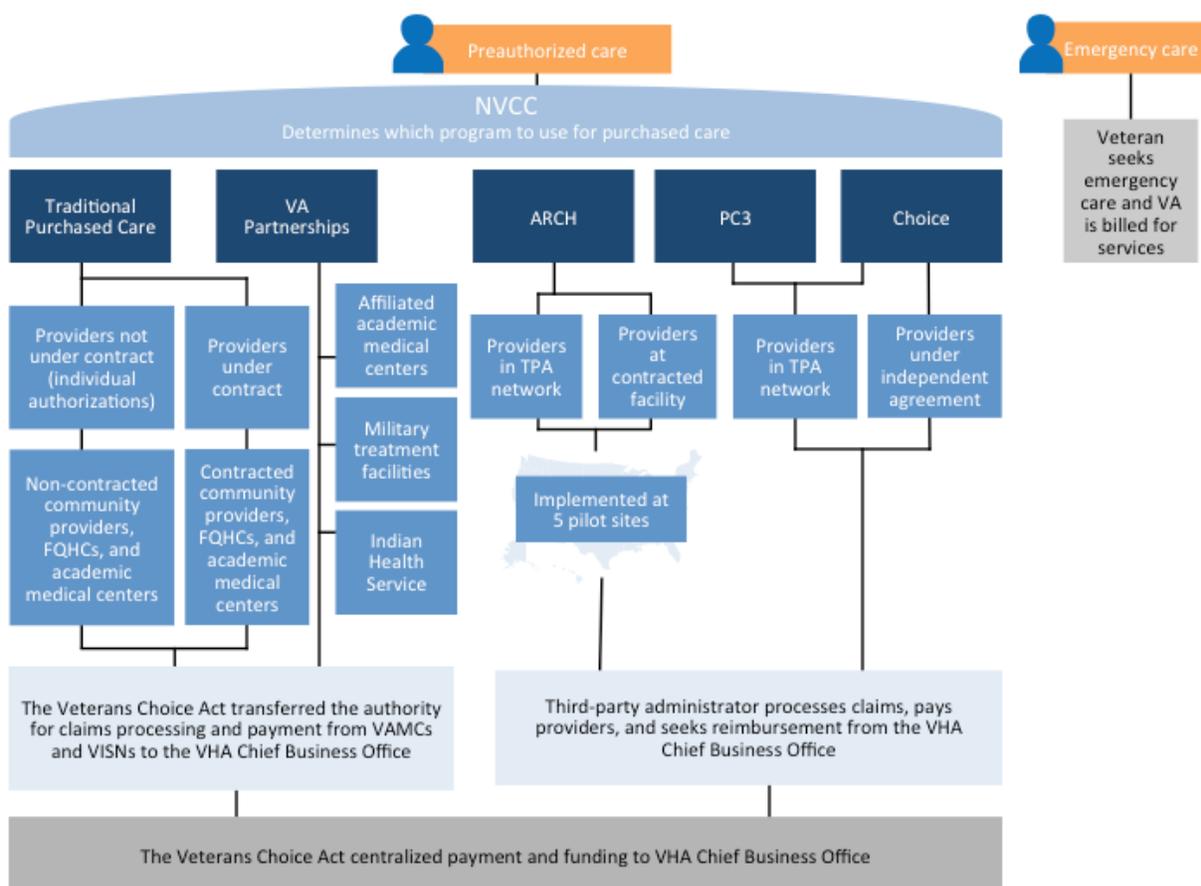
4.1 Practical Challenges in the Administration of Purchased Care

Several reports have highlighted serious problems with the administration of the traditional VA purchased care programs, including improper payment of fee claims, administrative inefficiencies, and inconsistent procedures (see, e.g., VA Office of the Inspector General, 2009, 2010, and 2012). Another criticism leveled was the lack of coordination or care management with regard to Veterans' use of fee care services, potentially leading to inappropriate follow-up care, medication errors, and readmissions (Jones, 2012).

To assess the barriers and challenges to purchased care in practice, we reviewed documentation from 79 VA facilities describing their purchased care policies and processes at the local level. We also reviewed relevant data from the 2015 Survey of VA Capabilities and Resources, which assessed clinically meaningful delays in care for the seven illustrative clinical populations chosen for Assessment B (Health Care Capabilities) and for primary care.[78] In addition, we conducted stakeholder interviews and reviewed related literature on local

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[78] See Section 2 and Appendix D for additional detail on the survey's administration and the questions about purchased care.

implementation and federal oversight of VA purchased care. Our assessment of purchased care program administration examines eligibility criteria, reimbursement and billing, quality of care, issues with TPAs and provider networks, coordination of care, and centralization and oversight versus local discretion and flexibility.

4.1.1 Eligibility Criteria and the Hierarchy of Purchasing and Referral Options

As shown in Figure 4-1, VA obtains (preauthorized) outside care through several channels, including the traditional VA purchased care mechanism, VA partner agencies, Project ARCH, PC3, and Choice. Eligibility for purchased care varies across these pathways. Through NVCC, local medical facilities determine which mechanism to use to purchase care for each patient referred. That determination is based primarily on the Veteran's eligibility for each of the purchased care programs. Table 4-1 summarizes the eligibility criteria for the four main purchased care programs; these criteria are discussed in greater detail in Section 3 of this report.

Table 4-1. Comparison of Purchased Care Eligibility Across Four Main Programs

Feature	ARCH	PC3	Traditional Purchased Care	Choice
Eligibility	Driving time to VA facilities (pilot sites only)	VA not able to furnish necessary care	VA not able to furnish necessary care	Wait time, geographic distance to VA facilities

As discussed in Section 3, Project ARCH is a pilot program offered only in rural VAMCs in VISNs 1, 6, 15, 18, and 19. The pilot is set to end in August 2016. Thus, for most VISNs, both currently and in the long term, ARCH eligibility is not a relevant consideration. However, at present, for Veterans living in the five VISNs participating in the pilot, driving time criteria for participating in ARCH is an additional consideration.

The other purchased care mechanisms have overlapping distance and access eligibility requirements. Under Choice, Veterans who are eligible based on 40-mile access criteria may request purchased care.

As shown in Figure 4-2, there is also a specified hierarchy intended to determine VA health care referrals. Direct VA health care is broadly the option that VHA prefers Veterans to utilize first. Current guidance then directs purchased care referrals first to other federal agencies,[79] then to affiliated academic medical centers, then to contracts (including PC3 and Choice), and then to individual authorizations.

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[79] As we discussed earlier in Section 3.1.1.3.2 of this report, VA has specific authority to enter into collaborative agreements with DoD for the sharing of medical facilities and providers. In addition, VA also has the authority to collaborate and/or contract with other several other federal agencies to obtain outside services, notably including the IHS and FQHCs. Sections 101 and 102 of the Veterans Choice Act address both of these outside agencies, and Section 101 explicitly identifies them as being eligible to receive Choice referrals.

Figure 4-2. Hierarchy for VA Care Referrals
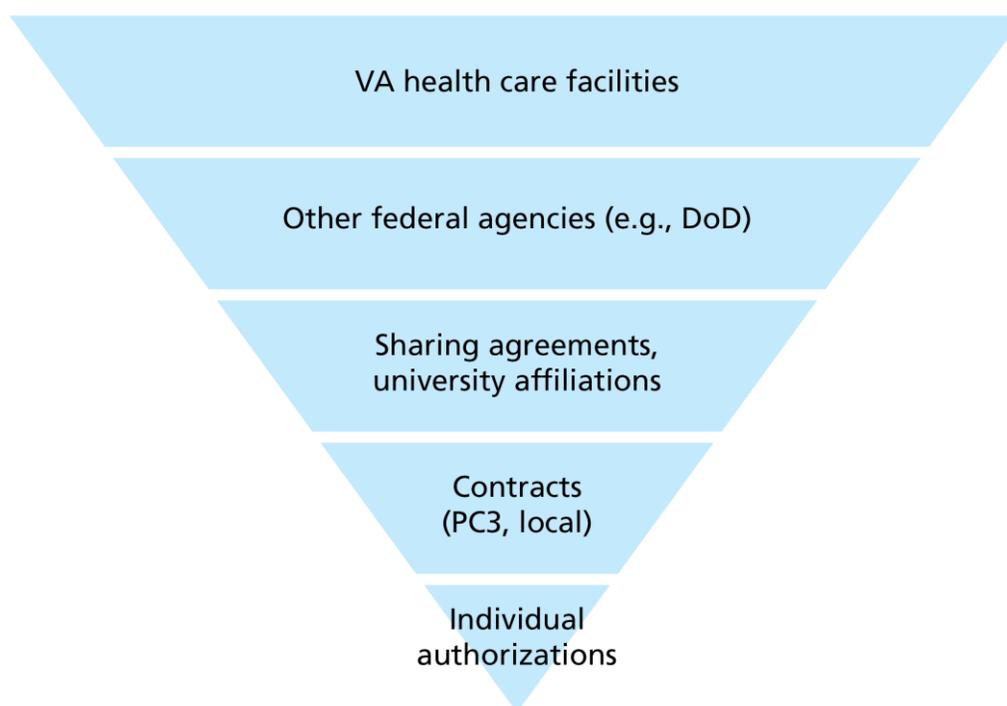
SOURCE: Robinson (2014).

Notwithstanding this programmatic hierarchy for outside referrals, complex judgments by VA administrators may still be involved in deciding which purchasing mechanism to use, given the context of care for a specific Veteran. As noted in Section 3, the various programmatic options differ not only with regard to basic eligibility criteria but also along other parameters, including payment levels, provider qualifications, and additional, situational eligibility requirements. Taken collectively, and given the likelihood that access to willing outside providers may be more readily available under some pathways than others, the selection of the "correct" purchasing pathway may not be reducible to a simple algorithm. As one VA official we interviewed said, "It isn't that VA staff aren't familiar [with the various purchased care programs], it's that they don't know which program to use first."

As of this writing, purchased care eligibility criteria and the referral hierarchy did not appear to be getting simpler, though VHA's Chief Business Office was strengthening its guidance for navigating program eligibility.[80] In 2015, stakeholders were actively discussing a range of possible changes to the hierarchy for purchased care. According to one senior VA stakeholder interviewed, the hierarchy is intended to shift in June 2015, based on new VA guidance that will assert that no new individual provider agreements should be made. By implication, referrals would go to academic affiliates first, then to PC3, and then to existing contracts with providers, while individual authorizations would disappear from the hierarchy as a purchasing option. In contrast, recent congressional testimony by a different VA official described new legislation

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[80] According to one interviewee.

being proposed by VA, specifically intended to protect individual authorizations as a procurement practice for purchased care (Murray, 2015). Yet another recent testimony before the Senate Veterans' Affairs Committee suggested a different possible shift to the purchased care referral hierarchy, under which Choice would become the default option for purchased care going forward (Exploring the Implementation and Future of the Veterans Choice Program, 2015).

At present, it seems fair to conclude that the future direction of these policies is unclear. In the meantime, purchased care referrals under the existing framework involve navigating a complex set of eligibility criteria, with significant ambiguity for VA officials in determining the appropriate pathway for purchasing care and referring Veterans in specific cases.

4.1.1.1 The Role of NVCC in Navigating Eligibility Criteria

We heard somewhat conflicting views about NVCC in stakeholder interviews. Several VAMC and VISN officials provided positive feedback on the program, praising NVCC as a critical mechanism for routing Veterans to the appropriate care and navigating the complex maze of eligibility criteria. One VAMC interviewee noted Veterans' appreciation of the fact that, under NVCC, VA is responsible for coordinating all steps of the patient's medical treatment or services, from scheduling the appointment through completion of care. Similarly, some believed that NVCC had standardized the referral process for purchased care. As one VISN interviewee put it, "The loop is phenomenally tight." Others cited the standardization brought about by NVCC as being useful in aiding the VAMCs and VISNs and in monitoring problems in the referral process.

Still other stakeholders critiqued what they perceived as an overriding of the successful NVCC process by new purchased care mechanisms, such as PC3 and Choice. VA interviewees stated that the standardization in referral processes established through NVCC did not extend to PC3 or Choice. As one VISN interviewee noted, "NVCC is a great program. It provides great care, and serves Veterans well. It's timely, and provides continuity of care. PC3 has done nothing but fracture the NVCC process."

However, other interviewees spoke of challenges they perceived to be associated with NVCC. One senior VA official with significant expertise in NVCC processes spoke of the complexities surrounding NVCC, specifically the backlog of cases resulting from understaffing and high workloads. This official reported an average monthly workload of 1,600 appointments. Compounding this problem are apparent communication and information-sharing challenges that NVCC personnel encounter as they attempt to interact with VA personnel and external medical providers of purchased care; each office or entity may have a distinct information-technology structure of its own. The same senior VA official commented that already overburdened NVCC personnel must rely on fax machines to transmit the majority of documentation between different providers' offices and spend a significant amount of time resending documents and calling providers to track down documentation that was, in many cases, already sent. This official also noted that while NVCC personnel receive official VA training on scheduling, standardized guidance on NVCC-specific training is lacking. As a result, staff training in NVCC-specific processes tends to be "locally developed, like a lot of VA [practices]."

The literature points to other potential problems with NVCC. An inspection of one VAMC by the VA Office of the Inspector General's Office of Healthcare Inspections found improper "batch closings" of more than 1,500 NVCC requests for external clinical care in April 2014, done solely to meet a May 1, 2014 administrative deadline. Moreover, the inspection found that the same facility had problems scheduling timely appointments under NVCC, missing VHA's 90-day goal every month for five months (VA Office of the Inspector General, 2014a).

4.1.2 Reimbursement Rates and Claims Processing Issues

Variability in reimbursement rates to providers under different purchased care mechanisms has also hampered implementation. A criticism frequently levied against PC3 is that provider reimbursement rates, which, in some areas, are lower than those under Medicare, might discourage participation (Dickson, 2014b). Indeed, concerns about low PC3 reimbursement rates and their effect on provider participation led Congress to mandate an explicit extension of Project ARCH so that care for Veterans already in the system would not be disrupted when PC3 was launched at the ARCH sites.

These concerns were supported by a March 2015 letter to Secretary Robert McDonald from the American College of Physicians, which noted that negotiated reimbursement levels in both PC3 and the Choice program operated as a disincentive to provider participation. "In order to encourage participation by non-VHA physicians and other healthcare professionals in the [Veterans Choice Act] Program," the American College of Physicians recommended, "payment rates should be no lower than those provided under the Medicare program" (American College of Physicians, 2015). Moreover, the National Association of Community Health Centers (2015) has argued that reimbursement rates under Choice should not be calculated on the basis of what was available under PC3, which it asserted was wrongfully being used as the default standard if a provider participated in both programs.

These concerns were echoed in the interviews conducted for this assessment. The Veterans Choice Act states that, except in certain specified situations, the rates shall be no higher than those paid to providers under Medicare for similar services, but there is no similar language that prevents a provider from being offered less than full Medicare rates as part of network participation negotiations. Some interviewees were concerned that health care providers had little financial incentive to sign on to VA purchased care networks, especially in affluent regions and in areas where "concierge medicine" (as one VAMC director phrased it) is on the rise.[81] Indeed, in such areas, even Medicare rates are substantially lower than the market rates that a provider can command, adding an extra challenge to efforts to expand purchased care. The same VAMC director who mentioned concierge medicine explained that there is "variance between what is reimbursable and what [some outside providers] can command in their individual markets. It's quite a variance, and, in some cases, it's . . . hard to reconcile." It is important to note that these are individual perceptions. An evaluation of VA's purchased care

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[81] *Concierge medicine* refers to primary care practices in which patients pay annual retainers to receive enhanced, more customer-oriented care.

networks, once they are fully established under PC3 and Choice, will be needed to determine their adequacy and the trade-offs between negotiated payment rates and access to providers.

Several past reports have indicated the pervasiveness of improper claims payments and their potential impact on non-VA providers' willingness to continue serving Veterans.[82] A 2009 study conducted by VA's Office of the Inspector General determined that the outpatient component of the traditional purchased care program improperly paid 37 percent of outpatient fee claims by making duplicate payments, paying incorrect rates, and making other, less frequent payment errors, such as paying for the wrong quantity of services (VA Office of the Inspector General, 2009, p. 4). It also found that, for 80 percent of outpatient fee claims, VAMCs did not follow requirements for justifying and authorizing fee services. A subsequent study by the same office in 2010 found that VHA improperly paid 28 percent of preauthorized inpatient fee claims. It also found that VAMC staff did not properly authorize inpatient fee care because VHA policies did not provide adequate guidance for determining eligibility or because fee staff did not understand the guidance that was available (VA Office of the Inspector General, 2010, p. 3).[83] Others have criticized the lack of updated automated processes for claims handling by VA under the traditional purchased care program, noting that the primary application being used to handle claims from non-VA providers is more than two decades old (AMVETS, Disabled American Veterans, Paralyzed Veterans of America, & VFW, 2013, p. 167). The problems noted go beyond mere inefficiencies in handling paperwork, some stakeholders argue; there have been "serious concerns about past due claims payments from VA and the economic realities that will force community providers to stop serving Veterans without timely payments" (Jones, 2012). Indeed, a March 2014 GAO report indicated that delays in claim processing under the traditional purchased care program were a major issue for some non-VA hospitals. According to the report, staff at one VA facility believed that these delays had lasted years in some cases.[84] To our knowledge, as of this writing, VA had not performed any systematic evaluations of the timeliness and quality of contractor claims processing for the relatively new PC3 and Choice programs. Assessment I's (Business Process) report, however, provides an evaluation of these issues.

To the extent that Medicare rates (or sub-Medicare rates) and delayed claims payments are unattractive to outside providers, purchased care mechanisms that otherwise seek to address internal VA capacity shortfalls may be unsuccessful in building a robust outside provider capacity. The TRICARE program, the health benefit plan for active-duty and retired military personnel and their dependents, also maintains a national network of civilian providers who are paid largely at Medicare rates. At the end of FY 2014, the TRICARE network totaled 434,300 physicians and other providers, and beneficiary access to community care was similar to or

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[82] According to Assessment I (Business Process), the most significant barrier to timely and accurate payments of claims is technological. Non-VA providers submit relatively few electronic claims, negatively affecting accuracy and timeliness.

[83] Two years later, similar issues were still in play. See VA Office of Inspector General (2012).

[84] This GAO report was about Millennium Act claims, in particular, but echoes statements made more generally (GAO, 2014d).

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higher than in private sector plans (Defense Health Agency, 2015, p. 62). As of June 2015, both TriWest and Health Net were still building their networks. Once this initial effort is complete, VA can evaluate network adequacy as TRICARE does.

Reacting to claims processing challenges and backlogs, Section 106 of the Veterans Choice Act directed a reorganization of claims processing to consolidate this function under the management of VHA's Chief Business Office, as discussed in detail below. The success of that reorganization and its ultimate impact on claims processing speed remain to be seen.[85] Policy-makers might at least consider whether similar direct legislative intervention could be helpful in improving any aspect of reimbursement, including both claims processing and purchased care provider rates. For example, current VA purchased care law generally sets upper bounds on provider reimbursement rates but establishes no floor.[86] When ensuring an adequate pool of participating providers is perceived to be an important component of a policy to address a particular problem (such as lengthy wait times), Congress could discourage the use of VA initiatives that result in reimbursements smaller than what the Medicare fee schedule allows. The broader policy issue to consider is the resulting trade-off: Authorities and policies that reduce purchased care expenditures may be desirable for controlling cost, but they sometimes may be undesirable when they make participating in purchased care less attractive to outside providers. Future policy discussions will need to determine the appropriate trade-offs.

Although provider reimbursement rates and procedures are a key component of VA purchased care provision, most SOPs we reviewed did not discuss this issue. Instead, they focused on authorization, referral, and appointment management. Given the recent shift and the lack of guidance of budgetary authority from VAMCs to VHA's Chief Business Office, VAMC personnel could be confused, at least in the near term, about responsibilities and procedures for provider reimbursement. Assessment I's report echoes this sentiment, noting that Non-VA care procedures for processing claims are complex and confusing, and claims clerks must execute a number of complicated processes and tasks on a daily basis.

4.1.2.1 Reimbursement for Emergency Services

Most of the time when medical care is provided outside of VA, the patient may be unaware of issues related to invoicing, claim verification, and provider payment. That is not the case for emergency services, for which a Veteran is unlikely to have obtained an official authorization from VA, prior to seeking emergency help at a local hospital or clinic. The latter situation puts the onus on the Veteran to pay the bill and seek reimbursement from VA for his or her

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[85] Assessment I (Business Process) notes that this is a step in the right direction, and recommends complete centralization and standardization of the claims processing function.

[86] Under Section 101(d)(2)(B) of the Veterans Choice Act, for example, provider reimbursement rates generally cannot be higher than the Medicare Fee Schedule rates (unless the care involves Veterans residing in counties with population densities of less than seven persons per square mile). In the context of outpatient services under Section 1703 purchased care, however, reimbursements can be based on the terms of any existing contract or agreement between the provider and VA. If no such contract or agreement exists, it would be the lower of the Medicare rate, the rate available through re-pricing (where contractors give VA discounted health care through a network of providers), or the amount the provider bills the general public for similar services.

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emergency care (or to seek an assurance that VA will take care of the bills as they are received). Commenting on the complexities of complying with the conditions set forth in 38 U.S.C. 1725 and 1728 to avoid significant financial responsibility, one group of Veterans Service Organizations has asserted that the "laws prescribing VA coverage of non-VA emergency care services places an extraordinary burden on Veterans, requiring that they be educated on convoluted and burdensome administrative criteria not typically found in private health-insurance plans" (AMVETS, Disabled American Veterans, Paralyzed Veterans of America, & VFW, 2013, p. 67).

4.1.2.2 Financing and Payment

Section 106 of the Veterans Choice Act consolidates purchased care financing in VHA's Chief Business Office rather than at the local level. Congress included this provision in the act in an effort to shift financial decision-making for outsourcing care from the local facilities to the central administration and encourage the use of non-VA care mechanisms. Although referrals still must be made at the local level, this was seen as one lever available to Congress to help increase the utilization of purchased care. As one senior VA official put it, "Choice was a reaction to us not using our mechanisms as often as we should." A congressional official confirmed this sentiment: "We know that VA has the authority to provide non-VA care, but they don't use it. We want to know how to get the VA to use non-VA care authorities."

However, this initiative has met with varying levels of support across different stakeholder groups. Of the nine VISN/VAMC interviews conducted, seven interviewees commented on the centralization of purchased care funding, and all had negative impressions of the change. One VISN director articulated that it caused payments to be late, which, in turn, affected relations with community providers. The interviewee's VISN reportedly had a 95-percent payment rate within 30 days prior to the policy change; after financing was centralized at VHA's Chief Business Office, according to the interviewee, the payment rate dipped to 80 percent. That said, a congressional official was optimistic and suggested that the reshuffle would ultimately help improve the timeliness of claims processing and reimbursements across the VHA enterprise.

Another concern among local and regional VA officials was that the centralization of financing would over-incentivize the use of purchased care. Previously, when local officials managed their purchased care budgets, there was an incentive to bring services back in house to sustain internal workloads. According to one high-level VA Central Office official, "The centers were used to knowing how much money they had, to constrain how many patients they sent out. Now, we are finding that they are sending people out because they aren't under budget constraints." Other local officials worried that the new process would hamper their budget planning. One VISN examined historical care provisions to determine how much purchased care a VAMC was likely to need in the coming year, said the director of a facility in that VISN. Having a clear expectation of the extent to which purchased care might be required helped the VISN to build a smarter budget. Steps are reportedly being taken to carry out this function in collaboration with the relevant VA central offices, the contractors, and the VISNs/VAMCs, but it is too early to determine how widespread or effective this approach has been.

On the other hand, several VSO representatives interviewed for this study supported the shift in budget authority and heralded the consolidated financing as a much-needed change. In the words of one VSO official, "Before, the facilities could decide [how much to spend on non-VA care]. Now, the reliance on non-VA care does not have financial impact on their ability to provide capacity because it's coming from Chief Business Office. It's a step forward and removes a barrier for access to non-VA care."

4.1.3 Quality of Care Concerns

The quality of the care provided by VA is often raised as a major reason for Veterans to stay within the system. Assessment B's review of the evidence on VA quality of care showed that VA health care quality was good overall on many measures and domains compared to non-VA comparators. Studies have found that a key aspect of VA's quality of care is the cultural competency of its providers. For example, a RAND report on the cultural competency of non-VA mental health providers found that only 13 percent were equipped to serve a Veteran population (Tanielian et al., 2014, p. 18).[87] Assessment B's report details the ways in which VA's culture is well suited to providing care to Veterans.[88] In addition to a better understanding of military culture, VA providers understand the specific health needs of Veterans. Illnesses and injuries, such as traumatic brain injury, polytrauma, exposure to hazardous materials, and chronic pain, are more common among Veterans than in the general population (Johnson et al., 2013). Because VA screens Iraq and Afghanistan Veterans for traumatic brain injury, a VA practitioner might be better equipped than a physician at a non-VA facility to identify the symptoms of the condition. Assessment A (Demographics) describes the unique health care challenges facing Veterans and notes that VA providers treat a sicker population than civilian providers.

Several interviewees expressed concerns tied to inconsistent oversight and quality of care across purchased care providers. Some stakeholders indicated a need for performance metrics and data collection so that VA could track community providers' performance. For instance, one VISN director suggested that VA loses control over quality when Veterans seek health care in the community. An official working for another government health program took a similar stance, noting that VA would have to decide whether assessing the quality of care provided to Veterans by non-VA providers is part of its business model. While interviewees tended not to raise quality of care concerns with regard to traditional purchased care, several stakeholders interviewed, including both VISN and VSO officials, expressed concern about the potential dilution of quality standards due to VA's limited oversight when it relies on contractors under PC3 and Choice. One VISN official noted that quality of care concerns were more prevalent with programs like PC3 than with NVCC: "NVCC is a great program, provides great care, and serves

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[87] While not all the factors examined in the report are relevant to providers of medical care, aspects such as "knowledge, attitudes, and behaviors with respect to military and veteran culture" (Tanielian et al., 2014, p. 20) speak to cultural competency beyond the mental health profession.

[88] The report also notes that VA culture may result in discrimination toward and uneven utilization by certain subgroups.

Vets well. It's timely, and provides continuity of care. PC3 has done nothing but fracture the NVCC process." Meanwhile, a VSO official acknowledged, "I don't know how in-depth [VA] can go in vetting those providers who want to sign on. If they vet them fairly well and they get top-notch service, fine. If they just sign them up to get numbers, that could be a problem." A VISN official acknowledged that a theoretical benefit of PC3 is that the provider networks are supposed to maintain certain levels of quality that are in line with VA standards. However, he felt that his VISN did not receive adequate data or reporting on quality of care under PC3. Overall, this official was skeptical about the extent of oversight of quality of care in PC3-affiliated clinics. Other interviewees explained that the goal should be to give Veterans the same quality of care outside the VA system through purchased care mechanisms as they are guaranteed within it.

Similarly, interview participants discussed the importance of the *quality* of choices, as opposed to just their quantity. One VSO official said, "It's less about having choice, and more about 'what are the choices?' If the choice is between two bad choices, then having a choice doesn't make a difference." Put another way, "Should a Veteran be able to make a bad choice?" Other interviewees, conversely, argued that quality of care is not as important as access to care, which is what the Veterans Choice Act aims to address.

4.1.4 Issues with the Use of Third-Party Administrators and Implementing Provider Networks

There have been concerns about how VA coordinates with the TPAs to determine Veteran eligibility under both PC3 and the Choice program. Reportedly, there is lag time between when a Veteran attempts to make an appointment with VA but is unable to do so within the required time frame and when VA provides that information to the TPA. As a result, if a Veteran attempts to contact the TPA to set up a new appointment with an external provider, he or she may be told that the TPA has not yet received authorization to schedule the appointment, even though the Veteran is already eligible under wait-time requirements (VFW, 2015a, p. 4).

As we discussed earlier, another concern is that some clinicians may be unwilling to accept Choice patients at Medicare reimbursement rates. One requirement described as problematic stipulates that providers submit a report on the care provided within 14 days of the date of service. We were told that the industry norm is 30 days, though we could not confirm this. The Prompt Payment Act, with which the Veterans Choice Act requires VAMCs to comply, has hamstrung VA's abilities to recover medical documentation from non-VA providers in a timely fashion. As VAMC directors explained it, the act does not allow VA to withhold payment pending receipt of the report on care, and, therefore, it disincentivizes providers from sending back the documentation. However, other interviewees noted that providers are not paid until medical documentation is returned and accepted by VA, which frequently rejects such documentation, thus delaying payment to providers. This discrepancy in reported experiences is notable and worthy of further investigation. Furthermore, VA's reliance on networks of eligible providers for PC3 and, where possible, Choice, has been called into question. Veterans who are eligible for the Choice program can acquire purchased care only from non-VA providers who are in the PC3 networks or willing to sign an agreement to provide the care outside the

network. Both TPAs indicated that they will try to enter into agreements with providers Veterans prefer to see, but this is not always possible. Asserting that the Veterans Choice Act "makes clear that veterans may choose from any eligible entity, not merely from those with whom VA happens to contract," some lawmakers have argued that a "limited list of non-VA providers makes the provision of care at VA's choice, not the veteran's" (McDermott, 2014).

One media account reported that Veterans attempting to use their Choice card at a public regional health center were being turned away. The health center had been told that it would take the TPA 90 days to review and approve the health center's application, submitted in mid-January 2015 (Kidston, 2015). Veterans cannot seek service from a civilian provider using their Choice cards as proof of coverage; they must have a referral for the service and the provider must sign an agreement. We heard repeatedly that many Veterans have not understood how to use their Choice cards. Following an inquiry from the senator representing the state in the case in question, the health center's application was approved a week later. Other potential providers have noted that "hospitals have experienced difficulties getting in touch with [the Choice TPAs], receiving answers to their questions about the program, and interpreting communications, particularly pre-authorizations," arguing that a better approach would be to allow "VA to consider allowing hospitals to contract directly with their local VA facilities," rather than requiring "all non-VA medical care provided under the program to be implemented through contracts with either Health Net Federal or TriWest Healthcare Alliance" (American Hospital Association, 2015). It is unclear whether these problems reflect the unusually short implementation period in the Veterans Choice Act or a longer-term issue related to contracting out network development.

VAMC and VISN officials cite these challenges as one underlying reason for low utilization of the Choice program. Eight of the nine senior VAMC and VISN officials interviewed noted that use of the Choice program had been minimal so far.[89] According to these interviewees, the prevailing perception at the VAMC/VISN director level was that the low utilization of the Choice program thus far was primarily due to serious lack of development in the provider networks formed by Health Net and TriWest. We note, however, that the Veterans Choice Act prioritizes the Veteran's provider of choice and does not require use of a network provider. Although some aspects of the low utilization problem are not necessarily something for which VA can reasonably be held responsible—for example, the overall lack of health care providers in rural areas and the statutory caps on reimbursement rates—VAMC and VISN interviewees believed that two elements of the Choice program contributed to the current situation: negotiated rates that drop below the Medicare schedule (or below existing market rates, in affluent areas where those rates are substantially higher than Medicare rates) and the requirements associated with joining the provider networks. In contrast, a Health Net official noted, "There has never been support for PC3. . . . The volume has not materialized under PC3 because there has not been accountability" for adhering to VA guidance on using PC3 and Choice before the traditional

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[89] The issue was not directly addressed in the ninth interview. Utilization data on the Choice program to date are presented later in Section 4.

program. This view is supported by recent testimony of Deputy Secretary of Veterans Affairs Sloan Gibson before the House Veterans' Affairs Committee:

> PC3 . . . [is] still a new program and it's still a very small percentage. . . . [A]s I mentioned in my statement we've been referring veterans for care in the community for years. Folks are used to doing that a certain way, there are providers that are used to referring their patients to [outside providers] on a routine kind of basis and so that's what's being over-utilized. . . . Choice was designed to help accelerate access to care to make care in the community more available to veterans. That is precisely what we've been trying to do. We've just been using traditional channels to accomplish that as opposed to being able to get all the system and veterans and providers in place to do it through Choice. (Gibson, 2015)

The Health Net official also cited the requirements associated with the Choice program, reporting that providers state, "If you are going to pay us low, that's okay, as long as you don't require all this extra stuff. You can't have it all."

In addition, interviewees pointed out that joining the network does not guarantee availability for VA referrals. Doctors may agree to join the network, but some may have limited or no availability to see Veterans. One VAMC director told us, "A number of specialists that have signed up have very little capacity. It's an important component, especially in rural areas." Moreover, according to the same interviewee, some of the specialists who signed up to serve Veterans are geographically inaccessible. Choice (and PC3) are still being implemented, but when the programs stabilize, VA will need to evaluate where and for what services purchased care will be effective in augmenting VA's in-house capacity to supply timely, high-quality care to Veterans.

Although the majority of VAMC and VISN interviewees felt that the provider networks were too small, one VISN director and one VAMC director expressed optimism that the networks would grow over time, through cooperation with the TPAs and outreach in the community. Moreover, three VAMC directors and one VISN director noted that their relationships with the TPAs had been generally positive. The TPAs indicated that their networks are expanding quickly and they are working with VA central offices, VISNs, and VAMCs in their areas to shape the networks according to local needs and to improve communication and ensure clarity on the documentation required to make referrals. Ultimately, the interviews point to the need to evaluate the TPAs and the provider networks in a systematic and comprehensive manner. Because the interviewees with both negative and positive views emphasized that the networks were very new and still being built, ongoing evaluation and analysis would prove extremely beneficial.

4.1.5 Challenges in Coordinating Care

The literature on purchased care cites the lack of coordination or care management for Veterans who use purchased care services as being sufficiently problematic as to potentially lead to inappropriate follow-up care, medication errors, and readmissions (Jones, 2012). Coordinated care management has been raised as a concern under multiple non-VA care programs. For instance, analysts have criticized PC3 in the past as creating "a national contract

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for a network of providers to deliver medical and surgical services without critical care coordination elements" such as those found in the discontinued Project HERO, making the program "nothing more than a discounted fee network, with no added benefits for Veterans" (Jones, 2012).

One seemingly critical step in coordinating Veteran care across VA and non-VA providers is ensuring the seamless transfer of Veteran health information from VA facilities to local health care providers in electronic format. As described in the Assessment B (Health Care Capabilities) report, VA has actively pursued electronic health information exchange through its Veteran Lifetime Electronic Record initiative but faces a complex set of technical and other challenges that plague health information exchange more generally (Hosek & Straus, 2013). VA has gradually increased the number of civilian providers who participate in Veteran Lifetime Electronic Record initiative, but the technical requirements and level of effort required to meet federal standards for secure exchange of health information pose significant barriers to participation for most providers. The facility survey included a question on this issue, asking VAMC chiefs of staff, "How often does your local health care system share records with non-VA health care providers in electronic format?" The survey specified that respondents should use their best judgment to answer this question, and they were not required to pull data from their administrative parent records to answer. Response options included "all of the time," "most of the time," "some of the time," and "none of the time." As expected, electronic record sharing with non-VA providers is fairly rare, with nearly half of respondents answering "none of the time," 40 percent responding "some of the time," and only small fractions responding "most of the time" or "all of the time" (see Figure 4-3).

Figure 4-3. Facility Survey Data on Frequency of Electronic Record Sharing with Non-VA Providers
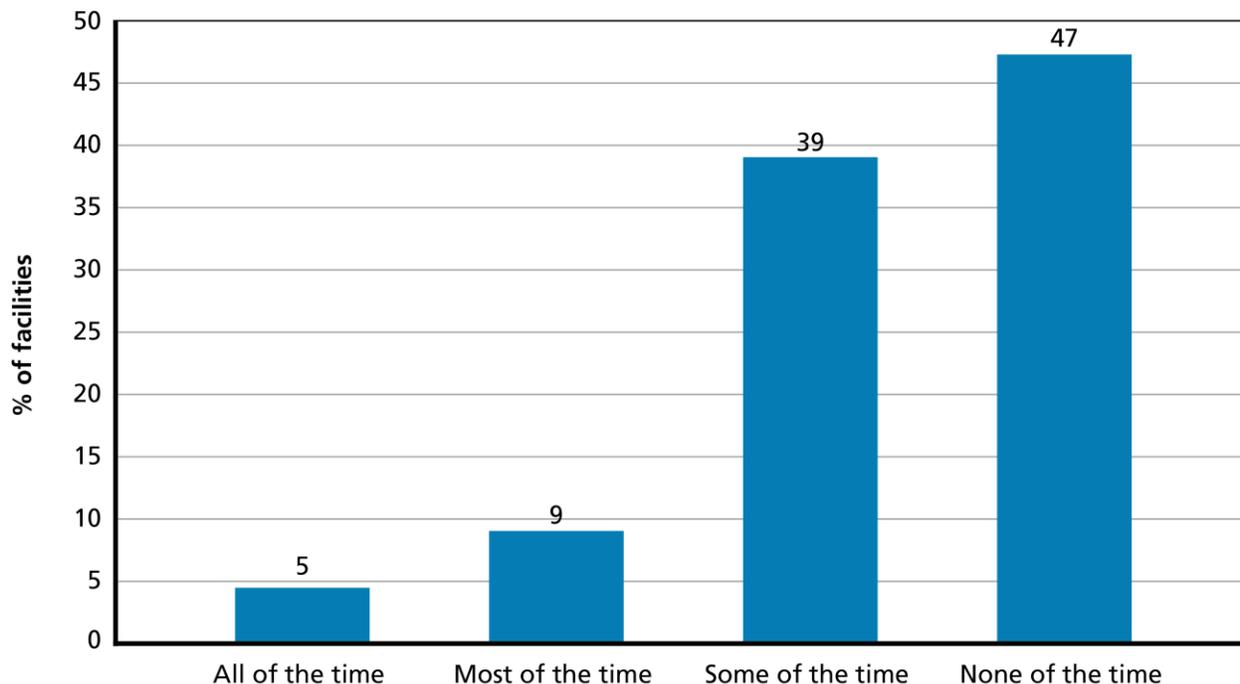
Stakeholder interviews further illuminated views on coordinated care management under purchased care. For instance, a VSO official asked how VA will address cases where a Veteran receives all his or her care outside VA: "How can VA do case management on those folks? Will there be health case managers? Will it be part of the job of primary care? I don't know what mechanism they have in place for patients who may be seen entirely outside VA, that's a new paradigm. . . . The last thing we need is poor care coordination that leads to long-term declines." Such care coordination is the responsibility of VHA, not of the Veteran; however, the unintended consequence of poor care coordination is that Veterans must either take it upon themselves to coordinate their own care, or suffer from a lack of care coordination. Other VSO officials have made public statements to this effect, noting that the Veterans themselves are "assumed to lead the sharing of information and communication between private providers and VA when receiving VA-purchased care, particularly through Fee [traditional purchased] Care" and arguing, "VA has the obligation to lift the burden from veteran patients who are bridging the fragmented and disconnected care the Department buys from the private sector" (AMVETS, Disabled American Veterans, Paralyzed Veterans of America, & VFW, 2013, p. 166). Ideally, there would be a "single care/case manager responsible for assisting and coordinating the veteran and his or her care purchased or provided directly by VA." The need for coordinated care was said to be "especially critical for chronically ill and complex patients, such as those with cancer, diabetes, chronic obstructive pulmonary disease, and end-stage renal disease," as these were the types of patients who have multiple comorbid conditions in addition to the one that led to the consultation. In the future, VA may be able to adopt care management approaches that have been shown to be effective in Medicare or employer health plans, or develop its own approaches.[90] The Section 5 further discusses this issue in the context of episodes of care.

One factor indelibly related to coordination of care and electronic transfer of records to non-VA providers is the communication of information – both to patients, and between providers. In many of the SOPs we reviewed, the delegation of responsibility for communicating information to both the Veteran and the non-VA provider is unclear. One VAMC's SOP for the NVCC program, for example, simply says that an NVCC administrative team member will contact the Veteran and the non-VA provider, but does not say which staff member, or provide guidance for employees to make this determination. Furthermore, the SOP says that the Veteran will be contacted by telephone but does not explain what the conversation should entail. At the other end of the spectrum, several VAMCs have promulgated—either as separate SOPs or as appendices—scripts for staff to follow when calling Veterans to guarantee satisfactory interaction between the Veteran and VAMC staff.

4.1.6 Centralization and Flexibility in Purchased Care Administration

The balance between flexibility and standardization at the VISN and VAMC levels was a key issue that received considerable attention in our interviews. A VAMC director suggested that,

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[90] Note that there are weaknesses in the Medicare model. One interviewee explained that care coordination has long been problematic under Medicare. VA must keep these drawbacks in mind.

from the outset, those who wrote the Veterans Choice Act recognized that there would not be complete standardization and consistency in its implementation across VA: "It's hard to write one global directive that can be universally implemented. . . . There was general guidance on implementation, and each VISN would implement practices that would most efficiently implement the law."

Other interviewees spoke of the benefits and costs of both flexibility and standardization. Several local VA officials echoed the phrase, "If you've seen one VA facility, then you've seen one VA facility." The lack of standardization across VAMCs is a point of pride for some VA officials; for others, it is a point of great concern.

Although a frequently stated objective is to maintain an appropriate level of standardization and centralization across VAMCs and VISNs, there is a recognized need for flexibility in (and localization of) certain decision processes. For instance, one VISN director expressed the hope that the claims process would be standardized across facilities and across VISNs but assumed that there was not much variation currently. This interviewee also indicated that standardization should be the priority for this function. Flexibility may be acceptable when it comes to contacting the patient, but "the majority of the time, we strive to be standardized." Another VAMC director commented on the benefits of standards and accountability mechanisms in the Federal Acquisition Regulation (FAR) that are available under traditional purchased care, but "I'd like to have a little bit more freedom locally to be able to reach out and implement some of those arrangements . . . in an efficient, legal, and effective way."

Interviewees highlighted the benefits of the greater standardization provided by the Veterans Choice Act. When asked about the act's strengths, one senior VA official responded that it establishes uniformity for interpreting authorities and implementation. This interviewee felt that the way purchased care was approached prior to the Veterans Choice Act did not give Veterans enough input or choice when using purchased care, and rules regarding who referred for outside care were not consistently applied. For example, one VISN might have required a Veteran to drive 100 miles to receive care. Another VISN might have required the Veteran to seek care closer to home. VSO representatives also appreciated the greater standardization that the Veterans Choice Act provides. They felt that the thresholds for waiting "too long" or being "too far" were no longer nebulous. Instead, the distance and access metrics are written into statute, and Veterans can better understand purchased care offerings. That said, Choice is currently a temporary program with a capped budget, and not all Veterans are eligible. Criteria for referring patients for purchased care through other mechanisms are still at the discretion of local VA officials.

4.1.6.1 Need for Better Data Collection

A review of the facility survey findings speaks to another administrative shortcoming indicating that VA could benefit from further attention to collecting critical data at the local level. The survey included a question asking VAMC chiefs of staff, "How often does your local health care system collect data about how long Veterans wait for appointments with non-VA health care providers?" Interestingly, one in four respondents answered that they never collect these data, and only one in seven reported collecting these data routinely. Most respondents answered

that they collect data on wait times outside VA some or most of the time (see Figure 4-4). Given the focus on minimizing Veteran wait times *within* VA in an attempt to ensure overall quality of care, it seems reasonable to expect that VA would similarly track the wait times for Veterans who are referred out to non-VA providers for various reasons. However, it appears that there is no such systematic tracking.

A study conducted by the National Academy of Public Administration in 2011 provides support for the finding that VA's data collection efforts are minimal, observing that VHA had a "limited understanding of the services" it was paying for under the program as well as the costs to purchase external care (National Academy of Public Administration, 2011, p. 6).

Figure 4-4. Facility Survey Statistics on Frequency of Data Collection Regarding Veteran Wait Times at Non-VA Facilities
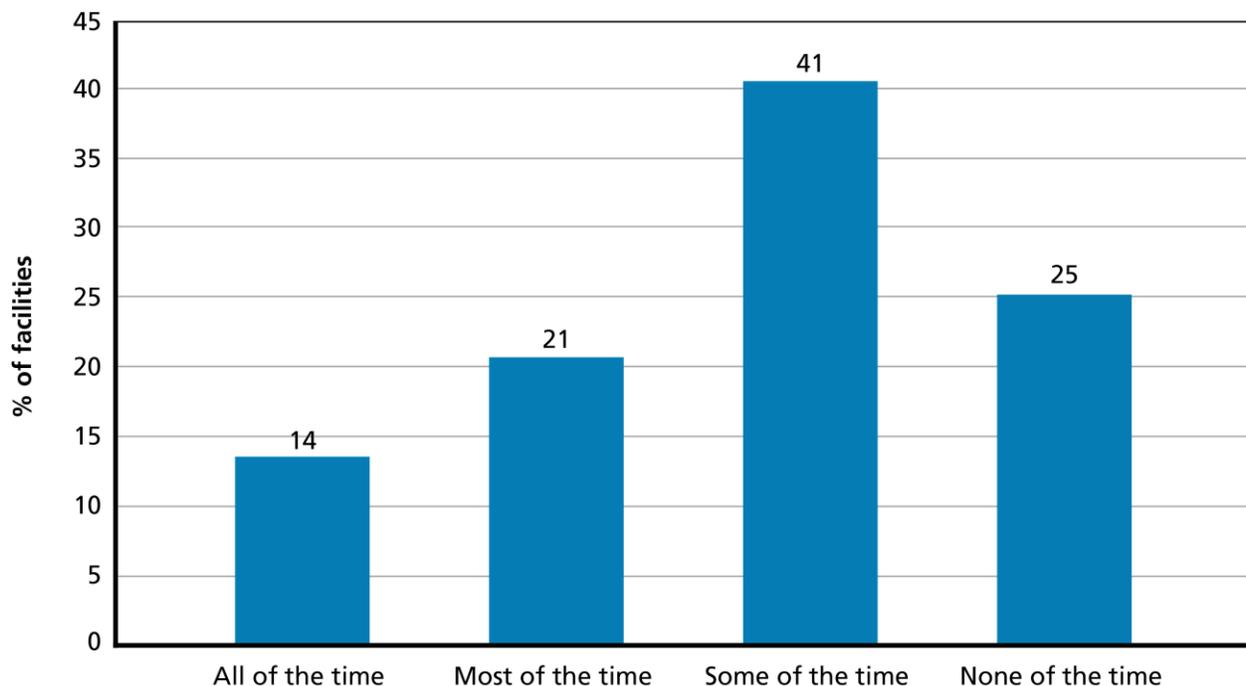
More recent GAO reports also highlight a need for improved data collection on purchased care for the dual purposes of oversight and cost-effectiveness analysis. As discussed in detail in Section 5, there are various concerns with data collection mechanisms supporting identification of episodes of care. GAO found that, consequently, VA cannot compare the cost-effectiveness of purchasing care to direct care for episodes of care (GAO, 2013a). However, as discussed in the Assessment B (Health Care Capabilities) report, data are inadequate for estimating the costs of providing either individual services or episodes of care in VA facilities and, further, there are significant methodological challenges involved in comparing VA and private-sector costs. GAO has also noted that the deficiency of purchased-care data systems hinders both the accuracy of reimbursement and the ability to audit those payments, at least in the traditional program (Williamson, 2015). VA reported that, in FY 2016, it would analyze the costs of purchased care by episode of care after the overhaul of data systems is finished (Williamson, 2015).

These assessments by the National Academy of Public Administration and GAO align with our conclusion that more systematic data collection ought to be embedded in purchased care processes and both VA and their contractors should have the capability to analyze these data as needed to plan for and operate the purchased care program cost-effectively. A strong base of data and analysis will allow for ongoing monitoring of purchased care outcomes (access, quality, coordination, cost) over time and target improvements to enhance outcomes.

4.1.6.2 The Veterans Choice Act and VA's Role Going Forward

In November 2014, VA anticipated that 440,794 eligible Veterans would seek authorization for non-VA medical care under the Veterans Choice Act annually and that, in response, 187,000 eligible entities and health care providers would furnish hospital care and medical services.[91] By mid-March 2015, four months after Choice program implementation, VA reported that 45,990 Veterans had requested Veterans Choice Act authorizations, resulting in some 45,000 appointments scheduled under the program (VA, 2015b). Another report estimated that about 27,000 Veterans *received* an appointment (rather than simply requesting one) over roughly the same period (Hegseth, 2015). Although actual uptake was significantly lower than originally predicted, with about 11,500 Veterans per month making requests in the four months after the interim final rule's publication, compared with an anticipated average of 37,000 per month over the course of the year, it should be remembered that the Veterans Choice Act benefit card distribution was staggered, with many—perhaps most—Veterans not receiving cards until January 2015.

In May 2015 testimony before the Senate Veterans' Affairs Committee, an official from Health Net—one of the two third-party administrators responsible for implementing the Veterans Choice Act program—cited slightly different utilization rates for the Choice program:

> Since the inception of the Choice program in November through the beginning of May, 2015, we have answered about 550,000 calls, with the vast majority of these calls coming from Veterans seeking information on Choice or requesting an authorization for care. About 30,000 Veterans have opted-in to the Choice Program with almost two-thirds eligible based on wait time. About 16,500 authorizations have been made for wait list eligible Veterans and nearly 10,000 authorizations have been issued for mileage-eligible Veterans. With the recent change in eligibility criteria based on driving distance, we expect a significant increase in demand for care for mileage eligible Veterans. (Hoffmeier, 2015, p. 6)

When interpreting these data, it is important to keep in mind that Health Net serves only a portion of the Veteran population eligible under the Veterans Choice Act, with TriWest acting as the TPA for the remainder of eligible Veterans. For TriWest's part, president and CEO David J. McIntyre, Jr., noted in May 2015 testimony before the Senate Veterans' Affairs Committee,

> In the six months the [Veterans Choice] program has been operational, TriWest has processed over 40,000 authorizations for care. And we have seen growth in the use of

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[91] VA's interim final rule submission in response to the Paperwork Reduction Act of 1995 (79 Fed. Reg. 65582–65583), November 2014.

the program every month with the exception of a slight drop between January and February of this year. In November 2014, we processed approximately 2,600 authorizations (more than the first month of operation under PC3). By April 2015, the number was 10,600; growth of nearly 400%. (McIntyre, 2015, p. 7)

Perhaps the most controversial aspect of the program has been a February 2, 2015, request in the White House's FY 2016 budget to reallocate some of the $10 billion in funds earmarked by Congress for the Choice program to other needs within VA (Kime, 2015). At the time, a VA spokesperson argued that the lack of uptake was "a strong indication that [Choice] is not the veteran's preferred choice" and that Veterans "would prefer to remain in the VA" for health care services (Kime, 2015). It was also argued that VA has "no ability to shift resources between Choice Programs and VA-provided care" to provide timely health care to all Veterans, especially in light of "anecdotal indications from veterans and their representatives that they would prefer to get their care in VA facilities from the medical professionals they have" (Kime, 2015). In contrast, others have argued that any underutilization was the result of how the program was rolled out and the "confusion" that accompanied its implementation (Kime, 2015). In response to the request to move funds out of the Choice program if any surplus remains, the primary sponsor of the Veterans Choice Act said that the plan is a "complete non-starter, which I will not support" (O'Harrow, 2015).

Ultimately, given that the Veterans Choice Act has been in effect for only a short period and uptake has been slower than expected, it is difficult to predict the full effects of the Choice program and the long-term implications for VA's role as a health care provider and for Veterans' experiences in seeking care.

One overarching theme in our interviews was that the Veterans Choice Act might be an opportunity for VA to determine how it defines its broader role in directly providing care going forward. Unprompted, several VSO officials, as well as at least one senior VA official and one TPA official, discussed the degree to which the Veterans Choice Act represents the first step on a "slippery slope"[92] toward more purchased care. However, other interviewees had both positive and negative reactions to this idea.

Many interviewees expressed concern that the Veterans Choice Act and a potential increase in purchased care use could "lead to a dilution of quality of care in the VA health care system and could fail to leverage key strengths of the VHA."[93] The primary concern among these interviewees was that the Veterans Choice Act could signal the beginning of more outsourcing of care that will replace direct VA care offerings. While some believed that purchasing care was a good approach, others had reservations. They spoke of a cultural shift in moving from VA/military to private medical providers and were concerned that non-VA providers were not well informed about the medical consequences of military service and lacked the cultural competency to care for Veterans. Furthermore, these interviewees felt that the cost of training

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[92] In this case, the "slippery slope" refers to a vast increase in the use of purchased care over time that will follow after the Veterans Choice Act and its resulting surge in purchased care.

[93] Beyond RAND's interviews for the purposes of this study, this idea has been discussed in outside reports and literature. See, for example, Panangala (2010).

non-VA providers on these issues outweighed the financial and logistical benefits of referring Veterans out for care. One VSO official who supported the Veterans Choice Act also expressed concerns about the second- and third-order effects of the Choice program associated with an ever-increasing amount of care being provided outside of VA. His view was that Veterans have unique care needs due to service-connected injuries and therefore rely heavily on VA care. Several interviewees discussed VA's duty to provide care. According to one senior VA official, "VA still owns that care in the community. There is connection and importance there. There is a distinction that we are responsible in a global sense. . . . When you contract, some of that responsibility may be severed."

Several interviewees noted that Veterans consistently expressed a preference for VA care, with this preference being especially strong among those who were already in the system. One VSO official stated, "The majority of Veterans we hear from are happy with their care. Once they can get into the VA, they get top-notch care. It's an issue of getting into the VA." More than one VSO official told us that Veterans "feel comfortable with their VA doctor, they feel safe, they feel understood there." Reasons cited included the quality of care, providers' familiarity with the distinct and complex needs of Veterans, and a sense of camaraderie.

The attraction of the VA system extends beyond issues of quality, familiarity with Veterans' specialized needs, and camaraderie, however. Several interviewees raised the point that Veterans may choose to remain within the VA system because it is familiar and known to them. One VSO official noted that Congress may have overestimated the number of Veterans who will choose purchased care. The VSO official said, "Particularly the older guys who've been going to the VA for 20 years, they don't want to go anyplace else. . . . Better the devil you know than the devil you don't know." A VISN director concurred with this point, stating, "We haven't seen the [Veterans] Choice Act be successful. Most Vets want to stay within our system of care. We don't see Vets elect to go into the community when offered." Building on this reasoning, a VAMC director suggested that Veterans might prefer VA over outside providers because they are confused about the Veterans Choice Act and its offerings:

> They are happy with the services that are provided in our telehealth clinics and in our facility, so, for us, that's a great compliment to the services that we provide. So, as far as Choice goes, the premise is great. It works in our areas for our Veterans that are able to utilize it effectively, but for the majority of our folks, it can be confusing and frustrating for them to access that care.

The preference of Veterans for VA care is somewhat supported by recent data. Two recent surveys compiled by the VFW show that just under half of the Veterans surveyed reported that when they were offered the choice to use purchased care, they nevertheless elected to stay in the VA system (VFW, 2015b, p. 3).

4.1.7 Overcoming the Practical Challenges in Purchased Care

In sum, the day-to-day administration of purchased care presents a series of challenges for VA officials. Resolving those challenges will be pivotal to the future success of purchased care, and ought to be a high priority for VA to undertake. More specifically, a robust purchased care program will require adequate reimbursement rates to ensure provider participation, avoiding

delays in processing claims submitted by outside providers, ensuring sufficient network depth and administrative coordination with the TPAs, consistent oversight of quality in outside services purchased, coordination of care and communication of information to and between patients and providers, and data collection efforts in support of these various aims.

Building on these granular steps, VA could strengthen its purchased care operations by developing a strategic plan, by implementing stronger training for its personnel, and by systematically collecting data on various aspects of purchased care operations in order to carefully monitor performance. In principle, these tools could help to articulate clear policy and procedural requirements for VA personnel to follow, while clarifying performance expectations and oversight in purchased care, as well as applicable sanctions for local non-compliance with standards.

At the end of Section 4, we summarize our empirical findings on facility-level implementation of purchased care, how this is currently organized, and the balance of power that it represents between local and centralized authority within VA.

4.2 Implementation of Purchased Care at the Facility Level Is Inconsistent

4.2.1 Organization of Purchased Care within VAMCs

Not only do VA facilities' non-VA care policies and procedures vary, but their categorization and placement of purchased care administration within their organizational structures also differ. As noted above, RAND received 253 organizational charts from VAMCs and VISNs across the country as part of our request for purchased care policies. Of these 253 organizational charts, just 12 organizations identified a separate purchased care function or office on their organizational chart. One of them was at the VISN level, while 11 were from facilities. The dates of these 12 charts varied widely, from January 2012 to February 2015. Nine predated the implementation of the Veterans Choice Act in November 2014; three were dated after implementation. Offices relevant to purchased care at these organizations also went by a variety of names.

In the 12 organizations examined, purchased care offices reported through a variety of management channels. Two offices reported to the VAMC associate director for patient care services; three to the VAMC associate director; one to the VAMC assistant director of facility support; two to the VAMC chief of staff; and one to the VISN deputy network director. Little standardization appeared to exist in purchased care reporting chains within the organizations examined.

To gain a better understanding of where purchased care offices are located within the organizations, we recorded the degrees of separation between the office and the VAMC for the ten charts with this information. For example, if the purchased office reported to the associate director who reported to the VAMC director, we counted two degrees of separation. If the office reported to a manager who reported to the associate director, who then reported to the VAMC director, RAND counted three degrees of separation. On average, we found 2.5 degrees

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of separation between the facility director and the purchased care office across those 12 organizations listing a separate non-VA care function or office on their organizational chart.

4.2.2 Variation in Length, Terminology, and Tone in Local and Regional Policy Guidance and Standard Operating Procedures

Documents received through our request for data indicated a lack of standardization in purchased care referral and authorization processes and procedures across facilities. Of the 240 SOPs, 57 SOPs were highly detailed, 86 SOPs were moderately detailed, and 94 SOPs were minimally detailed.

Moreover, there was little consistency in the terminology used to describe purchased care across these SOPs: some were specific to particular purchased care mechanisms (such as either the Veterans Choice Act program or PC3), while others referred to "non-VA care," "purchased care," "fee basis," "fee authority," "community based services," or "non-VA fee consults." Still others referred to specific services, such as dialysis, home health services, mammograms, and physical therapy. These service-specific SOPs are discussed in greater detail below. Most SOPs contained a section delineating responsibilities for particular staff members to fulfill in the purchased care referral and authorization process, but they varied widely both in terms of the staff positions listed and the responsibilities of each staff member.

Variations in the permissiveness and tone of purchased care SOPs across the VAMCs provide another working hypothesis to explain the wide variation in utilization described in Appendix A, though such local-level policies may have ultimately been shaped by the knowledge of overarching budgetary constraints in a given region. We coded all SOPs received through the request for their apparent focus/tone pertaining to utilizing internal VA care if at all possible, as opposed to being permissive regarding utilization of purchased care. The results were strikingly varied, with 70 SOPs containing language focused on keeping Veterans within the VA system and utilizing purchased care only as a temporary, last-resort option. Meanwhile, 102 SOPs were much more permissive in tone regarding the utilization of purchased care. Although these 102 SOPs still tended to note that purchased care was to serve only as a temporary solution, they were set up to facilitate the ease of use of the purchased care mechanism(s) in question. The remaining SOPs were deemed to be too neutral in tone to code either way. Nonetheless, the variation in tone across VAMCs regarding how permissive to be when authorizing purchased care services provides one possible explanation for the variation in the actual use of purchased care mechanisms across sites and among local SOPs.

4.2.2.1 Variation in Purchased Care Procedures Across Medical Services

A review of the SOPs received through our request also revealed the existence of a number of stand-alone policies for authorizing purchased care for certain medical services. Stand-alone policies were discovered for dialysis, physical therapy, home health services, and mammograms. A follow-up interview with a senior VA official clarified that each of these services has unique exterior requirements that necessitate more explicit guidance on procedures. For dialysis, there is a national contract for purchasing care that applies not only to VA but other national level care providers such as Medicare and Medicaid. Stand-alone policies

are most likely developed in an effort to ensure that VA is following procedures and is in compliance with this contract. Home health, on the other hand, is ordered differently from typical purchased care. Therefore, the methodology is separate. For mammograms, there are specific timeframe guidelines for reporting cancer-screening results. Because many VA facilities lack mammography machines, it appears that separate protocols are drafted to ensure compatibility with these strict timeline requirements. From our discussions with VA officials, it appears that separate stand-alone policies are required when specific care anomalies are known. However, due to the lack of standardization even in these stand-alone policies across different facilities and regions, it would be worthwhile for VA Central Office officials to explore whether efficiencies might be gained by promulgating a single, national stand-alone policy for each of the services in question and mandating that all local facilities adopt these as their own.

4.2.2.2 Potential Models for Improving Local-Level Standard Operating Procedures for Purchased Care

Many of the SOPs received through the request for data described highly specific processes and specialties, were lacking in detail, or—conversely—were overwhelmed by minutiae. A good number of SOPs provided a modicum of detail about staff responsibilities and the procedure, but not enough to serve as a useful reference for employees. Approximately 57 of the 240 SOPs were coded as having a high level of detail. Out of those, around 15 VAMCs have promulgated SOPs that, in our judgment, may serve as models for replication.

We used several primary criteria in judging the quality of purchased care SOPs:

- Clarity and logical organization, judging that only those SOPs that clearly delineate staff responsibilities are likely to be used by employees in the field.
- Effect use of visual and graphic features as an aid and illustration to accompany the text.
- Applicability to a broad range of services.
- Adherence to national guidance and use of valuable features from national manuals, handbooks, and directives.
- References to the authorities, regulations and manuals, along with explanations of why certain policies and practices are in place and how the various programs fit together and better serve Veterans.

Many of the best SOPs share several features and are organized in the same way, with the following sections: purpose, policy, definitions, responsibilities, procedures, and references. Having headings of any sort is useful in breaking up dense text, and simplifying the reader's task. An employee can skip right to the "Procedure" section when determining what action to take. The presence of similar section headings across the SOPs increases internal coherence across the various programs as well as the different VAMCs. Many of the inferior SOPs are also organized this way, but lack the substance and detail of the better documents. Several of the best SOPs also contain attachments and appendices, such as flowcharts and screenshots.

The best SOPs cover the full range of purchased care operations, so that staffers are not required to refer to different documents for each service and specialty. For example, one VAMC's SOP from May 2012 applied to "outpatient/inpatient non-VA services." Following a

brief statement of purpose, and in some, definitions of key terms, these SOPs lay out the responsibilities of relevant staffers. Although some SOPs use full sentences, the SOPs that use bulleted lists were easier to follow (VA Central Western Massachusetts Health Care System, 2012a). In the best SOPs, the guidance in the Procedures section is presented in the form of bulleted step-by-step instructions that clearly indicate which staffer is responsible for the task. Some SOPs combine responsibilities and procedure into one section. If clearly done, this can be a good approach. Many well-written SOPs do not indicate who is responsible for the task at hand, thus diminishing their utility. The strong SOPs also include references to various authorities, including statutes, regulations, Chief Business Office directives, VHA handbooks, and various VHA guides and webpages.

Some of the best SOPs include useful appendices and attachments. One VAMC's 2015 SOP for non-VA purchased care consultations includes a number of helpful flowcharts describing the following: referral review, appointment management, hospital notification, clinical review for emergency claims, and administrative appeals (see example in Figure 4-5). Staffers can use these for quick and easy reference.

Figure 4-5. Appointment Management Process Flowchart from One VAMC's SOP (April 2015)
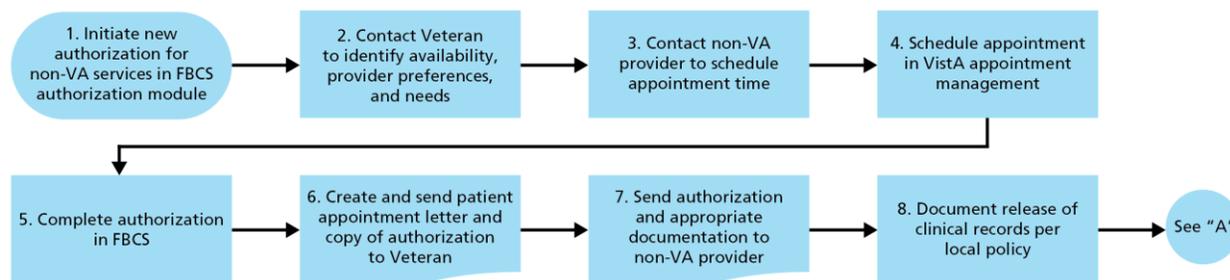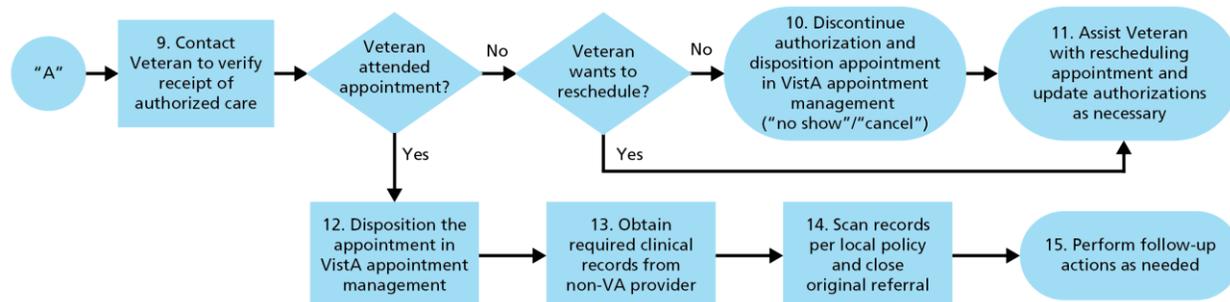
NOTE: FBCS = Fee Basis Claims System.

Another useful appendix was included in another VAMC's purchased care SOP, showing a table of the responsible approval officer, by title, for each purchased care service. Rather than creating different SOPs for multiple specialties, this VAMC created one comprehensive document, and indicated the areas of minor distinction. Some SOPs attach additional relevant

SOPs so that all the information is one place. For example, one VAMC's SOP for consult management also includes the procedure for consult *tracking*.

The SOP shown in Figure 4-6 also includes computer instructions, sample patient letters, and various other useful attachments.

Figure 4-6. Veterans Choice Notification Processing from One VAMC's SOP on the Veterans Choice Act Program (February 2015)

Another element that is included in some, but not all, of the best SOPs is an acknowledgement of the need for Veteran-centered, high-quality care. Although this is presumably an implied goal of the VAMCs, it can be beneficial for the SOP to state this somewhere. Often, it is mentioned only in passing. One VAMC's SOP, for example, mentioned that NVCC is an "initiative to create a more Veteran-centered environment." It would likely improve the quality of all SOPs to include a short statement, perhaps in the "Policy" or "Purpose" section.

To summarize, the best SOPs apply to all purchased care procedures. While the best SOPs' main guidance is broadly written, the documents offer references to direction for specific care and services that deviate from the general guidance. Including references to more information about process steps and concrete examples of work procedures and work products, like computer instructions and sample patient letters, are very helpful. Other best practices include step-by-step design, effective use of flow-charts and graphics, and bulleted lists that connect relevant staffers to associated responsibilities.

4.2.2.3 Integration of VHA Chief Business Office SOPs Into Local Procedures

Some of the SOPs that may serve as models share similarities with SOPs created by VHA's Chief Business Office. For example, the Chief Business Office wrote a process guide to help VAMCs

with "Appointment and Clinical Documentation Management" (VHA Chief Business Office, 2013a). It contains a useful flowchart illustrating the appointment management procedure, which is also included in one VAMC's SOP. Other SOPs have "Procedure" sections that are very similar to the Chief Business Office documents.

Although the strong SOPs do share similarities with those from the VHA Chief Business Office and often borrow language, content, and graphics, there are also many areas in which the local documents diverge. As noted above, SOPs received through the request for data varied widely by VAMC or VISN, and very few cite or mirror national guidance. Statutory authority for purchased care is often cited, but the implementation of such authority varies widely by SOP. Sometimes, this is because local documents include more detail, describe the same action items differently, or address multiple procedures in one document. The result is a confusing landscape that lacks clarity.

The several SOPs that do cite VA Chief Business Office guidance could serve as exemplars for local facilities' potential to usefully integrate national guidance into their own local-level SOPs. Several VAMCs apparently utilize SOPs for NVCC appeals that very closely mirror the systematic Chief Business Office guidance on the subject and encourages readers to use a National Fee Program Office appeals management web tool for the process. One such VAMC also cited these materials in its SOP on hospital notification and instructed readers to use both Computerized Patient Records System and Fee Basis Claim System software. This guidance appears to be quite detailed, but National Fee Program Office materials were not available for comparison. This VAMC also has a very detailed, nationally influenced SOP on the purchased care referral review process.

Similarly, one VAMC uses an SOP for appointment management that very closely mirrors Chief Business Office guidance, including instructions to use national Fee Basis Claim System and VistA software. This VAMC also cites Chief Business Office guidance in several other SOPs, including those concerning appeals management and pre-/post-appointment phone calls. Another VAMC's guidance on fee-basis care also cites Chief Business Office material, and directs readers to a Computerized Patient Records System template for fee-basis consults. Unfortunately, the cited Chief Business Office document, "Series 1601F: Fee Service" was not provided in response to the request for data, so we cannot analyze further similarities between it and the VAMC SOP in question.

The above SOPs not only cite national guidance, but they are also clearly influenced by it. Many follow national SOP steps closely, if not exactly. These exemplar local SOPs use nationally created software and this ensures that their processes and the outputs and data from such processes are standardized. Given the apparent benefit of standardization and the high quality of the Chief Business Office documents, it would be worthwhile for VA to consider mandating their adoption by local VAMCs.

4.2.3 Referral and Authorization Processes

The following sections describe the referral and authorization processes in theory and in practice. The referral and authorization processes are difficult to implement given the number of different purchased care programs, the variations in Veteran eligibility for each, and the

different prescribed methods and individuals involved in referrals for each programs. We find that the referral and authorization processes differ in theory and in practice. Based on our research, on the ground practices reflect greater consideration of availability of clinical services than consideration of Veterans' driving times and geographic access.

4.2.3.1 The Referral Process in Theory

In theory, the referral process for purchased care ought to be clear and easily understandable, based on eligibility factors and availability of services offered through the purchased care mechanisms.

For traditional purchased care,[94] this process would begin with a VAMC clinician requesting an authorization (or "consult") for outside services for a patient. The clinician would include a justification for the request, based on either the VAMC's inability to furnish the care, or its inability do so economically or due to geographic inaccessibility. The VAMC chief of staff, or a designee, would then review the request, and authorize it if appropriate. "Fee staff," those employees at the VISN or VAMC level who are tasked with administering the program, would review the request. After this review, the fee staff would notify the Veteran that the request has been authorized. At this point, the Veteran would be able to select a provider, assuming one was not already designated in the authorization. Assuming the provider agrees to provide the services at the reimbursement rate offered, then fee staff would schedule the appointment, and the Veteran would then go to that appointment and receive the outside care.

The referral process is slightly different under Project ARCH (Altarum Institute, 2015, Exhibit 12-27), which involves a TPA contractor (Humana). According to ARCH procedures, the VA medical provider acts as a gatekeeper to the program. The medical staff treating the Veteran is notified of basic drive-time eligibility, and they then assess whether referral to a network provider is appropriate. If so, the next step is to determine whether the Veteran is interested in participating. If the Veteran is indeed interested, then an authorization is sent to Humana's local ARCH network manager, who sets up the appointment with a participating provider.

Under PC3, a referral is to be made in instances of geographical inaccessibility or a lack of availability of services within VHA, unless inter-agency sharing agreements or direct contracting would be definitively superior. Where fee staff determine that a referral through PC3 is appropriate, a request is then sent through VHA's Chief Business Office to the appropriate TPA, which then sends the authorization and confirmation of eligibility to a network provider or, if a network provider isn't available, arranges for the care with a non-network provider (TriWest Healthcare Alliance, 2015c). The PC3 contractor is responsible for scheduling the appointment with the Veteran.

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[94] The process description is adopted from Appendix A in VA Office of the Inspector General (2009), as well as the transcript from a hearing before the House Veterans' Affairs Committee, Subcommittee on Health, "VA Fee Basis Care: Examining Solutions to a Flawed System" (2012).

Under the Choice program, selected Veterans may be eligible based on either wait time or travel distance criteria (Sec. 101(g)). VA then provides eligible Veterans with information about the Choice program, and available providers thereunder.[95] If the Veteran elects to receive external care, an authorization is sent to the PC3 TPA for his or her area, who generally follows the same process as under PC3 for referral to a network or non-network provider. The law specifies that, under the Choice program, the Veteran may select a provider of his choosing,[96] and the TPA arranges for the care with that provider if possible.

4.2.3.2 How and Why Referrals Are Made in Practice

When we examined the purchased care referral process in practice at the facility level, we found variation in how and why referrals were made and significant variation in the processes that were used to make referrals.

The Choice program legislation focuses on Veterans' geographic accessibility and distance to care and appointment availability in determining eligibility for purchased care. In our survey of VA facilities VAMC Chiefs of Staff reported that most referral decisions were made based on availability of clinical services altogether at the facility (Figure 4-7). Approximately three-quarters of respondents ranked "lack of clinical services available at VA facilities" as the most important reason for referral to purchased care.

Figure 4-7. Reasons for Referral to Purchased Care
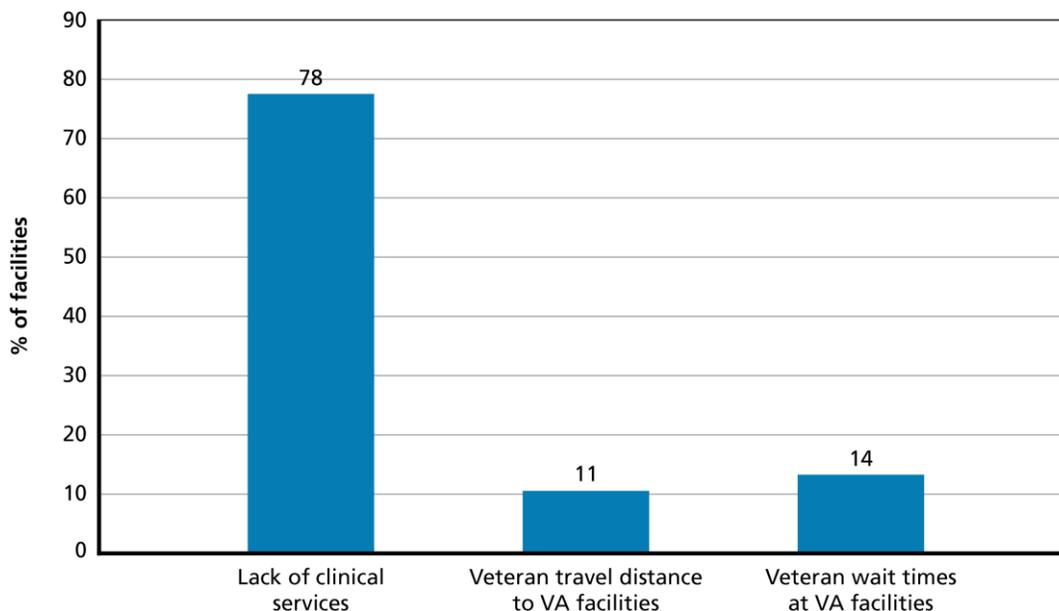
We also found variability in the processes for authorizing purchased care referrals. As we described in the previous section, our review of VA facilities' SOPs revealed substantial

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[95]Per our discussion in Section 3, eligible providers under the Choice program include those participating in Medicare, any FQHC, DoD, or IHS (Veterans Choice Act, Sec. 101(a)(1)).

[96] Subject to fairly extensive limitations and restrictions, as we describe at greater length in Section 3.

variation in management structure, policies and procedures, adherence to national SOPs, level of detail, and format.

Another issue raised in the literature and illustrated in our data analysis is that purchased care referral and authorization processes tend to be complicated and entail delays (Altarum Institute, 2015, p. 3). In light of the differences revealed in our review of the SOPs, it is possible that delays could occur due to confusion regarding various staff members' responsibilities with regard to ensuring timely authorizations, and/or due to the complexities of the procedures themselves and the number of staff members who are required to sign off on a single authorization. For instance, in one facility, the Community Care Consult Unit is responsible for ensuring requested clinical services are received in a timely manner. In theory, this means that they should be responsible for the timeliness of authorizations as well, but the SOP document does not explicitly state this. Meanwhile, in another facility, the SOP outlines a specific set of steps to be followed by officials responsible for purchased care authorizations—including the chief of the service requesting the referral, the Fee Basis section, and the Chief, Business Service – and states, "Procedures are to be established to assure processing of applications for fee-basis care does not exceed 10 days." Yet, the fact that Veterans may have to wait ten days simply to be authorized to utilize purchased care *despite* the specificity of this policy highlights the problem of authorization delays.

The American College of Physicians, reacting to the Veterans Choice Act, argued that multiple cycles of authorizations for purchased care constitute a process that "can easily become a burden to the treating clinician and their staff, as well as the veteran," recommending that VA "consider reducing or eliminating authorization for treatment provided to eligible veterans from approved non-VHA clinicians who have established a record of effective and efficient care" (American College of Physicians, 2015). Eliminating the authorization step altogether may not be possible but involvement of multiple levels of VA management along with the TPA may not add value, especially if it can be monitored effectively.

4.2.4 Lack of Standardization in Staff Training

Another key area in which standardization appears to be lacking in spite of a need for it is in the training of VA staff in purchased care processes. The Veterans Choice Act required that VA implement the program unusually quickly; VA awarded the TPA contracts just two months before the program start date. VA staff, who had only just been introduced to the PC3 and NVCC programs, had to quickly familiarize themselves with Choice. Interviewees pointed out that the Choice program is complicated and confusing, and in the wake of the Choice Card mailings, VA personnel had to deal with many calls and inquiries from confused Veterans. VA did not have time to institute a standardized formal training program before implementation and to our knowledge one has yet to be developed. One VAMC director described the situation as "a good example of rolling something out without doing the appropriate training." Among the VAMC directors we asked about training, some were unsure what, if any, training was provided. One director with some knowledge about training stated that explanatory documents were created at the national and regional level to familiarize staff with the Veterans Choice Act, and designated "Choice Champions" visited at least some clinics to offer assistance and knowledge.

Of the materials received through our request for data, supplemented by a number of training materials that we downloaded from the VA Intranet, only a handful appear to be part of a formal training program. In fact, of the 62 documents to which we had access that were at least tangentially related to training, only three are components of any formal purchased-care training. Two are national in scope and are training presentations, virtually identical in content, created by the National Non-VA Care Program Office, VHA's Chief Business Office, and the Clinical Business System Office, about the NVCC model and processes. These lengthy and comprehensive presentations are useful with regards to the referral review, appointment management, and hospital notification processes, containing templates, screenshots and detailed instructions. A third document is the only document from a local VAMC in the materials, and is a slideshow presentation from a kickoff briefing introducing the NVCC program.

We received a number of Chief Business Office process guides covering various elements of the NVCC program, such as appointment management, referral review, hospital notification, and administrative appeals. As process guides, these documents are all formatted the same way, with information about key individuals involved, a high-level process overview, a step-by-step procedure, and appendices. Another useful national document that was may have been used locally is the NVCC Manager's Guide, which contains an overview of processes, templates (and when to use certain templates, which is lacking in other guides), tools, and information about managing the program and Computerized Patient Records System setup.

We also received 10 fact sheets published by various VA Central Office departments, including VHA's Chief Business Office, Health Information Management (HIM), and the National Non-VA Medical Care Program Office. Some are useful introductions to new programs, such as NVCC; helpful explanations of complicated issues, such as "episodes of care"; and guides about how to fill out certain forms. Although these fact sheets do not appear to be part of a training program, they can help convey new and important information to staff. However, the extent to which these VHA Central Office documents are circulated to relevant staff at the local level is unclear.

Many of the other materials to which we had access are more straightforward policy documents: VHA directives, memos, and handbooks. Based on the materials analyzed, it appears that training is not provided at the local level nor mandated by the VHA Central Office, and is therefore not standardized at VA facilities across the country.

In addition to paucity of formal training provided to VA staff, some interviewees noted that employees at TriWest or Health Net call centers also lacked training, often providing incorrect or misleading information to Veterans, leading to further confusion. One VAMC director explained that "there have been some issues as far as a Veteran would call [the TPA] one time they'd get one piece of information and if they'd call another time, they might have something different said." This interviewee also noted, however, that such issues were more common at the beginning of the Veterans Choice Act, and that the TPAs have been providing more reliable information to Veterans more recently.

This impression is supported by the May 2015 testimony of David J. McIntyre, Jr., president and CEO of TriWest, before the Senate Veterans' Affairs Committee, in which he noted that lack of

time to properly train TriWest staff in Veteran call centers was a major shortcoming of the rollout of the Choice program:

> First and foremost, we suffered from a lack of training time. We had less than two weeks to hire and train hundreds of people just to answer phone calls from Veterans and describe or explain a complex new program. It is no understatement to say that most who worked to get [the Veterans Choice Program (VCP)] up and operational worked 100-hour weeks during that 30-day period . . . in order to understand what was envisioned by the law and then design the approach and stand-up operations. Given the brief amount of time to do all that was required, one of the greatest challenges was to gain a solid base of understanding of this valuable new benefit, and get the operation design set so that we could sufficiently explain both to others. And, we were not alone in that challenge. Among those most impacted, beyond the Veterans we were all aiming to serve, were the new staff in [our] call centers, as they had only five to seven days in which to grasp the information versus the typical two to three week period one ought to provide. I am sure others, including VA, struggled with the same.

> Obviously, the lack of training led to less than optimal customer experiences. Information provided to Veterans was at times inaccurate or confusing. And some Veterans were left frustrated. I want to apologize for that. But, in apologizing, I also want to reassure this Committee that we did everything in our power to train and educate this new team in the very short period of time we were allotted. In the end, it was simply not enough time. And, we are doing our best to stay on top of making sure that our staff has the right knowledge base of the program in order to provide solid customer service . . . even as this program continues to be refined, creating a need for re-training. (McIntyre, 2015)

The need for improved training and SOPs extends into the traditional purchased care program contracting, insofar as the program continues to be important for purchased care. In recent congressional testimony, GAO echoed VA's need for improved training among contract administrators and recommended that VA revise training for contracting officers' representatives to include developing and overseeing service contracts (Williamson, 2015). Furthermore, GAO called for VA to revamp SOPs for contracting officers' representatives to ensure that they have the appropriate workload based on their availability, qualifications, and training. It also recommended that VA increase oversight of contracting officers and their representatives (Williamson, 2015).

4.3 Discussion

In Section 4, we sought to investigate and analyze a series of implementation barriers to VA purchased care, in large part through the experience of local VA facilities and personnel in striving to overcome them. Drawing on our findings from stakeholder interviews, a request for local purchased care policy documents from VA facilities, and a facility survey that included seven questions pertaining to local purchased care practice, we identified a series of related challenges for VA and its personnel. These challenges range from difficulties in claims processing and reimbursement, to concerns about the oversight of quality in purchased care services, to the fundamental tension between central control and local flexibility in carrying out purchased care policies and operations. Our findings reflect an important set of potential

leverage points for policy-makers to consider using in seeking to streamline and improve the administration of VA purchased care in the future.

Our findings speak to the considerable variability in local practices for purchased care, and the difficulty that VAMCs and VISNs have faced in developing their own policies for carrying out purchased care activities. More specifically, we found that the organization of local purchased care operations is highly varied, and that local SOPs for purchased care, when available at all, are considerably diverse in their content and level of detail. We also found that authorization and referral practices, coordination of care through electronic record sharing, and staff training efforts represent three specific areas in which variability of practices and/or lack of standardization may be detracting from the efficiency and effectiveness of purchased care operations. Moreover, we found a lack of systematic data collection and performance monitoring at the local level, an issue which could—if remedied—help to ameliorate the potentially negative effects of the lack of standardization in local practices.

The findings in this section highlight some important opportunities to improve VA purchased care by effectively implementing procedures to ensure that local facilities and personnel understand and can effectively carry out their purchased care tasks. In Section 5, we examine the broader strategy for VA purchased care and some of the key leverage points for VA purchased care at the national level going forward.

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5   Procurement and Episodes of Care

> **Overview of Methods and Data for Procurement and Episodes of Care**
>
> - We examined the key statutory provisions governing VA's procurement of purchased care, including applicable sections of the U.S. Code, the Federal Acquisition Regulation, and supplemental acquisition regulations, including the Veterans Affairs Acquisition Regulation.
> - We separately traced VA procurement strategy for different types of service purchases (small, individual purchases and large, bundled purchases) to illustrate how the regulations are applied, and their implications for different strategies.
> - We examined how episodes of care are used to define clinical courses of treatment, in part through a review of the literature from the wider health care sector.

VA purchased care is complex and multifaceted. As we discuss elsewhere in this report, policy-makers might reasonably consider many different aspects of purchased care as possible targets for future revision.[97] Nonetheless, it is important to acknowledge that the basic parameters for VA purchased care are tightly bound to several other aspects of VA's institutional mission, operations, and authority. For example, it is difficult to imagine a discussion of purchased care that does not acknowledge the intimate link between VA's health care benefit structure and VA's activities as a purchaser.[98] The scope and structure of the health benefit serves to define *what* VA can purchase, and for whom. Although it is beyond the scope of this report to address in detail, many plausible future revisions to VA purchased care might go hand in hand with future revisions to the health benefit package for Veterans.

Two other key elements of VA authority and policy are similarly foundational to the operation of purchased care. These include VA procurement rules, which influence the way that contracting is carried out, and the definition of episodes of care, which could have far-reaching ramifications both for contracting and for units of purchase. Each of these elements helps to set the stage for purchased care activity and to bound VA's purchased care operations. Moreover, each of these elements is potentially transformational. Shifting them could deeply change *what* VA would be purchasing, as well as the terms on which any such purchase transactions might take place.

In the future, VA procurement of outside health care services based on bundled payment and revised episode of care standards could look very different from current practice, with an emphasis on new types of aggregated purchasing arrangements, performance-based contracting, and risk-shifting between VA and outside providers. These kinds of changes could become pivotal to VA's health care operations, especially if policy-makers decide to strengthen VA's emphasis on serving as a payer, rather than as a direct provider, of medical services.

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[97] On this point, see particularly Section 6 for an assessment of a wide range of future possible policy changes that might be undertaken in VA purchased care.

[98] See Appendix E for a brief summary of the major structural features of the VA health benefit.

Analyzing the implications and possibilities requires a more conceptual discussion than that undertaken in Section 3.

For VA stakeholders and policy-makers, these elements present a unique challenge and opportunity, which goes beyond a basic analysis of authority. Much of our discussion of VA purchased care so far has focused on questions of *what* and *how*: What has VA been authorized to do, and how has VA carried out its mandate? Section 5 touches on *why* foundational changes to procurement and to episode-of-care standards might be useful strategic pathways for VA to explore. Our discussion focuses on corresponding possibilities for purchased care strategy in the future and the reasons why stakeholders might choose to transform the landscape of VA purchased care along these lines.

In the sections that follow, we describe and explain VA procurement authority, episode-of-care standards, and how these elements contribute to VA's broader purchasing policy. We conclude with some observations regarding that strategy, and considerations that stakeholders should bear in mind, in any future reforms that touch on procurement and episodes of care.

5.1 VA Procurement in Purchased Care: Understanding the Framework Established by FAR and VAAR

5.1.1 An Introduction to VA Contracting Authority

One of the key mechanisms for VA in carrying out any purchased care activity is *contracting*, or the process for entering into an agreement with a TPA or, in the traditional VA purchased care program, an outside provider entity for delivering health care services in exchange for payment from VA. As we discussed in Section 3, core provisions of authority establish that VA may purchase services for Veterans once a series of designated eligibility criteria are met. VA has established mechanisms under NVCC to carry out the front-end processes of purchased care, particularly around local referrals and authorizations for outside services. Collectively, these mechanisms and authorities establish *when* VA may purchase care (and when Veterans receive it) and *how* the front end of this process is carried out by VA. An equally important piece involves the contractual relationship between VA and the outside providers from whom it purchases care. Without payment and contracting, there can be no access for Veterans to outside providers or services, regardless of whether VA theoretically has the power to act as a payer or whether Veterans have the right to access care at non-VA facilities. Statutes, regulations, and policies may create the overall framework for VA to act as a payer, but government contracts provide the actual mechanism by which care is purchased for Veterans. When it comes to contracting with outside providers, and actually purchasing service from them, what kinds of authorities and restrictions govern VA practice?

In Section 3, we described the key statutory provision for VA purchased care contracting under 38 U.S.C. 8153. This provision gives the Secretary the power to engage in contracting to purchase health care services from outside providers, when he or she determines this to be appropriate. Section 8153 also states that VA is explicitly required to conduct its purchase of health care services and resources "in accordance with all [federal] procurement laws and

regulations."[99] Notably, however, when VA seeks to purchase medical services from a formally affiliated institution (like an academic medical center), it may do so without regard to any requirements for competitive procedures (or bidding) that would otherwise apply under federal law (per 38 USC 8153(a)(3)). Also, VA may purchase services from nonaffiliated entities under simplified procurement procedures, the latter to be formally promulgated and published by VA (also per 38 USC 8153(a)(3)).

Federal laws and regulations on procurement, including but not limited to Title 41, U.S. Code (Public Contracts), code sections applicable to each agency within their own titles of the U.S. Code, the Federal Acquisition Regulation (FAR), and agency supplemental acquisition regulations, provide additional detailed guidance on contracting and procurement. FAR is codified in Title 48 of the Code of Federal Regulations, and it involves a set of rules designed to establish "uniform policies and procedures for acquisition by all executive agencies" (FAR 1.101). In turn, VA (like many other executive branch agencies) has published its own supplementary set of rules on acquisition, which elaborate on FAR. VA's rules are called the Veterans Affairs Acquisition Regulation (VAAR) and are also codified in Title 48 of the Code of Federal Regulations. Taken together, FAR and VAAR establish an elaborate set of definitions, policies, processes, and technical standards that regulate many different aspects of VA contracting practice. These include descriptions of different types of contracts (such as cost-type and fixed-price contracts), requirements for competitive bidding,[100] definitions and standards for contractor qualifications, rules for contract financing and guidelines for contractor cost accounting, guidelines for government review of contractors' pricing, guidelines for the selection and appointment of government contracting officers, and processes for termination and settlement of contracts. Many of the detailed requirements of FAR and VAAR are complex and are beyond the scope of this report. Despite this complexity, the basic intent behind FAR and VAAR is simple: "The vision for the Federal Acquisition System is to deliver on a timely basis the best value product or service to the [government] customer, while maintaining the public's trust and fulfilling public policy objectives" (FAR 1.102(a)).

A few basic features of the acquisition rules in FAR and VAAR are important to note, particularly with regard to VA purchased care. First, the requirements for fixed-price contracting under FAR depend on the size (or dollar value) of the contract. Part 13 of FAR establishes a set of simplified acquisition procedures that apply to contracts for amounts under the simplified acquisition threshold, which is defined at $150,000 (per FAR 2.101).[101] Contracts falling under the simplified acquisition procedures are exempt from a series of federal laws that would

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[99] See particularly 38 U.S.C. 8153 at subsections (a)(3)(A), (B) and (C).

[100] The FAR and VAAR requirements for competitive contracting flow from statute, including the Competition in Contracting Act of 1984, which is codified in relevant part at 41 U.S.C. 253.

[101] In addition to the standard simplified acquisition threshold, federal law allows simplified acquisition procedures for higher-priced contracts when in support of contingency operations (as that term is defined by DoD) or for procurements related to defense against (or recovery from) nuclear, chemical, biological, or radiological attack. See 41 U.S.C. 1903. For these types of urgent procurements, FAR sets a simplified acquisition threshold of $300,000 for domestic procurements and $1 million for overseas procurements. See FAR 2.101 (Definitions); see also FAR Subpart 18.2 (Emergency Acquisition Flexibilities).

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otherwise apply and are subject to streamlined standards for solicitation and competitive bidding (as described under FAR Subpart 13.1). For VA, simplified acquisition procedures for health care resources are elaborated under the VAAR at 48 C.F.R. Part 873. Particularly noteworthy is VAAR Section 873.104, which establishes that contracts for services with provider institutions that are formally affiliated with VA (for example, academic medical centers) may be entered into on a sole-source basis and without publication and written justification requirements, notwithstanding contrary provisions that would otherwise apply under FAR and VAAR. This is consistent with VA's statutory authority under 38 U.S.C. 8153(a)(3)(A) to pursue such sole-source contracts with affiliated health providers.

Beyond the simplified acquisition procedures described above, another important set of contracting rules in FAR pertains to purchases that fall below the micro-purchase threshold, which is defined as $3,000 (FAR 2.101).[102] For these purchases, an even more simplified and streamlined set of contracting requirements applies (under FAR Subpart 13.2). In essence, those requirements allow for purchasing without competitive bidding, and with only limited additional requirements for documentation and verification of price reasonableness (FAR 13.203). Contracting for services under the micro-purchase threshold can be carried out through any of several different purchase methods, including (fixed-price) purchase orders and commercial purchase cards (per FAR Subpart 13.3).

When VA acts to purchase medical services from the private sector, it must work within the framework set forth by federal statute and regulation, including FAR and VAAR. Within this framework, there are many taxonomies for organizing contracts, such as cost-type versus fixed-price contracts,[103] commercial items versus noncommercial items, and goods versus services. However, to understand VA's authorities to purchase medical care, the most important parameter is the size of a contract, which under federal law and regulation dictates the level of formal process necessary to enter into, administer, and terminate such a contract. Large, high-value contracts involve extensive and formal requirements under FAR and VAAR. Smaller contracts, falling under the simplified acquisition threshold, are subject to a somewhat streamlined process and fewer requirements.[104] In some cases, such as when VA is purchasing

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[102] As with simplified acquisitions generally, there exists a set of urgent authorities for use in making micro-purchases when the head of an agency determines that a micro-purchase is to be used in support of a contingency operation or relates to defense or recovery from nuclear, chemical, biological, or radiological attack. Upon such a determination by the head of an agency (in this case, the Secretary of Veterans Affairs), FAR raises the micro-purchase threshold to $15,000 for domestic purchases and to $30,000 for overseas purchases. See FAR 13.201; FAR 2.101.

[103] See FAR Part 16 (Types of Contracts), for a taxonomy of government contracts based primarily on the cost basis of the agreement, i.e. whether fixed-price or cost-reimbursable. Even within these types there are many sub-types, such as the differences between cost-plus-fixed-fee and cost-plus-award-fee contracts. Depending on the type of contract, a government contract may have different terms and conditions.

[104] Another important type of contract involves those awarded to special disadvantaged businesses, including Veteran-owned small businesses and service-disabled Veteran-owned small businesses. These contracts can be issued for range of purposes and for goods or services. However, an agency may set aside contracts during the procurement process specifically for bids by these types of businesses. See FAR Subpart 19.5 (Set-Asides for

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services from a small disadvantaged business or medical services from an affiliated institution, VA may leverage additional flexible authorities to set aside contracts for a limited range of bidders or use contracting procedures that involve less than full and open competition. For the smallest contracts, those falling below the micro-purchase threshold, there are even fewer formal requirements and more flexibility on the part of VA and its contracting officers in carrying out those arrangements.

5.1.2 Procurement and Contracting Strategy for Purchased Care

In practice, VA contracting for purchased care can take several different forms, consistent with the federal procurement framework established under FAR and VAAR. For example, the PC3 relationships with Health Net and TriWest represent one form of such contracting: large-scale, cost-type contracts with government contractor TPAs to purchase an indefinite amount of care for many Veterans on an indefinite delivery schedule over a period of years. However, the TPAs can use agreements instead of formal contracts with providers who are willing to join the network or provide care on a case-by-case basis. Alternatively, a local VA medical center might purchase a specific medical service for a specific Veteran at a local non-VA facility via a purchase order under the FAR micro-purchase threshold, with very streamlined requirements for making that purchase under FAR. Both of these forms of contracting related to purchased care occur within VA, but each has different contracting and purchasing processes. The different tiers of contracting authority and the multiplicity of contracting options may reflect the fact that it can sometimes be advantageous to local VA facilities to have a very simple process for entering into small purchase contracts in the field, while VHA Central Office is simultaneously working to strengthen a much broader contractual framework for purchasing care on a regional and national basis. This is particularly true if there is no appropriate network provider; this discussion focuses on situations in which the network is not a preferred solution.

These contracting alternatives highlight the fact that VA procurement for purchased care is complex. Beyond the technical requirements of FAR and VAAR that contribute to the complexity of purchased care, the multiplicity of VA contractual alternatives add to the complication. In addition, VA must decide how to define the units of service being purchased and, consequently, the most appropriate way to structure contracts for carrying out those purchases. For example, to the extent that large amounts of outside health care service are being procured in small increments, less than $3,000 each, as through purchase orders under the micro-purchase threshold, that might well represent one expedient way for VA to purchase care. Could a series of similar purchases from the same outside provider be lumped together

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Small Business) and FAR Subpart 6.2 (Full and Open Competition After Exclusion of Sources). In addition, an agency may award a sole-source contract to a Veteran-owned or special disadvantaged business. Within this category, there are specific statutory and regulatory authorities enabling (or, in some cases, requiring) VA to set aside contracts or make sole-source awards available to such businesses. See FAR 19.1405 (Service-Disabled Veteran-Owned Small Business Set-Aside Procedures) and FAR 19.1406 (Sole-Source Awards to Service-Disabled Veteran-Owned Small Business Concerns); see also Sec. 308, Veterans Benefits Act of 2003, Pub. L. 108-183 (December 16, 2003).

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contractually into a larger, more strategic procurement, in a manner that would surpass the micro-purchase threshold, and thereby require a more rigorous and demanding contractual process under FAR and VAAR? Likewise, could one envision an even more aggregated, macro-level contracting framework for purchased care, under which VA would move away from purchasing individual services locally on a fixed-price basis, and instead toward bundled purchasing of services in large quantities from networks of private providers, using contract types (such as cost plus award fee or cost plus incentive fee) that appropriately incentivize performance?[105] Or could VA innovate even further in its contracting and procure aggregated bundles of medical service under an indefinite quantity contract where the basis of payment is the outcome achieved, rather than the services acquired, similar to what CMS and private health providers have begun to adopt?[106] The answer to all of these questions is, perhaps.

Ultimately, one of the tensions of VA contracting for purchased care involves the level of formality that ought to apply under FAR and VAAR. The full requirements of FAR and VAAR are intended to ensure rigor in the contracting process, as through competitive bidding, tight management controls, and appropriate standards for notice, evaluating bids, qualifying contractors, and other factors. To the extent that concerns have arisen about waste, inefficiency, or unresponsiveness in VA purchased care contracting, or about local contract terms that are insufficient to ensure the quality of care being purchased, then in principle tighter requirements under FAR and VAAR might be helpful to address these problems. On the other hand, the downside to full formality under the FAR and VAAR is that contracts carried out thereunder become more burdensome for outside providers to enter into, and potentially less attractive to participate in, at least on a local basis and for small quantities of service. Where VA has a legitimate reason and need to purchase small quantities of service locally for individual Veterans and there is no network provider who can provide timely care, it may be considerably easier to do so through the streamlined rules under the micro-purchase threshold. Outside providers may be more open to direct contracting, which can involve terms more similar to the terms they would encounter in the commercial market for health care services. Put another way, VA may obtain the benefit of competitive rigor (and whatever price or quality advantages that this confers) when it structures large purchased care contracts under the full weight of FAR and VAAR, while obtaining the alternative benefits of flexibility and greater attractiveness to local providers when using purchase orders for small quantities of service.

In Volume I of VA's FY 2016 Budget Submission to Congress, VA included a specific legislative proposal to update its purchased care authority, particularly with regard to provider agreements and contracting (VA Office of Budget, 2015). Citing outdated and scattered authorities which "in some cases have created confusion and uncertainty," VA proposed a legislative update that would "streamline and speed the process for purchasing care for an

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[105] Note that FAR Subpart 16.4 deals at length with "Incentive Contracts," and introduces these as an alternative to fixed-price contracts when "required supplies or services can be acquired at lower costs and, in certain instances, with improved delivery or technical performance, by relating the amount of profit or fee payable under the contract to the contractor's performance."

[106] Regarding performance-based, bundled payment contracting innovations being explored by CMS and others, see, for example, Shelton, Ondra, & Levin (2015) and McKesson Health Solutions (2014).

individual Veteran that is not easily accomplished through a more complex contract with a private provider." Full language of the proposal was not available as of this writing, but VA described its intent as "preserving key protections that would be found in full FAR-based contracting, while providing the benefits of a more streamlined and less complex practice that is more likely to appeal to solo practitioners or small healthcare providers." Taken at face value, it appears that the VA proposal seeks to protect and enhance flexibility in purchased care contracting for some services at the local level, where the Secretary believes that there are meaningful advantages to this practice.

In contrast to this proposal are some of the future possibilities for VA contracting, particularly in a world where VA becomes much more active as a purchaser and more innovative in shifting toward payment models based on bundled purchasing. As we discuss later in Section 5, new definitions of "episodes of care" are now being developed outside of VA, and various outside payer and provider organizations are actively working to build new contracting models that leverage these definitions to support bundled purchasing and related forms of risk shifting between payers and providers. It seems entirely plausible that VA in the future might want to experiment with similar contractual approaches, based on advanced definitions of episodes of care, and the aggregation of its relationships with outside providers into large contracts that (presumably) would be subject to the full weight of FAR and VAAR formal review and procedures. There is not a single "right" approach to federal contracting for VA purchased care, or to the procurement rules under FAR and VAAR. Rather, VA might obtain different advantages when it pursues different approaches to contracting, such as economies of scale, or more sophisticated approaches that enable VA to pay for Veteran outcomes (instead of quantity of services). Ultimately, policy-makers may need to reflect on the overall strategy behind purchased care contracting practice, and what VA purchased care is intended to achieve, to select and refine an optimal path for the "units of purchase" and, consequently, the appropriate treatment of any such contracts under FAR and VAAR. Figure 5.1 illustrates the strategic trade-off between two different approaches to purchased care contracting, under FAR and VAAR.

Figure 5-1. Alternative Approaches to Purchased Care Strategy for Procurement

VA strategy for buying services	Many small, individual purchases of services	or	Fewer purchases of large bundles of services

Feeds into VA procurement authorities	38 U.S.C. 8153	FAR	VAAR

Leading to FAR implications for strategy	Purchases fall under FAR micropurchasing threshold; few contracting requirements apply		Larger purchases involve more FAR contracting requirements, depending on detailed terms

Resulting in advantages for VA	Local flexibility in purchasing; lower burden for contractors; (possibly) more attractive rates		More rigor in contracting process under FAR and VAAR; consistent purchasing terms regionally and nationally; potential to enter into large, innovative risk-shifting and payment arrangements

In May, 2015, a senior VA procurement official came forward with allegations of widespread misconduct and violations of procurement rules under the FAR and VAAR, particularly regarding the purchase of outside medical services under the Fee-Based Care program (the latter being another name for traditional purchased care; see Frye, 2015). It is beyond the scope of this report to review those allegations in detail.[107] Nevertheless, the allegations reflect a similar duality in VA contracting practice to what we have described here, as well as considerable disagreement within VA about how best to work within the FAR and VAAR acquisition framework to appropriately purchase care for Veterans. At present, VA has some authority to engage in local-level contracting for purchased care, for services of small value, under streamlined FAR requirements, and carries out significant activity under this authority. Meanwhile, VA is also involved in pursuing much larger purchased care contracts, subject to the full requirements of FAR and VAAR. It remains for policy-makers to determine whether the benefits of less formal contracting for local, small-value purchases of care are worth preserving (or even extending), and, if so, how this will fit with the future trajectory of VA purchased care contracting writ large.

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[107] See Assessment J report for a more lengthy discussion of the allegations contained in the Frye memo, and the implications both for contracting and senior management within VA.

5.1.3 Why Is Procurement Important to Purchased Care Strategy?

Ultimately, purchased care involves VA in contracting with outside providers, and exchanging payment for medical services received. Assuming that VA has good reason to engage in purchased care in the first place, procurement rules and strategy help to determine *what* VA is buying, and both the terms and processes that are involved in buying it. For stakeholders, some basic questions about procurement approaches follow. Is the primary aim to maximize efficiency in VA purchasing, or rigor in competitive bidding, through the use of large-scale, aggregated contracting approaches? Is the aim to preserve VA flexibility in contracting for individual services to Veterans on a local basis? Or is the aim to encourage innovation in VA contracting, and to shift the units of purchase and the terms of payment in ways that might enhance both quality and efficiency down the line? Different answers to these questions might lead to very different approaches to VA purchased care, and to different proposals for modifying procurement processes and authority.

5.2 VA's Approach to "Episodes of Care"

The Veterans Choice Act mandate for Section 201, Assessment C, includes the task of addressing "the authorities and mechanisms under which the Secretary may furnish hospital care, medical services, and other health care at non-Department facilities, including whether the Secretary should have the authority to furnish such care and services at such facilities through the *completion of episodes of care*" [emphasis added]. *Episode of care* is a key term in this mandate, and also a key term in any discussion about VA purchased care policy.

5.2.1 Defining the Episode under the Veterans Choice Act

As we first explained in Section 3, the Veterans Choice Act requires VA to allow a Veteran to obtain "hospital care and medical services from [the non-VA] health care provider through the completion of the episode of care," which includes "all specialty and ancillary services deemed necessary as part of the treatment recommended in the course of such hospital care or medical services" (Sec. 101(h)). The Veterans Choice Act does not define *episode of care*, though it does limit the provision of care from any health care provider under a single Choice authorization to a maximum of 60 days (Sec. 101(h)). Thus, whatever the Veterans Choice Act considered an episode of care to be, Choice would only cover the first 60 days thereof without follow-up authorizations.

Although the meaning of *episode of care* might not be clear from the act's language, its use within VA predates the Veterans Choice Act. Almost three decades ago, for example, it was simply the "period of consecutive days . . . beginning with the first day on which a veteran is furnished hospital or nursing home care; and . . . ending on the day of the veteran's discharge from the hospital or nursing home facility, as the case may be" (Pub. L. 99–272, Sec. 19011(f)(2)(C), 1986). A later regulation, related to VA's provision of temporary lodging rather than non-VA care, defined the term as "a course of outpatient treatment, or a period of hospitalization, during which a veteran receives health care under 38 U.S.C. chapter 17, or 38 U.S.C. 8111 or 8153." It included a list of examples, such as "[e]xtended outpatient treatment, such as treatment associated with organ transplant, chemotherapy, or radiation" (38 C.F.R.

60.2). A 2012 internal directive stated that *episode of care* "as it pertains to VHA Non-VA programs refers to a set of clinically related healthcare services for a specific unique illness or condition (diagnosis and/or procedure) provided by an authorized non-VA provider during a defined authorized period of time" (VHA Chief Business Office, 2012).

In its November 2014 final interim rule, VA defined *episode of care* as "a necessary course of treatment, including follow-up appointments and ancillary and specialty services, which lasts no longer than 60 days from the date of the first appointment with a non-VA health care provider" (38 C.F.R. 17.1505). While the regulation appears to track the language in Section 101(h) of the Veterans Choice Act, there are some important differences. Prior VA use of *episode of care* simply described what can be characterized as a set of related services ("a course of outpatient treatment, or a period of hospitalization," "a set of clinically related healthcare services for a specific unique illness or condition"), and the interim final rule *does* incorporate "course of treatment" into the new definition. However, VA's final interim rule also included the modifier "necessary," suggesting that not all potential courses of treatment for a condition could be regarded as an episode of care. The comments to the interim final rule indicate that VA gave significant weight to the language in Section 101(h) of the Veterans Choice Act, which provides guidance on the types of services that might be provided in an episode of care:

> [T]he Secretary shall ensure that . . . the veteran receives such hospital care and medical services from such health care provider through the completion of the episode of care (but for a period not exceeding 60 days), *including all specialty and ancillary services deemed necessary as part of the treatment recommended in the course of such hospital care or medical services*. [Emphasis added.]

One plausible interpretation for this passage is that Congress was calling on VA to ensure that a Veteran eligible for Choice due to distance or time in fact received whatever treatment was recommended by the non-VA provider, including any specialty and ancillary services that the *non-VA provider* deemed necessary. In other words, Section 101(h) can be seen as conferring a heightened level of discretion to non-VA health care providers to manage the course of treatment once the referral was made.[108] Under VA's interpretation, however, it would be VA alone that would determine what types of services are necessary for a Veteran's care under the Choice program.[109] As the comments to the interim final rule indicated, "We believe that the language 'deemed necessary' authorizes VA to make such determinations" (79 Fed. Reg. 65571). In arguing for the need for VA determinations of medical necessity in all instances, the comments to the interim final rule cite a passage from the Conference Report:

> When coordinating care for eligible veterans through the Non-VA Care Coordination program, the Department should attempt to ensure when an appointment is

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[108] This interpretation is supported by the title of Section 101(h), "Follow-Up Care," which suggests that the original congressional intention was to address medical care and services subsequent to the initial contact with a non-VA provider. Put another way, Section 101(h) requires VA to ensure that non-VA providers are given the opportunity to control the delivery of care and services after the initial contact.

[109] VA's interpretation may also trace back to the language of 38 USC 1703(a), which empowers the Secretary to purchase care when VA facilities are "not capable of furnishing the care or services [that are] *required*" [emphasis added].

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authorized, the eligible veteran receives care within an appropriate time period, as defined by medical necessity as determined by the referring physician, or a mandatory time period established by the Secretary when the request for care is not initiated by a physician, that all medical fees are appropriately paid and health care records are returned to the Department within the prescribed time. (H.R. Rpt. 113-564, 2014, p. 56)

Given that the passage appears to speak almost exclusively to the issue of time rather than types of services, one interpretation of the conferees' original intent was that VA should ensure that a Veteran's care is delivered within a *time period* that is based on "medical necessity as determined by the referring physician" or within a mandatory time period as established by VA.

Regardless of how an episode of care is defined, the Veterans Choice Act is clear that VA must specifically authorize, at least initially, the provision of hospital care or medical services by non-VA providers or facilities as part of the Choice program.[110] The interim final rule underscores this requirement by stating that VA will only pay for an episode of care that it has specifically authorized (38 C.F.R. 17.1535(c)). The comments to the interim final rule characterize the permission being requested as an authorization from VA to *schedule* an appointment with a non-VA provider.[111] The need for prior authorization is one reason why VA specifically excluded emergency room visits and unscheduled visits to a clinic from the type of "authorized and scheduled encounter with a health care provider" that would take place under the Choice program (38 C.F.R. 17.1505).[112] Moreover the rule puts the onus on the provider to contact VA for additional permission to provide care or services that go beyond the scope of the initial authorization. Given that a covered episode of care is limited in duration to 60 days, authorization must again be issued should the Veteran need continuing treatment beyond the two-month ceiling. Thus, it is certainly conceivable that a six-month course of treatment provided by a non-VA health care professional might involve multiple instances where VA would need to revisit the authorization decision.

5.2.2 What Are Episodes, and Why Does the Definition Matter for Purchased Care?

In the section above, we briefly discussed the legal contours of episodes of care as VA authority currently defines these episodes. However, the legal discussion sidesteps a more basic, conceptual explanation of what an episode of care actually is. Put simply, an "episode" involves a coherent and clinically meaningful trajectory of care, tied to an underlying medical condition for which treatment is sought. Moreover, definition of the episode is also administratively important. Among other things, the boundaries of the "episode" determine how many services can be considered under a single referral and authorization for outside care. A broader

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[110] For example, Section 101(c)(1)(B) indicates that one of the options available to an eligible Veteran is to have VA authorize Choice care and services.

[111] "In short, if a veteran visits a non-VA health care provider without seeking authorization from VA to schedule such an appointment, VA cannot use Program funds to pay for the services delivered and cannot provide reimbursement after the fact" (79 Fed. Reg. 65574).

[112] As the commentary to the interim final rule indicates, such events "are not scheduled encounters and cannot be authorized in advance" (79 Fed. Reg. 65574).

definition for the episode would make it easier for a Veteran to obtain more services outside of VA, once having obtained an authorization for that episode, and in that sense might be viewed as widening the aperture for purchased care (with the potential trade-offs in utilization and cost). A narrower definition for the episode (say, limited to a single outpatient appointment) is inherently more restrictive, in the sense that it imposes a greater limit on how much outside service can be obtained under a single referral and authorization. By corollary, a narrower definition of the episode may give VA more granular control over the purchase of outside services, and more operating responsibility for monitoring and approving such services.

VA has used the phrase *episode of care* in various contexts, often to place an outer boundary on the length of time for which a Veteran can receive a particular benefit or type of care. In the context of purchased care, an episode is defined by VHA as "a set of clinically related healthcare services for a specific unique illness or condition (diagnosis and/or procedure) provided by an authorized non-VA provider during a defined authorized period of time." (VHA Chief Business Office, 2012). Section 101(h) of the Veterans Choice Act states that VA will not pay for external medical services for an "episode of care" if it [the episode] extends beyond 60 days without reauthorization. Subsequent regulations adopted by VA under 38 C.F.R. 17.1505 provided the following definition for episode of care: "a necessary course of treatment, including follow-up appointments and ancillary and specialty services, which lasts no longer than 60 days from the date of the first appointment with a non-VA health care provider."

There is an inborn tension between quality control and oversight in the authority to purchase episodes of care. The 60-day threshold mandated in Choice is used to ensure that the authorized care is the necessary course of treatment. If an episode of care lasts longer than 60 days, then the Veteran must be reauthorized to receive treatment and services, either within VA or through a non-VA provider. Since VA is responsible for ensuring both that Veterans receive high-quality care and that the Department delivers care efficiently and effectively, the 60-day bookend allows VA to assess patients' status and match their needs with the best available resources. While the reauthorization process is an additional step, which may be inherently inefficient, its overarching purpose is to embed consideration of cost and oversight of quality of care into purchased care authorization. Medicare provides an example of a slightly different approach to the role of a payer vis-à-vis quality control and oversight. It is increasingly monitoring provider performance and monetarily rewarding or punishing providers based on the quality of care provided.

In practice, episodes may be constructed in narrow or increasingly broad ways with respect to providers, settings, and time period. A narrow construction might involve services offered by one provider in one setting, such as the provider and hospital services for a specified inpatient course of treatment. An intermediate construction could include all providers in one setting, such as all necessary provider and hospital services for an inpatient stay. A broader episode construction could also include all providers for an inpatient post-acute stay. While episodes of acute care typically begin and end at discrete times (for example, the day of a procedure or last follow-up visit), episodes for chronic events typically capture all treatment over an established time period, perhaps ranging from 60 days to as long as 12 months.

How an episode of care is defined is critical to how VA purchased care operates in practice today. For example, in our interviews, some local VA hospital personnel stated that ambiguity and inconsistency in defining episodes of care presents a significant challenge for the system. One VISN director noted that the definition of "episode of care" under the Veterans Choice Act is confusing for serious ailments that require treatments like chemotherapy, and for which it is clear from the outset that treatment will last longer than 60 days and will necessitate new authorizations. In a related vein, a senior VA official brought up continuity of care issues, pointing out that the definition of "episode of care" under the Veterans Choice Act "has a potential to undermine the Veteran's comfort with the care they are receiving."

Figure 5-2 illustrates the time frames for five different episodes of care. As the figure shows, episodes of care may vary greatly in duration. Depending on the nature of treatment sought, an episode may be much shorter or longer than the 60-day reauthorization period used in the Choice program.

Figure 5-2. Episode of Care Duration for Various Types of Care
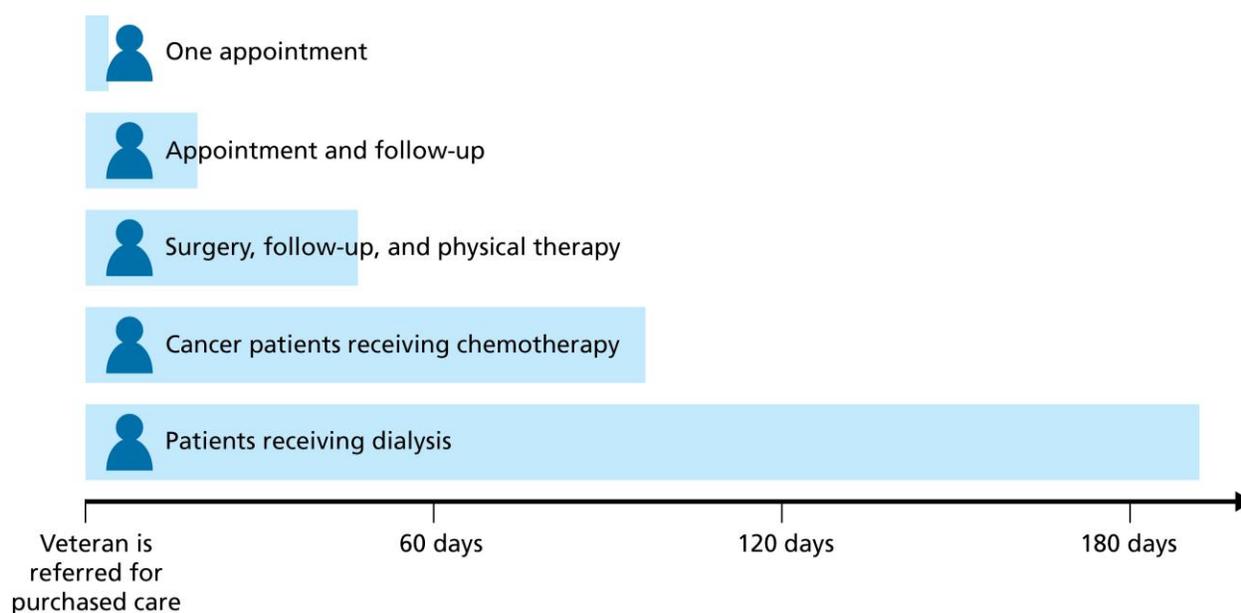
Lack of clarity in how to define "episodes" appears to have led some VAMCs to adopt narrower policies than others, in terms of the breadth of their referrals and authorizations for outside care, and in the amounts of outside service that a Veteran can access in connection with a single referral. Presumably, this is a challenge that affects both ease of access to care outside VA and related costs.

Apart from current VA practice, the definition of *episode of care* is also intimately tied a new and emerging set of payment reforms in the United States more broadly. These reforms involve bundled payment and performance metrics based on clinical episodes, rather than traditional fee-for-service practice. In the future, new definitions of *episode of care* might become the basis for a new generation of payer-provider relationships and contracts in the broader U.S.

health care market. With regard to VA, redefining the *episode of care* in line with broader market trends could have a major impact on what VA purchases, the terms on which it does so, and related efforts connected with monitoring the quality of care. It seems likely that VA purchased care practice may need to evolve over time to keep up with the outside state of the art in defining what constitutes an episode of care.

5.2.3 External Models for Episodes of Care

Episode of care is a commonly used concept in health care. One of the earliest definitions was offered by Hornbrook and colleagues (1985, p. 171) to define the boundaries around medical care for purposes of economic analysis: *"A series of temporally contiguous healthcare services related to the treatment of a given spell of illness or provided in response to a specific request by the patient or other relevant entity."* The authors aptly point out that episodes can be viewed from the perspective of the patient ("spell of illness"), the provider ("course of disease"), or the payer ("bundle of service").

A series of tools have been used to operationalize episodes of care in the private sector. Episode "groupers," such as the OptumInsight Symmetry Episode Treatment Groups product, the 3M Patient Focused Episode grouper, the Truven Medstat Medical Episode Grouper, the Health Care Incentives Institute's Prometheus, and the Cave grouper are software tools that create condition-specific episodes from administrative claims data. These products use different methodologies to group and analyze services delivered by providers into "episodes" over a defined period of time and for specific clinical conditions. They have been used by commercial insurers and managed care organizations, health systems, and other payers, in various ways connected to purchasing arrangements, coordination of care, and quality measurement.

The use of episodes of care (and corresponding tools and definitions for the "episode") has been motivated by the desire to improve provider performance and care coordination, while better controlling health care costs. A 2007 Institute of Medicine report, *Provider Performance: Aligning Incentives in Medicare*, laid the groundwork, recommending that "CMS . . . build towards an ultimate vision of aggregating funds for rewards into one integrated pool that would accommodate shared accountability and encourage coordination of care" and that the current measure sets "should evolve over time to provide more comprehensive and longitudinal assessments of provider and system performance." One important step toward achieving these goals involves the refinement of new performance measurement capabilities that are congruent with the episode of care (however defined). Another step involves linking payments directly to the episode, rather than to a fee-for-service invoice of all the services delivered within the episode. Both of these innovations depend on the deployment of valid, useful standards for bounding the episode of care, as a basis for subsequent optimization both of performance measurement and of payment.

Since the IOM recommendations, numerous reports have advocated for the adoption of episodes as the basis of performance measurement and/or payment (Medicare Payment Advisory Commission, 2008; Miller, 2010; Schoen, Guterman, Zezza, & Abrams, 2013,). The Affordable Care Act has also spurred experimentation with related alternative payment models,

including bundled payment. We offer a brief summary below, describing the application of episodes of care in both the performance measurement and payment contexts.

5.2.4 Applications of Episodes of Care

5.2.4.1 Performance Measurement

It is widely accepted that performance measurement is a key strategy for efforts to improve the quality and value of health care, and several public and private payers have adopted an episode-based approach to performance measurement and quality improvement. As an example, both Medicare and commercial health plans are profiling physicians on measures of health care cost and quality and feeding that information back to the physicians to encourage improvements in the quality of care. Medicare's reporting efforts in this vein are illustrative, particularly regarding the tie between performance measurement and the episode of care. Medicare's Supplemental Quality and Resource Use Reports involve "confidential feedback reports provided to medical group practices with payment-standardized, risk-adjusted cost information on the management of their Medicare fee-for-service patients based on episodes of care" (CMS, 2015b). Although there is some concern that current point-in-time quality measures that apply to discrete clinical settings and a single condition rather than multiple co-morbid conditions, may be insufficient for episode-based measurement, efforts are actively underway to fill the measurement gaps (Damberg et al., 2009).

Public reporting of quality and cost information offers another lever to improve the value of health care, and some organizations are notably employing episode-based measurement in their public reporting of resource use. Several regional health care alliances with large claims databases have been experimenting with reporting episode-based measures across providers for comparison purposes. As an example, the Wisconsin Collaborative for Healthcare Quality (2011) has reported variations in resource use for episodes of care for asthma, diabetes, hypertension, and pregnancy with delivery. Additionally, the Health Care Cost Institute has recently introduced a new consumer-focused website called Guroo (n.d.), which reports average costs for 70 "care bundles" or episodes. These reporting efforts are using episodes as a common unit of measurement to inform consumer and payer decision-making.

GAO has suggested that VA use episodes of care as the basis to monitor the cost of purchased care. In a 2013 report, it made the following recommendation:

> VA can also improve its capability to more effectively monitor the fee basis care program. VA Central Office's monitoring efforts are limited by the inability to analyze fee basis care data by episode of care. Because information that would allow VA to pull together all services with a single office visit or inpatient stay is not available, VA Central Office cannot effectively monitor the payments made by fee basis care units or ensure that fee basis providers are billing VA appropriately for care. (GAO, 2013a, p. 33)

In 2014, VA officials responded to the 2013 GAO report, and indicated that they are making improvements to their data systems to allow for analysis of purchased care claims based on episodes of care, but they did not provide a time frame for completion of this initiative (Williamson, 2014).

Taken in sum, recent experience and practice outside VA has involved the development of new performance measurement techniques, based on sophisticated episode of care definitions, and the application of those techniques by payers to quality improvement and value monitoring among providers. In principle, VA could adopt a similar approach to its own purchased care practice in the future, potentially by building on episode of care definitions and related innovations developed independently and outside of VA.

5.2.4.2 Bundled and Performance-Based Payment Approaches

Episode-based or "bundled" payment is another strategy that is being implemented by both public and private payers to improve the value of care by creating a financial incentive for providers to eliminate services that are clinically ineffective or duplicative (Miller, 2009) and to encourage effective coordination of care among providers. One study estimated that widespread implementation of bundled payments could save Medicare $3 billion to $15 billion per year (Cutler & Gosh, 2012). Although the term *bundled payment* is relatively new, the first actual use of bundles involved the Diagnosis Related Groups adopted by CMS over 30 years ago, in connection with a new Inpatient Prospective Payment System mandated by Congress to control hospital costs. Prior to that time, providers retrospectively billed Medicare for all of their à la carte service costs connected to an episode of care. By contrast, Diagnosis Related Groups "bundle" the services that are typically needed to treat a patient with a particular condition, and CMS sets the corresponding rates based on its own analysis of the average costs associated with such care.

More recently, public and private payers and some self-insured employers have been experimenting with bundled payments to providers, on the basis of anticipated costs for clinically defined episodes. In theory, the payment for an "episode" may cover multiple provider types, settings, and services; but in practice, the pilots have used fairly limited episode constructions to date. Although there has been some experimentation with bundled payments for chronic care, most of the experiments to date have been focused on acute care, and particularly on joint replacement, for which there are easily identifiable start and end dates to the episode. While many programs aspire to prospective payment, most of the models now in place are still using retrospective payment at this point (Bailit & Houy, 2014). These payment arrangements are typically accompanied by quality measures that may be specific to the episode (e.g., C-section rates for pregnancy episodes) or more generally applicable to acute-care episodes in hospitals (e.g., readmissions, avoidable complications, patient education). For some bundled payment programs, the providers must meet some minimum standards on quality measures to participate. In other programs, provider "bonuses" are contingent on achieving predetermined levels on the quality measures. Quality measurement in these programs may also serve as an important deterrent to the under-provision of care.

Commercial health plans' use of bundled payment arrangements has been increasing but is still quite limited, and was estimated to represent only 0.1 percent of commercial health plan payments as of September 30, 2014 (Catalyst for Payment Reform, 2014). However, there are some notable examples of successful implementation of bundled payment in the commercial sector. Geisinger Health Systems' "ProvenCare" model was originally developed to bundle payment for coronary artery bypass graft surgery in 2006. The model succeeded in achieving a 10-percent reduction in readmissions, shortening the average length of stay, and reducing hospital charges (Casale, et al., 2007), and subsequently led Geisinger to develop bundled payment for elective coronary angioplasty, bariatric surgery, perinatal care, and treatment of some chronic conditions. United Healthcare ran a bundled payment pilot for oncology care between 2009 and 2012 that involved five sites and reportedly achieved a 34-percent cost savings without a negative impact on quality (Newcomer et al., 2014).

In a somewhat different approach in recent years, several health plans adopted the Prometheus[113] model to implement bundled payment programs. The model assigns evidence-based case reimbursement rates to common conditions and procedures, with a single rate covering all inpatient and outpatient care associated with a given condition or procedure. The reimbursement rate is adjusted for the severity and complexity of each patient's condition. Starting as a pilot program in four sites, the Prometheus model has been adopted by other payers and plans, where it is in various stages of implementation. Blue Cross Blue Shield of North Carolina and Horizon Healthcare Services, Inc. have both moved from pilots to permanent reimbursement for hip and knee surgery. An evaluation of Prometheus at three pilot sites documented a series of challenges to the successful implementation of the bundled payment model. The challenges included defining the bundles,[114] defining the payment method, implementing quality measurement procedures, allocating payments among providers, and redesigning delivery (Hussey, Ridgely, & Rosenthal, 2011).

Several common barriers to bundled payment implementation, and some unique ones related to California regulation of hospitals and health plans, arose in the Integrated Healthcare Association's Bundled Episode Payment and Gainsharing Demonstration. This project brought together a group of providers, health plans, and vendors to develop and implement a bundled payment program for orthopedic surgery in California, starting in 2010. Despite initial enthusiasm among all parties, three of six health plans dropped out of the project, and only two of eight hospitals signed contracts with the participating health plans (Ridgely, de Vries, Bozic, & Hussey, 2014).[115] Delays in implementation, the drop-off in providers and payers, and the resulting small number of procedures completed under the new contracts prevented an evaluation of the impact of the payment model on quality and cost. An important lesson from these pilots is the need for

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[113] Prometheus Payment Inc. is a nonprofit initiative of Health Care Incentives Institute.

[114] This would include defining episodes of care to which the bundles correspond.

[115] Two ambulatory surgery centers also executed contracts with one health plan.

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a sufficient volume of episodes to justify the investment of resources required for implementation of bundled payment.

CMS has also been experimenting with episode-based payment, coupled with performance measurement, on an increasingly larger and broader scale. The first CMS foray into bundled payment was the Medicare Participating Heart Bypass Demonstration that took place between 1991 and 1996 and involved bundling physician and hospital payment for coronary artery bypass graft surgery at seven hospitals.[116] It was estimated that Medicare realized savings of about 10 percent through the Demonstration, with no negative impact on quality of care (Cromwell et al., 1998).

Medicare's next experiment with bundled payment was the Acute Care Episode Demonstration, which was implemented at five sites over three years and covered five acute care episode types. In addition to the new payment mechanism, the pilot emphasized enhanced coordination of care, cost-control incentives, adoption of standardized clinical protocols, and quality improvement activities (IMPAQ, 2013). Cost savings for Medicare Parts A and B were estimated at $7.3 million ($585 per episode) across sites, though there was significant variation in cost savings across the types of episodes and the sites, as well as some increases in post-acute care spending that reduced the net Medicare savings per episode to $319. There were no significant changes in quality under the Demonstration, however.

In 2013, CMS introduced a new demonstration, Bundled Payment for Care Improvement,[117] which provides an opportunity to test bundled payment across 48 potential episode types. All four payment models offered to providers are triggered by an acute care stay, but the services and providers included and the payment type (retrospective or prospective) vary (CMS, n.d.). Nearly 6,500 providers entered an exploratory stage of the program, but it is not clear how many will move to the next stage of implementation. In interviews with organizations that have withdrawn from the program, providers indicated that the potential costs outweighed the potential benefits (Koenig et al., 2015). Finally, in February 2015, CMS introduced its first bundled payment model for specialty care, the Oncology Care Model. CMS has offered to enter into new payment agreements with physician practices administering chemotherapy to cancer patients with the goal of providing higher-quality, more coordinated cancer care at a lower cost to Medicare (CMS, n.d.). This is Medicare's first bundled payment program for non-acute care.

Several state Medicaid programs have also been experimenting with bundled payment. The Arkansas Medicaid program, together with two commercial payers, is implementing episode-based payment for 15 acute and chronic episodes, including some conditions that are new for this payment model, such as attention deficit hyperactivity disorder and

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[116] The demonstration began with four hospitals in 1991, and three hospitals were added in 1993.

[117] For additional details, see the program overview on the CMS website (CMS, n.d.-b).

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asthma. It is the first mandatory multipayer demonstration model of bundled payment in the country, and the Ohio and Tennessee Medicaid programs are in the early stages of implementing similar programs (Golden, et al., 2015).

Finally, a handful of large self-insured employers[118] are utilizing bundled payment as part of centers of excellence programs for employee medical care. In this model, the employer negotiates a fixed price (bundled payment) for a procedure (i.e., an acute care hospital episode based on a major clinical intervention) with one or several centers of excellence. The bundled payment, in this model, covers the entire cost of the employee's care as well as travel and lodging for the employee and a caregiver. Procedures covered by the programs include cardiac care, spine surgery, and transplants. The goal for employers is higher quality care, quicker employee returns to work, lower costs due to lower complication rates, and greater predictability of costs. The motivation for health system participation is the potential for new, non-local sources of patients.

Several employer coalitions are also coordinating centers of excellence programs that utilize bundled payment. A group of large companies (including Lowe's and Walmart) is collaborating with the Pacific Business Group on Health to form the Employers Centers of Excellence Network to offer knee and hip replacement and spinal surgeries at no cost to employees if they receive care through one of four designated health systems, starting January 2014 (Pacific Business Group on Health, 2014). Under this program, the network qualifies both the hospitals and individual surgeons based on volume, complication rates, training and experience, and patient satisfaction. Additionally, centers of excellence must report to a joint replacement registry and incorporate shared decision making with patients. These employer models are voluntary such that employees may choose to receive care from local providers and incur routine costs. Travel and care management are handled by Health Design Plus, a health care management company. Centers of excellence also provide a health care navigator who works with the patient's home physician on evaluation prior to surgery and follow-up post-surgery. The Employers Health Coalition, a group of 300 small employers, also established a travel surgery program in 2014.

Studies of the results of employer-based COE programs utilizing bundled payment are not yet available. However, The Cleveland Clinic reported performing about 200 cardiac surgeries over the first three years of the Lowe's program, with 3 to 4 percent of patients readmitted to any hospital compared to a rate of 9 to 13 percent for heart surgeries nationally (Chen, 2014). Walmart reported that savings from its spine surgery program have mainly come in the form of avoiding surgeries that physicians at the COEs have determined to be inappropriate (Gawande, 2015)

In sum, although there has been a great deal of enthusiasm for the adoption of bundled payment reforms, experimentation to date has been limited in scope, and there is little evidence about the impact on the cost and quality of care. Additionally, there are significant issues that may act as barriers to effective bundled payment arrangements. Hussey and colleagues (2009) describe several, including threshold decisions about the design of the

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[118] Lowe's, Walmart, PepsiCo, Boeing, and Kroger have each established COE programs.

episode (e.g., number of settings, number of conditions, and variation within episode types) and regarding the attribution of responsibility and distribution of payment to multiple providers involved in an episode. Beyond the challenges in bundled payment design, even highly experienced payers and providers have encountered difficulties in implementation. In recent interviews with seven commercial and state payers involved in bundled payment arrangements, the payers interviewed described a series of challenges related to implementing bundled payment. These included finding providers who were willing to participate; covering the time and resources required for reconciliation of claims against a prospective budget (in the case of retrospective payment arrangements); and covering the staffing required for provider education, reporting, and quality improvement in bundled payment (Bailit & Houy, 2014).

5.2.5 How Might VA Use a Revised Approach to "Episodes of Care" in the Future?

Given all of the ongoing developments around episodes of care in the U.S. health care system more broadly, VA has the potential to undertake a range of similar innovations going forward. We briefly reflect on some of the possibilities below.

5.2.5.1 To Modify the Time Window that Bounds VA Authorizations

VA may continue to define and use episodes of care as it does today with the intent of bounding the amount of time or the scope of services for which a Veteran is eligible to use outside providers, without compelling a reauthorization. Alternately, VA might seek to adopt a more sophisticated and clinically based set of standards to define what constitutes an episode. In principle, VA could either develop such standards on its own, or else adopt from the emerging state of the art, drawing on the work of CMS, the Arkansas Medicaid program, and private-sector payers. Any such adoption by VA would likely involve moving away from a very simple formulation of the episode of care, such as the 60-day time window imposed under the Veterans Choice Act.

On a practical level, improved standards for episodes of care could help local VA administrators to address some of the confusion in how to define and apply episodes, as we described earlier in Section 5.

5.2.5.2 As a Basis for Performance Measurement

As we described above, GAO recommended (and VA agreed) that VA should develop a claims-based analytic capability for performance measurement, drawing on appropriate episode of care standards, as applied to purchased care claims data. In principle, such a capability would enable better monitoring of cost and quality of purchased care, and ideally might support performance comparisons across VA purchased care, care directly delivered by VA, and care in other delivery systems unrelated to VA. VA's ability to adopt appropriate episode-based performance measurement may be constrained by the extent to which measurement frameworks that take into account the existence of multiple chronic conditions are developed externally or internally. Any future version of performance measurement that VA might adopt

will likely be sensitive to its initial choices in implementing more advanced and nuanced standards for the episode of care.

5.2.5.3 As a Basis for New Approaches to Purchasing and Payment

Assuming that VA first implements more advanced, clinically based standards for an episode of care, it could, in theory, move toward adopting new innovations in value-based payment by purchasing care from non-VA providers on the basis of the quality and cost of episodes, rather than on a traditional fee-for-service basis. Future revisions to VA purchased care along these lines could benefit from the experimentation currently under way in Medicare, Medicaid, and the commercial market. Particularly if emerging models for episode-based payment outside of VA prove to favorably impact the quality and cost of care, VA may wish to pursue a similar path for its own purchased care operations, at least in a limited way. As Figure 5-3 shows, designing an episode-based payment system would require VA to address a series of strategic questions, beyond the definition of episodes, to make a future payment system work. Among the threshold issues that would need to be addressed include the selection of procedures and conditions for episode-based payment; selection of outside providers appropriate and willing to participate; and selection of an appropriate payment mechanism (e.g., prospective versus retrospective).

In the future, rather than attempting to negotiate complex episode-based payment contracts with numerous providers across the country, VA might plausibly consider establishing several regional centers of excellence for selected conditions or procedures, or else joining an established, episode-based payment network such as the Employers Centers of Excellence Network. Joining an existing network would have the advantage of tapping a pool of experienced providers who have already been screened for high performance, and who have worked through many of the implementation challenges to episode-based payment, as described earlier.

Figure 5-3. Design Considerations for VA in Developing Episode-Based Payment Mechanisms

| Selection of procedures or conditions | Are there common/costly conditions/procedures for which episodes have been well defined? | Payers/providers have focused on high-volume/costly conditions to justify investments in bundled payment programs. |
| | How many providers and settings should be involved in the bundle? | Fewer providers and settings simplify implementation but also limit the potential value of greater coordination of care. |

Selection of provider partners	Are there interested providers who have experience with bundled payment?
	Have the providers demonstrated high performance for the procedure/condition?
	Are the providers geographically accessible to VA patients?

| Payment mechanism | Will payment be made prospectively or retrospectively? | Many providers are not comfortable entering into prospective arrangements, but this may change with experience. |
| | If payment is retrospective, does VA have the resources to reconcile claims against the budget? | Automated solutions are available, but some payers believe they will take time to implement. |

5.3 Discussion

In sum, both VA's procurement policies and its standards for episodes of care are key to how the VA purchased care system actually operates. For VA to purchase outside services, it has to enter into some kind of contractual relationship with an outside provider, in which money is exchanged in return for services rendered. Any such contractual relationship, in turn, requires some foundational agreement over what the "standard units" being purchased actually are. In the future, new standards for the episode of care could be applied to VA contracting, in ways that might radically shift the units of purchase, with a cascade of downstream implications for payment and risk-sharing, efficiency, performance measurement, quality assurance, and procurement practice.

For procurement, a key consideration for VA involves the link between rigorous, FAR-based contracting requirements that tend to apply to large contracts, as opposed to the much more streamlined contracting requirements that apply to micropurchases of service under FAR. Advocates of rigor in contracting may favor the formal approach, and by implication, higher-value umbrella contracts that cover networks of providers and large amounts of service on a regional or national basis. By contrast, advocates for local flexibility in contracting may favor the opposite approach. Setting aside the details of the federal procurement laws, VA must decide on a strategy for purchased care, and how much emphasis ought to be placed on large contractual vehicles that draw on regional or national networks to provide outside services to large numbers of Veterans. The choice of strategic approach might be influenced by advantages of ensuring that the full

requirements of the FAR apply. Alternately, the strategy might be more heavily influenced by other considerations, such as ensuring access and/or efficiency through an appropriate approach to contracting.

The evolution of new standards for episodes of care could become another important, strategic consideration for VA in its approach to purchased care contracting. In the future and outside of VA, it seems likely that sophisticated standards for the episode of care could become a new platform for anchoring many payer-provider relationships. By corollary, bundled payment arrangements based on episodes would modify the units of purchase in health care, with corresponding risk-shifting between payers and providers, as through payment incentives to improve quality and the coordination of care and to control costs over the course of an "episode." Current state of the art in defining clinically meaningful episodes, and building performance measures and bundled payment contracts based on those definitions, is still in early in its development. However, as we have suggested here, intensive efforts are underway in Medicare and the private sector, to try to scale up bundled payment arrangements and performance measurement, based on expanded and refined definitions of the episode of care.

In the future, VA should consider adopting similar innovations in bundled payment and performance measurement, based on more sophisticated and clinically nuanced standards for episodes of care. Plausibly, VA could develop such standards in-house or else adopt them from work being done by other federal payers (e.g., CMS) or in the private sector. Regardless, new and expanded definitions for the episode of care could offer a platform for a new VA contracting approach to purchased care, such that the units of purchase would shift toward episodes and toward value-based payment, and away from a more traditional fee-for-service framework. Here again, it seems likely that any such shift would move VA toward consolidating much of its purchase activity under larger, aggregate contractual vehicles that would cover many outside providers and large quantities of service. Strategically, that might be an attractive thing for VA to do, if episode-based purchasing can be shown to fulfill the promises of improving efficiency and quality in the procurement of outside services. Further evidence and experience with episode-based purchasing will need to accumulate, before the merits of this approach for VA will become fully clear.

In the meantime, it is also important to note that a shift toward episode-based purchasing by VA might be undertaken as a stand-alone reform, or, alternately, as a complement to an increased emphasis on purchased care by VA as a basic part of VA's health care mission. Other commentators on VA purchased care have offered opinions regarding what the balance should be between VA's provider and payer functions, and whether VA should move more heavily in the direction of serving as payer in the future (e.g., Concerned Veterans for America, 2015). Without weighing in on the merit of this argument, it seems likely that an expanded emphasis on purchasing care might very well build on episode-based payment in the future, and on the latest standards for defining episodes. Once again, these possibilities for the future invoke deep strategic considerations about what VA purchased care is for, and how it ought to fit into VA's broader health care mission.

With all of this being said, what advice and insights can we offer to policy-makers about procurement and episodes of care? First, federal procurement rules are complex, but designed to ensure rigorous contracting processes and competitive bidding in purchasing. These are desirable things to achieve in the context of VA purchased care, but they are not the only strategic consideration for how to structure contracts to purchase services. Policy-makers may need to weigh other factors in determining an optimal strategy, including providers' willingness to contract with VA under more formal and burdensome requirements, and the competing merits of local flexibility versus large-scale national contracting. Second, emerging standards for episodes of care may play directly into VA's contracting approach and strategy in the future, by shifting the units of purchase, and consequently, the ways that VA might pursue quality and efficiency when purchasing outside care in the future.

Rather than approaching these issues as narrowly technical problems in existing authority, policy-makers instead will need to consider them in a broader, more forward-looking way, in developing a coherent strategy for purchased care in the future. We will return to this point, and implications for VA policy, in Section 8 of this report.

PART III: Considerations for Future VA Purchased Care Authorities and Mechanisms

This part examines future VA purchased care authorities and mechanisms and covers three sections: 6. A Review of Whether Secretary Needs New Authorities for Purchased Care, 7. Alternative Government Health Care Payer Models, and 8. Conclusions and Recommendations. In Section 6, we discuss the objectives that influence potential changes in purchased care, the steps used to implement those changes, and the extent to which revisions would be needed in the Secretary's authorities. This analysis forms the basis for an integral theme of the report, which is the necessity of defining a purchased care strategy and objectives. In Section 7, we explore how Medicare and the Military Health System can serve as potential models for purchasing care. This comparison offers lessons learned for policymakers and VA concerning the mechanisms that support purchased care. Based on the culmination of our analysis in Parts I, II, and III, we respond to the assessment questions formally posed by Congress under Section 201(a)(1)(C) of the Veterans Choice Act and synthesize findings to support our assertions about purchased care and recommended changes to authorities and mechanisms.

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6 A Review of Whether the Secretary Needs New Authorities for Purchased Care

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Overview of Methods and Data for Analysis of Secretary's Need for New Purchased Care Authorities

- We drew on input from subject-matter experts and discussions with VA stakeholders to derive a series of potential objectives for policy changes to VA purchased care, and to define illustrative implementing steps broadly responsive to these objectives.
- We then examined the authority implications of each of the implementing steps, building on existing VA legal authorities, policies, and guidance.
- We relied particularly on the existing language in applicable statutes and regulations, when examining the authority implications of each implementing step.

Under Section 201(a)(1)(C), the statutory text of the Veterans Choice Act defines the focus of this assessment to include "The authorities and mechanisms under which the Secretary may furnish hospital care, medical services, and other health care at non-Department facilities, *including whether the Secretary should have the authority to furnish such care and services at such facilities through the completion of episodes of care*" [emphasis added]. The latter part of the assessment mandate poses a normative question: Broadly speaking, Congress has asked whether the Secretary *should* have more or less authority to furnish health care services at non-VA facilities than he has today, through the completion of "episodes of care."[119] This normative question focuses on the desirability of a future change in the status quo of practice and authority and is *inclusive*, rather than *exhaustive*, i.e., it invites comment on a somewhat broader array of potential policy changes.

The simple answer to this normative question depends, at least in part, on what the Congress and VA most want to accomplish through purchased care practice. Determining whether it is a good idea to modify VA legal authority, or VA procedures that derive from that authority, requires identifying what policy-makers hope to achieve with respect to purchased care, and their underlying assumptions, recognizing that those objectives might lead them to choose different targets for future policy changes.

To investigate the authority implications associated with a range of different possible policy changes to purchased care, we employed a method derived from *scenario analysis*. See Figure 6.1.

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[119] See Sections 3 and 4 for a detailed discussion of the meaning of *episode of care*.

Figure 6-1. Objectives, Implementing Steps, and Implications for the Secretary's Authorities
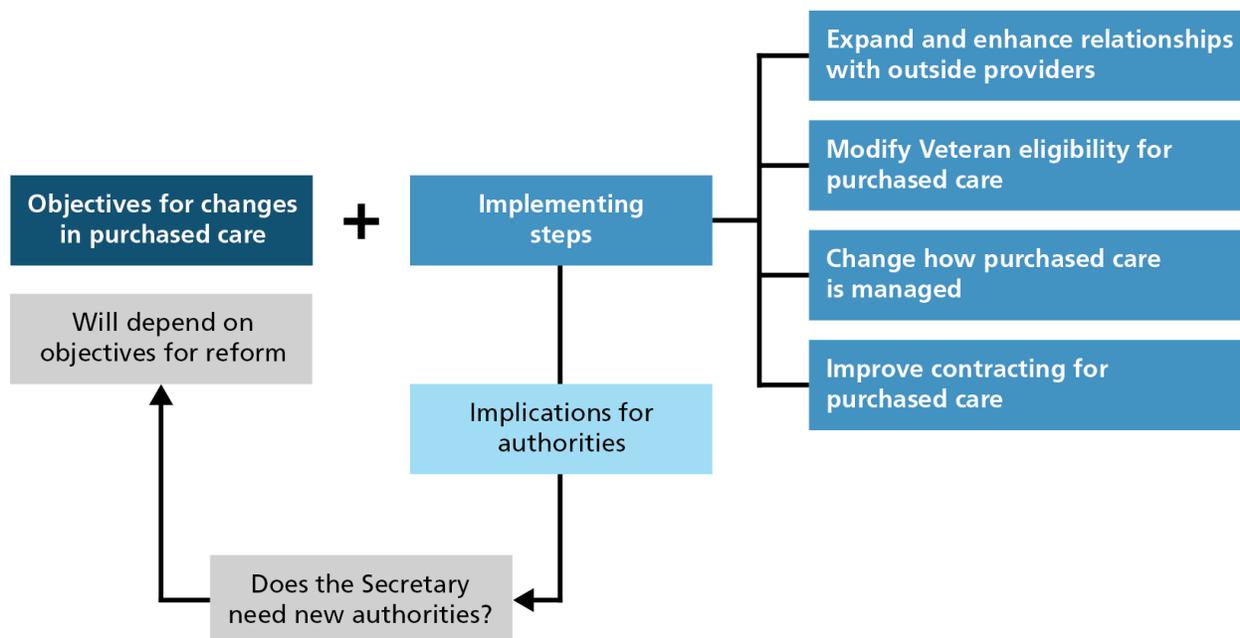
Starting from the set of objectives that VA or Congress might bring to changing purchased care, we define a series of illustrative *implementing steps* that they might choose to pursue and that are broadly responsive to one or more of these objectives. For the purposes of this discussion, we group these implementing steps according to different aspects of purchased care (e.g., changes in the way that purchased care is managed). We then examine the implications for the Secretary's authorities (specifically, the need for legislative action, formal rule-making by VA, or revisions to VA guidance or policy documents) in connection with each of the potential implementing steps. The objectives and steps comprise the elements for building many different potential scenarios for reforming purchased care. Our goal in Section 6 is to offer insights into the revisions required in the Secretary's authorities by potential changes in purchased care. Therefore, we define the illustrative implementing steps rather than the scenarios themselves.

6.1 Objectives for Policy Changes in Purchased Care

We recognize that there could be a broad set of potential objectives for modifying the purchased care landscape, and so we define some that are currently being raised in the debate over VHA's future. We drew on a variety of sources for these objectives: Congressional testimonies and hearings, articles and commission reports on the future of VA, and on our interviews with purchased care stakeholders.[120] We also discussed potential objectives with an

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[120] For some of the ideas in the debate on the future of purchased care, see Miller, 2014; Carrato, 2014; Michael O'Hanlon, 2014; Weeks, Wallace, Wallace, and Gottlieb, 2009; Concerned Veterans for America, 2016; Doug Bandow, 2014; Frist and Marshall, 2015; and Concerned Veterans for America, 2015.

internal RAND advisory panel, which included individuals with substantive knowledge in the areas of health care policy, health care financing, and Veterans' policy issues, as well as subject-matter expertise concerning VA as an institution.[121]

Table 6-1 captures a range of these potential objectives, which could lead to different choices for policy change and different implications for VA purchased care authority. It is important to note that these are not the only potential objectives for policy changes and they are not mutually exclusive.

Table 6-1. Objectives for Policy Changes in Purchased Care

Objective	Description
Address short-term gaps in VA health care capacity through a temporary surge in purchased care	"Short-term gaps" could be those that exist today (i.e., in the timeliness of appointments), or they could involve a future mismatch between VA resources and demand for specialty care.
Address long-term gaps in VA health care capacity through the use of purchased care permanently	Gaps could arise in any aspect of VA health care service capacity that cannot be filled feasibly or efficiently by VA capacity development.
Improve value of health care for Veterans through purchased care	From the perspective of government, purchased care could be provided where doing so would lead to improvements in such areas as clinical quality of care or cost-effectiveness.
Expand or enhance purchased care to increase Veterans' choices	Veterans could be offered more choice to seek coverage and care outside of the traditional VHA system (e.g., via private providers or other government facilities, such as those run by DoD).
Redefine the concept of VA health care by aggressively outsourcing VA care	The nature of VA health care activities could be transformed by making purchased care much more focal as a primary mechanism for delivering specific health care services to Veterans or for delivering health care services to specific groups of Veterans.

The objective for the first policy change would involve addressing a short-term mismatch between VA provider capacity and the demand for services by expanding purchased care initiatives, or by increasing Veteran access to existing initiatives, as a way to bridge the "gap." In

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[121] Two members of the panel previously held senior executive service–level appointments as VA officials; a third is well known as an independent (non-RAND) expert in the area of VA health care policy; a fourth is an expert on Veteran mental health policy and was the co-lead on RAND's seminal study *Invisible Wounds of War: Psychological and Cognitive Injuries, Their Consequences, and Services to Assist Recovery*; and a fifth served on multiple presidential commissions and task forces on VA health care issues.

principle, a future short-term "gap" could look similar, in some important respects, to the problems in access to care that prompted the passage of the Veterans Choice Act in 2014 (e.g., acute problems in the timeliness of scheduling appointments in particular locations, associated with underlying gaps in VA staff capacity or facilities). Alternatively, such a gap could involve another type of transient mismatch between the provider resources available within VA and demand for corresponding services (e.g., a shift in demand for specialty care in particular regions, together with an associated time lag in VA's ability to respond with new staffing or facilities). An important feature of short-term gaps is that they might appear with little warning, requiring VA to have an agile and flexible response capability. Given any short-term gap in the future, VA capacity could, in principle, be temporarily "patched" with purchased care until VA is able to address the gap by modifying its in-house provider resources and capabilities.

A second objective for policy change in purchased care could be to respond to a long-term mismatch between VA provider capacity and demand for services by Veterans. This objective differs from the first in that the hypothetical gaps would be structural in nature, and remedying them would involve long-term investments and enduring changes to VA practice. Purchased care would be undertaken to fill such a gap permanently. In principle, such gaps could arise in many different aspects of VA health care services and, depending on the particular nature of such a shortfall in resources, might reasonably be filled permanently by purchased care as an alternative to expanding VA's internal provider capabilities.

A third objective for policy change could involve seeking to improve the *value* of health care services delivered to Veterans via purchased care. Value (or cost-effectiveness), from VA's perspective, may involve a balanced consideration of several factors, including clinical quality of care, efficiency in service delivery, and timeliness of Veteran access. Broadly speaking, policy changes that might improve purchased care performance according to all these criteria—or according to one criterion without eroding performance in the other areas—could plausibly fit into this objective.

A fourth objective for policy change in purchased care would be involve seeking to expand Veterans' choices to seek coverage and care outside the traditional VHA system. This could be achieved via private providers or other government facilities, such as those run by DoD, with the goal of enhancing Veteran satisfaction, access, or quality of care through the expansion of VA purchased care activities.

A fifth objective for policy change in purchased care could involve redefining the concept of VA health care, and the social contract between Veterans and VA, around more aggressive outsourcing of VA care. Reasons could include a desire to reduce government involvement in the direct provision of health care service. The result would be that purchased care would become much more focal as a primary mechanism for delivering specific types of services to Veterans or delivering services to specific groups of Veterans.

6.2 Steps to Implement Policy Changes and Implications for Authorities

Our goal is to offer insights into the revisions required in the Secretary's authorities (legislation, regulations, and internal VA policies) by potential changes in purchased care. We went beyond our list of objectives and defined a series of implementing steps involving concrete policy changes in purchased care.[122] While these steps do not line up one-to-one with the objectives, they are broadly responsive to the objectives, and are independent of each other. The steps address different aspects of purchased care; for ease of presentation, we grouped them into the following four categories:

- Expand and enhance relationships with providers outside VA.
- Modify Veterans' eligibility for purchased care.
- Change the way that purchased care is managed.
- Improve contracting for purchased care.

We are not recommending these implementing steps nor did we assess their feasibility. We defined them to assess the implications for authorities. How policy-makers in VA or the Congress might translate their objectives for changing purchased care into a package of specific implementing steps may or may not be straightforward, but it would likely involve difficult choices and judgments.

We then analyzed each implementing step, determining how much formal intervention by either the Congress or VA might be needed to carry it out. Some of the implementing steps would require new legislative action or a change to federal law by Congress. These sorts of changes could reflect a significant departure from the authority that the VA Secretary has today, or even a basic redesign of some of the structural features of VA and its purchased care programs. Some implementing steps may not require legislative change but might involve the Secretary modifying formal VA regulations. Finally, some other implementing steps might not require either new legislation or modified regulations. VA could execute those steps within the contours of existing authority simply by shifting its operating practice or modifying its internal guidance documents to reflect the changes.

In general, it is likely that any legislative change made to VA purchased care would also require a downstream amendment to current VA regulations or the promulgation of new ones to conform formal administrative authority to congressional mandates. In turn, it is also likely that any revision made to formal VA regulations would trigger corresponding changes downstream in VA internal policies and practices as well.[123] In all the summary tables and discussions of

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[122] In defining our implementing steps, we once again drew on input from our internal advisory panel, the literature reviews, and our qualitative interviews with VA officials, both locally (e.g., at VAMCs across the country) and nationally (e.g., at VHA's Chief Business Office), as well as VSOs, outside provider groups that contract with VA, officials from other federal health programs, officials involved with TRICARE, and independent subject-matter experts.

[123] This assumes that any new or modified regulations do not simply mirror existing VA policies or practices.

authority in this section, we characterize an implementing step as requiring a change in current regulations only if the step could be achieved to some degree by regulatory amendment alone; if the change need not be preceded by either congressional action or a formal VA regulatory amendment, we characterize the implementing step as requiring a change to current internal VA policies.

In addition, our assessment here is based solely on the existing language in applicable sources of authority and assumes that all relevant stakeholders are of one mind when it comes to putting each implementing step into play. For example, assume that a particular step could be achieved solely by changing a VA regulation, without any need to address the matter through legislation. The summary tables below would reflect that assessment: legislation = no, regulation = yes.

This analysis of authorities draws heavily on our findings from Sections 3–5 of this report, on our literature review and legal analysis concerning the contours of VA's authority for purchased care initiatives, and on our qualitative interviews and investigation of local-level purchased care policies within VA.

6.2.1 Implementing Steps: Expand and Enhance Relationships with Private Providers

In this section, we describe implementing steps to expand and enhance relationships with private providers and, for each, the implications for authorities. Table 6-2 summarizes the steps and implications.

Table 6-2. Implementing Steps: Expand and Enhance Partnerships with Private Providers

Steps	Legislation Needed?	Change in Regulations Needed?	Change in Internal VA Policies Needed?
Build new relationships with private-sector providers for specific types of care (e.g., specialty, primary)	No	No	Yes
Expand and enhance the national network of outside providers for purchased care	No	No	Yes
Improve medical record and information sharing across VA and non-VA organizations, and include effective channels for feedback	No	No	Yes

NOTE: Asterisks in the table indicate where changes in authority would likely occur but would cascade from a preceding change at a higher level of authority. Thus, a change in legislation (marked "yes") might also lead to a downstream change in corresponding regulation (marked with an asterisk).

6.2.1.1 Build New Relationships with Private-Sector Providers for Specific Types of Care

In essence, this step envisions that VA would enter into new or revised contractual relationships to build or expand outside (i.e., nongovernment) preferred provider networks on a regional or national basis, with a particular focus on expanding clinically defined health care services for which VA wants to address a capacity gap. One of the implications of building these sorts of non-VA "clinical relationships" is that VA would wind up outsourcing more services—and a greater proportion of Veterans' demand for services—in at least some clinically specified domains. This kind of outsourcing could take on more than one form in the future. The simplest version of this step would essentially leave intact the current purchased care mechanisms for referring Veterans out of the system. It would merely facilitate such referrals by making available new (or newly expanded), domain-specific provider networks while strengthening the contractual foundation for the referrals. More ambitious versions of this step could also involve (1) shifting internal resourcing within VA to deemphasize the direct provision of related clinical services, (2) enhancing Veteran access to the outside networks for these service lines by streamlining or reducing current administrative requirements to obtain referrals from VA, (3) adopting an innovative contractual approach to purchasing related services and moving toward a bundled payment or capitated payment relationship between VA and its outside providers, or (4) more fully integrating purchased care providers into the VA system (such as by linking electronic health records) to facilitate smoother movement by Veterans between VA and non-VA providers and facilities.

6.2.1.1.1 Implications for Authorities

This implementation step can be understood to have an impact on two types of "authority." First, it involves creating new or revised contractual networks with outside service providers. Second, it involves supporting modifications to the administration of purchased care or to clinical service resourcing within VA itself. For the simplest version of this step, our analysis suggests that there are no fundamental legislative barriers to VA moving in this contractual direction, and, indeed, building public-private partnerships is already authorized by statute. The need for a regulatory amendment to build new, specialized provider networks is likely to be minimal as well. There are no current regulations, for example, that specifically control the administration of the PC3 program and its use of provider networks. As such, this appears to be an area in which VA could modify its practice in a relatively straightforward manner through internal policy changes. Note that a more ambitious version of the step—particularly one involving the streamlining of administrative requirements for purchased care or radically adjusting the resourcing for direct clinical services—would be much more likely to trigger a need for regulatory or statutory changes as well.

6.2.1.2 Expand and Enhance the National Network of Outside Providers for Purchased Care

VA has already taken steps to expand and enhance its national network of outside care providers through PC3 and its contractor relationships with Health Net and TriWest thereunder. In principle, each of the PC3 contractors is responsible for establishing a broad provider network covering a large part of the United States, in support of VA purchased care activity. In practice, however, the PC3 contractors have had only limited time in which to build their networks; participating provider coverage is reportedly spotty in some parts of the country; and the terms of network participation may not be attractive to some providers. This step would involve VA (possibly through TPAs) establishing a stronger, deeper national provider network (similar in breadth to that which currently exists under the Defense Department's TRICARE system), which would become the default mechanism for all purchased care activity, absent compelling reason for using some other contractual route to purchase care in a specific instance. Likely elements of this step would involve enhancing the attractiveness of provider participation in the network, in part by accelerating claims processing activity and by making the rates paid to providers competitive and attractive. The step might also involve enhancing ongoing VA efforts and incentives to compel local VA officials to use the national network mechanism for purchasing care, rather than other contractual mechanisms, whenever possible.

6.2.1.2.1 Implications for Authorities

Only VA internal policies and practices would need to change. Existing statutory and regulatory authority would not bar VA from strengthening its networks of providers under the PC3 mechanism, or from creating new network mechanisms, as long as the criteria for provider participation do not contradict what is already required in VA's enabling statutes.

6.2.1.3 Improve Medical Record and Information Sharing Across VA and Non-VA Organizations, and Include Effective Channels for Feedback

The focal point for this step involves strengthening the coordination and oversight of care through the sharing of medical records back to VA, during and following a referral of a Veteran out through any mechanism for purchased care. At present, consistent with the industry norm, record-sharing requirements under some existing VA purchased care contracts (including the PC3 mechanism) are relatively unsophisticated, and in many instances may involve faxing of paper records back to VA following an outside treatment episode.

Given the status quo, there are multiple reasons why improved record sharing could be beneficial to VA and to the Veterans that it serves. Improved access to outside records could facilitate VA in coordinating care across multiple outside providers, and between VA and non-VA providers. Through its Virtual Lifetime Electronic Record initiative, VA has pursued electronic health information exchange with community providers. In the future, as more community providers develop the capability to share information electronically, VA may want to direct its referrals to these providers, and incorporate incentives in its contracting mechanisms for prompt exchange of electronic information through the Veteran Lifetime Electronic Record. In the meantime, receiving records describing care provided in the community, in forms that are

both readable by VA and easy for outside providers to comply with, is a high priority. The latter point is notably important in this context, so as not add to the burdens of outside providers in purchased care, hence reducing their potential for dissatisfaction with participating in VA purchase care mechanisms.

6.2.1.3.1 Implications for Authorities

Setting aside broader federal restrictions that apply to the exchange of identifiable health records under HIPAA, putting this step into place would likely only require changes in VA internal policies and practices to standardize and facilitate the sharing of medical records by outside providers. While some VA statutes already mandate the return of the medical record to VA by the external provider once the treatment has completed,[124] these would not conflict with what is being proposed here. As a matter of VA practice, medical record–sharing provisions have already become a standard, contractually based requirement for providers seeking to join PC3 networks, even in the absence of explicit statutory or regulatory mandates. Carrying out this step in practice would likely depend more on improved contractual provisions, and on investment and infrastructure support to outside providers that want to participate in the Veteran Lifetime Electronic Record, than it would on changes to legislation or formal VA regulations.

6.2.2 Implementing Steps: Modify Veterans' Eligibility for Purchased Care

In this section, we describe implementing steps to modify the eligibility of Veterans for purchased care and, for each, the implications for authorities. Table 6-3 summarizes the steps and implications.

Table 6-3. Implementing Steps: Modify Veterans' Eligibility for Purchased Care

Steps	Legislation Needed?	Change in Regulations Needed?	Change in Internal VA Policies Needed?
Enhance access to purchased care by renewing or extending the Veterans Choice Act	Yes	*	*
Use priority groups to help determine the allocation of purchased care and the scheduling and authorization of purchased care appointments	Yes	*	*

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[124] See, for example, Section 101(l) of the Veterans Choice Act.

Steps	Legislation Needed?	Change in Regulations Needed?	Change in Internal VA Policies Needed?
Expand the availability of purchased care to Veterans when purchased care is more cost-effective	No	No	Yes
Create a VA subsidy for Veterans to obtain health insurance coverage through ACA exchanges or other sources	Yes	*	*
NOTE: Asterisks in the table indicate where changes in authority would likely occur but would cascade from a preceding change at a higher level of authority. Thus, a change in legislation (marked "yes") might also lead to a downstream change in corresponding regulation (marked with an asterisk).			

6.2.2.1 Enhance Access to Purchased Care by Renewing or Extending the Veterans Choice Act

This step would seek to enhance access to non-VA providers in a targeted way, in situations where VA's internal providers cannot deliver timely or economical service, moving beyond the contours of any of VA's existing, permanent initiatives for purchased care. Beyond simply removing or modifying Choice's current termination triggers, different versions of this step could involve funding the renewed program either as a part of VA's budget or separately and as either a discretionary or mandatory program. The results of a simple version of this step might look very similar to the 2014 incarnation of the Veterans Choice Act. Alternately, a more complicated version of this step might be tailored differently, as by making access to outside providers easier to obtain or more widely available to Veterans,[125] or by targeting the step to expand access only to those medical specialties or services which comprise a future capacity gap.

6.2.2.1.1 Implications for Authorities

Congressional action would be needed to extend Choice beyond the current legislative cutoff points (i.e., either an exhaustion of the Veterans Choice Fund or three years following the

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[125] There are many hypothetical ways that Veteran access to non-VA providers could be expanded in the future. One simple example would involve replacing the "30-day/40-mile" rule with a "21-day/30-mile" rule. The consistent implication of such reforms is that they would presumably increase both the utilization and cost of outsourced health care services for VA, all other factors being held equal.

enactment of the Veterans Choice Act). Legislation would also be needed if the criteria for Veteran eligibility, provider qualifications, the mandatory or discretionary nature of the program, or other key aspects of Choice were changed in any material way from the language in the 2014 act. However, some functional expansion of Choice eligibility and other features as currently implemented by VA might be realized though the promulgation of new or modified regulations.[126] VA would always have the capability to change its current internal policies in connection with the Choice program—for example, to expand the pool of eligible providers.[127]

6.2.2.2 Use Priority Groups to Help Determine the Allocation of Purchased Care and the Scheduling and Authorization of Purchased Care Appointments

Access to VA facilities and direct providers might be treated as a scarce resource by VA, either globally or with regard to specific clinical capabilities and lines of service. One way to prioritize access to purchased care plausibly could involve making purchased care resources more readily available as a choice to Veterans in lower or higher-priority groups, with the aim of easing demand on VA's direct-care system, and thereby increasing the availability of direct care resources for others. Different versions of this step could involve different adjustments to the rules for purchased care access to make purchased care more readily available to Veterans or more attractive to them as an option. For example, access to purchased care might be made a default assumption for access to selected services by selected groups of Veterans, in much the same way that wait time and driving distance are default criteria for access under the Choice program. Regardless, any version of this step would involve tying the priority group scheme to purchased care so that Veterans in the highest priority groups would have enhanced access to outside services.

6.2.2.2.1 Implications for Authorities

While there is existing authority for VA to prioritize the provision of medical care to certain classes of Veterans, a shift in approach of this magnitude would clearly require Congressional action (see 38 U.S.C. 1710). No current authority allows access to purchased care solely on the basis of a Veteran characteristic unrelated to medical need or issues regarding access to VA medical facilities. This implementing step would also create a need to promulgate modified regulations, given that existing administrative guidance addresses the prioritization of scheduling appointments, rather than prioritization of external care referrals (see 38 C.F.R. 17.49).

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[126] The recent regulatory change from geodesic distance to driving distance as VA's yardstick for measuring distance from a Veteran's residence to a VA medical facility is one example of such a process.

[127] For example, VA could move toward a policy in which the maximum payment for services allowable by statute is the default standard used for compensating providers, rather than pushing for negotiated percentages of Medicare rates.

6.2.2.3 Expand the Availability of Purchased Care to Veterans When Purchased Care Is More Cost-Effective

Under the existing core authority for purchased care (at 38 U.S.C. 1703), the Secretary may contract to purchase care when "Department facilities are not capable of furnishing economical hospital care or medical services because of geographical inaccessibility or are not capable of furnishing the care or services required." In principle, this provision leaves discretion to the Secretary, in deciding when VA facilities are either "not capable" of furnishing service, or not capable of doing so "economically" because of geographic inaccessibility. In practice under the traditional purchased care program, much of the discretion gets carried out locally and at the front-line of VA encounters with Veterans, with VA clinicians and administrators determining the appropriateness of purchased care referrals on a case-by-case basis. This step would involve VA in issuing centralized guidance and directives about lines of VA health care service which would broadly be deemed "non-economical" or capacity-limited, and for which purchased care access might therefore be granted to Veterans on an expedited basis by local VA officials. More ambitious versions of this step might be combined with shifting VA's internal provider resources to focus on areas of specialization and strength, while channeling some other types of demand for services broadly toward purchased care.

6.2.2.3.1 Implications for Authorities

At least for the simple version of this step, only internal VA policies and practices would need to change. Existing statutory and regulatory authority would not bar VA from centralizing and clarifying guidance to designate some lines of service as being "uneconomical" or capacity-limited on a regional or national basis and, hence, appropriate for expedited access to purchased care.

6.2.2.4 Create a VA Subsidy for Veterans to Obtain Health Insurance Coverage Through ACA Exchanges or Other Sources

The idea here would be to shift some Veteran demand for VA health care services into outside facilities and alternative payer mechanisms. Rather than directly providing or paying for care, VA under this step would pay a subsidy directly to Veterans, who would then use the money to purchase health insurance coverage, either through the health care exchanges established by the Affordable Care Act, or through traditional private health coverage, or through other insurance mechanisms (including Medicare). The details of exactly what the subsidy program would look like might be complex. Presumably, selected groups of Veterans would either be encouraged or mandated to participate, and the result would be to shift at least some Veterans out of VA care entirely. If the aim were to make the subsidy program both cost-neutral and benefit neutral (that is, no incremental cost to government above status quo, and no shift in the health benefits that a Veteran would otherwise be entitled to at status quo), then significant VA controls would need to be imposed on who could obtain the subsidy, what kinds of insurance plans they could buy with it, and what they would be giving up in return for the subsidy. Regardless, any version of this step would involve VA in operating a subsidy program that is entirely outside its current scope of operation, and plausibly could involve a change in

the Department's structure, to facilitate such a change in mission. There would be significant cultural challenges in undertaking such subsidies, because any version of the step would involve shifting some Veterans away from VA, both in its capacity as a direct provider of, and as a direct payer for, medical services.

6.2.2.4.1 Implications for Authorities

There is some precedent within VA in facilitating the acquisition of private health-related insurance by Veterans. For example, section 510 of the Caregivers and Veterans Omnibus Health Services Act of 2010 (Pub. L. 111-163, May 5, 2010) established a pilot program where VA would contract with private dental insurance carriers that in turn would offer coverage to eligible Veterans. While no direct subsidy is involved, it was VA's expectation that since "a large number of enrollees can assist with keeping premiums, copayments, and other administrative costs low," VA would "conduct the Federal contracting process anticipating this large number of expected enrollees and attempt to secure reasonable premium and copayment pricing" (78 Fed. Reg. 32128). Similar legislative authorization would be needed to move towards the goal described in this implementing step, though the scope of such statutory change would be increased markedly if participation were mandatory for Veterans in priority groups based on the most extensive service-connected disabilities. Regulatory change or modification of existing VA internal policies and procedures, by itself, would not provide sufficient authority for carrying out the kind of subsidy program that is envisioned by this step. In addition, such a step would require coordination outside of VA with CMS, the Department of Health and Human Services, and the Internal Revenue Service.

6.2.3 Implementing Steps: Change the Way Purchased Care Is Managed

In this section, we describe implementing steps to change the way purchased care is managed and, for each, the implications for authorities. Table 6-4 summarizes the steps and implications.

Table 6-4. Implementing Steps: Change the Way Purchased Care Is Managed

Steps	Legislation Needed?	Change in Regulations Needed?	Change in Internal VA Policies Needed?
Improve resourcing and management decision-making through better data collection and new analytic models	No	No	Yes
Remove or modify "to be seen first" practice under purchased care	Maybe	Maybe	Yes

Steps	Legislation Needed?	Change in Regulations Needed?	Change in Internal VA Policies Needed?
Incorporate all VA purchased care activities into a single program within VA	Maybe	Yes	*
Remove or modify specific VA purchased care requirements that impede access to outside providers	Yes	*	*
Separate VA's payer and provider functions into discrete organizations	Yes	*	*
Standardize and strengthen front-end VA processes for purchased care	No	Yes	*
NOTE: Asterisks in the table indicate where changes in authority would likely occur but would cascade from a preceding change at a higher level of authority. Thus, a change in legislation (marked "yes") might also lead to a downstream change in corresponding regulation (marked with an asterisk).			

6.2.3.1 Improve Resourcing and Management Decision-Making Through Better Data Collection and New Analytic Models

This step would involve an improved data collection effort that builds on VA's existing purchased care ecosystem, by aggregating claims and payment data across all of the various contractual and programmatic mechanisms by which VA outsources care. This step would seek to fill gaps in current data and recordkeeping, with the aim of giving decision-makers much better visibility into purchased care use and expenditures, as a foundation for achieving new efficiencies and for better allocating scare purchased care resources to meet demand. More ambitious versions of this step might also seek to design new VA analytic models on resourcing for purchased care, so as to be able to estimate utilization and resource needs in the future, as a basis for budget planning. As a longer-term goal, such models and data could be used in conjunction with the information that is already available in VA health care records to inform strategic decisions as to when to provide health care inside or outside VA.

6.2.3.1.1 Implications for Authorities

Because improving data collection practices in purchased care lies well within VA's existing authorities to operate generally, it is highly unlikely that VA would require new statutory or regulatory authority to undertake this step. Likewise, modifying VA's approach to resource decision-making through analytic modeling for purchased care seems unlikely to transgress any specific, existing VA statutes or regulations, or to require new authorities to undertake. On its

face, implementing this step (i.e., collecting better data and/or implementing new resourcing models in purchased care) would only require changes to internal VA policies and practices, and not changes in legislation or formal VA regulations.

6.2.3.2 Remove or Modify the "To Be Seen First" Practice under Purchased Care

Currently, a Veteran typically first receives an appointment within VA for treatment, prior to receiving a referral and authorization for specialized purchased care out of the system.[128] Although the core authority for purchased care per 38 U.S.C. 1703 does not explicitly mandate an initial appointment within VA as a requirement for all Veterans prior to their referral out of the system, in practice, the determination that a needed service cannot feasibly be provided within the system has typically involved decisions made by local VA providers and administrators, based on an initial clinical contact with a Veteran within VA's direct care system. Moreover, for at least some Veterans who fall into a narrow, statutory category established by 38 U.S.C. 1703(a)(2), VA's authority to purchase care is tied to the Veteran having already received related care or medical services through VA.

Under some circumstances, the practice of requiring an initial medical appointment within VA has reportedly resulted in catch-22 situations, such that a Veteran who cannot obtain a threshold appointment within VA for treatment for a specific problem also cannot receive a referral out for purchased care, for lack of the initial work-up that would specify and justify the referral. In practice, this implementing step would institute a broad fix within purchased care, to ensure that access to outside providers cannot be bottled up indefinitely based on lack of timely access to a gateway appointment within VA's direct provider system.

6.2.3.2.1 Implications for Authorities

For many Veterans, only VA internal policies and practices would need to change to address this problem. For this group, existing statutory and regulatory authority would not bar VA from eliminating the need to be seen by a VA doctor prior to scheduling an outside, purchased care appointment. A more ambitious fix for the "to be seen first" problem might also revise the statutory category established under 38 U.S.C. 1703(a)(2), which restricts VA's authority to purchase care for a defined subset of Veterans, based on their already having received medical treatment through VA. The latter fix would require legislative intervention by Congress.

6.2.3.3 Incorporate All VA Purchased Care Initiatives into a Single Program Within VA

The simplest version of the step would keep intact the defining contours of the various existing VA initiatives for purchased care (e.g., the 30-day/40-mile rule for VA Choice), and would retain local control over the front-end processes associated with purchased care, but would combine all of the existing programs and initiatives for purchased care under a single VA administrative umbrella, with manualized standards and improved guidance for VA personnel in how to carry

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[128] Note however that under the 40-mile provision under Choice, a Veteran who lives in an isolated geographic locale removed from any VA facilities might qualify automatically to obtain services through purchased care, without the need for any initial screening appointment within VA.

out purchased care activities. More ambitious versions of this step could involve refining and harmonizing the current portfolio of VA purchased care initiatives to reduce their complexity, or to craft a unified VA approach to purchased care while optimizing administrative processes and oversight. In principle, combining programs for purchased care could help foster greater efficiency in the administration of purchased care and improve understanding among VA staff of the availability of existing purchased care resources (i.e., available outside providers and alternative contracting vehicles).

To implement this step, the Chief Business Office could be elevated within VHA and explicitly given these responsibilities, or a new program office for purchased care could be established. The office would be responsible for capturing best practices in the different programs, organizing standardized training programs and combined processes for implementing various aspects of purchased care, and finding ways to foster innovation in purchased care, perhaps through the use of new standards for episodes of care.

6.2.3.3.1 Implications for Authorities

The extent to which this implementing step attempts to bring the many different types of purchased care programs under one programmatic "roof" will drive the manner in which appropriate authority would be made available. Much could be accomplished through changes in regulations and internal policies, if the goal was limited to unifying the command structure for overall administration of purchased care. Streamlining or standardizing procedures for requesting external care or compensating providers are also likely to be tasks within VA's sole discretion. However, matters related to consolidating or simplifying eligibility requirements for purchased care, or shifting the existing responsibilities of the Chief Business Office or the NVCC unit would likely require congressional action, particularly to the extent that those issues are currently addressed by statute. The Veterans Choice Act, for example, specifically requires VA to coordinate the furnishing of care and services under Choice through the NVCC unit. Unless the implementing step is accomplished by moving all management authority for all programs under NVCC, the act would have to be amended. A similar need would flow from any attempt to change the source of payment for care furnished by non-VA providers away from the Chief Business Office, because the Veterans Choice Act specifically assigns that responsibility to the Chief Business Office.

6.2.3.4 Remove or Modify Specific VA Purchased Care Requirements That Impede Access to Outside Providers

For purposes of illustration, we focus here on several examples of VA requirements that sometimes operate as impediments to Veteran access to purchased care. One such impediment involves the "60 day window" for an episode of care under the Choice program, pursuant to which a referral and authorization for purchased care services cannot last for more than 60 days, without reauthorization by VA. For many acute health care problems, a 60-day limit on the episode of care may be more than sufficient to carry out treatment and to resolve the problem. For more chronic conditions or primary care for Veterans not served by a VA facility, a 60-day episode of care may not correspond well to the nature of services being provided, or the conditions being treated. In some instances, an arbitrary time limit placed on the episode of

care may hamper coordination of care efforts that might otherwise take place among outside providers, and may make it more difficult for Veterans to obtain the services they need in a timely and coherent way. This step would involve doing away with the 60-day window as a defining feature for an episode of care in favor of authorizing the Secretary to establish a more elastic set of episode guidelines for all purchased care to accommodate appropriate treatment trajectories and purchased care practices for a range of clinical conditions.

Another illustrative impediment involves the language in Section 101(b) of the Veterans Choice Act, which establishes that a Veteran may be eligible for service under the Choice program if he or she "resides more than 40 miles from the medical facility of the Department, including a community-based outpatient clinic, that is closest to the residence of the veteran." In instances where a Veteran requires specialized services that are not available through the VA facility nearest his or her residence, the eligibility language of the 40-mile rule may not be responsive to the reality that the Veteran lives more than 40 miles away from the nearest VA facility with the ability to meet his or her specific treatment needs. In this instance, the implementing step would involve modifying the 40-mile rule to calculate the distance based on the nearest VA medical facility that offers the services required by the Veteran.[129]

A third illustrative impediment is the purchased care access filter that is imposed by 38 C.F.R. 17.53, which further restricts the broad eligibility afforded by 38 U.S.C. 1703 to utilize purchased care inpatient services when needed. The regulation restricts inpatient treatment by external providers to instances where VA facilities are "not feasibly available." This step would apply a more liberal interpretation of 38 U.S.C. 1703 that would place the emphasis on the Veteran's best interests.

6.2.3.4.1 Implications for Authorities

The exact nature of what changes in authority might be needed would depend on what specific impediments in VA purchased care are chosen as the object of reform. Given the three illustrative examples we spotlight above, however, it is likely that a combination of revisions to the Veterans Choice Act, to regulations, and to VA internal policies would be required.[130]

6.2.3.5 Separate VA's Payer and Provider Functions into Discrete Organizations

The idea here is to reorganize the way that VA manages Veteran health care risk and pays for medical services, by standing up within VA a new, dedicated payer organization, which would become responsible for all health care funding and contracting/payment activity for VA. At the same time, VA's direct-provider network would be separated out as its own distinct organization, removed from the payer function, and solely dedicated to operating hospitals and

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[129] Note that a very recent Senate bill has proposed instituting a very similar change to the Choice program. See S. 1463, Access to Community Care Act for Veterans, passed by the Senate on May 22, 2015.

[130] Table 6-4 suggests that legislative change would be needed to implement this step, based specifically on implementing the identified fixes to the 60-day window and 40-mile rule under Section 101 of the Veterans Choice Act.

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providing medical services to Veterans. In principle, such a reorganization might mean that the new VA payer entity would contract with the VA provider entity, with the latter becoming the primary provider network for delivering benefits. Meanwhile, the VA payer entity would presumably also engage in contracts with other, outside provider networks, and would make decisions about how to allocate resources and pay providers to best implement VA health benefits.[131] In some ways, this step might logically complement a shift in the balance between payer and provider functions within VA, such that VA would put a much stronger emphasis on purchasing care, and VA provider facilities might be shifted to specialized aspects of clinical service where they have greatest comparative advantage and value. However, any version of this step would ramp up VA's payer expertise and capabilities, and would manage VA health care funding in a manner similar to a traditional insurance entity.

6.2.3.5.1 Implications for Authorities

It is difficult to imagine undertaking such a deep shift in VA's mission and operations without making extensive amendments to Chapter 17, Title 38, of the U.S. Code. More specifically, if Congress authorized VA to form a new and distinct payer entity, it could also provide the Secretary with a detailed statutory blueprint for how that payer entity would be organized, exactly what functions it would perform, how it would receive funding from Congress and pay for outside health care services, how it would interact with VA's provider side, and how the new payer entity would fit into a broader strategy for VA purchased care. Related changes would almost certainly be required to VA regulations and internal policy directives as well.

6.2.3.6 Standardize and Strengthen the Front-End VA Processes for Purchased Care

Section 106 of Veterans Choice Act is noteworthy for having consolidated the *back-end* administrative processes (particularly, claims processing) associated with purchased care, by shifting those processes (and the personnel associated with them) to control by VHA's Chief Business Office, and away from the control of the local VAMCs that had previously been responsible for them. Loosely speaking, the logic behind this centralization was to enhance administrative efficiency, to make VA patients more attractive to outside providers, and thereby to enhance Veteran access. In principle, an additional step could be undertaken to enhance the *front-end* processes associated with purchased care (particularly referral and authorization), and streamlining and enhancing the consistency of these processes across VAMCs through revised directives and guidance, together with stronger oversight from VHA's Chief Business Office (and more specifically, the NVCC unit and/or the purchased care offices thereunder). In principle, such a step would aim to make local VA staff more agile, effective, and consistent in their referral and authorization practices.

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[131] Splitting VA's payer and provider functions is not a new idea and has been proposed elsewhere (see, for example, Concerned Veterans for America, 2014). See Hosek & Cecchine (2001) for a systematic analysis of the organizational implications of splitting the payer and provider functions in the Military Health System. That report addresses the underlying rationale and advantages to such a policy step in more detail.

6.2.3.6.1 Implications for Authorities

Administrative aspects of modifying the front-end of the purchased care process can largely be addressed through regulatory rulemaking and internal policy-making. To some extent, the current NVCC initiative attempts to accomplish some of these same goals, and much of that effort has moved forward solely through internal VA policy changes. Presumably, an expanded and enhanced effort along these lines could proceed by similar means. With this being said a more ambitious version of this step that shifts the standardization of front-end processes away from the NVCC unit, and to some other programmatic office within VA, might require some technical statutory changes to implement as well.[132]

6.2.4 Implementing Steps: Improve Contracting for Purchased Care

In this section, we describe implementing steps to improve contracting for purchased care and, for each, the implications for authorities. Table 6-5 summarizes the steps and implications.

Table 6-5. Implementing Steps: Improve Contracting for Purchased Care

Steps	Legislation Needed?	Change in Regulations Needed?	Change in Internal VA Policies Needed?
Use revised definitions for episodes of care as a basis for improved purchased care contracting	No	Maybe	Yes
Change the requirements imposed on VA by the FAR to improve VA's ability to contract for purchased care	No	Yes	*

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[132] See immediately preceding footnote, and the example of the Veterans Choice Act and its mandate to have the NVCC unit act as the coordinator for furnishing care outside of VA.

Institute long-term, Veteran-level contracts for purchased care, particularly for long-term service-connected conditions	No	No	Yes
Use revised definitions for episodes of care as a basis for improving purchased care coordination	Yes	*	*
NOTE: Asterisks in the table indicate where changes in authority would likely occur but would cascade from a preceding change at a higher level of authority. Thus, a change in legislation (marked "yes") might also lead to a downstream change in corresponding regulation (marked with an asterisk).			

6.2.4.1 Use Revised Definitions for Episodes of Care as a Basis for Improved Purchased Care Contracting

In this step, the idea would be to build new or revised contractual relationships with outside provider networks, based on bundled payment innovations and sophisticated definitions of episodes of care. Such innovations could help both to improve the quality of care for Veterans, while helping to control related costs to VA. By extension, the bundled payment arrangements envisioned by this step would become the fulcrum for an expanded emphasis on purchased care by VA. What would make such arrangements unique, by contrast with current VA practice, is that they would involve shifting financial risk from VA to outside providers, in connection with the delivery of coordinated packages of service. In practice, actually implementing bundled payment in purchased care contracting would be very complex and would depend on the implementation of clinically meaningful standards for episodes of care and for the bundling of services. These standards are not currently well developed, nor does the infrastructure exist to support the bundling of services.

6.2.4.1.1 Implications for Authorities

Changing the current definition of episode of care as found in the Veterans Choice Act would require legislative action. However, the language in the Act is broad, and VA's regulations implementing the Act give the department considerable latitude in shaping the specific details of the term. Episodes of care for other VA purchased care initiatives are not defined by statutory law, and VA could clarify the term simply by modifying its internal policies and the way that it purchases episodes of care. This would provide a more stable foundation for moving forward with this kind of shift. In a similar vein, VA could undertake bundled payment

contracting simply by modifying its internal policies and without recourse to legislative or formal regulatory changes.

6.2.4.2 Change the Requirements Imposed on VA by the FAR to Improve VA's Ability to Contract for Purchased Care

Current VA contracting with outside providers for purchased care, particularly on a local basis, may at times be impeded by some of the technical requirements for procurement and contracting that are embedded in the FAR. A related theme was notably raised in some of our qualitative interviews with VA officials, and was also addressed in a recent VA budget proposal to Congress, which sought to revise VA authorities to "streamline and speed the business process for purchasing care for an individual Veteran that is not easily accomplished through a more complex contract with a private provider" (VA, Office of Budget, 2015, p. 14).

In line with these observations and the current VA procurement approach to purchased care, the most basic version of this step would affirm and strengthen the validity of local VA practices in the micro-purchase of medical services using purchase orders, consonant with the streamlined FAR requirements that apply under the micro-purchase threshold. More ambitious versions of this step might seek to clarify, or to expand on, the kinds of medical service that are appropriate for VA to outsource by using the micro-purchase mechanism, or alternately, the simplified acquisition procedures that apply under FAR's simplified acquisition threshold. The most extreme version of this step could involve crafting a new exception to the application of the FAR to VA purchased care to enhance VA's ability to enter into related contracts without the formality of full FAR-based procurement processes. Any version of this step would protect or enhance VA's ability to engage in local-level contracting for medical services on a patient-by-patient basis, in part by streamlining FAR requirements that might otherwise apply (e.g., with regard to competitive bidding) and in part by making the prospect of contracting less onerous and more appealing to local providers.

6.2.4.2.1 Implications for Authorities

This implementing step contemplates modifying, or at least clarifying the application of, federal procurement laws to VA purchased care practice. The relevant procurement laws include the FAR and VAAR (which interpret and expand on the FAR). Both sets of rules appear in Title 48 of the Code of Federal Regulations.

The most basic versions of this implementing step might not change any of the current FAR or VAAR rules, but would simply clarify through guidance that the rules are consistent with the current VA procurement practice of local purchasing for individual services for Veterans, under the FAR micro-purchase thresholds. Presumably the latter could be accomplished simply as a matter of internal VA policy. A more aggressive version of this step might involve amending some of the formally promulgated acquisition rules—particularly the simplified acquisition procedures under Part 813 of the VAAR—to clarify the appropriateness of flexible VA purchased care practices under the simplified acquisition procedures or the micropurchase threshold. Any such changes would likely implicate a formal regulatory process, however, which would be more burdensome for VA to undertake. The most extreme version of this step would

involve Congress undertaking a statutory modification to 38 U.S.C. 8153 to explicitly exempt some aspects of VA purchased care contracting from FAR and VAAR coverage. For our purposes, the middle-ground approach of modifying the federal procurement regulations would likely be sufficient to protect current VA contracting practices in purchased care, particularly the use of small, local contracts for services to an individual Veteran under the FAR micropurchase threshold.[133]

6.2.4.3 Institute Long-Term, Veteran-Level Contracts for Purchased Care, Particularly for the Treatment of Long-Term Service-Connected Conditions

The concept here would be to structure some VA purchased-care contracts around specified clinical conditions, such that the entire episode of care could be outsourced to an external care provider or network selected for quality and cost. Presumably, the Secretary would undertake any such purchased-care contracting in clinical service lines for which direct provision of services by VA is deemed uneconomical or where VA capabilities are limited. In principle, this implementing step could be built on advanced definitions for episodes of care for clinically specific conditions, and could further use those definitions to implement bundled payment innovations, such that the contractual providers would be paid by the episode rather for individual services, and with a corresponding shifting of risk from VA to the contractual provider. This kind of contracting could also build in advanced performance metrics and incentives, again based on contractually defined episodes of care. These sorts of innovations might build on the growing experience of recent bundled-payment demonstrations, including those sponsored by Medicare and private-sector payers.

6.2.4.3.1 Implications for Authorities

Authority already exists for moving forward with long-term contracts on either an individual Veteran basis and/or for specific conditions. Developing such contracts would involve a refocusing of internal VA policies and purchasing strategy to some extent, but no regulatory or legislative action would be needed to enter into such contracts *per se*.

6.2.4.4 Use Revised Definitions for Episodes of Care as a Basis for Improving Purchased Care Coordination

The premise here is to shift the way that VA defines episodes of care in practice to make episodes better correspond to clinically meaningful baskets and trajectories of connected health care services, which can usefully be lumped as a group when VA purchases services from outside. In principle, better-defined episodes could be helpful in improving the coordination of care with outside providers, since such episodes could facilitate the "bundling" of a package of relevant services to an outside provider, without the need to split some aspects of the episode between VA and that provider, and without the need to seek repeated authorization from VA for episodes with durations longer than 60 days. In practice, the advantages in coordination

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[133] Table 6-5 reflects this "middle-ground" assumption, suggesting that the authority change needed for this step would involve modifying VA regulations.

that might accrue with revised standards for episodes of care would likely depend on the details of the new standards, the ease with which VA can apply them, and the impact of those standards on the front-end referral and authorization processes for purchased care.

6.2.4.4.1 Implications for Authorities

Changing the definition of *episode of care* as articulated in the Veterans Choice Act would require legislative action. However, the language in the act is broad, and regulations implementing the act give VA considerable latitude in defining an episode, within the constraint of the 60-day window. Episodes of care for other purchased care programs are not defined by statutory law, and VA could clarify the term simply by modifying its internal policies.

6.3 Discussion

In the Veterans Choice Act, Congress posed the question of "whether the Secretary should have the authority to furnish [health] care and services at [non-Department] facilities through the completion of episodes of care." The answer to this question is, at least in part, that it depends. If the aim is to maintain or expand VA purchased care, then clearly this kind of authority (which the Secretary already has) is needed, and may indeed need to be expanded in specific ways. If the aim is to move VA in the direction of new contracting approaches for episodes of care and bundled payment arrangements, so as to mirror innovations in payment in other parts of the U.S. health care system, then again, this kind of authority is needed, and the authority may need to be modified or expanded in specific ways.

On the other hand, if the primary aim is to address short-term gaps in VA capacity, or to protect and enhance VA's internal provider network and capability, then that could easily lead to the conclusion that the Secretary does not need more authority than he has today, with regard to "providing service at non-Department facilities through the completion of episodes of care." Ultimately, the normative question here depends on a strategic vision of what purchased care is for, how it fits into the larger VA mission, and how the Secretary can best accomplish those ends.

Given the many possible objectives for the future of purchased care, VA and Congress could find themselves considering a range of changes to purchased care. These changes could include enhancing relationships with private providers, making modifications in the eligibility of Veterans for purchased care, changing how purchased care is managed, or improving contracting for purchased care.

Our analyses incorporated these objectives and potential changes in purchased care in different ways. Our aim is not to urge VA or Congress to adopt any of these changes but to offer insights into what would be required in terms of the Secretary's authorities to implement potential policy changes (i.e., in legislation, regulations, or internal VA policies). Not surprisingly, the types of changes in the Secretary's authorities would depend on the specific characteristics of the policies themselves. Nevertheless, we offer some basic observations drawn from the analyses presented in here and elsewhere in this report:

- The Secretary has considerable statutory flexibility and discretion under Title 38 for purchasing care outside of VA, consistent with the traditional goal of responding to future short-term gaps in capacity. It bears repeating that the Secretary already has, and has had for some time, basic statutory authority to engage in purchased care activity, particularly where VA facilities are not capable of furnishing the care required. Some important aspects of purchased care, such as the strategy for contracting and building outside networks of providers or enhancing quality in the care that is purchased, lie largely within the discretion of the Secretary, and are unlikely to require formal legislative or regulatory revisions to carry out. As such, improvements in the Secretary's tools for managing and resourcing purchased care would also not require legislative or regulatory revisions.

- The Secretary would likely need new authority through legislation for policy reforms that involve new types of funding for VA purchased care; or basic changes in VA's mission pertaining to purchased care (e.g., in redefining VA's role as a payer versus provider); or changes in the fundamental eligibility requirements for Veteran health benefits; or reforms that would alter the Veterans Choice Act. Because any of these modifications would touch directly on existing statutory authority for VA, and/or on the role of Congress in how it chooses to fund VA, these are aspects of the purchased care landscape where revision would require additional legislative involvement by, and input from, Congress.

- Some specific impediments to VA purchased care access would require legislative interventions to fix. Specific examples discussed in Section 6 include revisions to the 40-mile rule, and to the 60-day window, under the Veterans Choice Act. Not all such impediments, however, involve statutes. For example, the need for Veterans "to be seen first" by a VA provider prior to a purchased care appointment does not (in all instances) flow directly from VA's statute, and could be at least partly addressed by the Secretary without regard to legislative change or formal regulatory reform.

- Modifying the way that VA purchases "episodes of care" in the future may require new legislation (particularly in connection with the Veterans Choice Act), but more importantly will require internal VA policy changes to be made by the Secretary. Future reforms around "episodes of care" will likely involve the development of a new VA strategy for adopting bundled payment practices, based on emerging standards and definitions for episodes of care from outside sources. The Secretary already has discretion to move in this direction under current statutes and regulations, but VA internal policies and guidance would need to change in support of such movement, as would existing purchased care contracts.

- Some plausible policy changes that policy-makers might consider would involve very significant, sweeping statutory changes—for example, if VA or Congress were to undertake radical changes to VA's mission or function in connection with purchased care. Such changes might also require involvement by Congress in new legislation to establish the blueprint for change. Some examples along these lines could include a shift to greatly expand VA's role as payer organization; or to move significant numbers of Veterans into purchased care and out of direct care through VA; or to make VA the operator of a subsidy program for outside health insurance, as an alternative to obtaining other sorts of health benefits through VA.

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7 Alternative Government Health Care Payer Models

> **Overview of Methods and Data for Alternative Health Care Payer Models**
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> - We drew on the experiences of other large government health care payers to derive lessons for VA purchased care. The analysis of program structure, claims processing, contracting procedures, and other characteristics draws on a review of current and historical program documentation, GAO reports, and other literature.
> - We compared and contrasted VA and two large programs (TRICARE and Medicare) along several dimensions, an analysis supported by a review of each program's structure and governing statutes.

As described in Section 3, VA currently has authority to purchase care, but within a limited scope and, secondary to its primary function as a provider. As a result, there are both structural and financial limitations on VA's ability to marginally expand its role as payer. VA also lacks any clear direction for what or how much care to purchase, beyond seeking to remedy those situations where it cannot provide needed care directly.

An avenue for reflecting on possible reforms to VA purchased care involves considering the experience of other, large government health care payers, and in particular, the Military Health System and Medicare. In theory, both of these government payers represent potential models that VA could follow or learn from, in regard to various aspects of acting as a payer for outside health care services.

While VA purchases care in specific situations and for specific Veterans, Medicare and the Military Health System (through TRICARE) either purchase large quantities of care, or all care, for the populations they serve. As Figure 7-1 shows, these (and other) government payers vary in the degree to which they serve as direct providers of care, versus paying for outside health care services. For example, Medicare does not provide any health care services directly, while IHS provides nearly all care from in-house providers.[134]

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[134] IHS is an agency within the U.S. Department of Health and Human Services that is responsible for providing federal health services to roughly 2 million American Indians and Alaskan Natives who are members of 566 federally recognized tribes. While IHS serves as a notable benchmark on the continuum of care that is purchased or directly provided, the agency is very different from VA in size and scope, and is thus not discussed further in this comparison of alternative government health care payer models.

Figure 7-1. Spectrum of Provide-Versus-Purchase Care
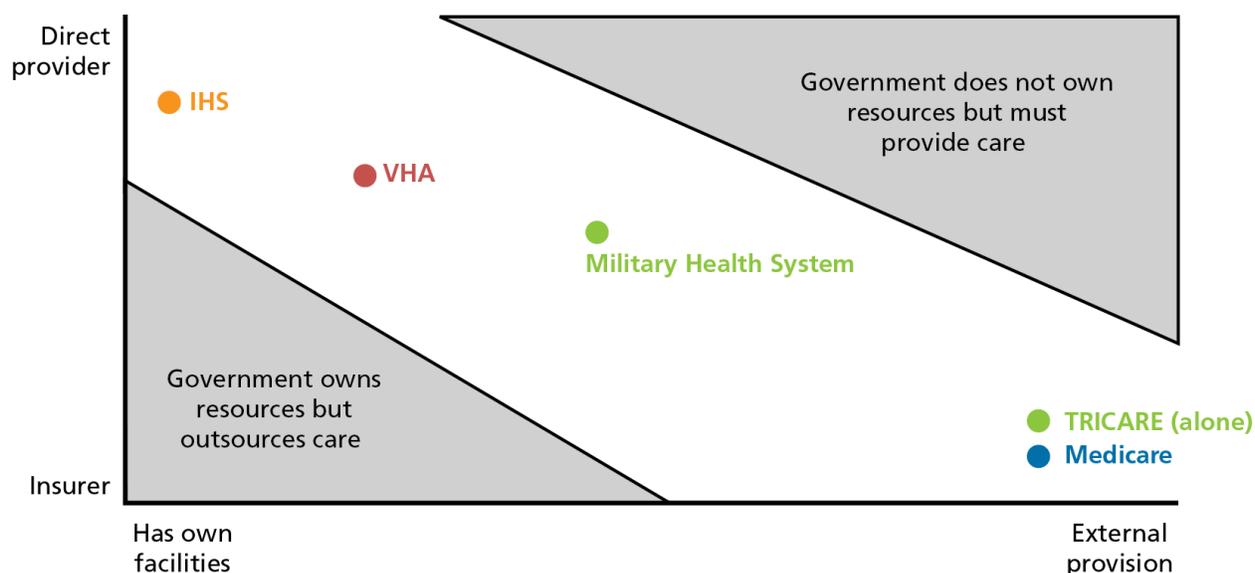
TRICARE shares some important similarities with VA, in the sense that TRICARE involves the direct provision of care through military treatment facilities (MTFs) and purchased care services when necessary. Medicare, unambiguously and by contrast, involves a very large government health insurance program. Table 7-1 details the basic benefit structure of the main TRICARE and Medicare variants, compared to VA. The fundamental purpose of TRICARE and Medicare, and their corresponding mechanisms and characteristics, distinguish them from VA and VA purchased care, and highlight that there may be some limitations in looking to these other organizations as models for VA.

Table 7-1. Basic Program Structure for TRICARE, Medicare, and VA

Feature	TRICARE Prime[a]	TRICARE Standard/ Extra	Traditional Medicare (A & B)	Medicare Advantage	VA
Type of plan	Health maintenance organization (HMO)	Preferred provider organization (PPO)	Fee for service	HMO or PPO	Staff model HMO
Monthly premium (individual)	Retirees: $23.17 Active duty: None	None	$104.90[b]	Average $135–$168	None

Feature	TRICARE Prime[a]	TRICARE Standard/ Extra	Traditional Medicare (A & B)	Medicare Advantage	VA
Deductible (individual)	Yes for retirees	$50/$150 (varies by rank and beneficiary group)	Part B: $147/year Part A: $1,260 per benefit period	Varies by plan	None
Direct care	Active duty: Use of MTFs mandatory Others: May be assigned to MTFs for primary care	Yes, but only if space available at MTFs	No	No[c]	Yes
Purchased care network	Yes	Yes	No	Yes	Yes
Cost sharing	Yes for retirees	Yes	Yes	Varies by plan	Yes, some priority groups
Referral authorization required	Yes for specialty care	No, some prior authorization	No	Yes	Yes
Access standards in purchased care	Yes, time and distance	No	N/A	Yes, time and distance	Yes, time and distance

[a]For simplicity and ease of comparison, the table does not list fees for family members. TRICARE Standard and Extra are essentially one option with different cost sharing for in- and out-of-network providers.

[b]High-income beneficiaries pay higher premiums, up to $335.70 per month (Medicare.gov, n.d.).

[c]Some Medicare Advantage plans are staff model HMOs and would therefore provide direct care, but Medicare itself is not. Medicare Advantage plans combine services for Parts A, B, and (often) D.

Section 7 reflects on the similarities and differences between TRICARE, Medicare, and VA as

government payers, and seeks to draw some useful lessons for VA in regard to purchasing care. In support of these aims, we draw on a combination of document review supplemented with interviews from a variety of stakeholders involved in VA purchased care, TRICARE, and Medicare.

7.1 Key Similarities Across VA, TRICARE, and Medicare

Broadly speaking, VA operates as both a direct provider of health care services, and as a payer for outside services. As we describe in Section 3, VA engages in purchased care under an elaborate set of authorities, programs, and mechanisms. Three related observations are worth repeating here. First, the core authority for VA purchased care, under 38 U.S.C. 1703, establishes that the Secretary *may* purchase outside medical care when VA is unable to provide the same service and when certain other criteria are met. Second, the Veterans Choice Act *compels* access for eligible Veterans to purchased care when wait-time or driving distance criteria are met. Third, all VA purchased care authorities and operations fall under VA's primary health care function, which involves operating a national network of provider facilities and delivering medical services directly to Veterans.

As such, health care for TRICARE beneficiaries living near MTFs offers a natural comparison for VA, since the military, like VA, is involved both in the direct provision of health care services and the purchase of health care services in the private sector. TRICARE's experience in arranging for care for beneficiaries not living near a military facility may have parallels to care for Veterans in remote areas. DoD established TRICARE to control cost increases and improve access to health care (GAO, 1998). Also, like VA, TRICARE uses purchased care to fill gaps in its direct care system.[135] In several ways, VA has followed a similar trajectory to TRICARE in its development of purchased care. Similar to VA, in implementing TRICARE, DoD faced challenges with establishing provider networks, provider payment backlog, and balancing direct and purchased care in different regions of the country to fulfill the need for care.[136]

DoD's direct care system has never been sized to serve all military health beneficiaries, so its purchased care program is long standing and large. The program has also grown incrementally over the years. DoD's first purchased care program was established in 1956 when Congress passed the Dependents Medical Care Act (Pub. L. 84-569). The legislation formalized rules allowing active duty dependents, retirees, and dependents of retirees to receive medical care at MTFs and authorized DoD to purchase civilian health care services for active-duty dependents for the first time (Jansen, 2014). This legislation was followed by the Military Medical Benefits Amendments in 1966, which authorized DoD to extend outpatient care to certain dependents and retirees by contracting with civilian health care providers. These amendments authorized the establishment of the Civilian Health and Medical Program of the Uniformed Services (CHAMPUS) as a supplement to direct care in MTFs (TRICARE, 2009). TRICARE, the health plan

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[135] According to stakeholder interviews.

[136] According to stakeholder interviews.

for DoD beneficiaries, replaced CHAMPUS in 1994; unlike CHAMPUS, TRICARE includes both direct care and purchased care.

There are several key parallels in the development of VA purchased care and TRICARE. Both VA purchased care and TRICARE carried out congressionally mandated pilot programs to assess alternative methods for purchased care (GAO, 1998). TRICARE was preceded by two managed care pilot programs, the CHAMPUS Reform Initiative and the Catchment Area Management Program, in the late 1980s. The CHAMPUS Reform Initiative, launched in California and Hawaii in 1988 (Hosek, 1993), contracted out administrative functions and offered beneficiaries a choice of two options: (1) a new HMO, CHAMPUS Prime or (2) the existing fee-for-service CHAMPUS Standard program, which was converted to a PPO with a new CHAMPUS Extra option. In 1994, Congress expanded the initiative and made it permanent by transforming CHAMPUS into TRICARE.[137] TRICARE was again expanded in 2001 to include supplemental Medicare insurance and, in 2005, to make coverage available to eligible deactivated reservists (Rhem, 2001; TRICARE, 2005).

Today, TRICARE is administered through four regional contractors in four regions: domestically, in the North, South, and West, and Overseas. These contractors work under the supervision of TRICARE regional offices to manage purchased care and to coordinate care between the direct and purchased arms of the TRICARE system. The current regional contractors have been in place since 2013, and most are incumbent contractors (GAO, 2014d). While VA and TRICARE are similar in several key ways, the funding structures of the two entities are notably different, particularly regarding entitlement status An entitlement program, in contrast to a discretionary program, creates a right to the benefit, in this case, medical care—a right that obligates the federal government to pay related costs. VA's health care benefits, and particularly those involving purchased care, have not traditionally been regarded as an entitlement. By contrast, the authorizing statute for TRICARE, under 10 U.S.C. 1074, establishes that "a member of a uniformed service . . . is *entitled* to medical and dental care in any facility of any uniformed service" (italics added). The unified medical budget (of which TRICARE is part) is prepared annually and includes resources for all non-deployment-related medical expenses under DoD's control (Jansen, 2014). The funding for this is appropriated through several sources, including annual defense appropriations bills (Jansen, 2014).[138] While defense health programs essentially have a discretionary budget, the DoD is obligated to pay for the health services, making it similar to an entitlement program. In sum, DoD's funding streams for TRICARE may

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[137] 32 C.F.R. 199.17 sets forth the regulations governing the TRICARE program itself.

[138] The complete list of sections are as follows: (1) a defense appropriations bill section "Defense Health Program" provides operation and maintenance, procurement, and research, development, test, and evaluation funding; (2) a defense appropriations bill section on "military personnel" provides funding for military medical personnel (doctors, corpsmen, and other health care providers) and TRICARE for Life accrual payments; (3) the military construction and VA appropriations bill provides funding for medical military construction; (4) the Medicare supplemental plan is funded through an accrual charge levied on active-duty military personnel; and (5) third-party collections are authorized by 10 U.S.C.1097b(b) and a number of other reimbursable program and transfer authorities.

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offer both solutions and challenges not present with more simply structured, fixed-budget discretionary programs, such as VA's health care function.

Medicare differs from both TRICARE and VA in that it is exclusively a payer for, and not a provider of, health care services. In fact, Medicare has never been a direct provider of services, and from its earliest days, used outside contractors to administer some aspects of the program. Like TRICARE (but unlike VA), Medicare is also a federal entitlement program. Medicare was enacted in 1965, as Title XVIII of the Social Security Act (Pub.L. 89–97), which simultaneously created the Medicaid program.[139] Section 426 of Title 42 specifically establishes the hospital insurance benefits under Medicare as an entitlement program. Because the spending formula and beneficiary eligibility are defined in law, Medicare spending is considered mandatory and not discretionary (Costantino & Schwabish, 2014). As such, all those eligible to participate in a federal program funded by mandatory spending will receive payment or services with no cap on related spending by the government. This statutory authority does give entitlement programs some nimbleness: Medicare can be efficient programmatically, yet surge to meet patient demand, because it is not tied to an annual budget appropriation. In this respect, Medicare is very different from VA's health care operations, for which spending is tied to an annual budget appropriation by Congress.

To some extent, TRICARE and (by extension) the Military Health System, VA, and Medicare serve overlapping populations at different points in their lives. TRICARE and VA are specifically focused on offering care for military populations of service members and Veterans respectively. The Military Health System serves a large population of military retirees and family members, but, at age 65, these beneficiaries transition to Medicare (with supplemental coverage from DoD).

7.2 Lessons for VA from TRICARE and Medicare

TRICARE and Medicare each bring decades of experience to the table, in refining and carrying out purchased care functions and operations within their respective domains. TRICARE's TPAs (or managed care support contractors) have built a national network of outside providers, and the contractual framework to support them, to augment DoD's longstanding role in providing direct care to beneficiaries. Medicare, by contrast, has been deeply involved in refining and experimenting with methods for managed utilization and cost reduction.

Drawing broadly on the experience of both TRICARE and Medicare, we believe that the most obvious lessons for VA fall into three categories:

- Outsourcing administrative functions
- Instituting contractor incentives
- Managing utilization.

We address each of these points in the sections that follow.

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[139] See 42 U.S.C. 1395 et seq. for the current statutory basis for Medicare.

7.2.1 Outsourcing Administrative Functions

Over time, major government payers outside of VA have outsourced a variety of administrative functions to private contractors, often with performance incentives attached. Important functions that have been outsourced have included provider network maintenance, claims processing, and call center or other support for enrollees.

TRICARE acquires health care services through Managed Care Support Contracts in three domestic regions. Contractor functions include establishing and maintaining provider networks, third-party billing, claims processing, specialty care referrals, and enrollment (GAO, 2014a). The contractors for the three regions, UnitedHealth, Humana Military, and Health Net, also conduct medical management, customer service activities, and data collection. One interview respondent described TRICARE's relationship with its contractors as a way to increase the efficiency of the system: "We don't contract directly with providers. We use Humana, Health Net, and United to build networks and . . . [to operate as] fiscal intermediaries to pay claims—all the mechanics that go with it, enrollment, referrals, all that. We contract with United, they get paid an administrative fee and make a profit, and they go build a network with providers." For the military, the contracting arrangements under TRICARE mean they do not have to have staff internally to find providers or manage billing. As another interview respondent said, "I don't know how we would have enough people to go to every zip code in America. These companies already have networks; I don't know how we would have the expertise or people to do that . . . [or why we would want to] . . . when they already have that expertise."

Like TRICARE, CMS makes extensive use of outside contractors in administering the Medicare program. From 1966 until the Medicare Prescription Drug Improvement and Modernization Act of 2003, Part A fiscal intermediaries and Part B carriers were the primary administrative processing intermediaries between CMS and providers (CMS, 2015c). The legislation led to a series of contracting reforms, most notably by creating the Medicare Administrative Contractors system, which is the central point for much of Medicare's operational functions (e.g., processing claims and applications, hearing appeals, providing call centers, and supporting educational efforts; see CMS, 2015a and CMS, n.d.). Beyond these core functions, CMS contracts out other aspects of its operations, including Beneficiary Contact Centers, Enterprise Data Centers, Healthcare Integrated General Ledger and Account Systems, Medicare Secondary Payer Recovery Contractors, Zone Program Integrity Contractors, Qualified Independent Contractors, Quality Improvement Organizations, and Recovery Auditors (CMS, n.d.). Under the Medicare Administrative Contractors system, the contractors are responsible for providing services to their assigned geographic area (CMS, 2015a).

By contrast with both TRICARE and Medicare, VA purchases a limited volume of care and employs a different approach, at least in some of its programs. VA uses two contractors to develop and maintain the provider networks for PC3 and Choice (analogous to the provider networks for TRICARE). VA TPAs, Health Net and TriWest, manage provider networks for Veterans to access primary care, inpatient specialty care, outpatient specialty care, mental health care, limited emergency care, and limited newborn care for enrolled female Veterans following birth of a child at non-VA providers (VHA Chief Business Office Purchased Care, 2015). However, the TPAs for VA handle only the administrative functions that the contractors for

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TRICARE and Medicare handle for the PC3 and Choice programs. For the larger volume of care currently purchased through the traditional VA purchased care program, authorizations and claims payments are handled largely in-house at VA. By contrast, both TRICARE and Medicare use contractors to perform these functions for all purchased care. In the future, if VA enforces its policy to rely more on PC3 and Choice, its TPAs will bear more of the administrative responsibility, particularly for such functions as authorization and claims payments, in line with TRICARE and Medicare.

7.2.1.1 Claims Processing

One of the major administrative functions for Medicare and TRICARE contractors is claims processing, which enables DoD and Medicare to put into place financial incentives for quicker turnarounds and systems for curbing improper or fraudulent claims. VA is less experienced in its outsourcing of the claims processing functions under PC3.

As of fall 2013, TRICARE processed about 4.6 million claims every week (TRICARE, 2013). The contractors who carry out the work do not publicly report claims processing costs separately from the provider costs. However, the contractors report that about 75 percent of the claims processing is fully automated, that is, not requiring human intervention. The contractors also reported to the study team a processing cost per claim of $2.25–$2.50 for electronic claims and $3.50 for paper-based claims. Presumably, automation of claims processing through outside contractors is one of the areas where VA might usefully emulate the practice of TRICARE in pursuit of greater efficiency.

Meanwhile, program integrity officials within TRICARE are charged with oversight of improper payments. Over time, TRICARE has had to build a fraud and abuse system to combat improper payments. A 1999 GAO report found that DoD was not very good at identifying fraud (GAO, 1999). DoD subsequently built in incentive payments for contractors to identify fraudulent billing practices. TRICARE has tried to create contracts that push some "program risks" to the contractors and has created a robust Program Integrity Office with clearly defined criteria and staff consisting of lawyers, statisticians, physicians and nurses (RNs). This office directs contractors in identifying and limiting fraud and abuse throughout the program. The fraud office also deals with improperly paid claims. As a result, TRICARE reportedly now has a very low payment error rate (<0.5 percent for billed charges, and ~1–2 percent of actual amounts paid) (National Academy of Public Administration, 2011; Jones, 2012). However, a 2015 GAO report found that the improper payment rate was likely higher than reported; it recommended that TRICARE adopt Medicare's system of analyzing the underlying medical record for a sample of claims to determine whether services were properly coded (GAO, 2015).

The claims processing contracts include financial penalties or incentives to encourage payment accuracy. Overpayments identified during the Managed Care Support Contracts' annual health care cost compliance review audit are extrapolated to the audit universe and the contractors are liable for the entire extrapolated overpayment error amount, providing a built-in incentive for contractors to continually monitor and improve their claims processing. Meanwhile some contracts also allow the contractor to earn financial incentives for exceeding the contractual performance baseline on over-payments. To minimize improper payments, both pre- and post-

payment controls, including claims auditing software, documentation policies, and audits, are built into both contract requirements and contractors' claims processing systems (Defense Health Agency, n.d.). Here again, VA could in principle seek to model TRICARE in its approaches to using outside contractors to reduce erroneous overpayment and fraud in claims processing.

As with TRICARE, Medicare's claims processing is also completely outsourced, as are many of its other administrative support functions. Historically, provider groups nominated "fiscal intermediaries" in a non-competitive bidding process. In 2003, CMS was granted the ability to use competitive bidding to award outside contracts for a variety of services, including claims processing (GAO, 2014b). Under this set of reforms, CMS also instituted cost-plus-fee payment arrangements, which allow contractors to win incentive payments for meeting performance metrics. Over time, CMS contractors have been slowly improving their performance, but they still do not yet meet all performance targets (GAO, 2010). Notably, there are still problems in ensuring that claims are paid correctly the first time (GAO, 2014f). Just over 10 percent of Medicare's fee-for-service claims were improperly paid in 2013 (GAO, 2015). Medicare's fraud and abuse system uses a different set of contractors to police claims, the Zone Program Integrity Contractors. Medicare also uses models with algorithms to identify potentially fraudulent claims (GAO, 2012). A 2012 GAO study found the system had the ability to curb fraudulent billing from providers and to save money by identifying fraudulent practices before claims were actually paid. However, the report noted that Medicare's contractors had not yet implemented the system consistently (GAO, 2012).

In contrast to TRICARE and Medicare, VA still processes a significant portion of its purchased care claims in-house, rather than through outside contractors (in connection with claims that arise under traditional purchased care, and outside of the PC3 and Choice mechanisms). Under the traditional VA purchased care program, the processing of claims by VA is handled at the VAMC or VISN level, which has contributed to a lack of standardization in processes across facilities/VISNs. The Veterans Choice Act notably imposed a mandate on VA to create a new system to pay these claims, and to centralize funding VHA's Chief Business Office. Previously, internal guidance for processing claims through the NVCC had been passed down by VA, but one official interviewed for this study noted, "We know from audits that not everyone implements [this in] the same way."

Moreover, as we noted in Section 4, VA has continued to experience some problems in carrying out its claims payment function, including improperly paid claims, authorizations for patients to access purchased care that are not justified or properly authorized, and lack of data for calculating the cost of the services in an episode of care. Again and in principle, shifting the claims payment function more fully to outside contractors, while ensuring appropriate automation and implementing incentive payments tied to reducing improper payments and other outcomes, could offer some advantages for VA to pursue, in seeking to draw useful lessons from the experience of TRICARE and Medicare.

7.2.2 Instituting Contractor Incentives

Financial incentives built into contracting arrangements can encourage adherence to various quality, efficiency, or processing standards, beyond their use in claims processing. Over their

evolution, both Medicare and TRICARE have developed incentive payments to align quality and cost savings measures between the programs and the contractors, though the process has not always worked perfectly. VA requires non-VA providers to return medical record information before payment can be issued. Although this is not an incentive in the usual sense, it can be a lesson for the other payers.

Under current TRICARE contract provisions, contractor performance is encouraged through semiannual award fee and performance guarantees (GAO, 2014e). There are also several other financial incentives built into TRICARE contracts for controlling the level of ancillary services use. Managed care support contracts receive 10 percent of provider discount savings above a government-set threshold, encouraging them to steer beneficiaries to in-network providers who should be more efficient. There are penalties if the network share of Prime claims falls below the government-specified standards. In addition, costs for Prime beneficiaries who have civilian primary care providers (as opposed to those assigned for primary care to the MTF) are compared to the per capita trend reported in National Health Expenditures accounts; the contractor is responsible for 30 percent of the differential if the Managed Care Support Contracts' cost trend is higher (DoD, 2014).

As part of the previously mentioned Medicare Modernization Act, the contractors administering fee-for-service Medicare now have incentive payments for high quality work beyond their contractual obligations. The award fee system allows contractors to earn bonus payments for performances metrics including beneficiary service, overall performance on the contract and appeals processing (CMS, 2014b).

VA has very few pay-for-performance incentives for its contractors. In the Project HERO pilot, the contractors were paid a "value reimbursement" for coordinating appointments and returning clinical information to VA after a private-sector appointment in a fixed-fee-per-service arrangement (Panagala, 2010). According to our interviewees, the process for obtaining information from network providers is still undergoing standardization at the VA facility level. One contractor said that returning the records could be a challenge when VA facilities have different standards: "What is 'complete' varies from facility to facility. Sometimes, it [the record] is not legible. This is particularly problematic for optometry. They have their own symbols that they use, and a VA nurse who is not an optometrist may not understand it."

In the future, VA might consider instituting additional performance incentives into its contracting framework for purchased care, similar to those under TRICARE and Medicare. Presumably, steps along these lines might make particular sense if VA expands its outsourcing of administrative functions in the future, and likewise if VA shifts more of its purchased care activity to TPA arrangements, as under PC3 and Choice.

7.2.3 Managing Utilization and Controlling Costs

At present VA has only limited traditional features (e.g., authorization requirements and processes) to reduce unnecessary utilization and costs. By contrast, Medicare and TRICARE have followed somewhat different pathways in the attempt to control costs and utilization when purchasing care. VA could add some additional mechanisms for managing utilization for Veterans receiving care in the community.

TRICARE was originally developed in response to increasing cost pressures and concerns over access in CHAMPUS, the program's predecessor (GAO, 1998). While the original intent was to impose more control on utilization for the dependents and retirees not receiving care in the MTFs, recent studies have shown that TRICARE does not take advantage of techniques such as financial incentives or reimbursement systems based on value. In constant 2013 dollars, while the typical private health insurance premium increased by 76 percent between 2002 and 2013, the TRICARE premium for retirees actually declined by 10 percent (DHA, 2014). Recently, the Military Compensation and Retirement Modernization Commission cited significantly higher use of health care services, both inpatient and outpatient, by TRICARE beneficiaries compared to those in civilian HMOs, due to a lack of incentives such as cost sharing that would deter utilization (Military Compensation and Retirement Modernization Commission, 2015).

Unlike TRICARE or VA, Medicare is not a direct provider of services. Medicare is an insurance program that pays providers for the care delivered to Medicare beneficiaries (CMS, 2014a).[140] Traditional Medicare has no formal provider networks, and any willing provider can apply to join. With Medicare, a beneficiary can receive care from any health care provider that accepts the insurance. With this structure, in the past there was traditionally only limited utilization control in traditional Medicare, save through copayments to deter overutilization (Medicare.gov, n.d.). The cost sharing in Medicare is quite high for some services, so a market for plans that cover just the cost sharing in Medicare developed (called Medigap plans). These plans distort the financial incentives that would otherwise control utilization. In sum, this system is very different from the VA purchased care context.

Medicare employs some mechanisms for enhancing quality and controlling costs in its fee-for-service side and is piloting other innovative approaches that VA could potentially include in its purchasing arrangements. Originally, Medicare paid only "reasonable costs" to hospitals or "usual, customary, and reasonable charges" to doctors and other medical providers (Davis et al., 2013). However, after costs exceeded projections, Medicare replaced its "reasonable costs" and "usual, customary, and responsible charges" standard with a predetermined fee for service model during reforms during the 1980s and 1990s (Davis et al., 2013). Under the Diagnostic Related Group (DRG) system, hospitals were given a lump sum for a given episode of care, instead of allowing the hospitals to individually charge for every service performed during the patient's stay. More recently, the Affordable Care Act funded demonstration projects for a variety of payment and care delivery changes in the fee-for-service Medicare environment, with the express purpose of better aligning incentives to control utilization and spending. These alternative payment models, like bundled payments and accountable care organizations, are set up to pay for "value" instead of for "volume" as in the traditional fee-for-service model (U.S. Department of Health and Human Services, 2015).

As we discussed in more detail in Section 4, bundled-payment arrangements based on episodes of care offer an important avenue for potential reform by VA, and a way in which payment

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[140] Funding for Medicare hospital insurance comes through payroll taxes, paid by both employers and employees, per 26 U.S.C. 3101 and 3102. Regulations governing Medicare are contained in Title 42 of the Code of Federal Regulations, Chapter IV, Parts 405–600.

innovations now being tested by Medicare might be useful as a model to VA in the future. TRICARE initially relied on utilization review for cost containment, an approach that was employed in the private sector at the time but has not proved to be effective. VA could institute a variety of these mechanisms to manage utilization and coordinate the purchased care for Veterans.

7.3 Experience with Third-Party Contracting for Purchased Care Administration

Many of the lessons learned in the previous sections have focused primarily on the outsourcing of various functions to the private sector. However, it should be noted that heavy reliance on contractors for managing purchased care is not without drawbacks, which can range from losing oversight on day-to-day administrative functions to problems associated with the competitive bidding process itself. Both TRICARE and Medicare have had issues with their bidding processes. For its part, VA has also had issues with its contracting processes for support services.

During the most recent process to award TRICARE Managed Care Support Contracts for the three domestic regions, all three contract awards were protested by unsuccessful bidders (as were some earlier awards).[141] Ultimately new award decisions were made in all three regions, which triggered further, though unsuccessful, protests. This protracted process delayed initiation of the new contracts, misaligned the performance periods of the finalized Managed Care Support Contracts, and is expected to lead to increased costs (GAO, 2014a). In addition, the transition to a new contractor in the West region led to physician reports of delays in the processing of authorizations and referral requests; long hold times for telephone queries and support; website problems; and other deficiencies in support. Many commentators indicated that these problems had a negative impact on patient care (California Medical Association, 2013). DoD ultimately held the incoming contractor accountable for not meeting some requirements, through corrective action requests and financial penalties. However, GAO also found that DoD lacked a process for holding its contractors accountable, and that inadequate guidance and insufficient oversight contributed to problems with health care delivery (GAO, 2014e). These concerns, along with complaints about inadequate access to care and limited choice, led the Military Compensation and Retirement Reform Commission to recommend eliminating TRICARE entirely, and replacing it with a program offering beneficiaries a selection of commercial insurance plans administered through OPM and paid for by a nontaxable allowance (Military Compensation and Retirement Modernization Commission, 2015).

Medicare's durable medical equipment contracts have recently suffered similar concerns over the transparency of the process. Medicare was required to start bidding out contracts to provide durable medical equipment such as prosthetics or oxygen supplies (CMS, 2015b). The program has been widely criticized by patient advocates as disruptive, if a new company in a

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[141] A former Administrator of the Office of Federal Procurement Policy has argued that, across the federal government, protests yield benefits that outweigh the costs they impose (Gordon, 2013).

given region wins the new contract, thus changing procedures or even types of equipment offered (Japsen, 2013). GAO reported in 2014 that the process led to savings and that the process did not adversely affect beneficiaries, contrary to media reports (GAO, 2014c). The report also recommended ongoing monitoring of the process.

VA also has a contracting process in place, for services other than the major contracts to provide health services. VA's Office of the Inspector General monitors and audits the contracting process for all VA agencies (VA Office of the Inspector General, 2014c, 2013). In one audit for VHA support services in 2014, the VA Office of the Inspector General found that VA lacked a rigorous internal process for the entire spectrum of contract lifespan from developing and awarding a contract to monitoring performance post-award (VA Office of the Inspector General, 2014d).

In summary, all three organizations have had issues with bidding out contracts to the private sector for various services. Any competitive bidding and appeals process for these functions would need to be managed carefully and thoughtfully, so as to minimize the risk of any interruption to ongoing operations.

7.4 Discussion

TRICARE and Medicare can both offer some lessons on how to efficiently purchase care from outside contractors. Perhaps most notable in this regard, TRICARE and Medicare outsource many of the administrative functions in paying for care, such as claims processing and fraud tracking, and they often do so with structured performance incentives for the outside contractors. In principle, policy makers could draw on these lessons in strengthening VA's approach to purchased care contracting in the future—either in the context of expanding VA's emphasis on purchased care or in the context of improving efficiency and quality within VA's current approach to purchased care. Regardless, policy-makers would be well served by developing a clear strategy for VA purchased care as an antecedent to improving related processes and standards for outsourcing.

More broadly, the relevance of TRICARE and MEDICARE as models for VA depends in part on whether policy makers agree on a clear strategy for VA purchased care programs, and particularly so if an ambitious path to reform was undertaken, by refashioning VA's function and mission to look much more like that of TRICARE or Medicare than it does today. Even stopping short of this possibility, a well-articulated strategy for VA purchased care could nevertheless help foster more effective resource administration, increase capacity development, and improve the performance of VA purchased care programs. We expand on the latter point in Section 8 of this report.

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8 Conclusions and Recommendations

8.1 Summary of Assessment Findings

One of VA's core functions as an agency involves providing health care services to eligible Veterans. Although VA has traditionally carried out this role primarily by operating a national network of hospitals and other facilities, it also purchases health care services from outside providers. VA purchased care evolved primarily to address situations in which VA's direct care resources were unable to offer needed services. Although purchased care has accounted for only a small fraction of VA's health care budget over the past decade, that fraction is growing. In the wake of the recent crisis in access to care through VA facilities, stakeholders and policy-makers are revisiting the role and performance of VA purchased care. Specifically, they are considering whether modifications to VA's purchased care approach might be appropriate or desirable, given broader goals of expanding access to care, enhancing and developing trusted partnerships, and improving VA operations to deliver high-quality health care to eligible Veterans.

Pursuant to Section 201(a)(1)(C) of the Veterans Access, Choice, and Accountability Act of 2014, Congress mandated an independent assessment of VA specifically to address "[t]he authorities and mechanisms under which the Secretary may furnish hospital care, medical services, and other health care at non-Department facilities, including whether the Secretary should have the authority to furnish such care and services at such facilities through the completion of episodes of care." Put another way, the Congressional assessment mandate poses a few basic questions about purchased care. First, what authorities and mechanisms does VA have to purchase care? Second, does VA have the appropriate authorities and mechanisms to purchase care? Third, should VA have the authority to purchase care through the completion of episodes of care?

In answering these questions throughout this report, we observed that the Secretary already has considerable authority to furnish purchased care. In fact, that authority and related practice are long-standing. However, current VA authority and policy for purchasing care is complicated. It is structured around core provisions that establish what the Secretary *may* do, rather than what he or she *must* do, in purchasing care. Meanwhile, related eligibility criteria for Veterans, contracting parameters, and administrative mechanisms (for example, for authorizations and claims processing) involve a patchwork of interlocking rules and policies, which can be confusing even for VA personnel. In the discussion that follows, we offer some suggestions for how current purchased care authorities and policy might be modified to reduce this complexity and improve coherence, while empowering VA staff and facilitating VA operations.

Beyond the recommendations that we articulate here, we also identified many other possible revisions that might be made to purchased care authorities in the future.[142] Whether any of these changes are actually wise depends on what policy-makers and stakeholders hope to achieve by reforming purchased care. Different objectives could easily lead to different packages of reforms. An important priority for the future will involve forging consensus on the

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[142] See, in particular, Section 6.

objectives for revising purchased care and on a corresponding strategy for purchased care policy consistent with VA's broader health care mission.

8.1.1 VA Has a Complex Set of Authorities to Purchase Care, Reflecting Tension Among Implicit Aims

The core authorities that govern VA purchased care activities are scattered across many different statutory and regulatory provisions. Central examples include 38 U.S.C. 1703 (contracts for medical care service with non-VA facilities), 38 U.S.C. 1725 and 1728 (reimbursement of emergency care), 38 U.S.C. 8153 (sharing of health care resources), and Section 101 of the Veterans Choice Act (defining the parameters of the Choice program). These statutory authorities are the foundation for a corresponding set of regulatory provisions. Collectively, the statutes and regulations form a complicated landscape for when and how the Secretary may purchase care and, by extension, which Veterans are permitted to obtain purchased care services.

Although the basic grant of authorities to the Secretary for purchased care is expansive in some respects, it is not unlimited. Both Congress and VA have imposed significant controls over the types of Veterans who can take advantage of external health care resources, the medical conditions that may be treated, and the procedures that must be followed to obtain a referral or reimbursement for an independent purchase of services. Such controls also govern how the existing availability and capabilities of VA personnel and facilities should be taken into account, the need for prior VA approval to access external providers, the process for contracting with outside providers and the substance of those contracts, and the length of time that purchased care can be obtained without additional authorization.

Moreover, the underlying intent of these varied controls implicitly reflects several interests beyond simply providing Veterans with access to outside care. One such interest is to limit the need for and costs of purchased care. Another is to balance VA's primary health care function as a direct provider of services with a more limited secondary function of paying for outside services when gaps arise in VA's direct-provider capacity. Finally, the controls may also be intended to ensure some degree of local-level VA discretion regarding the optimal mix of internal and external resources for allocating care in the field.

In sum, not only are VA's authorities for furnishing purchased care complex and scattered, but they also embody more than one aim, and those aims may operate in tension with each other.

8.1.2 The Episode of Care Defines the "Unit" of VA Authorization, and Helps Shape the Purchased Care in Practice

In Section 201(a)(1)(c) of the Veterans Choice Act, Congress posed the question of whether the Secretary should have the authority to furnish care at non-VA facilities *through the completion of episodes of care*. As discussed throughout this report, the Secretary already has significant authority to purchase care, but that authority is not explicitly tied to formal standards for episodes, beyond particular program requirements for authorization (for example, as specified under the Veterans Choice Act). Detailed clinical standards for defining episodes of care are still

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in development, both within VA and across the U.S. health care system. Regardless, how these episodes are defined is important in purchased care because the episode conceptually bounds a clinical problem for which a Veteran may require outside services, so it might therefore may make sense to outsource as a coherent "unit."

As discussed in Section 5, revised standards for episodes of care may well become the basis for new forms of contracting, bundled-payment innovation, and purchasing of services in the future, inside and outside of VA. Likewise, new episode-of-care standards will likely become the foundation for important new techniques in performance measurement and quality improvement.

Given the ongoing changes within the U.S. health care system, which may include the future development of well-defined episode-of care-standards, sophisticated bundled payment arrangements, and robust episode-based performance measurement, the Secretary of VA should have more authority (and more responsibility) to build purchased care contracts around these developments. Specifically, the 60-day authorization period for purchased care through the Choice program (and established under the Veterans Choice Act) should be modified to accommodate the more effective use of bundled payment arrangements and other advancements in episode-of-care standards. Furthermore, it is clear that further refinements in defining episodes of care, along with an authority framework that allows the Secretary to adopt such refinements, will be critical to supporting VA in any move toward episode-based payment mechanisms in the future.

8.1.3 The Purchased Care Landscape Is Already in the Midst of Transformation

As of this writing (in the summer of 2015), numerous changes to VA's authorities and mechanisms for purchasing care were being proposed, planned, or implemented. VA, Congress, and the TPAs were collaborating to develop pilots in local areas to test new processes for administering Choice and PC3. These stakeholders were also reviewing the performance of VAMCs to determine whether local facilities were meeting demand through both direct and purchased care. According to recent congressional testimony and our own interviews, stakeholders and policy-makers are acutely aware of the variation in purchased care SOPs across the enterprise and are actively working to address it. Major changes along these lines are anticipated in the coming months.

Meanwhile, several related changes to the Choice program were under way. In May 2015, the Senate Veterans' Affairs Committee suggested that high costs may be associated with changes to the 40-mile rule to access care through the Veterans Choice Act—particularly if the rule were modified to take into account driving distance to the most appropriate facility for the treatment required (Exploring the Implementation and Future of the Veterans Choice Program, 2015). Both the House and Senate Veterans' Affairs committees are working closely with the Congressional Budget Office to assess these costs and the feasibility of possible changes to the 40-mile rule. On May 1, 2015, VA submitted a legislative proposal that included "major improvements to VA's authority to use provider agreements for the purchase of community care" (Exploring the Implementation and Future of the Veterans Choice Program, 2015). As of this writing, full details of that proposal were not available.

As of early June 2015, there was lingering uncertainty about the future of the Choice program. The Veterans Choice Act was enacted as a temporary bill, terminating on "the date on which the Secretary has exhausted all amounts deposited in the Veterans Choice Fund . . . or the date that is three years after the date of the enactment of this Act, whichever occurs first." Many stakeholders interviewed believed that the Veterans Choice Act would likely be extended. Beyond possible extension or termination, changes to the program's funding and eligibility may be on the horizon. VA has indicated that it would like to use Choice funds to support other purchased care programs, as well as hepatitis C treatment (Exploring the Implementation and Future of the Veterans Choice Program, 2015). In addition, VA has called for changes to eligibility restrictions that impede it from offering obstetrics, dentistry, and long-term care services under the Choice program (Exploring the Implementation and Future of the Veterans Choice Program, 2015). Various stakeholders have discussed the possibility, benefits, and challenges of merging purchased care programs and their associated funding streams. As of this writing, these issues continued to echo in congressional conversations about the future of VA purchased care programs (Assessing the Promise and Progress of the Choice Program, 2015; Exploring the Implementation and Future of the Veterans Choice Program, 2015).

With these facets of purchased care authorities and practice in flux, the landscape of VA purchased care is not just complicated, but dynamically so. Moreover, while the proposed policy changes seek to address many problems and issues, their sheer multiplicity suggests the drawbacks of a piecemeal approach to reform and the lack of guiding orientation and strategy for VA's purchased care enterprise as a whole.

8.2 Limitations of the Assessment

Our research approach in this assessment was subject to several basic limitations, deriving largely from our use of qualitative and legal research methods to answer the questions posed by Congress. As described in Section 2, one of our primary data collection activities involved stakeholder interviews. We interviewed several dozen stakeholders over the course of this study about many different aspects of VA purchased care policy and practice. This method offered the advantage of tapping the insights and expertise of highly knowledgeable individuals regarding how purchased care works in practice. However, it also involved soliciting the perspectives of a limited sample of stakeholders whose experience and perspectives may have been imperfect or biased. As discussed in Section 2, we sought to mitigate this limitation by speaking with multiple respondents from each of several different stakeholder vantage points, validating our interview data against data from other sources when possible, and focusing our interviews on collecting basic factual and institutional information about purchased care.

Somewhat different limitations applied to our request for local purchased care policy documents. Our request for documents was sent to all 141 VAMC administrative parents and 21 VISNs in the country, and the overall response rate was an impressive 86.4 percent (with 125 of 141 VAMC administrative parents and 15 of 21 VISNs responding). However, we have no independent way of confirming whether we received *every* relevant document from every entity responding to the request, whether local institutions had consistent assumptions about what was relevant and within the scope of our request, or whether nonresponses reflected the

absence of relevant policies at the local level, confusion regarding the nature of the request, or an inability to respond within a relatively short time frame. Another limitation of this research involved defining the scope of purchased care authorities. Per the assessment mandate, we focused on the authorities and mechanisms that govern purchased care. However, we note that if purchased care ramps up substantially, then VA will need to realign resources, which could require changes to authorities and mechanisms that are not directly related to purchased care. Such shifts in VA resources might include changes to a range of different dimensions of organizational capacity, including staffing, information technology, fiscal resources, and facilities. For example, VA might need to accommodate an increase in purchased care utilization through a reduction in its medical personnel and facilities. These organizational shifts would likely require changes to authorities, which could limit the time frame and circumstances under which the VA Secretary may undertake administrative reorganization, including consolidating, eliminating, abolishing, or redistributing VA functions, offices, facilities, or activities.

The limitation of this study's scope to the authorities and mechanisms that are directly related to purchased care reflects the constraints of the available data. A main theme of this report is that changes to authorities and mechanisms depend largely on policymakers' objectives for the purpose and trajectory of purchased care. Through a literature review, interviews, and an analysis of purchased care utilization data and budget allocations, we identified a clear trend toward increased usage of purchased care. However, even in interviews with senior VA leadership and other key stakeholders in which we directly asked about the future of purchased care, we were unable to distinguish the vision for purchased care in the immediate or long term. Without knowing the scale or direction of purchased care, it is impossible to analyze the full extent of potential changes to authorities and mechanisms that may be required as a result of shifts in VA organization. As such, we focused the scope of our assessment on authorities and mechanisms that clearly answer the research questions posed in the assessment mandate. Other dimensions of VA health care that may shift as a result of a dramatic reorientation toward purchased care are covered in greater detail in other assessments mandated by the Veterans Choice Act.

8.3 Recommendations

Our findings and analyses indicate that the challenges now facing VA purchased care can be best understood not only in terms of the Secretary's authorities, but also through the interplay among those authorities, mechanisms, and institutional management practices. Consequently, the solutions to the challenges are likely to involve a similar mix of reforms to authorities, mechanisms, and management practices. In the recommendations that follow, we suggest eliminating inconsistencies in authorities and changing the definition of the episode of care. We also recommend that VA develop an explicit strategy and improved management structure for purchased care while allocating responsibility for related activities to the appropriate levels of management and administration within VA.

Because we view our recommendations as complementary in addressing a complex problem, we have not attempted to rank or prioritize them, nor do we propose an ideal timeline for implementation. Clearly, VA might undertake some internal policy changes in purchased care

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unilaterally, and it would not need to await congressional action before proceeding. On the other hand, our first recommendation involves developing an overarching strategy for purchased care. We recommend this in part because such a strategy could help script other responsive revisions to purchased care authorities and practice downstream.

Collectively, these recommendations seek to move VA toward a more holistic vision for purchased care, to align authorities and mechanisms in support of that vision, and to ameliorate some of the entangled problems that constrain purchased care administration.

Define a Strategy for Purchased Care

Working together, Congress and VA should articulate a clear strategy and set of goals for purchased care and how it fits into VA's broader health care mission. Moreover, VA and Congress should establish benchmarks for success in the adoption of related purchased care reforms.

Policy-makers might reasonably approach purchased care with a range of objectives for change. If the aim is to maintain or expand VA purchased care permanently, that might lead to one set of conclusions about modifying authorities. If the aim is simply to address short-term capacity gaps, that might lead to another set of conclusions. Finally, if the aim is to enhance the quality of purchased care services, Veterans' access to such services, or Veterans' care choices, that might lead to a third set of conclusions about modifying authorities. Given the link between the objective and the specific steps for carrying it out, the objective and broad strategic vision for purchased care should be determined before any concrete policy options are pursued. In turn, that objective and vision will determine the best combination of future policies.

VA is now at a crossroads regarding how to modify and whether to expand its purchased care programs. It already has the authority to purchase care, but with a limited scope that is secondary to VA's primary health care function in operating as a direct provider of services. Some stakeholders would like to see the greater use of purchased care at VA. Others would like VA to maintain its direct-care organization and core health care delivery capabilities. Congress has chosen a middle pathway with the Veterans Choice Act, providing more funding both for purchased care and for hiring in-house providers. These competing visions for VA make it difficult to reach consensus about the path forward.

In principle, a coherent strategy for VA purchased care should guide both the organizational ethos and the actions of those implementing purchased care programs. The strategy should offer a foundation for new rules and procedures with flexibility to support growth in demand, extenuating circumstances, and Veteran-centered care.[143] The strategy should also provide clear direction for when and how VA should purchase care, as well as the roles and responsibilities of key stakeholders. More focused changes to authority and guidance, and to program management and performance monitoring, would then follow from the strategy.

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[143] Note that the concept of "Veteran-centered care" implies that providers actively engage with the Veteran in decision-making about individual options for treatment.

Ultimately, without a basic strategy for purchased care, questions about what authorities the Secretary should have become much harder to answer, and future purchased care reforms are more likely to be fragmented, incremental, and less focused in their effects.

Address Cost Control More Directly and Systematically

Cost control is one of the implicit design features of VA purchased care authorities. The existing authorities limit the amount of funding for purchased care and set priorities regarding which Veterans receive access (e.g., pursuant to the 40-mile rule under Choice). As discussed in Section 1, any proposal to modify purchased care authorities that focuses only on improving Veterans' access neglects the secondary goal of limiting spending on purchased care, particularly in the context of discretionary funding and annual appropriations for VA health benefits.

The role of the tiered access structure in permitting and gating access to care within a discretionary budget is critical. A pillar of the authorities governing VA purchased care, 38 U.S.C. Section 1710 identifies service-connected and other specific injuries and illnesses for which the department *shall* provide health care services. Section 1710 also indicates that illnesses and injuries not specified in the list of those that VA shall treat will be treated at the discretion of the Secretary, contingent on available resources.

Much of the relevant authority for cost control has been filled in by regulations and programmatic guidance. These regulations and guidance create mechanisms that give significant control and responsibility to personnel in the field charged with making decisions about whether to refer and authorize purchased care on a patient-by-patient basis.[144] This means that cost control in VA purchased care involves local decision-making that indirectly affects resourcing, when policy-makers have been unable or unwilling to make those resourcing decisions more directly.

We recommend that VA and Congress address cost control in purchased care more explicitly and systemically. Specific cost-control steps that might reasonably be implemented could include rigorous performance evaluation and auditing of current purchased care contracts (including PC3 contracts) and more systematic data collection on various costs associated with purchased care programs and administrative activities (e.g., network development, credentialing, training, claims processing). VA should also consider more aggressive deployment of traditional cost-control and cost-sharing mechanisms in health insurance, including co-pays, deductibles, and utilization review. Finally, VA can also address cost control more directly through adopting innovations in bundled payments, value-based contracting, and performance incentives for contractors.

Collect Better Data to Accurately Estimate Demand and Use of Purchased Care

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[144] For example, 38 U.S.C. 1710 says that the Secretary shall furnish hospital care and medical services that he or she "determines to be needed." The determination of "need" presumably involves clinical judgment in any given case, together with an economic judgment about the most appropriate way to meet a clinical need.

VA should systematically collect data on purchased care processes and outcomes. Like TRICARE, VA needs to establish demand for purchased care and then design its outside provider networks to meet that need. The structure and success of purchased care is contingent on understanding the demand for care and shifts in demand for care over time. For example, Veterans who spend their winters in Phoenix, Arizona, reportedly increase demand for services in that area by a multiplier of eight to 10 during the winter.[145] Given the legacy approach to purchased care that is in place, VA should use direct care to meet demand while reserving purchased care to address treatment areas where there are gaps in capacity to meet demand.

VA lacks systematic data on purchased care arranged at the local facility level. VA patient experience surveys collect Veterans' assessments of their access to care, but that information lacks specificity. Furthermore, the surveys are collected too infrequently and response rates are too low to meaningfully inform purchased care planning and implementation. Previous assessments by the National Academy of Public Administration and GAO align with our conclusion that more systematic data collection should be embedded in purchased care processes, and both VA and its contractors should be able to analyze these data as needed to plan for and operate the purchased care program cost-effectively. A strong base of data, would allow VA to regularly monitor purchased care outcomes (e.g., improved access, quality, coordination, cost) and make targeted adjustments to policies and processes as needed.

Develop a Stronger Management Structure for Purchased Care and Allocate Responsibility and Authority to the Most Appropriate Levels

There is a need for improved program management of VA purchased care activities. Furthermore, program management for purchased care should allocate responsibility and authority for purchasing care to the most appropriate level within VA's administrative hierarchy. For example, referrals should be managed locally, while large contracts (such as PC3 and Choice) should be managed centrally. The role of senior leadership (and of VA) should be to clearly articulate the expected outcomes of the purchased care programs and enterprise. Senior leadership should also establish performance measures to determine whether those outcomes have been accomplished. The leadership can use these metrics to ensure that the purchased care provided to Veterans is both high-quality and cost-efficient. Moreover, senior leadership should issue clear policies and procedures for the field to follow and audit field performance at the facility level, drawing on both headquarters-level performance data reviews and site visits by program experts. Finally, there should be sanctions for noncompliance with approved policies and procedures.

A stronger program management structure should also facilitate appropriate flexibility in the field and at the local level. VA health care operations are far too complex and geographically varied to support a one-size-fits-all approach to purchased care. Better program management would help ensure that leadership is aware of and has input on local deviations from system-wide standards. If a significant deviation from approved policies is required, VA leadership should approve it beforehand. At the local level, VAMCs should offer better guidance on their

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[145] According to a stakeholder interview.

SOPs, provide training on purchased care options and program implementation, and collect data on purchased care activities. Local program management should have a strong enough presence and priority to assist key decision-makers (like chiefs of staff) in addressing problems as they arise. Central program management should facilitate local administration and offer guidance as appropriate.

Evaluate the Third-Party Contractors Administering the PC3 and Choice Programs

As the PC3 and Choice programs continue to grow, VA should implement a process for evaluating the performance of the TPAs administering these programs. Performance evaluation should be based on a series of explicit criteria, including network strength, process efficiency, and Veterans' experiences. To assess network strength, VA should consider whether the TPAs have built provider networks to adequately address the needs of Veterans living in the regions covered by the TPA, including whether Veterans have a choice of providers and whether network providers are able to provide timely access to care. VA should also assess the efficiency and accuracy of claims processing, the timeliness and ease of referral processes, and other key outcomes related to technical performance. Finally, it should examine Veterans' experiences with accessing care through these programs. Evaluation of the TPAs should be routine and ongoing, implemented as part of a process of continuous quality improvement.

Develop Clear and Consistent Guidance and Training on VA's Authority to Purchase Care

While VA has a range of legacy manuals and directives on health care operation and procedures, the organization does not have a current, comprehensive manual that offers clear guidance on purchased care authorities and SOPs. Existing VA guidance on purchased care is scattered, outdated in parts, and inconsistent in setting clear standards for local VA officials to follow. Our research indicates that, as a consequence, local VAMCs have struggled with ambiguity when developing their own policies and procedures for purchased care.

VA should create a consolidated manual on purchased care, together with associated training and messaging that explains VA's authority to purchase care and clarifies eligibility and administrative processes for Veterans, VA staff, TPAs, and other stakeholders. Figure 8-1 shows how VA could translate statutes and regulations to internal and external audiences, clarify guidance, and improve processes and coordination.

Figure 8-1. VA's Approach to Informing Internal and External Stakeholders About Authorities
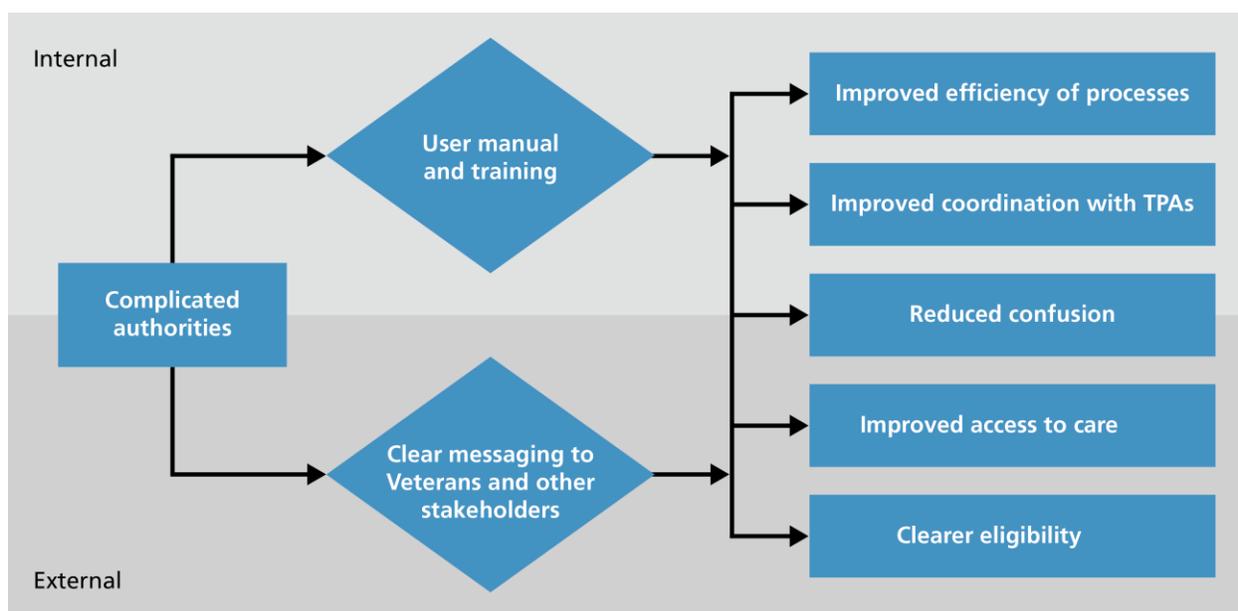
In the midst of ongoing shifts in purchased care and a barrage of messaging to Veterans and other stakeholders about the Choice program, enhanced coordination and communication will be pivotal to the success of purchased care programs. The combination of improved internal processes and external messaging will be critical to reducing confusion, clarifying roles and responsibilities, and, ultimately, improving performance of VA staff members, VA providers, private providers, and TPAs.

Ensure That Purchased Care Contracts Include Requirements for Data Sharing, Quality Monitoring, and Care Coordination

To provide better oversight and ensure the quality of care for Veterans receiving health care in the community, VA should incorporate into its contracts with non-VA providers and TPAs requirements for data sharing, routine quality-of-care reporting, and collaborative coordination of care. VA is a leader in quality-of-care measurement and improvement, yet it has limited visibility into the quality of care provided to Veterans through purchased care programs. Oversight entities have examined the quality of outside care provided to Veterans, but VA does not have sufficient internal data collection mechanisms to track the performance of purchased care administration and inform necessary adjustments. In developing contracts with non-VA providers and TPAs, VA should require routine reporting of quality measures to ensure that the quality of care that Veterans receive through non-VA providers matches the quality of care offered by VA. Such contracts should also make explicit how non-VA providers will communicate and coordinate with VA counterparts.

Consider Adopting Innovative (but Tested) Ways to Purchase Care

TRICARE and Medicare offer some lessons for efficiently purchasing care that VA could adopt regardless of whether policy-makers decide to expand its purchased care footprint or simply improve its current purchased care programs. Specifically, TRICARE and Medicare outsource

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many of their administrative functions, such as claims processing and fraud tracking, often providing performance incentives to outside contractors. VA should consider incorporating the same approach into its current purchased care programs as well, particularly if policy-makers decide to expand the scope and size of VA purchased care.

Eliminate Inconsistencies in Current Authorities and Provide Flexibility for VA to Implement a Purchased Care Strategy

A key theme of this report is that the appropriate authority structure for purchased care depends, in part, on policy-makers' objectives for what purchased care should accomplish. That is, Congress and VA must first decide on a strategy for purchased care and then implement specific policy changes to carry out that strategy. Regardless of the specific direction of any new VA strategy for purchased care, Congress and VA can still eliminate inconsistencies in current authorities, which can improve care for Veterans. Aside from pursuing specific policy goals, these authorities should be clear, harmonious, and coherent.

We found several points of tension and confusion within existing authorities (for example, inconsistencies in VA standards for episodes of care, the subjective nature of some elements of 38 U.S.C. 1703, differences in definitions of geographic inaccessibility and wait times, and conflict between the language and intent of what constitutes a "medical facility" for applying the 40-mile rule under Choice). Beyond resolving these sorts of conflicts within the authorities, VA and Congress should also ensure that purchased care authorities are not so prescriptive that they restrict VA's ability to innovate, adopt new best practices, and surge to meet emerging needs.

VA already has basic authorities and mechanisms for purchasing care, but they are overly complex. The authorities are a relic of the evolution of purchased care over many years, and the mechanisms are not constructed or coordinated in a way that is easily navigated by Veterans, VA staff, TPAs, or other stakeholders. There are also many different rules about eligibility, reporting requirements, reimbursement rates, and authorization.

Beyond eliminating specific inconsistencies in purchased care authorities, a more ambitious step toward reducing confusion and ambiguity could involve consolidating and harmonizing VA's purchased care authorities, potentially by bringing together related programs under a single operating umbrella. Any such approach to consolidation would certainly involve significant political and practical challenges for Congress and VA, particularly in deciding how to harmonize existing authorities, and how much revision to do in the process of consolidating them. As discussed in Section 6, different versions of consolidation could look very different from one other, depending on exactly how Congress and VA choose to approach such a move. Regardless, policy-makers should at least consider the merits of simplifying the existing structure of authorities and programs through this kind of consolidation effort.

Revise How Episodes of Care Are Defined to Better Accommodate Veterans' Needs

Under Section 101(h) of the Veterans Choice Act, the Secretary is obligated to allow Veterans who use the Choice program to seek outside services through the completion of an episode of care, "but for a period not in excess of 60 days." This narrow authority constraint on the Choice program forces the reauthorization of an episode after a defined period of time. In practice, this

requirement may run contrary to evolving clinical practices and standards for episodes of care in the broader health care sector. It seems likely that the intent of Section 101(h) was to impose a basic resourcing gate on services purchased thereunder and to give VA both the authority and the responsibility to periodically review the Choice program's use of outside services to ensure that it is appropriate. In health care practice elsewhere, however, the term *episode of care* is much more flexible, accommodating clinical situations with either very short episodes (for example, the treatment of a minor, acute condition) or very long episodes (for example, the treatment of a chronic illness).

The episode of care construct is important clinically and administratively in helping to coordinate related services for an underlying medical problem. Outside the VA context, new standards for episodes, built around specific clinical conditions, have been focal points for emerging innovations in payment practice for purchased care. The 60-day requirement under Section 101(h) of the Veterans Choice Act (and regulations interpreting that section) is less than optimal for monitoring and coordinating care or for purchasing outside services in a manner that meaningfully corresponds to an episode. For policy-makers, our recommendation is to revise the current authority on episodes under the Act, to support VA monitoring of episodes of care in a more flexible and nuanced way in the future.

Adopt a Consistent Strategy for Reimbursement Rates Across Purchased Care Initiatives

This report reviewed some basic challenges to establishing reimbursement rates for VA purchased care. For example, the establishment of TPA provider networks has reportedly been hampered in some regions because providers are reluctant to accept Medicare (or sub-Medicare) rates for their services. In these regions, some specialty providers may be able to make more money by accepting patients with private insurance over Veteran patients. By extension, when VA reimbursement rates become unattractive to outside providers, purchased care may become a less effective way to address shortfalls in internal capacity.

Another challenge in purchased care involves the potential for intra-VA competition between different purchasing mechanisms. The competition is driven by the fact that VA pays various reimbursement rates to providers (as shown in Table 8-1). Notably, providers who otherwise meet eligibility requirements might choose among several different contracting arrangements, including (1) joining a TPA network under PC3, (2) joining a TPA network under Choice, or (3) avoiding joining a network and instead accepting VA patients on a case-by-case basis through individual agreements with local VAMCs or the Choice TPAs. Each of these options has the potential to generate a different reimbursement rate for outside providers. Holding other factors equal, higher reimbursement rates would presumably be more attractive for outside providers to pursue. VA should avoid influencing outside provider behavior as a result of the multiplicity of its purchasing channels and mechanisms.

Table 8-1. Provider Reimbursement Rates, by Purchased Care Mechanism

Feature	ARCH	PC3	Traditional VA Purchased Care	Choice
Typical Reimbursement rate	% of or full Medicare rate	% of Medicare rate	VA fee schedule, Medicare rate, or contracted rate	% of Medicare rate

To address these types of reimbursement problems, we recommend that VA and policy-makers adopt a coherent strategy for reimbursement across VA purchased care initiatives, balancing considerations of cost against those of ensuring access. The strategy should be clear in its application, with the determination of purchasing mechanism based first on ensuring access to services by Veterans and with the appropriate reimbursement rate then following. VA can and should secure lower rates where outside providers are highly competitive in a given local market. But in an uncompetitive local market, the rates need to be sufficient to ensure access to needed services. VA mechanisms and contracts for purchasing care should reflect this reality in the setting of outside reimbursement rates.

Establishing a more effective strategy for reimbursement rates may require revisions to current VA authorities. As we explained in Section 3, current VA purchased care laws tend to set upper bounds on provider reimbursement rates while establishing no floor.[146] However, in the context of a local market in which the pool of outside providers is very limited, such ceilings may actually be counterproductive and could undercut VA's ability to obtain needed services through purchased care.

Revisions to VA policy guidance will likely be equally important in adopting a more coherent approach to reimbursement rates. As discussed in Section 4, for some VA staff, simply determining which program or mechanism to use for purchasing care for a given Veteran— while considering the various options in the appropriate order—involves considerable complexity and ambiguity. To ensure better decisions about when and how to purchase care, we suggest revisions to VA policy, training, messaging, and oversight to bring the overall strategy on reimbursement rates into congruence and to reconcile alternative mechanisms for providers to seek appropriately competitive reimbursement.

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[146] Under Section 101(d)(2)(B) of the Veterans Choice Act, for example, provider reimbursement rates generally cannot be higher than the Medicare fee schedule rates (except for care for Veterans residing in counties with population densities of less than seven persons per square mile). In the context of outpatient services under Section 1703 purchased care, for example, reimbursements can be based on the terms of any existing contract or agreement between the provider and VA. If no such contract or agreement exists, it would be the lower of the Medicare rate, the rate available through repricing (in which contractors offer VA discounted health care through a network of providers), or the amount the provider bills the general public for similar services.

8.4 Conclusions

Providing direct services for Veterans at VA facilities is a long-standing pillar of the VA health care system. At the center of this direct-care model is the nation's dual recognition that Veterans have unique health care needs and that VA should ensure that Veterans have timely access to high-quality care. While the nation's commitment to serving Veterans' unique health care needs is unwavering, the means to achieve this goal are shifting. As such, utilization of purchased care has increased significantly in recent years to supplement VA's capacity, given the increase in demand for care.[147]

Symptomatic of the widening gap between supply and demand for VA health care, the waitlists and the access issues at Phoenix and other medical centers signified a confluence of problems with VA health care. Per the Veterans Choice Act assessment mandate, we investigated the following research questions regarding VA purchased care:

1. What authorities and mechanisms does VA have to purchase care?

2. Does VA have the appropriate authorities and mechanisms to purchase care?

3. Should VA have the authority to purchase care through the completion of episodes of care??

We found that VA has a range of authorities to purchase care, but they are overly complicated. The authorities are complex and they reflect various interests regarding the purpose, utilization, oversight, and limits of purchased care. Such interests include cost control, balancing direct and outsourced care, and ensuring surge capacity to meet emerging care needs. While VA has the authorities to purchase care, policy makers must eliminate inconsistencies in the statutory and regulatory framework to reduce confusion and increase consistency of purchased care implementation. For instance, changes should be made to reduce inconsistencies in VA standards for episodes of care, the subjective nature of some elements of 38 U.S.C. 1703, differences in definitions of geographic inaccessibility and wait times, and conflict between the language and intent of what constitutes a "medical facility" for applying the 40-mile rule under Choice.

While we found that changes are needed to reconcile the inconsistencies in authorities, we also found that the issues with purchased care mechanisms pose even greater challenges for stakeholders. Through ad hoc addition of pilots and programs, purchased care mechanisms have grown evolutionarily, and as a result, navigating the multitude of options for outsourcing care is difficult for Veterans, VA staff, private providers, and TPAs. VA purchased care lacks the appropriate vision, strategy, and management structure to guide implementation. To improve management of purchased care, VA needs to develop clear and consistent guidance on SOPs and regularly communicate with stakeholders about the purpose of purchased care and it rules and requirements. In addition, VA should address cost controls more directly, through rigorous performance evaluation and auditing of contracts, systematic data collection on costs, more

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[147] Assessment A's report discusses how demand for VA services has been steadily increasing, despite a decline in the overall Veteran population.

aggressive deployment by VA of traditional cost-control like co-pays and deductibles, and adoption of innovations in bundled payments, value-based contracting, and performance incentives for contractors. Furthermore, to better assess purchase care processes and outcomes, VA must collect better data on processes and evaluate TPA performance in implementing PC3 and Choice contracts.

Beyond changes to purchased care management, VA should modify authorities and mechanisms to position the Department to adopt best practices and make strategic decisions about outsourcing care in the long-term both at the local and enterprise level. Per the second research question posed, we assert that VA should have the authority to purchase care through the completion of episodes of care. However, the Department needs to revise the how episodes of care are defined to better accommodate Veterans' needs. Under the Veterans Choice Act, VA must allow Veterans who use the Choice program to seek outside services through the completion of an episode of care, "but for a period not in excess of 60 days." The legal requirement for a fixed-term reauthorization of an episode runs contrary to evolving clinical practice and standards in the broader health care sector. A revision of this authority would improve monitoring of episodes of care and reduce the administrative burden on VA staff and Veterans.

8.5 Looking Toward the Future

VA not only operates one of the largest health care systems in the world (VA, 2015a), but it is also widely renowned for the quality of its work in many areas of care, research, and development. For example, VA is a world leader in research and development in prosthetics-related care (VA, Office of Research and Development , 2015), and it excels in the care and treatment of spinal cord injuries, geriatric conditions, polytrauma, traumatic brain injury, and posttraumatic stress disorder (McDonald, 2014a). In addition, VA consistently receives high marks on customer satisfaction (VHA, 2012; U.S. Department of Veterans Affairs, Office of Public and Intergovernmental Affairs, 2014), and it continues to hone its capabilities in health IT, physical infrastructure, and other areas. VA's excellence in providing quality care to Veterans in a culturally sensitive manner has been widely touted, and Veterans and stakeholders recognize the value of the VA system. According to VA Secretary Robert McDonald,

> In the past nine months, I've learned that there is no substitute for VA. Veterans need VA, and Americans everywhere benefit from VA—from VA research contributing to major breakthroughs in medical science (three Nobel Prizes, seven Lasker Awards, the implantable cardiac pacemaker, the first successful liver transplants, and the nicotine patch to help smokers quit); from VA training of doctors, nurses, and other medical professionals, including 70 percent of America's physicians; and from VA's highly specialized expertise in delivering clinical and rehabilitative services to wounded warriors. (McDonald, 2015)

The VA system has built a reputation for the strengths of its size, progress, and innovation, which are backed by decades of experience and success in serving Veterans. While Veterans and other key stakeholders widely acknowledge the success of many facets of the VA enterprise, they also recognize that the Department faces significant organizational challenges and that, in some important respects, the operations and identity of the VA system are still

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evolving. Furthermore, in the case of purchased care, related operations within the VA system have evolved faster than the patchwork of authorities and mechanisms that support them.

Improving the authorities and mechanisms for purchased care offers an enormous opportunity for VA. Synchronizing legal guidelines and supporting structures in support of a well-articulated objective and coherent strategy could empower the organization in the future in more effectively growing its provider network, improving its administration and processes, and fostering creative solutions for communicating and coordinating with private providers at both the federal and local levels.

The recommendations in this report aim to facilitate VA's adoption of best practices in purchased care, drawing on the collective experience of the wider health care community. Outside advancements in administrative functions, payment structures, performance management, standardization, and managed utilization can offer VA a blueprint for long-term gains in organizational efficiency and effectiveness. Defining and implementing improved standards for episodes of care is another way to improve internal processes and leverage VA's connections with the private health care community. Adopting some combination of these recommendations could help lift VA to new levels of organizational performance and, ultimately, improve the health and the lives of Veterans.

Appendix A   Growth in Purchased Care Utilization Rates and Authorizations

About 10 percent of VA's entire health care budget goes to purchased care. Pursuant to a request from RAND, VHA's Chief Business Office estimated that the total tab in FY 2014 for purchased care was $5.6 billion, after steady and significant increases year after year (Figure A-1; VA, 2014c). Other VA sources have provided different estimates of purchased care expenditures during this time frame, with Deputy VA Secretary Sloan Gibson testifying before the Senate Veterans' Affairs Committee on May 12, 2015, that VA had spent more than $8.5 billion on community care in FY 2014 (Exploring the Implementation and Future of the Veterans Choice Program, 2015). The difference in these estimates is likely because Deputy Secretary Gibson included Civilian Health and Medical Program of Veterans Affairs costs in his totals. Using another metric of purchased care utilization, Deputy Secretary Gibson noted that Veterans completed 55.04 million appointments at VA facilities and 16.2 million appointments in the community in FY 2014 (Exploring the Implementation and Future of the Veterans Choice Program, 2015).

Figure A-1. Growth in VA Purchased Care, FYs 2002–2014
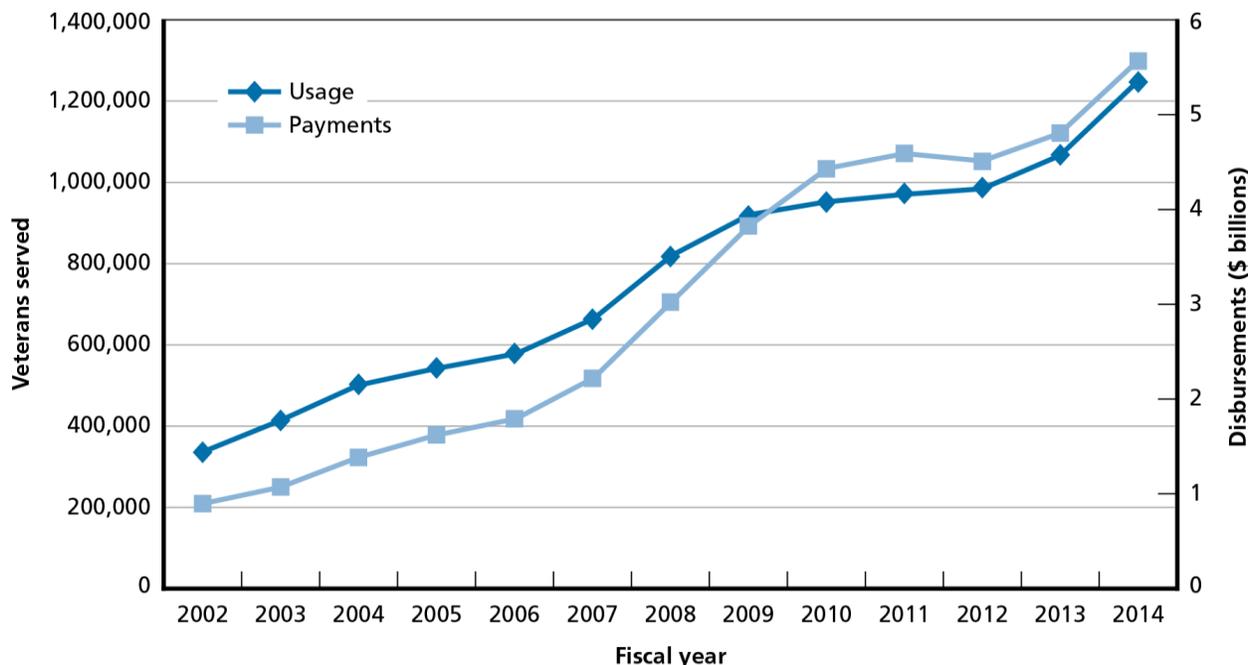
SOURCE: Data obtained through a request to the VHA Chief Business Office, May 12, 2015, and originally derived from VA Central Office fee payment files.

The use of purchased care spiked in the wake of the Phoenix scandal and during implementation of the Choice Program. VHA has used purchased care to meet surge demands and reduce backlogs. As shown in Figure A-2, from FY 2013 to FY 2014, the rate of purchased care utilization by VHA enrollees increased from 12 to 14 percent. As the figure shows, purchased care was already increasing.

Figure A-2. Purchased Care Utilization by VHA Enrollees, FYs 2002–2014
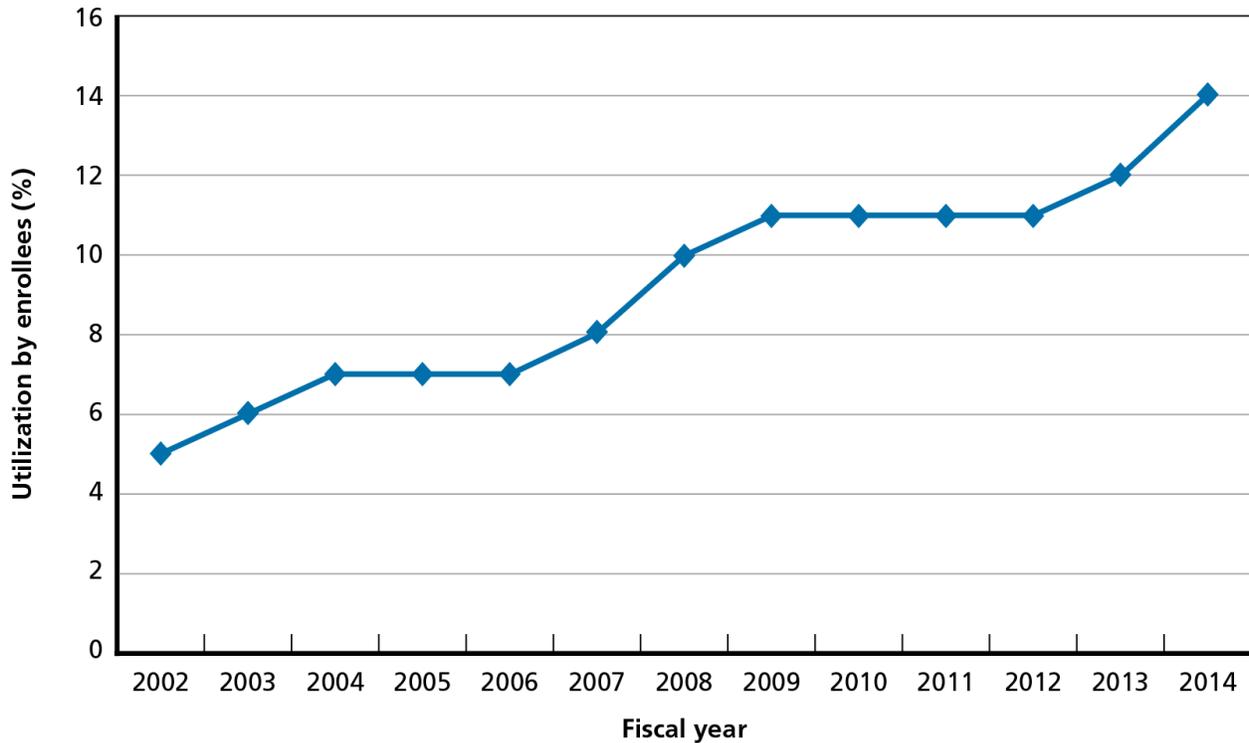
As Table A-1 indicates, more than half of all expenditures for purchased care from FY 2008 through FY 2012 were for nonemergency inpatient and outpatient care.

Table A-1. VA Spending and Utilization, by Purchased Care Category, FYs 2008–2012

External Service	Type of Care	% of All VA Purchased Care Expenditures
Broad-based	Preauthorized inpatient	22.7
	Preauthorized outpatient, medical	36.3
	Preauthorized outpatient, dental	1.8
	Emergency care for Veterans with service-connected conditions	4.5
	Emergency care for Veterans for non–service-connected conditions	8.8
Specialized	Home health	13.3
	Community nursing home	12.3
	Compensation and pension exams	0.3
SOURCE: GAO (2013a, p. 38, Table 2).		

We also obtained VA purchased care utilization data for 24 individual VAMCs through our request for documents. The data showed interesting variations in the use of purchased care across distinct.[148] Although we collected data on only a subsection of the VAMCs across the United States, our analysis shows that some VAMCs are much more likely than others to employ VA purchased care mechanisms. For instance, while all VAMCs seemed to be in line with the national trend of increasing utilization of purchased care mechanisms over time, it appears that—among the 24 sites included in this segment of our analysis—utilization was highest in VAMC B, VAMC I, VAMC R, VAMC V, VAMC W, and VAMC X. Of those, VAMC W's utilization was particularly high, almost double that of the other high-utilization sites shown in Figure A-3.

Figure A-3. Purchased Care Utilization Across VAMC Sites, FYs 2012–2015
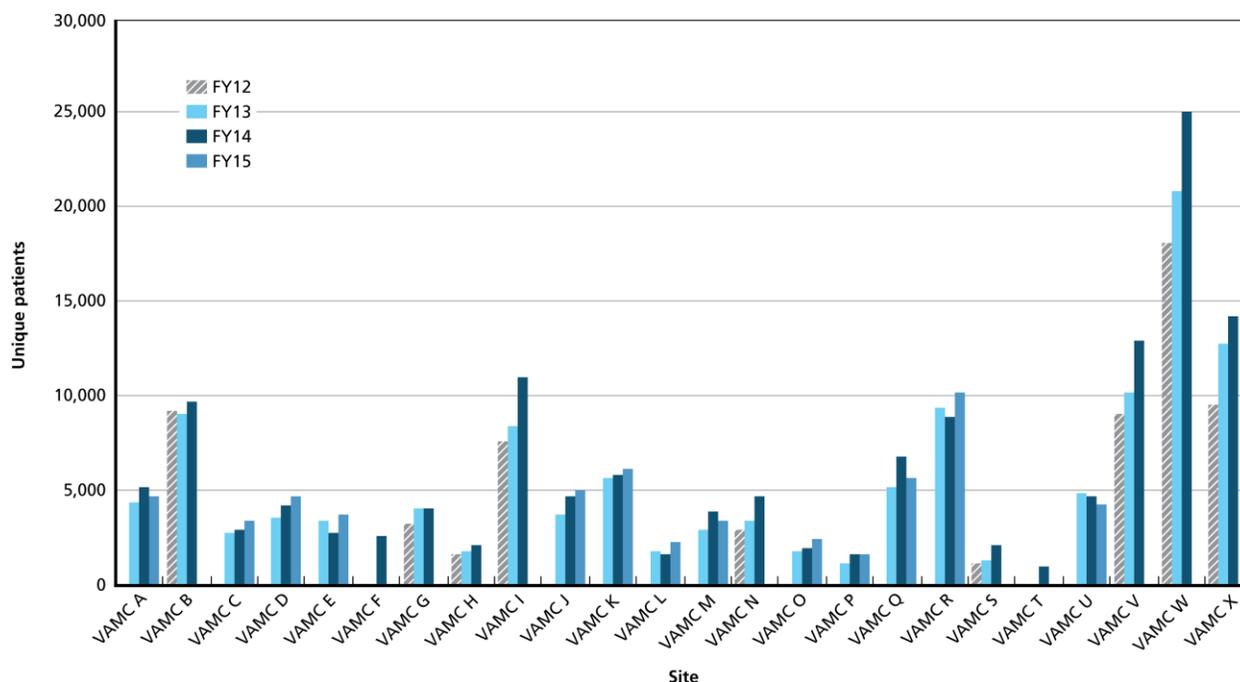
Additionally, we obtained VA purchased care authorization data for a different set of VAMC sites. The data showed both authorizations for all VA purchased care and those specifically for PC3 from FY 2013 through FY 2014. Again, as shown in Figure A-4, the data correspond with the

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[148] We obtained VA purchased care cost and authorization data (total and PC3) from detailed VAMC site visit documents. Months in which fiscal years started and stopped varied by VAMC. We did not have access to numerical data on FY 2013 total authorizations and all costs for all VAMCs, so some of this information had to be imputed from bar graphs. We used the software program WebPlotDigitizer to compare the height of labeled y-axis ticks to the heights of bar graph columns and to impute the value of those columns. To check the robustness of the data imputed with WebPlotDigitizer, we matched FY 2014 imputed authorization values with real authorization values for sites that provided both a graph and the true value (both were available in site visit documents). In the case of one VAMC, for instance, the imputed number of FY 2014 authorizations was 40,945, whereas the real number was 40,679, showing a relatively minimal difference of 266, or a 0.65-percent deviation from the real value.

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trends highlighted in Figure A-3, indicating overall increases in purchased care disbursements over time. However, there is also significant variation in such authorizations across VAMCs, even though the sites included in Figure A-4 are different from those included in Figure A-3.

Figure A-4. Total Purchased Care Authorizations and PC3 Authorizations Across Specific VAMC Sites, FYs 2013–2014
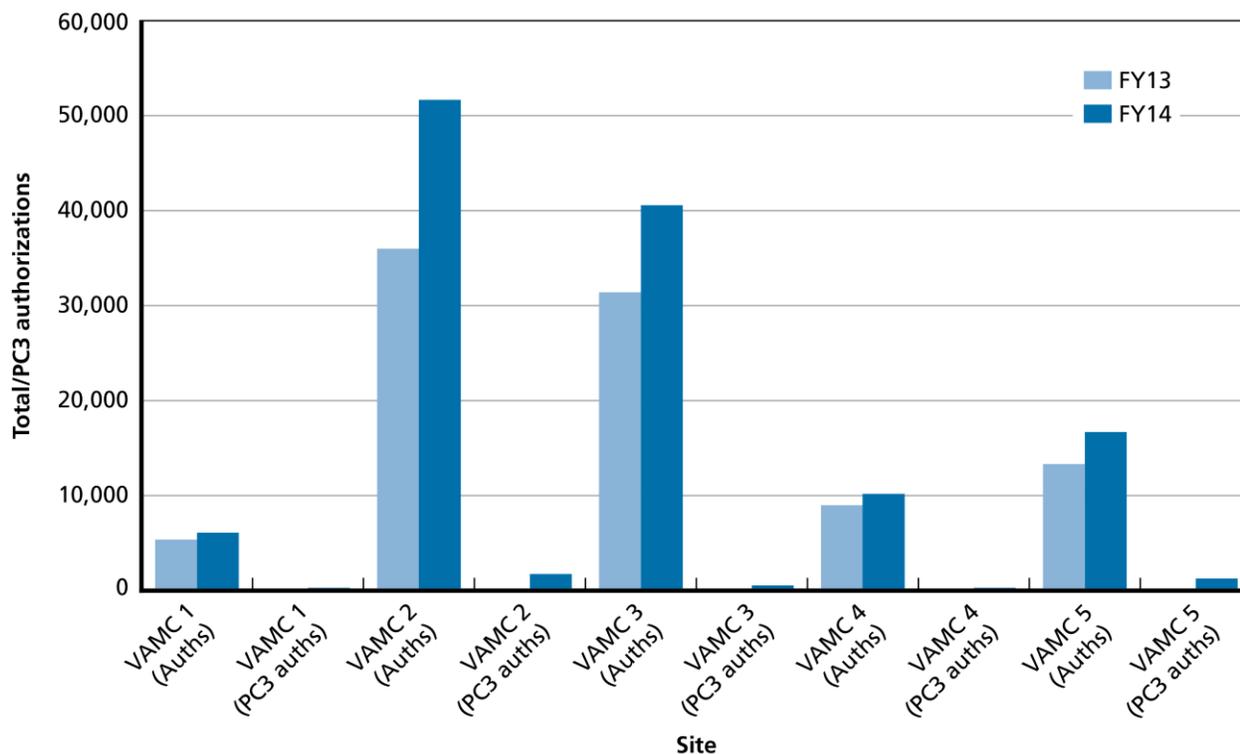
While we were unable to clearly discern the reason for such variation in VA purchased care utilization and authorizations, one cause may be that funding allotments for VA purchased care differed by VISN during this time frame. The Veterans Choice Act mandated that responsibility for funds for purchased care be centralized in VHA's Chief Business Office beginning in the October–November 2014 time frame, but prior to this centralization, each VISN managed its own purchased care budget. Many VISN directors with whom we spoke indicated that they based their planning for their VISNs' use of purchased care on their budget for such care each year.

Variations in the permissiveness and tone of purchased care SOPs across the VAMCs provide us with another working hypothesis to explain this variation in utilization, though such local-level policies may have ultimately been shaped by the knowledge of overarching budgetary constraints in a given region. As noted above, the RAND team coded all SOPs received through the data call with regard to their apparent focus/tone pertaining to utilizing internal VA care if at all possible, as opposed to being permissive regarding utilization of VA purchased care. The results were strikingly varied, with 70 SOPs containing language focused on keeping Veterans within the VA system and utilizing purchased care only as a temporary, last-resort option. Meanwhile, 102 SOPs were much more permissive in tone regarding the utilization of

purchased care; while they still tended to note that such care should serve as only a temporary solution, they were set up to facilitate the ease of use of the purchased care mechanism(s) in question. The remaining SOPs were deemed to be too neutral in tone to code either way. Nonetheless, the variation in tone across VAMCs regarding how permissive to be when authorizing purchased care services provides one possible explanation for the variance in actual utilization of VA purchased care mechanisms across sites.

The facility survey data also provide an interesting perspective on the frequency with which purchased care options are exercised. The survey asked respondents, "How frequently do you refer Veterans to fee-basis or contracted care?" It also directed respondents to use their best judgment to answer this question, specifying that they were not required to pull data from their administrative parent records to respond. Responses varied substantially, as shown in Figure A-5, with similar fractions of respondents (25–30 percent each) indicating that they referred Veterans to fee-basis or contracted care 2–4 percent of the time, 5–10 percent of the time, and over 10 percent of the time. Sixteen percent of respondents indicated that they refer Veterans to fee-basis or contracted care 1 percent or less of the time.

Figure A-5. Frequency with Which VA Facilities Refer Veterans to Fee-Basis or Contracted Care
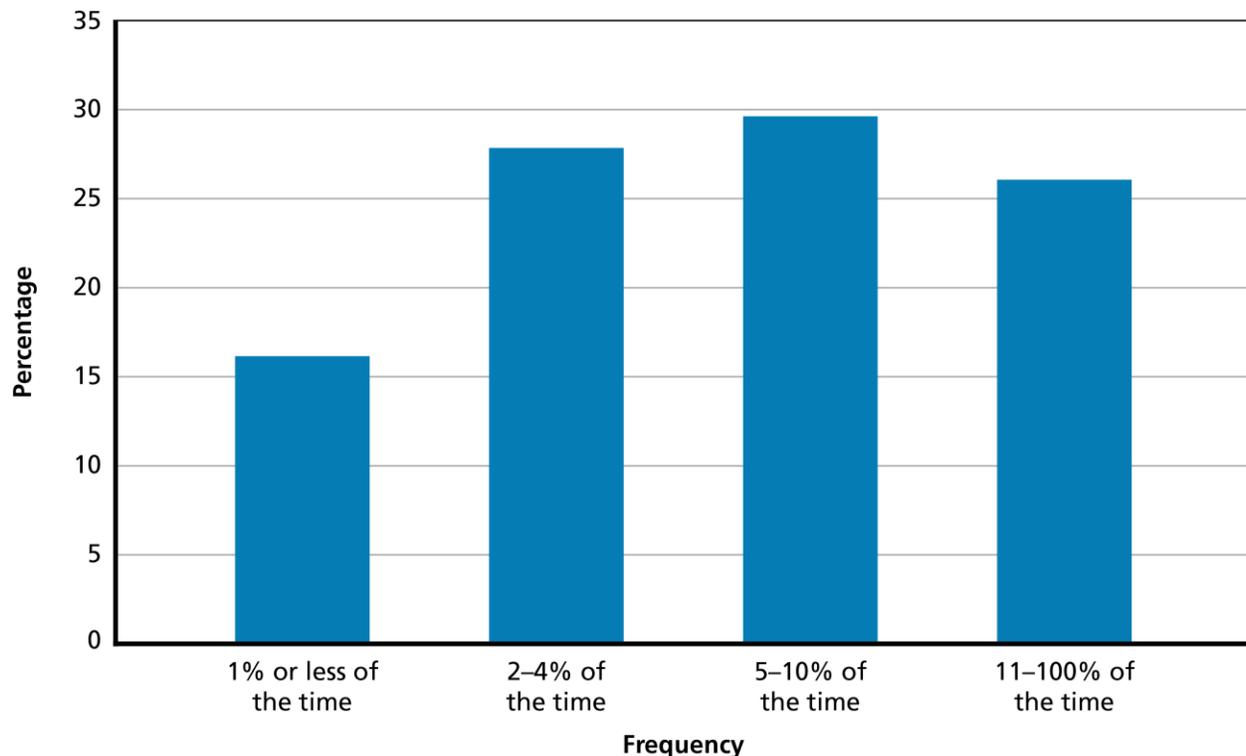
The views, opinions, and/or findings contained in this report are those of RAND Corporation and should not be construed as an official government position, policy, or decision.

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Appendix B   Statutory and Regulatory Authorities for the Provision of Purchased Care to Veterans

Title 38 of the U.S. Code (Veterans' Benefits), enacted law that has not been codified, and Title 38 of the Code of Federal Regulations (Pensions, Bonuses, and Veterans' Relief), contain the existing law and regulations that create, govern, and regulate VA. These collections of law and regulation are the core repositories of the formal authorities granted by Congress to VA, and the product of VA's rulemaking authority to implement congressional direction. Below, we outline the relevant provisions relating to the use of non-VA provided health care for Veterans. This listing is meant as a reference and a roadmap of the law and regulation. Following this roadmap, we provide a lengthier discussion of how the law and policy play out in practice in the non-VA health care programs used by the Department.

B.1   Statutory Provisions Relating to Purchased Care

Title 38 of the U.S. Code contains enactments by Congress that create and establish the legal groundwork for VA and enumerate some of the benefits for which Veterans are eligible. These provisions outline several programs for Veterans, including compensation, pensions, insurance, housing, and burial benefits. Health care benefits are addressed in Chapter 17 of the U.S. Code. Chapter 17, "Hospital, Nursing Home, Domiciliary, and Medical Care," authorizes the Secretary to provide hospital care and medical services to Veterans. It details the hospital care and medical services to which Veterans are entitled, who is eligible for such care and services, and how the Secretary is to administer such care and services. Beyond Title 38, a small number of U.S. Code sections in Titles 10, 25, 26, 31, 41, and 42 directly or indirectly address issues related to purchased care.

In addition, Congress has enacted many bills that have never been formally codified, often because the nature of the legislation is temporary, such as would be true for an appropriations act addressing a single fiscal year. The Veterans Choice Act is an example of enacted law that was never codified because of its temporary status, though it does appear as a statutory note to 38 U.S.C. 1701.

The U.S. Code sections and enacted legislation that has never been codified that are most relevant to purchased care are summarized in Table B.1.

The primary sections that pertain to the department's ability to work with non-VA providers are Section 1703 and Section 1710. Section 1703 reads, in pertinent part,

> When Department facilities are not capable of furnishing economical hospital care or medical services because of geographical inaccessibility or are not capable of furnishing the care or services required, the Secretary, as authorized in section 1710 of this title, may contract with non-Department facilities in order to furnish any of the following. . . .

The statute then list the types of care available under contracting arrangements, including hospital care, medical services for disability treatments, medical emergencies, hospital care for female Veterans, diagnostic services, and outpatient dental services.

Table B-1. Statutory Provisions Relevant to Purchased Care

Citation	Description
10 U.S.C. 1074	"Medical and Dental Care for Members and Certain Former Members"; core authorizing statute for TRICARE, a health benefit plan for active-duty and retired military personnel and their dependents.
10 U.S.C.1097b	"TRICARE program: Financial Management"; allows reimbursement of providers at rates higher than authorized under certain conditions.
25 U.S.C. 1645	"Sharing Arrangements with Federal Agencies"; authorizes the IHS to enter into arrangements for sharing medical facilities and services with tribal governments, DoD, and VA.
26 U.S.C. 3101–3102	"Rate of Tax"-"Deduction of Tax Through Wages"; authorization for payroll taxes to be paid by both employers and employees for Medicare insurance.
31 U.S.C. 3901–3907	*Prompt Payment Act*; imposes time limits for paying proper invoices submitted to the federal government, along with interest and statutory penalties for delay under certain conditions.
38 U.S.C. 1151	"Benefits for Persons Disabled by Treatment or Vocational Rehabilitation"; treats compensation available to Veterans disabled as part of medical treatment or rehabilitation in the same way as if the disability was service-connected.
38 U.S.C. 1701	"Definitions"; core terms specified and defined.
38 U.S.C. 1703	"Contracts for Hospital Care and Medical Services in Non-Department Facilities"; authorizes the VA Secretary to contract with non-VA facilities to furnish inpatient and outpatient treatment and qualifying non-emergent and emergent care when VA facilities are not capable of furnishing economical hospital care or medical services because of geographical inaccessibility or are not capable of furnishing the care or services required.
38 U.S.C. 1705	"Management of Health Care: Patient Enrollment System"; describes VA's patient enrollment and priority system. Under Section 1705, no care can be provided if the Veteran is not enrolled (with the exception of disabled Veterans in a 12-month period after discharge from service).
38 U.S.C. 1706	"Management of Health Care: Other Requirements"; states that the VA Secretary shall, to the extent feasible, design, establish, and manage health care programs in such a manner as to promote cost-effective delivery of health care services in the most clinically appropriate setting.

Citation	Description
38 U.S.C. 1710	"Eligibility for Hospital, Nursing Home, and Domiciliary Care"; authorizes the VA Secretary to maintain an eligibility and ranking system for Veterans receiving hospital care and medical services. In addition, Section 1710(f) authorizes the Secretary to set copayment amounts and collect copayments.
38 U.S.C. 1710A	"Required Nursing Home Care"; authorizes the VA Secretary to provide nursing care to eligible Veterans.
38 U.S.C. 1710B	"Extended Care Services"; authorizes the VA Secretary to contract with community-based facilities to provide extended care services to eligible Veterans.
38 U.S.C. 1712	"Dental Care; Drugs and Medicines for Certain Disabled Veterans; Vaccines"; authorizes the VA Secretary to provide purchased care dental services to Veterans, subject to the requirements of Section 1703.
38 U.S.C. 1712A	"Eligibility for Readjustment Counseling and Related Mental Health Services"; notes that in furnishing counseling and related mental health services under subsections (a) and (b) of this section, the VA Secretary has the same authority to enter into contracts with private facilities that is available to the Secretary under sections 1703 (a)(2) and 1710 (a)(1)(B). This section is relevant to recently discharged Veterans.
38 U.S.C. 1716	"Hospital Care by Other Agencies of the United States"; authorizes the VA Secretary to reimburse the Departments of Health and Human Services (Public Health Service), Army, Navy, Air Force, or Interior for hospital care "when so specified in an appropriation or other Act."
38 U.S.C. 1717	"Home Health Services; Invalid Lifts and Other Devices"; authorizes the VA Secretary to furnish home health services to eligible Veterans.
38 U.S.C. 1718	"Therapeutic and Rehabilitative Activities"; authorizes the VA Secretary to enter into contracts for therapeutic and rehabilitative services for Veterans who suffer from a chronic illness and whose care is primarily home-based.
38 U.S.C. 1720	"Transfers for Nursing Home Care; Adult Day Health Care"; authorizes VA to transfer Veterans and service members to non-VA nursing homes under certain conditions.
38 U.S.C. 1720D	"Counseling and Treatment for Sexual Trauma"; authorizes the VA Secretary to enter into contracts with qualified mental health professionals for counseling and treatment for sexual trauma.

Citation	Description
38 U.S.C. 1720G	"Assistance and Support Services for Caregivers"; authorizes the VA Secretary to establish programs to provide instruction, training, and support to in-home caregivers.
38 U.S.C. 1722A	"Copayment for Medications"; sets rules and rates for medication.
38 U.S.C. 1724	"Hospital Care, Medical Services, and Nursing Home Care Abroad"; authorizes the VA Secretary to provide hospital care and medical services outside the United States under certain circumstances.
38 U.S.C. 1725	"Reimbursement for Emergency Treatment"; authorizes the VA Secretary to provide reimbursement to a Veteran directly or to the health care provider for emergency treatment under specified circumstances.
38 U.S.C. 1728	"Reimbursement of Certain Medical Expenses"; authorizes the VA Secretary to reimburse a Veteran for emergency treatment under specified circumstances.
38 U.S.C. 1741	"Criteria for Payment"; authorizes the VA Secretary to contribute to the per diem costs incurred by Veterans residing in state-run nursing homes or receiving domiciliary care or adult day health care from such facilities.
38 U.S.C. 1803	"Health Care"; requires the VA Secretary to provide health care to a child of a Vietnam War Veteran who is suffering from spina bifida.
38 U.S.C. 1813	"Health Care"; requires the VA Secretary to provide health care to a child of a Vietnam War Veteran who is suffering from certain birth defects.
38 U.S.C. 1821	"Benefits for Children of Certain Korea Service Veterans Born with Spina Bifida"; authorizes the VA Secretary to provide health care to a child of a Korea War Veteran who is suffering from spina bifida under certain circumstances.
38 U.S.C. 7302	"Functions of Veterans Health Administration: Health-Care Personnel Education and Training Programs"; mission statement for VHA with regard to assuring the adequacy of the nation's supply of health professionals.
38 U.S.C. 7409	"Contracts for Scarce Medical Specialist Services"; authorizes the VA Secretary to enter into contracts with certain persons and institutions for the provision of scarce medical specialist services.
38 U.S.C. 8111	"Sharing of Department of Veterans Affairs and Department of Defense Health Care Resources"; requires the VA and DoD secretaries to enter into agreements for coordinating, using, and exchanging each department's respective health care resources.

Citation	Description
38 U.S.C. 8153	"Sharing of Health-Care Resources"; authorizes the Secretary to enter into contracts or other agreements for the mutual use, or exchange of use, of health care resources between VA and any provider.
41 U.S.C. 1903	"Special Emergency Procurement Authority"; authorizes federal agencies to use simplified acquisition procedures under certain conditions.
41 U.S.C. 253	"Competition Requirements"; requires the use of full and open competition for federal procurement except under certain circumstances.
42 U.S.C. 1395 – 1395b-10, Parts A – E	"Health Insurance for Aged and Disabled"; the statutory basis for Medicare.
Pub. L. 84-569, 70 Stat. 250 (1956)	*Dependents Medical Care Act of 1955*; DoD's first purchased care program.
Pub. L. 85-56, 71 Stat. 83 (1957)	*Veterans' Benefits Act of 1957*; Sec. 501 et seq. provides the foundation for modern VA health benefit provision, including the use of non-VA providers and facilities.
Pub. L. 93-82, 87 Stat. 183 (1973)	*Veterans Health Care Expansion Act of 1973*; Section 106 provides the current basis for reimbursement of emergency medical care from non-VA medical resources.
Pub. L. 99–272, 100 Stat. 108 (1986)	*Consolidated Omnibus Budget Reconciliation Act of 1985*; Sec. 19012 ("Technical Revision of Authority to Contract for Hospital Care and Medical Services") sets forth much of what is now 38 U.S.C 1703; Sec. 19011 ("Eligibility for Health Care of Veterans with Non–Service-Connected Disabilities") provides an early definition of "episode of care."
Pub. L. 104-262, 110 Stat. 3179 (1996)	*Veterans' Health Care Eligibility Reform Act of 1996*; expanded the services VA could offer Veterans, required VA to establish priority categories and operate a patient enrollment system, and enhanced VA's sharing authority.
Pub. L. 106-117, 113 Stat. 1563 (1999)	*Veterans Millennium Health Care and Benefits Act*; Sec. 111 expanded reimbursement for non-VA emergency treatment to non–service-connected medical issues under certain circumstances.
Pub. L. 108-183, 117 Stat. 2661 (2003)	*Veterans Benefits Act of 2003*; Sec. 308 allows sole-source contracts under certain conditions.

Citation	Description
Pub. L. 109-114, 119 Stat. 2380 (2005)	*Military Quality of Life and Veterans Affairs Appropriations Act, 2006*; relevant to purchased care due to the publication of House Report 109-305 (2005) during its deliberation, which laid the foundation for Project HERO.
Pub. L. 110-387, 122 Stat. 4110 (2008)	*Veterans' Mental Health and Other Care Improvements Act of 2008*; Sec. 402 expanded reimbursement for non-VA emergency care; Sec. 403 required the Secretary to conduct a pilot program to facilitate the use of non-VA providers by highly rural Veterans (later referred to Project ARCH).
Pub. L. 111-137, 123 Stat. 3495 (2010)	*To amend title 38, United States Code, to expand veteran eligibility for reimbursement by the Secretary of Veterans Affairs for emergency treatment furnished in a non-Department facility, and for other purposes*; allowed reimbursement of emergency care for non–service connected issues even if a Veteran could receive partial payment from third-party source.
Pub. L. 111-163, 124 Stat. 1174 (2010)	*Caregivers and Veterans Omnibus Health Services Act of 2010*; Sec. 303 authorized the VA Secretary to conduct demonstration projects to test alternative approaches for expanding care to Veterans in rural areas; Sec. 308 modified the eligibility requirements for Project ARCH; Sec. 510 required the Secretary to establish a pilot program in which VA would contract with private dental insurance carriers.
Pub. L. 113-146, 128 Stat. 1754 (2014)	*Veterans Access, Choice, and Accountability Act of 2014*; Sec. 101 created the Veterans Choice Program; Secs. 102 and 103 expanded opportunities for collaboration with the IHS and Native Hawaiian health care systems; Sec. 104 extended the operational life of Project ARCH and addressed scheduling matters; Sec. 105 addressed prompt payment issues; Sec. 106 transferred local authority for purchased care to the VHA Chief Business Office.
Pub. L. 113-175, 128 Stat. 1901 (2014)	*Department of Veterans Affairs Expiring Authorities Act of 2014*; Sec. 409 made a number of technical amendments in regards to contracting to the Veterans Choice Act and the Veterans' Mental Health and Other Care Improvements Act of 2008 (Project ARCH).
Pub. L. 113-235, 128 Stat. 2130 (2014)	*Consolidated and Further Continuing Appropriations Act, 2015*; Sec. 242 created exceptions to the standard rules for provider reimbursement under the Veterans Choice Act that include care or services furnished in Alaska or in states with an all-payer model agreement in place.

Citation	Description
Pub. L. 114-19, 129 Stat. 215 (2015)	*Construction Authorization and Choice Improvement Act*; Sec. 3 amended the Veteran Choice Act to (1) change the basis for measuring distance between a Veteran's residence and VA medical facilities from straight line to driving distance, and (2) redefine "unusual or excessive burden."

Secon 1710, which is referenced in Section 1703, is a broader provision that directs the Secretary to provide hospital, nursing home, and domiciliary care. The conditions under which such care can be provided are related to a host of factors, including service-connected disabilities, receipt of disability compensation, prisoner-of-war status, and financial hardship.

Taken together, Congress has rather explicitly granted the Secretary the authority to contract with non-VA health care providers. The conditions under which this authority can be exercised are those situations when Department facilities are not capable of furnishing economical hospital care or medical services because of geographical inaccessibility or are not capable of furnishing the care or services required. Beyond this broad authority to contract for care, there are more specialized authorities for contracting for certain types of care (such as counseling for sexual trauma in Section 1720D and for therapeutic and rehabilitative services in Section 1718).

In short, even before the Veterans Choice Act legislation strengthened and expanded VA purchased care, the Secretary had the authority to engage non-VA practitioners to provide health care to Veterans. Section 3 provides detailed descriptions of the programs VA has used to provide purchased care. From an authorities perspective, Congress has given very clear language authorizing VA to contract for care at non-VA facilities. Decisions about contracting have been delegated to the Secretary and, as discussed in the next section, the Department has responded to the statutory language by developing regulation to implement Chapter 17's authorizations.

B.2 Regulatory Provisions Relating to Purchased Care

The statutes found in the U.S. Code as well as non-codified enacted legislation do not explain in great detail what procedures are to be followed to carry out their provisions for the care of Veterans. Regulations such as Title 38 of the Code of Federal Regulations are the product of the rulemaking process for implementing congressional authorizations. Title 38 of the Code of Federal Regulations (C.F.R.) explains how the provisions of Title 38 U.S.C. as well as non-codified enacted legislation are to be carried out. Whereas Congress creates the statutory foundation, VA creates the provisions of 38 C.F.R. These regulations constitute, then, a first look at how VA intends to implement the purchased care program.

Title 38 of the C.F.R. is entitled "Pensions, Bonuses, and Veterans' Relief" and it is divided into two chapters. Chapter 1 relates to the Department of Veterans Affairs and Chapter 2 relates to the Armed Forces Retirement Home. Chapter 1, Part 17 ("Medical") is the important part for our purposes. Some other regulations scattered throughout the C.F.R., such as those in Titles 5, 32, and 48, are also of interest. Table B-2 lists the regulations that are most relevant to purchased care.

Table B-2. Regulatory Provisions Relevant to Purchased Care

Citation	Description
5 C.F.R. 1315.1–1315.20	"Prompt Payment"; covers payments by executive branch agencies to vendors and contractors.
32 C.F.R. 199.17	"TRICARE Program"; establishes TRICARE, defines its purpose, sets forth the statutory authority for the program, and describes its features.
38 C.F.R. 17.30	"Definitions"; core terms specified and defined for VA medical regulations.
38 C.F.R. 17.36–17.40	"Enrollment Provisions and Medical Benefits Package." These sections detail how to enroll in the VA system, who is eligible to enroll, and what services are included in the "medical benefits package" available to enrolled Veterans. Sec. 17.38 states that the "medical benefits package" includes "emergency care in VA facilities; and emergency care in non-VA facilities in accordance with sharing contracts or if authorized by sections 17.52(a)(3), 17.53, 17.54, 17.120–132."
38 C.F.R. 17.41 and 17.42	"Examinations and Observations and Examinations." These sections detail categories of persons eligible for hospitalization for observation and physical examination.
38 C.F.R. 17.43–17.49	"Hospital, Domiciliary, and Nursing Home Care"; details who is eligible for such care. Sec. 17.46 provides authority to admit a Veteran to a hospital on a contract basis if authorized by 38 U.S.C. 1703 and 38 C.F.R. 17.52.
38 C.F.R. 17.50 and 17.51	"Use of Department of Defense, Public Health Service, or Other Federal Hospitals." Sec. 17.50 states that hospital facilities operated by any agency of the U.S. government may be used for the care of VA patients pursuant to agreements between VA and the department or agency operating the facility. Sec. 17.51 states that hospital care in facilities operated by any agency of the U.S. government may be authorized during an emergency.

Citation	Description
38 C.F.R. 17.52–17.56	"Use of Public and Private Hospitals." Sec. 17.52 states that "when VA facilities or other government facilities are not capable of furnishing economical hospital care or medical services because of geographic inaccessibility or are not capable of furnishing care or services required, VA may contract with non-VA facilities." Sec. 17.53 states that admission of any Veteran to a private or public hospital at VA expense will be authorized only when VA health care facilities are not feasibly available. Sec. 17.54 states that "[t]he admission of a veteran to a non-Department of Veterans Affairs hospital at Department of Veterans Affairs expense must be authorized in advance." Sections 17.55 and 17.56 detail procedures for payment of public or private hospital care.
38 C.F.R. 17.57–17.60	"Use of Community Nursing Home Care Facilities." Sec. 17.57 authorizes nursing home care in a contract public or private nursing home facility under conditions detailed in the section. Sec. 17.60 authorizes the extension of nursing care in a public or private nursing home care facility at VA expense beyond six months under conditions detailed in the section.
38 C.F.R. 17.80–17.83	"Use of Services of Other Federal Agencies"; provides detail on the requirements and procedures for contracts for outpatient services.
38 C.F.R. 17.85	"Research-Related Injuries"; states that "if a research subject needs treatment in a medical emergency for a condition covered by this section, VA medical facility directors shall provide reasonable reimbursement for the emergency treatment in a non-VA facility."

Citation	Description
38 C.F.R. 17.92–17.98	"Outpatient Services." Sec. 17.93 states that "[i]f the needed medical services are not available at a VA facility or Department of Defense facility, the VA shall arrange for care on a fee basis, but only if the veteran is eligible to receive medical services in non-VA facilities under § 17.52." Sec. 17.96 states that "[a]ny prescription, which is not part of authorized Department of Veterans Affairs hospital or outpatient care, for drugs and medicines ordered by a private or non-Department of Veterans Affairs doctor of medicine or doctor of osteopathy duly licensed to practice in the jurisdiction where the prescription is written, shall be filled by a Department of Veterans Affairs pharmacy or a non-VA pharmacy in a state home under contract with VA for filling prescriptions for patients in state homes," subject to conditions detailed in the section.
38 C.F.R. 17.108–17.111	"Copayments." Sec. 17.111 sets forth requirements regarding copayments for extended care services provided to Veterans by VA (either directly by VA or paid for by VA).
38 C.F.R. 17.120–17.132	"Payment and Reimbursement of the Expenses of Medical Services Not Previously Authorized"; describes rules for reimbursing emergency medical services from non-VA providers.
38 C.F.R. 17.140–17.142	"Delegations of Authority." Sec. 17.142 states that the Under Secretary for Health is delegated authority to enter into sharing agreements, contracts for scarce medical specialist services, and contracts for other medical services.
38 C.F.R. 17.160–17.169	"Dental Services"; describes eligibility for dental care provided by VA, as well as the rules surrounding the dental insurance program.

Citation	Description
38 C.F.R. 17.230–17.242	"Sharing of Medical Facilities, Equipment, and Information." Sec. 17.230 states that "[d]uring a period in which the Secretary is authorized to furnish care and services to members of the Armed Forces under paragraph (a) of this section, the Secretary may authorize VA facilities to enter into contracts with private facilities for the provision during such period of hospital care and medical services for certain veterans." Sec. 17.240 states that the Under Secretary for Health may enter into agreements for sharing medical resources with other hospitals, including State or local, public or private hospitals or other medical installations subject to provision in the section.
38 C.F.R. 17.270–17.278	"Civilian Health and Medical Program of Veterans Affairs (CHAMPVA)"; describes program for medical care for survivors and dependents of certain Veterans.
38 C.F.R. 17.400–17.410	"Hospital Care and Medical Services for Camp Lejeune Veterans and Families"; describes eligibility for special program to treat those who may have become ill at a North Carolina Marine Corps facility.
38 C.F.R. 17.700–17.730	"Purpose and Scope"; establishes grant program for transportation alternatives for highly rural Veterans.
38 C.F.R. 17.1000–17.1008	"Payment or Reimbursement for Emergency Services for Non-service-Connected Conditions in Non-VA Facilities"; describes rules for approving payment or reimbursement for emergency medical services.
38 C.F.R. 17.1500–17.1540	"Expanded Access to Non-VA Care through the Veterans Choice Program." Sec. 17.1510 details the eligibility criteria for care through the Veterans Choice Program. Sec. 17.1515 states that a Veteran eligible for the Veterans Choice Program may choose to schedule an appointment with a VA health care provider or select a non-VA provider if that entity or health care provider meets the requirements of Sec. 17.1530. Sec. 17.1530 details the conditions under which an entity or provider is eligible to deliver care under the Veterans Choice program.
38 C.F.R. 60.2	"Definitions"; describes an early VA definition of *episode of care*, albeit in the context of temporary lodging.
48 C.F.R. 801.670-3	"Medical, Dental, and Ancillary Service"; describes rules for acquisition of health care services when the dollar amount is under a specific floor.

Citation	Description
48 C.F.R. 813.307	"Forms"; identifies certain forms that must be used when using simplified acquisition methods.
48 C.F.R. 853.213	"Simplified Acquisition Procedures (SFs 18, 30, 44, 1165, 1449, and OF's 336, 347, and 348)"; identifies certain forms that must be used with simplified acquisition methods.
48 C.F.R. 873.101–873.118	"Simplified Acquisition Procedures for Health-Care Resources"; describes rules that apply to the acquisition of health-care resources consisting of commercial services or the use of medical equipment or space.

Generally, 38 C.F.R. Part 17 tracks the statutory language in 38 U.S.C. and non-codified enacted legislation. The most relevant development of the statutorily authorized non-VA program is located in Section 17.52. That section states that "when VA facilities or other government facilities are not capable of furnishing economical hospital care or medical services because of geographic inaccessibility or are not capable of furnishing care or services required, VA may contract with non-VA facilities." That language mirrors 38 U.S.C. 1703. The regulations expand on that authority in section 17.53 and 17.54 by creating a system allowing admission of any Veteran to a private or public hospital at VA expense only with prior authorization. Sections 17.55 and 17.56 detail the financial and contracting procedures for payment of public or private hospital care.

Both statutory and regulatory authority allow for wide discretion and ample programmatic development at the department level—through programs and policies that operate outside of the federal rulemaking process.

Appendix C   Responses to Request for Local VA Policy Documents and Data

In coordination with MITRE, we issued a request to all 141 VA administrative parents of the VAMCs to share any available guidance or policy documents from the VAMC and VISN levels describing SOPs for conducting purchased care activities at the local or regional level. A total of 664 files were provided to the RAND study team in response to the request.

Figure C-1. Local Purchased Care Policy Documents Received
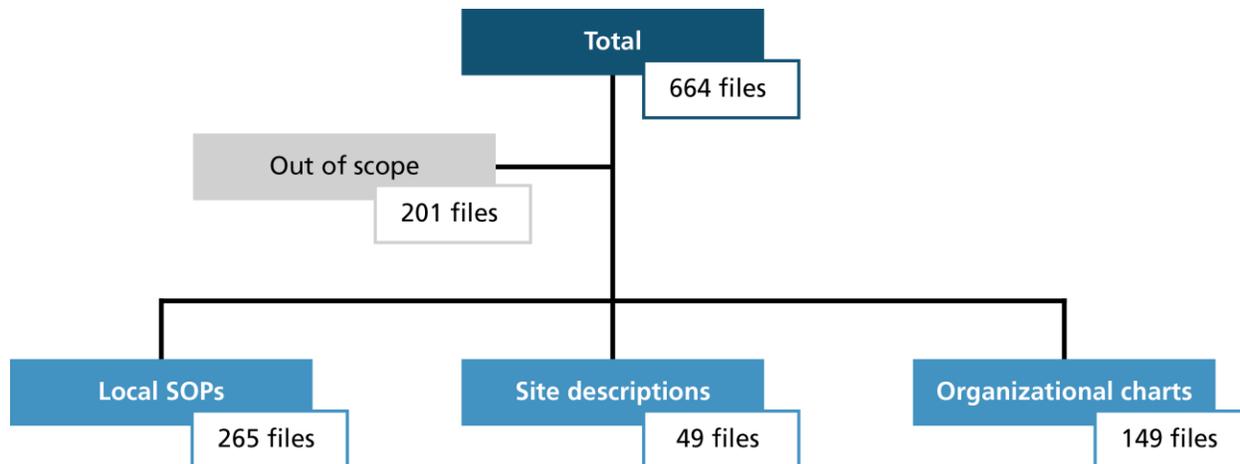
C.1   Response Rate

RAND received responses from 79 separate entities (78 VAMCs and one VISN) containing a total of 265 SOPs, as well as responses from 48 separate entities (47 VAMCs and one VISN) containing a total of 49 detailed VAMC site descriptions, and responses from 109 separate entities (94 VAMCs and 15 VISNs) containing a total of 149 organizational charts. Overall, RAND received an SOP, site description, or organizational chart from 140 of 162 total entities (125 of 141 VAMC administrative parents and 15 of 21 VISNs) to which the request was sent, resulting in an overall response rate of 86.4 percent. The response rate for SOP documents was 48.8 percent. The response rate for site descriptions was 29.6 percent, and the response rate for organizational charts was 67.3 percent (see Figure C-2).

Figure C-2. Response Rates for Local Purchased Care Policy Documents

Total — 86.4%

Local SOPs — 48.8%

Site descriptions — 29.6%

Organizational charts — 67.3%
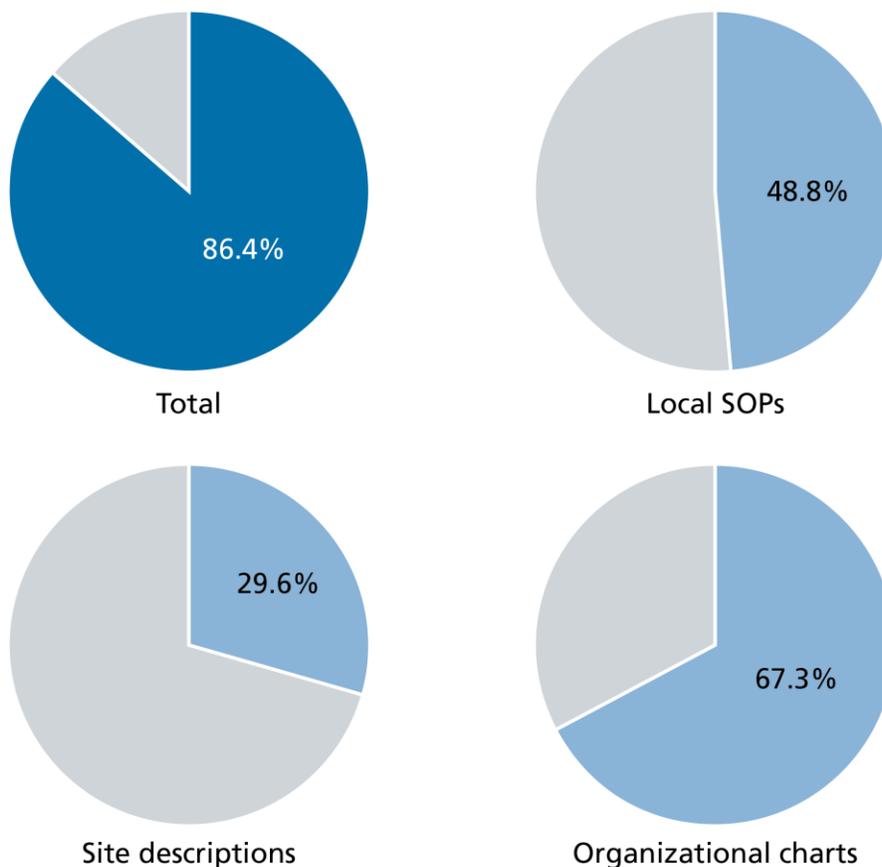
C.2 Dates of Local VA Policies

It is worth noting that 205 of the 664 total documents included a date, and the vast majority of these pre-dated the August 2014 passage of the Veterans Choice Act and the November 2014 establishment of the Veterans Choice Act program. Figure C-3 illustrates the breakdown of dates of the policies received through our request for data, showing that they spanned from January 2008 to April 2015, with the majority having been promulgated in 2012 and 2013. Moreover, the bulk of those documents *post*-dating the establishment of the Veterans Choice Act program were quite short and deemed by the study team as less useful for the purposes of elaborating key policies, processes, and SOPs on VA purchased care. For instance, many of these comprised one-page documents simply containing screen shots of how to enter a purchased care consult request into various computing systems, with little to no accompanying text.

Figure C-3. Distribution of Dates of Local VA Policies Received
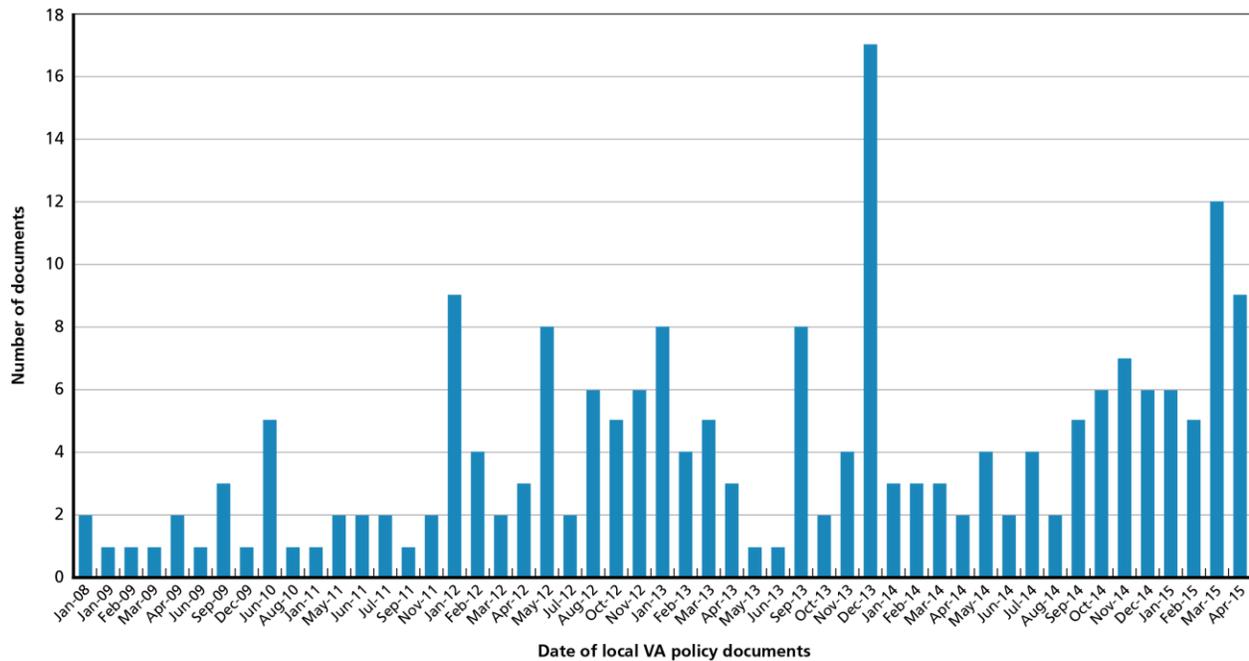
In assessing the documents received through the request for data, we coded all SOPs by the following criteria: date; whether they were useful or not useful for understanding VA purchased care policies and procedures; the number of pages they comprised; the terminology used to refer to VA purchased care; the authorities cited by each; their level of detail; whether they urged VA staff to encourage the use of VA purchased care or, alternatively, staying within the VA system if at all possible; which VA staff were listed as being responsible for various steps in the purchased care referral and authorization processes; and whether and to what extent they discussed "episodes of care."

C.3   Local SOP Document Length

SOPs received through the data request ranged from one to more than 20 pages in length. While most fell at the shorter end of the spectrum, with 150 documents ranging from one to five pages, many other SOPs were longer (see Figure C-4). Fifty-eight documents ranged from five to 10 pages, 19 documents ranged from 10 to 20 pages, and 13 documents contained more than 20 pages. Document length was a fairly good (though not foolproof) indicator of the level of policy detailed contained therein, with 57 SOPs found to be highly detailed, 86 SOPs found to be moderately detailed, and 94 SOPs found to be minimally detailed.

Figure C-4. Page Ranges for SOP Documents Received
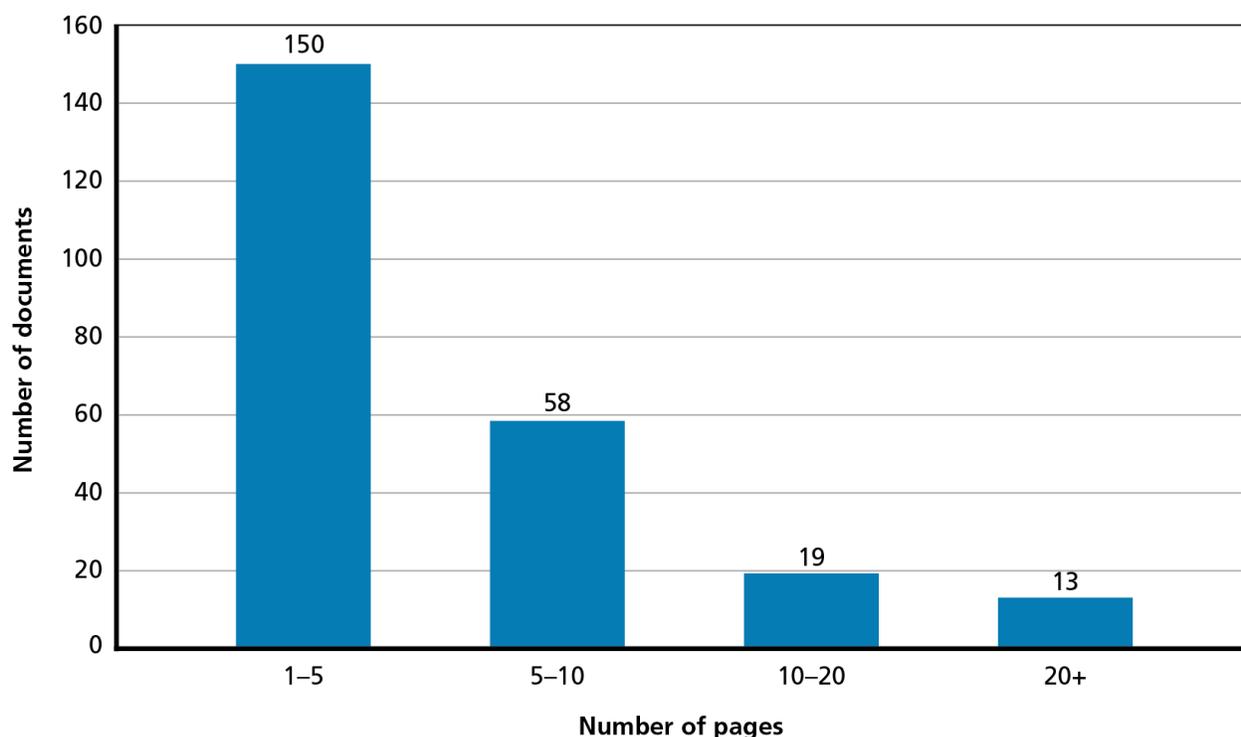
C.4   SOP Terminology

Moreover, there was little consistency in the terminology used to describe VA purchased care across these SOPs: some were specific to particular purchased care mechanisms (such as the Veterans Choice Act program or PC3), while others referred to "non-VA care," "purchased care," "fee basis," "fee authority," "community based services," or "non-VA fee consults." Still others referred to specific services in this context, such as dialysis, home health services, mammograms, and physical therapy. Most SOPs contained a section delineating responsibilities for particular staff members to fulfill in the VA purchased care referral and authorization process, but they varied widely in terms of both the staff positions listed and the responsibilities of each staff member.

C.5   Organizational Chart Analysis

Not only do VA facilities' purchased care policies and procedures vary, but their categorization and placement of VA purchased care within their organizational structure also vary. As noted above, RAND received 253 organizational charts from VAMCs and VISNs across the country as part of the request for data. On these 253 organizational charts, just 12 organizations (one at the VISN level) identified a separate non-VA care function or office. The dates of these 12 charts varied widely, from January 2012 to February 2015. Nine predated the implementation of the Veterans Choice Act in November 2014, and three were dated after its implementation. Offices relevant to VA purchased care at these organizations went by a variety of names:

- Four facilities and one VISN listed a "non-VA care" office.

- One facility listed a "non-VA care coordination/fee" office.
- Two facilities listed a "non-VA care coordination" office.
- One facility listed a "chief dental care/non-VA care" office.
- One facility listed a "fee basis, community care referral team."
- One facility listed an "integrated fee/non-VA care" office.
- One facility listed a "purchased care" office.

To gain a better understanding of where VA purchased care offices were located within the organizations, we recorded the degrees of separation between the office and the VAMC or network director for the 10 charts displaying the VAMC or VISN organizational structures. For example, if the VA purchased care office reported to the associate director who reported to the VAMC director, we counted two degrees of separation. If the office reported to a manager who reported to the associate director, who then reported to the VAMC director, we counted three degrees of separation. On average, we found 2.5 degrees of separation between the facility director and the VA purchased care office across the 12 organizations that listed a separate purchased care function or office on their organizational charts.

In the 12 organizations examined, purchased care offices reported through a variety of management channels. Two offices reported to the VAMC associate director for patient care services, three reported to the VAMC associate director, one reported to the VAMC assistant director of facility support, two reported to the VAMC chief of staff, and one reported to the VISN deputy network director. There appeared to be little standardization in VA purchased care reporting chains within the organizations examined.

Two of the charts showed the organizational structures of the VA purchased care offices. They were not placed in the context of the larger organization, so we were unable to determine the degrees of separation between these offices and the VAMC director. These two examples were very different from one another. A program management officer led the smaller office of the two examples (25 full-time-equivalent staff) and oversaw a clinical care coordination group and an administrative care coordination group. The larger office (52.5 full-time-equivalent staff) had a small business management team and large authorization and case management teams. Although additional examples would be needed to draw definite conclusions, it appears from these two preliminary examples that there is not a standard organizational model for VA purchased care offices or divisions.

C.6   Facilities Responding to Request for Data

Table C-1 characterizes the facilities that responding to our request for policy documents and the types of materials each provided.

Table C-1. Facilities Responding to Request for Data

VISN	Administrative Parent	City	VAMCs	SOPs	Site Descriptions	Org. Charts
1	VA Boston HCSW Roxbury, Brockton Jamaica Plains	West Roxbury	3	x	x	x
1	Togus (Maine) VAMC	Augusta	1	x	x	x
1	Providence VAMC	Providence	1	x		
1	Edith Nourse Rogers Memorial Veterans Hospital	Bedford	1	x		
1	Manchester VAMC	Manchester	1	x	x	x
1	VA Central Massachusetts HCS	Northampton	1	x		
2	Albany Stratton VAMC	Albany	1			x
2	VA Western New York HCS Buffalo, Batavia	Buffalo	2			x
2	Syracuse VAMC	Syracuse	1	x		x
2	Bath VAMC	Bath	1	x		x
2	Canandaigua VAMC	Canandaigua	1	x	x	x
3	VA New Jersey HCS East Orange, Lyons	East Orange	2	x		
3	James J. Peters VAMC	Bronx	1	x		
3	VA NY Harbor HCS Brooklyn, Manhattan	New York Harbor	2	x		
3	Northport VAMC	Northport	1	x	x	x
3	VA Hudson Valley HCS Montrose, Castle Point Wappinger Falls	Montrose	1	x		
4	Altoona - James E. Van Zandt VAMC	Altoona	1	x		
4	Coatesville VAMC	Coatesville	1	x	x	
4	Erie VAMC	Erie	1	x		
4	Lebanon VAMC	Lebanon	1	x		
4	Philadelphia VAMC	Philadelphia	1	x	x	

VISN	Administrative Parent	City	VAMCs	SOPs	Site Descriptions	Org. Charts
4	VA Pittsburgh HCS Heinz, Pittsburgh	Pittsburgh	2	x		x
4	Wilkes-Barre VAMC	Wilkes-Barre	1	x		
4	Clarksburg - Louis A. Johnson VAMC	Clarksburg	1	x		
5	VA Maryland HCS Baltimore, Loch Raven, Perry Pt	Baltimore	3		x	x
5	Martinsburg VAMC	Martinsburg	1	x	x	
6	Asheville VAMC	Asheville	1		x	x
6	Durham VAMC	Durham	1	x	x	x
6	Fayetteville VAMC	Fayetteville	1			x
6	Hunter Holmes McGuire VAMC	Richmond	1			x
6	Salem VAMC	Salem	1			x
6	Beckley VAMC	Beckley	1			x
7	Birmingham, Alabama VAMC	Birmingham	1	x		x
7	Central Alabama Veterans HCS Tuskegee, Montgomery	Montgomery	2		x	
7	Tuscaloosa VAMC	Tuscaloosa	1	x		x
7	Atlanta VAMC	Atlanta	1	x		x
7	Charlie Norwood VAMC	Augusta	1	x		x
7	Carl Vinson VAMC	Dublin	1			x
7	Ralph H. Johnson VAMC	Charleston	1			x
7	Wm. Jennings Bryan Dorn VAMC	Columbia	1	x		x
8	C.W. Bill Young VAMC	Bay Pines	1		x	x
8	Malcom Randall VAMC	Gainesville Lake City	1		x	x
8	Miami VA HCS	Miami	1		x	x
8	Orlando VAMC	Orlando, Viera	1	x	x	x

VISN	Administrative Parent	City	VAMCs	SOPs	Site Descriptions	Org. Charts
8	James A. Haley VAMC, Primary Care Annex	Tampa	2			x
8	West Palm Beach VAMC	West Palm Beach	1	x		x
8	VA Caribbean HCS	San Juan	1	x	x	x
9	Lexington VAMC Cooper, Leestown	Lexington	2	x		
9	Robley Rex VAMC	Louisville	1	x		
9	Tennessee Valley HCS Murfreesboro, Nashville	Nashville	2	x		
10	Chillicothe VAMC	Chillicothe	1	x		x
10	Chalmers P. Wylie ACC	Columbus	1			x
10	Cincinnati VAMC	Cincinnati	1	x	x	x
10	Louis Stokes Cleveland VAMC	Cleveland	1	x		x
10	Dayton VAMC	Dayton	1	x		x
11	VA Illiana HCS	Danville	1			x
11	VA Northern Indiana HCS Marion, Fort Wayne	Marion	2	x		x
11	Richard L. Roudebush VAMC	Indianapolis	1	x	x	x
11	VA Ann Arbor HCS	Ann Arbor	1	x	x	x
11	Battle Creek VAMC	Battle Creek	1	x	x	x
11	John D. Dingell VAMC	Detroit	1	x	x	x
11	Aleda E. Lutz VAMC	Saginaw	1	x		x
12	Jesse Brown VAMC	Chicago	1	x		x
12	Edward Hines Jr. VA Hospital	Hines	1	x		x
12	Captain James A. Lovell Federal Health Care Center	North Chicago	1			x
12	William S. Middleton Memorial Veterans Hospital	Madison	1			x

VISN	Administrative Parent	City	VAMCs	SOPs	Site Descriptions	Org. Charts
12	Oscar G. Johnson VAMC	Iron Mountain	1		x	x
12	Clement J. Zablocki VAMC	Milwaukee	1	x		x
12	Tomah VAMC	Tomah	1	x		
15	VA Eastern Kansas HCS Colmery-O'Neil, Dwight D. Eisenhower	Topeka	2	x		
15	Robert J. Dole VAMC	Wichita	1	x		x
15	Harry S. Truman Memorial	Columbia	1	x		
15	Kansas City VAMC	Kansas City	1	x		x
15	Marion VAMC	Marion	1			x
15	John J. Pershing VAMC	Poplar Bluff	1			x
15	VA St. Louis HCS Jefferson Barracks, John Cochran	St. Louis	2	x	x	x
16	Veterans HCS of the Ozarks	Fayetteville	1	x		x
16	Central Arkansas Veterans HCS Eugene J. Towbin, John L. McClellan Memorial	Little Rock	1	x		x
16	Alexandria VA HCS	Alexandria	1	x		x
16	Southeast Louisiana Veterans HCS	New Orleans	1	x	x	
16	Overton Brooks VAMC	Shreveport	1	x		x
16	Gulf Coast Veterans HCS	Biloxi	1	x	x	x
16	G.V. (Sonny) Montgomery VAMC	Jackson	1	x	x	x
16	Jack C. Montgomery VAMC	Muskogee	1			x
16	Oklahoma City VAMC	Oklahoma	1	x		x
16	Michael E. DeBakey VAMC	Houston	1			x

VISN	Administrative Parent	City	VAMCs	SOPs	Site Descriptions	Org. Charts
17	Dallas VAMC Sam Rayburn Memorial Veterans Center	Dallas	2		x	
17	South Texas Veterans HCS	San Antonio	1		x	x
17	Central Texas Veterans HCS Temple, Marlin, Waco	Temple	3	x	x	x
18	Phoenix VA HCS	Phoenix	1		x	x
18	Northern Arizona VA HCS	Prescott	1			x
18	Southern Arizona VA HCS	Tucson	1			x
18	New Mexico VA HCS	Albuquerque	1		x	x
18	Amarillo VA HCS	Amarillo	1			x
18	West Texas VA HCS	Big Spring	1			x
19	VA Eastern Colorado HCS	Denver	2	x	x	x
19	Grand Junction VAMC	Grand Junction	1			x
19	VA Montana HCS	Fort Harrison	1		x	x
19	VA Salt Lake City HCS	Salt Lake City	1	x	x	x
19	Cheyenne VAMC	Cheyenne	1			x
20	Alaska VA HCS	Anchorage	1	x		
20	Boise VAMC	Boise	1	x	x	x
20	VA Portland HCS	Portland	1	x	x	x
20	VA Roseburg HCS	Roseburg	1	x		x
20	VA Puget Sound HCS Seattle, American Lake	Seattle	3	x		
20	Mann-Grandstaff VAMC	Spokane	1	x		
21	Central California VA HCS	Fresno	1		x	x
21	VA Northern California HCS Martinez, Sacramento	Martinez, East	2		x	x
21	VA Palo Alto HCS	Palo Alto	3		x	x
21	San Francisco VA HCS	San Francisco	1		x	x
21	VA Pacific Islands HCS	Honolulu	1	x		

VISN	Administrative Parent	City	VAMCs	SOPs	Site Descriptions	Org. Charts
21	VA Sierra Nevada HCS	Reno	1		x	x
22	VA Loma Linda HCS	Loma Linda	1			x
22	VA Long Beach HCS	Long Beach	1		x	
22	VA Greater Los Angeles HCS	Los Angeles	1			x
22	VA San Diego HCS	San Diego	1		x	
22	VA Southern Nevada HCS	Las Vegas	1			x
23	VA Nebraska-Western Iowa HCS	Omaha	3	x		
23	VA Central Iowa HCS	Des Moines	1	x		x
23	Iowa City VA HCS	Iowa City	1	x	x	x
23	Minneapolis VA HCS	Minneapolis	1	x	x	x
23	Fargo VA HCS	Fargo	1		x	x
23	VA Black Hills HCS Hot Springs, Fort Meade	Fort Meade	1	x		x
23	Sioux Falls VA HCS	Sioux Falls	1			x
23	St. Cloud VA HCS	St. Cloud	1	x		x
Total VAMCs				78	47	94
Total VISNs				1	1	15
Total				79	48	109
Response rate				48.8%	29.6%	67.3%

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Appendix D Facility Survey Questions and Frequency Response Data

Assessment C included the following seven questions in the chief of staff module of the 2015 Survey of VA Capabilities and Resources, which was sent to the chiefs of staff at all VAMCs in the United States. A description of the methodology for developing the questions can found in Section 2 of this report.

The invitation to participate in the survey was sent via email directly to each administrative parent's chief of staff. The email included instructions, links to the survey modules, and a signed letter from VA's Interim Under Secretary for Health encouraging VA employees to complete the survey. The web-based survey included nine modules. Each chief of staff was responsible for completing the chief of staff module, identifying the most appropriate individual to complete each of the clinical condition modules, and overseeing the completion and return of all survey modules. Of the 141 administrative parents to which the survey was sent, 117 started the survey and submitted a response. However, several respondents chose to discontinue the survey before answering every question, leaving 111 respondents—78 percent of the total sample—answering those questions pertaining to Assessment C.

9. How frequently do you refer Veterans to fee-basis or contracted care?

0 ☐   1% or less of the time

1 ☐   2–4% of the time

2 ☐   5–10% of the time

3 ☐   11–100% of the time

Response	n	%
1% or less of the time	18	16.2%
2–4% of the time	31	27.9%
5–10% of the time	33	29.7%
11–100% of the time	29	26.1%

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10. On a scale from 1 to 4, where 1 is the **most important** reason and 4 is the **least important** reason, please rank which of the following are the most important reasons for referring Veterans to fee-basis care.

Response	N (answering question)	n (%) Ranking Importance as 1	n (%) Ranking Importance as 2	N (%) Ranking Importance as 3
a. Lack of clinical services available at VA facilities	111	86 (77.5%)	14 (12.6%)	11 (9.9%)
b. Veteran travel distance to VA facilities	111	12 (10.8%)	51 (45.9%)	48 (43.2%)
c. Veteran wait times at VA facilities	111	15 (13.5%)	46 (41.4%)	50 (45.0%)
NOTE: Some participants ranked more than one response.				

10D. Are there other important reasons why your local health care system refers Veterans to fee-basis or contracted care?

    1 ☐   Yes -- > Please describe your reason(s) in the comments box.

    2 ☐   No

Response	n	%
Yes	37	33.3%
No	74	66.7%

11. Please mark "yes" or "no" for the following questions.

Question	N (answering question)	Yes n (%)	No n (%)
a. Has your local health care system implemented the Non-VA Care Coordination (NVCC) internal referral management program?	111	106 (95.5%)	5 (4.5%)
b. At your local health care system, are Veteran priority ratings and the service-connection of the injury or illness considered when scheduling appointments?	111	45 (40.5%)	66 (59.5%)
c. Does your local health care system "bump" a Veteran from a scheduled appointment to accommodate the appointment needs of a Veteran of a higher priority group?	111	2 (1.8%)	109 (98.2%)

12. How often does your local health care system do the following things?

Question	N (answering question)	All of the Time n (%)	Most of the Time n (%)	Some of the Time n (%)	None of the Time n (%)
a. Share records with non-VA health care providers in electronic format?	110	5 (4.5%)	10 (9.1%)	43 (39.1%)	52 (47.3%)
b. Collect data about how long Veterans wait for appointments at non-VA health care providers?	111	15 (13.5%)	23 (20.7%)	45 (40.5%)	28 (25.2%)

13A. If you have to refer Veterans out for non-VA care, and the care requires more than one visit, do they need a referral for each visit?

       1 ☐   Separate referral for each visit

       2 ☐   One referral will cover all related visits to this specialist within 60-day time frame

       3 ☐   Other (please describe in the comments section for question 13A).

Response	n	%
Separate referral for each visit	9	8.1
One referral will cover all related visits to this specialist within 60-day time frame	51	45.9
Other	51	45.9

13B. What if the Veteran requires more than one visit to this specialist for his/her broken leg, but the care is anticipated to span a period longer than 60 days (e.g., seven months)? Does he/she need a referral for each visit?

       1 ☐   Separate referral for each visit

       2 ☐   One referral will cover all related visits to this specialist regardless of time frame

       3 ☐   Other (please describe in the comments section for question 13B).

Response	n	%
Separate referral for each visit	23	20.7
One referral will cover all related visits to this specialist regardless of time frame	41	36.9
Other	47	42.3

Appendix E   Veteran Health Benefits and Priority Grouping

E.1   VHA Enrollment and Priority Group Status

Veteran eligibility for health care services has evolved significantly over the years, reflecting changes in the relative capacity of VA health care and demand from Veterans. Over time, Congress has expanded or limited access to VA health care based on the conditions facing VA at that time, imposing various systems for the allocation of health care resources. In the most significant of these, and in an attempt to balance access and efficiency concerns (Panangala, 2006), Congress passed the Veterans' Health Care Eligibility Reform Act of 1996 (P.L. 104-262). This statute expanded the services VA could offer Veterans and required VA to establish priority categories and operate a patient enrollment system to manage access. In response, VA established eight enrollment priority groups based on service-connected disabilities or exposures, prisoner-of-war status, receipt of a Purple Heart or Medal of Honor, and income (see Table E-1). Although all "Veterans," as that term is defined in federal law, are eligible to obtain VA health care services, including a basic medical package, this priority system determined which Veterans could access such services, and also set rules for copayments for services and eligibility for additional health benefits. It is important to note that health benefits are not an "entitlement"; they are dependent on discretionary appropriations. Further, under VA's statutory health care mandates, the Secretary may increase cost sharing or suspend enrollment as needed to balance the agency's budget and serve those Veterans at the top of the priority group list.

Table E-1. VA Priority Groups

Priority Group	Eligibility Requirements
1	▪ Veterans with VA-rated service-connected disabilities 50% or more disabling ▪ Veterans determined by VA to be unemployable due to service-connected conditions
2	▪ Veterans with VA-rated service-connected disabilities 30% or 40% disabling
3	▪ Veterans who are former prisoners of war ▪ Veterans awarded a Purple Heart medal ▪ Veterans whose discharge disability was incurred or aggravated in the line of duty ▪ Veterans with VA-rated service-connected disabilities 10% or 20% disabling ▪ Veterans awarded special eligibility classification under 38 U.S.C. 1151, "benefits for individuals disabled by treatment or vocational rehabilitation" ▪ Veterans awarded the Medal of Honor
4	▪ Veterans who are receiving aid and attendance or housebound benefits from VA ▪ Veterans who have been determined by VA to be catastrophically disabled

Priority Group	Eligibility Requirements
5	Non–service-connected Veterans and noncompensable service-connected Veterans rated 0% disabled by VA with annual income below VA's and geographically (based on resident zip code) adjusted income limits. • Veterans receiving VA pension benefits • Veterans eligible for Medicaid programs
6	• Compensable 0% service-connected Veterans • Veterans exposed to ionizing radiation during atmospheric testing or during the occupation of Hiroshima and Nagasaki • Project 112/SHAD participants • Veterans who served in the Republic of Vietnam between January 9, 1962, and May 7, 1975 • Veterans who served in the Persian Gulf War between August 2, 1990, and November 11, 1998 • Veterans who served on active duty at Camp Lejeune for not fewer than 30 days between January 1, 1957, and December 31, 1987[a] • Veterans who served in a theater of combat operations after November 11, 1998, as follows: Currently enrolled Veterans and new enrollees discharged from active duty on or after January 28, 2003, are eligible for the enhanced benefits for five years post-discharge. • Combat Veterans who were discharged between January 2009 and January 2011 and did not enroll in the VA health care during their five-year period of eligibility have an additional year to enroll and receive care. The additional one-year eligibility period began February 12, 2015, with the signing of the Clay Hunt Suicide Prevention for America Veterans Act.[b]
7	• Veterans with gross household income below the geographically adjusted income limits for their resident location and who agree to pay copays

Priority Group	Eligibility Requirements

8	• Veterans with gross household income above VA and geographically adjusted income limits for their resident location and who agree to pay copays
	 • Veterans eligible for enrollment: Noncompensable 0% service-connected and:
	     o Subpriority a: Enrolled as of January 16, 2003, and who have remained enrolled since that date and/or placed in this subpriority due to changed eligibility status
	     o Subpriority b: Enrolled on or after June 15, 2009 whose income exceeds the current VA or geographic income limits by 10% or less
	 • Non-service-connected and:
	     o Subpriority c: Enrolled as of January 16, 2003, and who have remained enrolled since that date and/or placed in this subpriority due to changed eligibility status
	     o Subpriority d: Enrolled on or after June 15, 2009, whose income exceeds the current VA or geographic income limits by 10% or less
	 • Veterans not eligible for enrollment: Veterans not meeting the criteria above:
	     o Subpriority e: Noncompensable 0% service-connected (eligible for care of their service-connected condition only)
	     o Subpriority g: Non–service-connected

SOURCE: VHA (2015b).

[a] While eligible for priority group 6, until system changes are implemented, the Veteran would be assigned to priority group 7 or 8, depending on income.

[b] At the end of the enhanced enrollment priority group placement time period Veterans will be assigned to the highest-priority group for which their unique eligibility status qualifies at that time.

E.2 VA Health Care Benefits

VA provides a wide array of health care benefits to eligible Veterans. These include inpatient, primary, and specialty care through VA facilities and contractors; supporting services (such as home health care and hospice care); medical device support; medications; and linkages between VA health care services and other VA programs such as educational benefits, support to homeless Veterans, and cemetery benefits. This section summarizes below VA health care benefits and programs, providing basic information about the nature of the benefit, the population served, and the potential cost to Veterans.

E.2.1   Basic Medical Benefits Package

VA provides basic medical care to enrolled Veterans through the VA health care system and contracted care providers.[149] The standard medical benefits package includes the following:

- *Inpatient care* includes medical, surgical, mental health, dialysis, and acute care services.

- *Preventive/primary care* services include but are not limited to periodic exams, immunization, genetic counseling, and health and nutrition education. VA also offers three wellness programs to enrolled Veterans. In addition to clinic-based primary care, VA may provide home-based care for Veterans with complex health care needs. Home-based services are provided by an interdisciplinary treatment team.

- *Gender-specific care* is provided to female Veterans including gynecological care, breast and reproductive oncology, infertility treatment, maternity care, and newborn care for up to seven days if the Veteran delivers in a VA or VA-contracted facility.

- *Mental health and substance abuse care* are provided in inpatient and outpatient settings, and specialized programs are offered such as intensive case management for Veterans with serious mental illness and military sexual trauma counseling for Veterans with trauma resulting from sexual physical assault or battery while in the military.

- *Skilled home health care* is offered to Veterans who need skilled services, case management, assistance with activities of daily living, or instrumental activities of daily living on a short term basis. Services are provided by community-based home health agencies under contract with VA.

- *Hospice care* is provided to Veterans with a terminal condition with six months or less to live and is offered either in the home, community, outpatient, or inpatient setting.

- *Palliative care* does not require that the Veteran have a terminal condition and is offered in the home, community, outpatient, or inpatient setting.

- *Respite care* is for Veterans who need skilled services, case management, and assistance with activities of daily living or instrumental activities of daily living; are isolated; or their caregiver is experiencing burden. Veterans can receive respite care at home or in an inpatient or outpatient setting.

- *Adult day health care* primarily offers an opportunity for recreation and social interaction for Veterans who need skilled services, case management, and assistance with activities of daily living or instrumental activities of daily living; however, health services from nurses, therapists, and social workers may be available. The program may be offered at VA medical centers, State Veterans Homes, or community organizations.

- *Rehabilitation services* are available for blindness in inpatient and outpatient settings, for spinal cord injuries through Spinal Cord Injury Centers located throughout the country, and for amputation through regional and polytrauma/amputation sites. Additionally, residential rehabilitation and treatment services are available for Veterans with multiple

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[149] See, generally, 38 C.F.R. 17.38 for authoritative summary of VA's medical benefits package.

and severe medical conditions, mental illness, addiction, or psychosocial deficits through the combined Domiciliary and Mental Health Residential Rehabilitation and Treatment Programs.

- *Medical equipment and prosthetic items* are provided to Veterans receiving care for any condition.

- *Eyeglasses and hearing aids* are provided under certain circumstances and only to Veterans who are otherwise receiving VA care or services. VA does not provide eyeglasses and hearing aids for "normal" vision or hearing loss.

- *Medications* are provided for prescriptions written by a VA provider and included in the VA National Drug Formulary.

E.2.2   Other Health Care–Related Benefits and Services

In addition to the basic medical package described above, VA offers other health-related programs and services to Veterans and their family members, some of which are available to all Veterans (e.g., peer to peer readjustment counseling) and some of which are based on eligibility criteria (e.g., dental care)

- *CHAMPVA* (Civilian Health and Medical Program of the Department of Veterans Affairs) is a health care benefits program that provides coverage to the spouse or widow(er) and to the dependent children of a qualifying Veteran or service member or the primary caregiver. The program pays for medical care from non-VA providers. Additionally, primary family caregivers of eligible Veterans who have no other health insurance may also receive counseling, training, and mental health services.

- *Dental care*. The eligibility requirements for dental care differ from the medical care requirements. Veterans are categorized into six classes that then determine the scope of treatment available. Dental care may be provided at VA facilities or by non-VA providers. VA is also operating a national pilot program to make private dental insurance available at reduced cost to enrolled Veterans and family members through CHAMPVA.

- *The Children of Women Vietnam Veterans* program under 38 U.S.C. 1813(b) covers external medical expenses from approved providers related to certain birth defects in children born after their mothers began duty in Vietnam. Similarly, the Children of Veterans Born with Spina Bifida program under 38 U.S.C. 1803(b) and 38 U.S.C. 1821(a) covers external medical expenses from approved providers related to spina bifida in the children of parents exposed to herbicides during duty in Vietnam or the Korean demilitarized zone.[150]

- *Peer-to-peer readjustment counseling.* In addition to the mental health care services described above, VA runs a system of approximately 300 "Vet Centers." These are community-based storefront centers that are staffed by Veterans who are part of the

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[150] We include these programs because they are used by VA to purchase or acquire, either directly or indirectly, medical services from non-VA sources, even though the recipients of those services are not Veterans.

Readjustment Counseling Service. VA provides mental health and readjustment care through these centers to all Veterans, regardless of service characterization, priority grouping, or existence of a VA-rated service-connected disability, and does so at no cost to the Veteran. Veterans need not enroll with the VA health care system to access care at Vet Centers, and this care is not considered part of VA's basic medical care package.

- *Veterans Crisis Line.* A confidential toll-free hotline, online chat, or text service is available 24/7 for Veterans, family members, and friends.

- *Travel reimbursement* is available for travel related to obtaining health care services for Veterans in specified circumstances. VA may also pay the cost of overnight travel associated with obtaining health care services.

- *Family caregiver's program.* VA provides mental health services, access to health insurance, and other non–health-related services to caregivers of post-9/11 Veterans and service members who were medically discharged.

E.2.3   Specialized External Services and Specialized Veteran Populations

There are many VA programs that could be characterized as types of purchased care in that they rely on external providers and resources to deliver health care to Veterans. As we can see from the following program descriptions, however, their utility as a means of expanding a wide range of non-VA health care services to Veterans is generally limited:

- **Indian Health Service/Tribal Health Program Reimbursement Agreements Program.** These agreements reimburse IHS and Tribal Health Program health facilities for services provided to American Indian and Alaskan Native Veterans. Authority for the agreements can be found in 38 U.S.C. 8153 (which provides for mutual use or exchange of use of health care resources between VA and external agencies and providers), as well as section 405(c) of the Indian Health Care Improvement Act (requiring reimbursement of IHS, tribes, and tribal organizations for health services to Veterans).[151]

- **Scarce medical specialist services contracts**. Under 38 U.S.C. 7409, VA has the authority to enter into contracts with medical and nursing schools, "clinics," "any other group or individual" for the provision of "scarce medical specialist services." The enabling statute requires that the services be provided "at Department facilities."

- **Services outside of the United States**. Through the Foreign Medical Program under 38 U.S.C. 1724, VA is responsible for reimbursing medical expenses incurred by Veterans with service-connected disabilities (or, in some circumstances, Veterans receiving vocational rehabilitation assistance) who are residing or traveling abroad.

- **Long-term care programs**. VA also has a number of programs to provide long-term care in inpatient and at-home settings using non-VA resources:

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[151] Section 405(c) of the Indian Health Care Improvement Act (2010) was amended by the Affordable Care Act, specifically at 25 U.S.C. 1645(c).

o The State Veterans Home Per Diem Program under 38 U.S.C. 1741 allows VA to contribute to the per diem costs incurred by Veterans residing in state-run nursing homes or receiving domiciliary care or adult day health care from such facilities.

o Community Nursing Homes under 38 U.S.C. 1720 are contracted public or private nursing homes.

o Purchased Home Health Care Services is the umbrella term for two programs under 38 U.S.C. 1710.[152] The first is Skilled Home Health Care Services, which contracts with community-based home health agencies to provide short-term services, such as nursing, physical therapy, and speech pathology, to homebound or remotely located Veterans.[153] The second is the Homemaker and Home Health Aide Services program, which uses contracted public and private health care agencies to provide in-home services and to pay stipends to family members.

- **Other programs**. There are other instances in which VA pays at least some of the cost of health care services provided by non-VA personnel or facilities, though such programs fall outside the scope of the mandate for this assessment:

  o The Home Hospice Care Program uses personnel from community hospice agencies.

  o Veterans who do not meet the limited eligibility standards for VA-supplied dental care can purchase a discounted dental insurance policy, through a national pilot program.

  o Examinations for VA disability compensation or pension benefits can be performed by external health care providers on a fee basis or under contract.

E.2.4 Emergency Services

As discussed in Section 3, services under 38 U.S.C. 1703 are often referred to as "preauthorized care" because the Veteran must receive explicit permission from VA prior to visiting external health care professionals or facilities or risk being personally liable for the costs of services rendered. In a crisis situation, however, obtaining appropriate VA approval prior to arriving at a hospital's emergency department or calling for paramedics may be impractical or put the Veteran's life or health at risk.

The first of two key statutes providing legislative authority for VA payment of external emergency care without prior approval is 38 U.S.C. 1728, under which VA will reimburse a Veteran for the costs of emergency treatment (or pay the provider directly) as long as the event was related to a service-connected disability (either directly or indirectly). Table E-2 describes various aspects of service-connected emergency care.

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[152]Additional descriptions of these programs can be found in VHA Handbook 1140.6 (VHA, 2006).

[153] Skilled Home Health Care Services has also been known as "Purchased Skilled Home Care" and "fee-basis home care."

Table E-2. Key Features of Service-Connected Emergency Care

Feature	Description
Situational eligibility	(1) "Prudent layperson" would have reasonably expected treatment delay to be hazardous; **_and_** (2) VA or federal health care facilities not "feasibly available," **_and_** (3) unreasonable or unwise to attempt to first utilize VA or federal facilities (or prior attempts were refused)
Status eligibility	(1) Emergency treatment is related to a service-connected disability; **_or_** (2) Veteran has total permanent service-connected disability
VA discretion to utilize or pay for non-VA care	VA **_shall_** reimburse Veteran or provider for emergency services rendered, **_but_** only as per VA regulations
Provider qualifications or requirements	None
Veteran input into provider choice	Presumably unlimited
Additional requirements for inpatient treatment	None until point at which emergency ends
Additional requirements for outpatient treatment	None until point at which emergency ends
Payments	"Usual and customary" charges according to statute, but regulations add the following: If *inpatient*, "prospective payment system similar to that used in the Medicare program" If *outpatient*, (1) the amount described on any contract or negotiated agreement, **_or_** (2) if no contract or agreement exists (a) the "Medicare rate", (b) the "repricer" rate, **_or_** (c) amount the provider bills general public

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Feature	Description
Direct payer of provider	VA or Veteran (who is later reimbursed by VA)
Medical record sharing requirements	None
Coverage	National
First year implemented or authorized	1973
Status	Active
Key statutes or laws	38 U.S.C. 1728
Key regulations	38 C.F.R. 17.120–17.121

The other main avenue to reimbursed external emergency care is 38 U.S.C. 1725, which does not require a Veteran to have a service-connected disability (see Table E-3).

Table E-3. Key Features of Non–Service-Connected Emergency Care

Feature	Description
Situational eligibility	(1) "Prudent layperson" would have reasonably expected treatment delay to be hazardous; **_and_** (2) VA or federal health care facilities not "feasibly available," **_and_** (3) unreasonable or unwise to attempt to first utilize VA or federal facilities
Status eligibility	(1) Must be "active" participant in VA health care receiving treatment in prior 24 months; (2) Veteran must not have any other health plans or coverage that could pay for some of the bill; **_and_** (3) Veteran must not have any other collateral sources that could cover the entire bill
VA discretion to utilize or pay for non-VA care	VA **_shall_** reimburse Veteran or provider for emergency services rendered, **_but_** only as per VA regulations
Provider qualifications or requirements	Must be hospital ER or a similar facility held out as providing emergency care
Veteran input into provider choice	Presumably unlimited

Feature	Description
Additional requirements for inpatient treatment	VA suggests that inpatient providers contact VA within 48 hours of admission
Additional requirements for outpatient treatment	None
Payments	"Reasonable value of emergency treatment" (secondary payer if third party collateral source provides some contribution) but VA establishes maximum amount payable by regulation: Lesser of (1) Amount for which the Veteran is personally liable *or* (2) 70 percent of Medicare fee schedule.
Direct payer of provider	VA or Veteran (who is later reimbursed by VA)
Medical record sharing requirements	None
Coverage	National
First year implemented or authorized	1999
Status	Active
Key statutes or laws	38 U.S.C. 1725
Key regulations	38 C.F.R. 17.1000–17.1008

E.3   Cost of Care to Veterans

Veterans enrolled in VA health care do not pay premiums; however, they may be charged copayments based on the type of care provided, whether the condition being treated is service-connected, and the Veteran's enrollment priority group. Copayments are charged for four types of health care services, including inpatient care, outpatient care (except preventive care), outpatient medication, and long-term care services. Only those Veterans in Priority Group 1 are never charged copayments; those with higher incomes (Priority Groups 7 and 8) are billed for copays for all four types of service. Veterans in Priority Groups 2, 3, and 5 may be charged co-pays for outpatient medication, and those in Priority Group 5 have copayments for long-term care services. Assessment B's report details the cost of VA care to Veterans, with data on various types of users, services, and insurance type.

VA is required by federal law to bill a Veteran's private insurance provider for health care services for any non-service connected condition, and it may also bill Medicare supplemental insurance plans.[154] In FYs 2015 and 2016, VA plans to recoup $3.2 billion in private payments for non–service-connected health care. Payments received from private insurers may be used to reduce Veterans' required copayments.

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[154] The Balanced Budget Act of 1997 (P.L. 105-33) required VA to establish the "Medical Care Collections Fund," and to seek reimbursement from Veterans and/or private insurers for non–service-connected health care services. Importantly, this statute also allowed VA to retain these funds instead of returning them to the U.S. Treasury and to roll them over to later fiscal years. See Panangala (2013, p. 10).

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Appendix G   Acronyms

ARCH	Access Received Closer to Home
C.F.R.	Code of Federal Regulations
CHAMPUS	Civilian Health and Medical Program of the Uniformed Services
CHAMPVA	Civilian Health and Medical Program of the Department of Veterans Affairs
DoD	U.S. Department of Defense
FAR	Federal Acquisition Regulation
FQHC	federally qualified health centers
FY	fiscal year
GAO	U.S. Government Accountability Office
IHS	Indian Health Service
HERO	Healthcare Effectiveness Through Resource Optimization
HMO	health maintenance organization
MTF	military treatment facility
NVCC	Non-VA Care Coordination
PC3	Patient-Centered Community Care
PPO	preferred provider organization
TPA	third-party administrator
U.S.C.	U.S. Code
VAMC	VA medical center
VAAR	VA Acquisition Regulation
VISN	Veterans Integrated Service Network
VSO	Veterans Service Organization

Transforming Health Care Scheduling and Access

Getting to Now

Committee on Optimizing Scheduling in Health Care

Gary Kaplan, Marianne Hamilton Lopez, and J. Michael McGinnis,
Editors

INSTITUTE OF MEDICINE
OF THE NATIONAL ACADEMIES

The serpent has been a symbol of long life, healing, and knowledge among almost all cultures and religions since the beginning of recorded history. The serpent adopted as a logotype by the Institute of Medicine is a relief carving from ancient Greece, now held by the Staatliche Museen in Berlin.

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"Knowing is not enough; we must apply.
Willing is not enough; we must do."
                                    —Goethe

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JANA BAZZOLI, Vice President, Clinical Affairs, Cincinnati Children's Hospital Medical Center
JAMES C. BENNEYAN, Director, Healthcare Systems Engineering Institute, Northeastern University
JAMES CONWAY, Adjunct Faculty, Department of Health Policy and Management, Harvard School of Public Health
SUSAN DENTZER, Senior Policy Adviser, Robert Wood Johnson Foundation
EVA LEE, Professor and Director, Operations Research in Medicine and Health Care, School of Industrial and Systems Engineering, Georgia Institute of Technology
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MARK MURRAY, Mark Murray & Associates, LLC
THOMAS NOLAN, Senior Fellow, Institute for Healthcare Improvement
PETER PRONOVOST, Senior Vice President for Patient Safety & Quality, Johns Hopkins Schools of Medicine, Nursing, and Public Health
RONALD M. WYATT, Medical Director, Healthcare Improvement, The Joint Commission

IOM Staff

MARIANNE HAMILTON LOPEZ, Study Director (*from April 2015*)
MELINDA MORIN, Study Director (*until April 2015*)
ELIZABETH JOHNSTON, Senior Program Assistant
KATHERINE BURNS, Senior Program Assistant
MINA BAKHTIAR, Senior Program Assistant
LESLIE KWAN, Research Associate
GURU MADHAVAN, Senior Program Officer
J. MICHAEL McGINNIS, Senior Scholar and Executive Director, IOM Roundtable on Value & Science-Driven Health Care

Consultants

JOE ALPER, Science writer
REBECCA MORGAN, National Academies Library/Research Center
ROBERT POOL, Copyeditor

Reviewers

This report has been reviewed in draft form by individuals chosen for their diverse perspectives and technical expertise, in accordance with procedures approved by the National Research Council's Report Review Committee. The purpose of this independent review is to provide candid and critical comments that will assist the institution in making its published report as sound as possible and to ensure that the report meets institutional standards for objectivity, evidence, and responsiveness to the study charge. The review comments and draft manuscript remain confidential to protect the integrity of the deliberative process. We wish to thank the following individuals for their review of this report:

Karen S. Cook, Stanford University
Julie A. Freischlag, University of California, Davis, School of Medicine
Mark E. Frisse, Vanderbilt University
Christine Hunter, U.S. Office of Personnel Management
Beverley H. Johnson, Institute for Patient- and Family-Centered Care
Kenneth W. Kizer, University of California, Davis, School of Medicine
Charles E. Phelps, University of Rochester
Murray Ross, Kaiser Foundation Health Plan, Inc.
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Katepalli R. Sreenivasan, New York University
Alfred F. Tallia, Rutgers University
Alan R. Washburn, U.S. Naval Postgraduate School

Although the reviewers listed above have provided many constructive comments and suggestions, they were not asked to endorse the conclusions or recommendations nor did they see the final draft of the report before its release. The review of this report was overseen by **Georges C. Benjamin,** American Public Health Association, and **Lawrence D. Brown,** University of Pennsylvania. Appointed by the National Research Council and the Institute of Medicine, they were responsible for making certain that an independent examination of this report was carried out in accordance with institutional procedures and that all review comments were carefully considered. Responsibility for the final content of this report rests entirely with the authoring committee and the institution.

Contents

Summary

The Institute of Medicine (IOM) report *Crossing the Quality Chasm* (2001a) identified six fundamental aims for health care—that it be safe, effective, patient-centered, efficient, equitable, and timely. Of these fundamental aims, timeliness is in some ways the least well studied and understood. How can timely care be ensured in various health care settings, and what are some of the reasons that care is sometimes not timely?

The report presented here was developed by the IOM Committee on Optimizing Scheduling in Health Care to answer such questions. Although the study was prompted by attention to a high-profile crisis in a health center operated by the Veterans Health Administration of the Department of Veterans Affairs (VA/VHA), and it was commissioned by the VA, the report focuses broadly on the experiences and opportunities throughout the nation related to the scheduling of and access to health care. As a "fast track" Academy study, the report is limited as to the detail of practice considerations. It reviews what is currently known and experienced with respect to health care access, scheduling, and wait times nationally, and it offers preliminary observations about emerging best practices and promising strategies. The report concludes that opportunities exist to implement those practices and strategies (including virtually immediate engagement) and presents recommendations for needed approaches, policies, and leadership.

STUDY CHARGE AND APPROACH

Convened at the request of the VA/VHA, the committee was charged with the following tasks: (1) review the literature assessing the issues, pat-

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BOX S-1
Patient- and Family-Centered Care

Patient- and family-centered care is designed, with patient involvement, to ensure timely, convenient, well-coordinated engagement of a person's health and health care needs, preferences, and values; it includes explicit and partnered determination of patient goals and care options; and it requires ongoing assessment of the care match with patient goals.

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terns, standards, challenges, and strategies for scheduling timely health care appointments; (2) characterize the variability in need profiles and the implications for the timing in scheduling protocols; (3) identify organizations with particular experience and expertise in demonstrating best practices for optimizing the timeliness of scheduling matched to patient need and avoiding unnecessary delays in delivery of needed health care; (4) consider mandates and guidance from relevant legislative processes, review wait time proposals from the VA/VHA Leading Access and Scheduling Initiative, and evaluate all evidence indicated above, along with input and comment from others in the field; (5) organize a public workshop of experts from relevant sectors to inform the committee on the evidence of best practices, their experience with acuity-specifics standards, and the issues to be considered in applying the standards in various health care settings; and (6) issue findings, conclusions, and recommendations for development, testing, and implementation of standards, and the continuous improvement of their application. Throughout its work, the committee has been guided by its view that health care must always be patient- and family-centered and implemented as a goal-oriented partnership (see Box S-1).

LEARNING FROM OTHER SECTORS

To address scheduling issues, the committee considered a number of established conceptual models and systems-based engineering approaches that have been applied in settings beyond health care. These approaches have enabled many organizations to improve quality, efficiency, safety, and customer experience. However, the success of these methods depends on their application simultaneously in every part of an interconnected system rather than being applied piecemeal to distinct individual processes, departments, or service lines. The notion of an integrated approach is a core concept for timely delivery of health care.

Systems strategies in health care delivery involve the use of scientific insights to illuminate the interdependencies of processes and elements and the effects of these interdependencies on health outcomes. The strategies also entail modeling system relationships, exploring design or policy changes, and optimizing overall performance to produce better health care delivery at lower cost and minimum waste. Most importantly, systems strategies emphasize the integration of all the systems and subsystems that influence health and the optimization of them as a whole. A systems approach to health care involves orienting the system on the needs and perspectives of the patient and family. It emphasizes an understanding of the system's supply and demand elements, developing a capacity for data analysis and measurement strategies, and incorporating evolving technologies. Finally, it relates to creating a culture of service excellence that empowers those on the front lines to experiment, identify limitations, and learn from trials.

LEARNING FROM EXPERIENCE AND BEST PRACTICES

Drawing not only on their expertise, but also on an extensive review of the literature, the comments at a public workshop held for open discussion of experiences and strategies, and an IOM discussion paper authored by leaders of five health care organizations that have implemented transformative changes, the committee identified innovative systems models that have been shown in limited settings to improve scheduling and wait time outcomes and to have either neutral or positive effects on the quality of care and patient experience. The examples presented reflect experiences in multiple specialties, care delivery settings, and business models and in organizations of various sizes and located in various geographical regions. They draw on process reengineering, resource reallocation, and behavioral change strategies. Applicable to ambulatory practices, hospitals, and rehabilitation facilities, such system-wide improvements can increase the likelihood that the right care will be delivered at the right time to every patient. Additionally, with further research into their efficacy, these models have the potential to be adopted more widely and to become the foundation for standards of care.

Specific approaches that have been successful in ambulatory care settings include scheduling strategy models and options that reframe supply and demand. Scheduling models include the advanced access model, also known as open access or same-day scheduling, in which a sizeable share of the day's appointments are reserved for patients desiring a same-day appointment (Murray and Berwick, 2003), and the smoothing flow scheduling model, which uses the operations management technique of smoothing flow to identify and quantify the types of variability in patient flow (demand) and the resources available to different patient groups (supply) (Litvak and

Fineberg, 2013). Options that reframe supply and demand include team-based workforce optimization strategies that increase provider capacity by assigning care tasks to appropriate members of the care team, delegating certain tasks to non-clinician team members (e.g., Brandenburg et al., 2015), and technology-based alternatives to in-person visits that address patient needs via phone, telemedicine, and/or mobile health units (Charles, 2000; IOM, 2000; Naylor and Imison, 2010).

Specific approaches that have been successful in inpatient and emergency care settings include the smoothing flow scheduling model, coordinated care models, and the use of systems and simulation models. Care coordination interventions can improve patient flow through hospitals by both improving output flow (i.e., assuring timely discharge) and preventing readmissions (Coleman et al., 2004, 2006). Systems models and techniques, such as Lean processes, can be used to identify and continuously monitor process inefficiencies causing the imbalances in patient demand and hospital capacity that lead to delays in patient flow and increased wait times (e.g., Cima et al., 2011; Lee et al., 2015). Simulation models can also be used as a planning tool to match hospital capacity to patient need (Everett, 2002; Jones and Evans, 2008; Kolker, 2008).

The committee presents case examples of organizations that have applied these systems strategies to improve scheduling and reduce wait times (see Chapter 4). The cases reflect experiences in multiple specialties, care delivery settings, and business models and in organizations of various sizes and geographical regions.

FINDINGS, BASIC ACCESS PRINCIPLES, AND RECOMMENDATIONS

Based on its review and discussions, the committee developed a set of findings and recommendations, which are presented throughout the report and described in detail in Chapter 5. The findings are summarized in Box S-2.

Additionally, throughout its work, the committee identified a number of commonalities among exemplary practices reflected in the literature and throughout the selected set of promising case examples. These commonalities, presented in Box S-3, represent a set of basic health care access principles for primary, specialty, and hospital and post-acute care scheduling, and also provide targets for expanded research and evaluation.

The committee recommendations, which are summarized in Box S-4, call out the need for leadership at both the national level and the level of each health care facility. Nationally, the committee emphasizes several key needs: the spread and implementation of the identified access principles; direct senior federal official collaborative leadership; tools and strategies

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BOX S-2
Summary of Committee Findings

- **Variability:** Timeliness in providing access to health care varies widely.
- **Consequences:** Delays in access to health care have multiple consequences, including negative effects on health outcomes, patient satisfaction with care, health care utilization, and organizational reputation.
- **Contributors:** Delays in access to health care have multiple causes, including mismatched supply and demand, a provider-focused approach to scheduling, outmoded workforce and care supply models, priority-based queues, care complexity, reimbursement complexity, financial barriers, and geographic barriers.
- **Systems strategies:** Although not common practice, immediate engagement for patients is achievable through queue streamlining and related systems strategies to access and scheduling.
- **Supply and demand:** Continuous assessment, monitoring, and realigning of supply and demand are basic requirements for improving health care access.
- **Reframing:** Alternatives to in-office physician visits, including the use of non-physician clinicians and technology-mediated consultations, can often meet patient needs.
- **Standards:** Standardized measures and benchmarks for timely access to health care are needed for reliable assessment and improvement of health care scheduling.
- **Evidence:** Available evidence is very limited on which to provide setting-specific guidance on care timeliness.
- **Best practices:** Emerging best practices have improved health care access and scheduling in various locations and serve as promising bases for research, validation, and implementation.
- **Leadership:** Leadership at every level of the health care delivery system is essential to steward and sustain cultural and operational changes needed to reduce wait times.

BOX S-3
Basic Access Principles for All Settings

- **Supply–demand matching** through formal ongoing evaluation.
- **Immediate engagement** and exploration of need at time of inquiry.
- **Patient preference** on timing and nature of care invited at inquiry.
- **Need-tailored care** with reliable, acceptable alternatives to clinician visit.
- **Surge contingencies** in place to ensure timely accommodation of needs.
- **Continuous assessment** of changing circumstances in each care setting.

BOX S-4
Summary of Committee Recommendations

For National Leadership leading to:
1. **Basic access principles** spread and implemented.
2. **Federal implementation initiatives** with multiple department collaboration.
3. **Systems strategies** broadly promoted in health care.
4. **Standards development** proposed, tested, and applied.
5. **Professional societies** leading application of systems approaches.
6. **Public and private payers** providing financial incentives and other tools.

For Health Care Facility Leadership leading to:
7. **Front-line scheduling** practices anchored in the basic access principles.
8. **Governance commitment** to leadership on basic access principles.
9. **Patient and family participation** in designing and leading change.
10. **Continuous assessment** and adjustment at every care site.

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developed to aid adoption of systems approaches to care scheduling and delivery; and coordinated efforts among key stakeholders to build the evidence base, test best practices, develop and implement standards, and create incentives for their application. In addition, leadership is necessary to ensure that in each health care setting, practices are anchored in the basic access principles; governance at the executive and board level is fully committed; and the perspectives of patients, families, and other stakeholder groups are included in planning, implementing, and evaluating institutional approaches to scheduling.

1

Improving Health Care Scheduling

INTRODUCTION

"How can we help you today?" Each of us would like to hear these words when seeking health care assistance for ourselves, for our families, or for others. It should not only be our wish, but our expectation. Health care that implements a "How can we help you today?" philosophy is care that is patient centered, takes full advantage of what has been learned about systems strategies for matching supply and demand, and is sustained by leadership committed to a culture of service excellence and continuous improvement. Care with this commitment is feasible and can be found in practice today.

Yet it is not common practice. In 2001, the Institute of Medicine (IOM) landmark report *Crossing the Quality Chasm* identified being timely as one of the six fundamental properties of high-quality health care—along with being safe, being effective, being patient-centered, being efficient, and being equitable (IOM, 2001a). Progress has been slow on many dimensions including programs to design, implement, and share innovative scheduling and wait time practices in order to advance the evidence base and create standards and accountability. The culture, technology, and financial incentives at work in health care have only recently begun to heighten awareness and attention to the issue that delays are often not the result of resource limitations but more commonly are the product of flawed approaches to the scheduling process and poor use of the full range of available resources.

Although prompted by attention to a high-profile crisis in a health center operated by the Veterans Health Administration of the Department

of Veterans Affairs (VA/VHA), and commissioned by the VA, this report focuses broadly on the experiences and opportunities throughout the nation related to the scheduling of and access to health care. As a "fast track" Academy study, the report is limited as to the detail of practice considerations. It reviews what is currently known and experienced with respect to health care access, scheduling, and wait times nationally, offers preliminary observations about emerging best practices and promising strategies (including immediate engagement), concludes that opportunities exist to implement those practices and strategies, and presents recommendations for needed approaches, policies, and leadership.

CONTEXT: VA PHOENIX HEALTH CENTER CRISIS

In 2014, in response to allegations of mismanagement and fraudulent activity pertaining to health care scheduling, the VA/VHA Office of Inspector General conducted an audit of the VA Phoenix Health Care System. The interim report from that audit confirmed that the Phoenix Health Care System had been falsely reporting its scheduling queues and wait times. The audit found that 1,700 veterans in need of a primary care appointment had been left off the mandatory electronic waiting list (EWL) that was reported to VA/VHA leadership (VA, 2014b). Of greater concern was that the VA/VHA final report, *Review of Alleged Patient Deaths, Patient Wait Times, and Scheduling Practices at the Phoenix VA Health Care System*, identified 40 veterans who had died while on the EWL waiting for an appointment. While the report found that there is not enough evidence to conclude that the prolonged waits were the cause of these deaths, it documented a poor quality of care in the Phoenix system (VA, 2014e). The report further determined that in an attempt to meet the needs of both veterans and the clinicians employed by the VA/VHA, certain facilities had developed overly complicated scheduling processes that resulted in a high potential of creating confusion among scheduling clerks and frontline supervisors (VA, 2014e). The report concluded that inappropriate scheduling practices are a systemic problem across the entire system nationwide (VA, 2014e) and called for an end to arbitrary scheduling standards, for more transparency and accountability, and for more attention to be paid to the "corrosive culture" that led to the manipulation of data in the system (VA, 2014e).

In response to the findings of the audit, the VA/VHA deployed the Leading Access and Scheduling Initiative (LASI), a 90-day program to develop and deploy rapid changes across its entire system. LASI, which ended in September 30, 2014, resulted in the completion of 120 tasks and 60 deliverables, including the development of new performance management plans; the addition of primary care into the Patient-Centered Com-

munity Care for non-VA care program; a focus on transparency through the monthly publication of wait time data (VA, 2015a); and a number of activities and policies focused on schedulers, which included interviews in the field, a review of schedulers' grades to combat high turnover rates, and an educational campaign to standardize scheduling processes across the system.

In August 2014, the Veterans Access, Choice, and Accountability Act was enacted to provide funds for veterans to receive care in the private sector in the case of prolonged waits at VA/VHA facilities and also to provide funds for the hiring of a large number of health care providers and the acquisition of additional VA/VHA sites of care (VA, 2014f). The bill also required the VA/VHA to conduct an independent assessment of the hospital care and medical services furnished in its medical facilities as well as an independent assessment of access to those services.

In October 2014, the VA/VHA established the Veterans Choice Program in accordance with Section 101 of the Veterans Access, Choice, and Accountability Act. The Choice Program addresses the VA/VHA wait time goals in such a way that veterans enrolled in VA/VHA health care will be provided clinically appropriate VA/VHA care within 30 days of making a request for medical services. Veterans who cannot receive a scheduled appointment within the 30-day standard or who reside more than 40 miles from the closest VA/VHA medical facility are able to receive care from facilities outside the VA/VHA system (VA, 2014f).

CONTEXT: NATIONAL ISSUES IN ACCESS AND WAIT TIMES

The data on access and wait times in health care are limited, and there is a prominent deficiency in research, evidence-based standards, and metrics for assessing the prevalence and impact of these issues (Brandenburg et al., 2015; Leddy et al., 2003; Michael et al., 2013). However, the limited information suggests that similar scheduling challenges are found well beyond the VA/VHA and exist throughout the public and private sectors of the U.S. health care system. The available data show tremendous variability in wait times for health care appointments within and between specialties and within and between geographic areas.

Variability in Access and Wait Times

The VA/VHA data released in October 2014 indicated an average wait time of 43 days for new primary care appointments, with a range of 2 to 122 days across all VA/VHA facilities (VA, 2014c). Detailed data from a review of Massachusetts physicians revealed average wait times of 50 days for internal medicine and 39 days for family medicine appointments (MMS,

2013). A 2014 MerrittHawkins study of appointment wait times in 15 cities across the United States found significant variation per city and per specialty. For example, average wait times to see a cardiologist ranged from a high of 32 days in Washington, DC, to a low of 11 days in Atlanta (Merritt Hawkins, 2014). A Department of Defense review of the Military Health System's military treatment facilities and privately purchased health care services found that their average wait times for specialty care (12.4 days) and for non-emergency appointments (less than 24 hours) exceeded their internal standards, but there was variation across settings as well as a lack of comparable data with vendors because of alternative access measures (DoD, 2014).

Studies have also shown that children with coverage from Medicaid or the Children's Health Insurance Program are more likely than those with private insurance to be made to wait more than 1 month, even for serious medical problems (Bisgaier and Rhodes, 2011; Rhodes et al., 2014). Academic medical centers, which often function as safety net providers, are less likely to deny appointments to children with Medicaid or the Children's Health Insurance Program, but those children still experience significantly longer wait times compared to privately insured children (Bisgaier et al., 2012).

Most U.S. data on access to care come from surveys of patient experience, which refers to health care processes that patients can observe and participate in (Anhang Price et al., 2014). These include objective experiences such as wait times and subjective experiences such as trust in a provider, and provider and staff behavior such as provider–patient communication and continuity of care (Anhang Price et al., 2014). "Patient experience" is distinguished from "patient satisfaction," which provides an assessment of a particular care experience (Anhang Price et al., 2014).

The Consumer Assessment of Healthcare Providers and Systems (CAHPS) surveys are the principal surveys done on patient experiences with health care access and quality in the United States. CAHPS covers hospitals, health plans, and ambulatory care, among others. Managed by the Agency for Healthcare Research and Quality (AHRQ) through a public–private initiative, the CAHPS program develops standardized, tested, and publicly available measurement tools of patient experiences with health care access and quality, as well as standardized and tested methods for collecting and analyzing survey data (Lake et al., 2005). In the 2013 CAHPS clinician and group survey, 63 percent of U.S. adults reported getting appointments, care, and information for primary and secondary care when they needed it (AHRQ, 2015). In addition to CAHPS, a number of private vendors provide patient satisfaction instruments, including Arbor Associates, Inc., the Jackson Group, Press Ganey Associates, Inc., and Professional Research Consultants, Inc. (Urden, 2002).

Impact of Delays in Access, Scheduling, and Wait Times

Generally, positive patient care experiences are associated with greater adherence to recommended care, better clinical care and health care quality outcomes, and less health care utilization (Anhang Price et al., 2014). A patient's inability to obtain a timely health care appointment may result in various outcomes: the patient eventually seeing the desired health care providers, the patient obtaining health care elsewhere, the patient seeking an alternative form of care, or the patient not obtaining health care at all for the condition that led to the request for an appointment. In any of these cases, the condition may worsen, improve (with or without treatment elsewhere), or continue until treated. Thus, long wait times may be associated with poorer health outcomes and financial burden from seeking non-network care and possibly more distant health care. Long wait times may also cause frustration, inconvenience, suffering, and dissatisfaction with the health care system.

Impact on Health Care Outcomes

Extended wait times and delays for care have been shown to negatively affect morbidity, mortality, and the quality of life via a variety of health issues, including cancer (Christensen et al., 1997; Coates, 1999; Waaijera et al., 2003); heart disease (Cesena et al., 2004; Sobolev et al., 2006a,b, 2012, 2013); hip (Garbuz et al., 2006; Moja et al., 2012; Simunovic et al., 2010; Smektala et al., 2008) and knee problems (Desmeules et al., 2012; Hirvonen et al., 2007); spinal fractures (Braybrooke et al., 2007); and cataracts of the eye (Boisjoly et al., 2010; Conner-Spady et al., 2007; Hodge et al., 2007). The timely delivery of appropriate care has also been shown to reduce the mortality and morbidity associated with a variety of medical conditions, including kidney disease and mental health and addiction issues (Gallucci et al., 2005; Hoffman et al., 2011; Smart and Titus, 2011).

A study of wait times at VA facilities analyzed facility and individual-level data of veterans visiting geriatric outpatient clinics, finding that longer wait times for outpatient care led to small yet statistically significant decreases in health care use and were related to poorer health in elderly and vulnerable veteran populations (Prentice and Pizer, 2007). Mortality and other long-term and intermediate outcomes, including preventable hospitalizations and the maintenance of normal-range hemoglobin A1C levels in patients with diabetes, were worse for veterans seeking care at facilities with longer wait times compared to those treated at VA facilities with shorter wait times for appointments (Pizer and Prentice, 2011b).

Reducing wait times for mental health services is particularly critical, as evidence shows that the longer a patient has to wait for such services,

the greater the likelihood that the patient will miss the appointment (Kehle et al., 2011; Pizer and Prentice, 2011a). Patients respond best to mental health services when they first realize that they have a problem (Kenter et al., 2013). However, because primary care providers can act as the gate-keepers for mental health care, patients face an even longer delay for mental health services because of the need to first get a primary care appointment.

Impact on Patient Experience and Health Care Utilization

Patient experience has also been shown to be associated with perceptions of the quality of clinical care (Schneider et al., 2001). A study of patient experiences in England found that although all elements of patient primary care experience (including access, care continuity, provider–patient communication, overall patient satisfaction, confidence and trust in doctor, and care planning) were associated with quality of care, straightforward initial access elements (e.g., the ability to get through on the telephone and to make appointments) were most strongly related with quality of care (Llanwarne et al., 2013).

The perception of longer wait times is also negatively associated with overall patient satisfaction (Thompson et al., 1996). A study of patients treated at a large U.S. academic medical center found that not only was overall satisfaction with the health care experience negatively affected by longer wait times, so too was the perception of the information, instructions, and treatment that the patients received from their health care providers (Bleustein et al., 2014).

Extended wait times are also associated with higher rates of appointment no-shows, as feelings of dissatisfaction and inconvenience discourage patients from attending a first appointment or returning for follow-up care (Meyer, 2001). In a survey of caregivers who brought children to an emergency department, difficulty getting needed care from a primary care provider, especially long wait times, was associated with increased non-urgent emergency department use, suggesting that delays that are unaddressed in one area of health care delivery may lead to delays in other parts of the health care system (Brousseau et al., 2004).

COMMITTEE CHARGE AND APPROACH

Scope of the Report

To address the challenges associated with access and scheduling of U.S. health care services, the VA/VHA requested the IOM to assess the range of experiences nationally and to identify existing standards and best practices. The aim was to make recommendations for improving performance

throughout the nation on health care scheduling, access, and wait times, including, but not specific to, the VA/VHA (see Box 1-1).

Study Approach

As an accelerated study, the committee's task was addressed through one in-person meeting, which included a public workshop (a brief summary of which can be found in Appendix B), numerous conference calls, and directed staff work to assemble the evidence and identify exemplary practices. Primary attention was given in this work to gathering and examining the available evidence documenting demonstrated practices for improving access, scheduling, and wait times in health care; learning from presentations by representatives of organizations deemed to have developed beneficial strategies for productive change; and identifying principles for best practices based on the experiences of those organizations.

BOX 1-1
Statement of Task

An ad hoc committee will conduct a study and prepare a report directed at exploring appropriate access standards for the triage and scheduling of health care services for ambulatory and rehabilitative care settings to best match the acuity and nature of patient conditions. The committee will:

1. Review the literature assessing the issues, patterns, standards, challenges, and strategies for scheduling timely health care appointments.
2. Characterize the variability in need profiles and the implications for the timing in scheduling protocols.
3. Identify organizations with particular experience and expertise in demonstrating best practices for optimizing the timeliness of scheduling matched to patient need and avoiding unnecessary delays in delivery of needed health care.
4. Organize a public workshop of experts from relevant sectors to inform the committee on the evidence of best practices, their experience with acuity-specific standards, and the issues to be considered in applying the standards under various circumstances.
5. Issue findings, conclusions, and recommendations for development, testing, and implementation of standards and the continuous improvement of their application.

In the course of their work, the committee will consider mandates and guidance from relevant legislative processes, review VA/VHA wait time proposals from the Leading Access and Scheduling Initiative, and evaluate all evidence indicated above, along with input and comment from others in the field.

Evidence to guide decisions or actions comes in many forms—randomized controlled trials, observational studies, and expert opinion among scientists and health care professionals, as well as that among patients and their families (IOM, 2001b). Similarly, evidence is used for many purposes, including application to learn the effectiveness of an intervention under controlled circumstances, development of standards for assessing outcomes, and use in comparing the results of different approaches under different circumstances. The strongest form of evidence, well-designed systematic trials with carefully matched controls, is important when introducing a new treatment, but is often not available, or even necessarily appropriate in the assessment of health services with highly variable input elements. The fact that trial data are not available to assess approaches to scheduling and access is not in itself limiting, but the overall paucity of reliable study and experiential outcomes data from any source presents a challenge. The committee therefore relied on an extensive environmental scan. In its scan of access and scheduling in U.S. health care services, the committee looked at the VA/VHA, private and public providers, and other sectors. The scope of the committee's review covers first appointments and follow-up appointments for primary care, scheduling and wait times for hospital care, access to rehabilitation care, referrals to specialty care, and first appointments for mental health. The committee considered wait times to get an appointment and wait times within appointments and also ways to meet patient demand for health care other than in-person appointments.

The committee also enlisted the leaders of five institutions—Denver Health, Geisinger Health System, Kaiser Permanente, Seattle Children's Hospital, and ThedaCare—to report on the strategies, experiences, and results achieved in their respective systems (Brandenburg et al., 2015). The conceptual framework (see Figure 1-1) that was developed by the committee to guide its assessment of the factors shaping overall system performance identifies supply and demand assessments as the anchor inputs, plus major enabling or constraining influences from culture, management, patients—e.g., the leverage contributed by evidence- and theory-based systems engineering, enlightened management that creates a culture of change and improvement, and the extent of patient involvement.

According to the statement of task, the committee was to look at "ambulatory and rehabilitative care settings." Given the evolving and adapting continuum of care, and recognizing that ambulatory, rehabilitative, and acute care are interdependent, the committee chose to focus on scheduling and access issues within acute care as well as ambulatory and rehabilitative care. Its aim was therefore to generate a report that was meaningful and relevant to the entire health care system.

The statement of task also highlighted the Leading Access and Scheduling Initiative (LASI) for consideration and analysis, and the committee
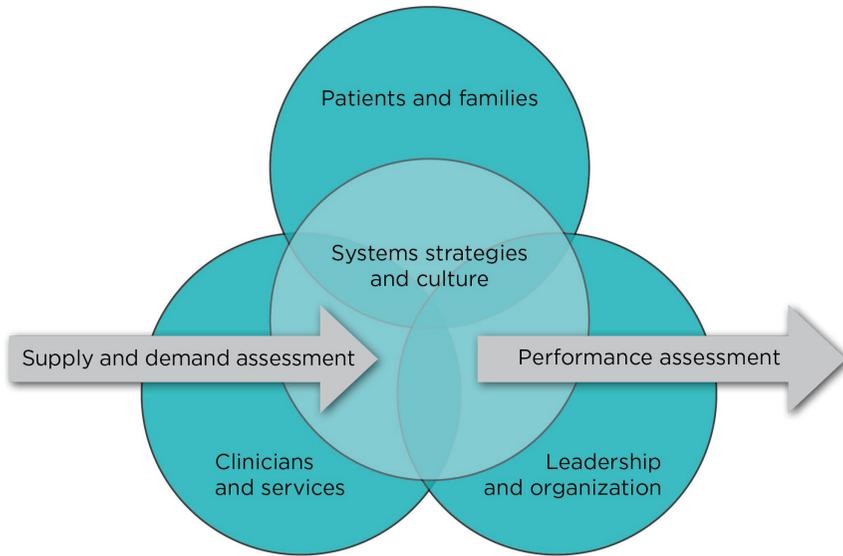
FIGURE 1-1 Framework for access and wait times transformation.

engaged in ongoing conversations with the VA/VHA about the intent and outcomes of the initiative. The information gathered during this communication is summarized above. However, in the absence of published information about LASI, the committee has not conducted additional analysis of LASI or offered findings or conclusions specific to the Initiative.

Structure of the Report

This report is intended to be useful to both the public and technical audiences and is composed of five chapters. Following this introduction and overview of the report's goals, Chapter 2 describes the current situation concerning challenges with access, scheduling, and wait times in health care. Chapter 3 describes systems strategies for continuous improvement and offers examples of how these strategies have been applied in other sectors. Chapter 4 describes a number of emerging best practices and alternative models for scheduling, including framing and operationalizing assessments of supply and demand. Finally, Chapter 5 presents the committee's findings and recommendations for transforming access and scheduling in health care.

A primary focus of the report is on primary care services, while laying the groundwork for improved access throughout other areas of the

health care system. Primary care services form the core of the ambulatory health care system. Related scheduling approaches are key to success of initiation around accountable care organizations (ACOs) and medical homes. A foundational element of the committee's findings and recommendations is the centrality of orienting health care to the needs and perspectives of the patient and family (Berry et al., 2014). Patient-centered care has been described as an approach to the planning, delivery, and evaluation of health care that is respectful of and responsive to individual patient preferences, needs, and values (IOM, 2001a). With recent additional insights on the ability of meaningful patient engagement to improve the outcomes of care, the elements of patient-centered care have taken on additional clarity. Indeed, the committee views patient- and family-centered care not only to be designed with patient involvement to enable timely, convenient, well-coordinated engagement of a person's needs, preferences, and values but also to include explicit and partnered determination of patient goals and care options as well as ongoing assessment of the care match with patient goals (see Box 1-2). This is the perspective that has guided the committee's work throughout.

BOX 1-2
Patient- and Family-Centered Care

Patient- and family-centered care is designed, with patient involvement, to ensure timely, convenient, well-coordinated engagement of a person's health and health care needs, preferences, and values; it includes explicit and partnered determination of patient goals and care options; and it requires ongoing assessment of the care match with patient goals.

2

Issues in Access, Scheduling,
and Wait Times

As background for the discussions in the report, this chapter defines some of the common terms and concepts from the area of health care access and scheduling, describes the scheduling practices most often seen in various health care settings, and identifies the basic factors that play a role in scheduling delays and variability.

TERMS AND PATTERNS

In the U.S. health care system, the three most commonly used scheduling techniques for both inpatient and outpatient services are block scheduling, modified block scheduling, and individual scheduling (NAE/IOM, 2005). In block scheduling, patients are scheduled within specific times throughout the day, such as morning or afternoon, and then seen on a first-come, first-served basis within that time frame. Modified block scheduling assigns a smaller number of patients to smaller segments of time throughout the day, such as hourly. Individual scheduling, the most commonly used scheduling technique in the country, occurs when a single patient is scheduled for a specific point in time, with the timing of the appointments determined according to the supply of care providers (NAE/IOM, 2005).

Although delays in care delivery are common—and unpleasant—occurrences in both public and private health care systems, there are few reliable data with which to determine the prevalence, degree, or nature of the problem. Even defining when a delay in seeing a preferred health care provider is inappropriate is not always straightforward.

There are a number of approaches for categorizing scheduling and wait time delays. They include approaches, such as the third next available appointment (TNA) for ambulatory care, defined as the average length of time in days between when a patient requests an appointment and the third next available appointment; boundary approaches, such as the 4-hour wait time target for emergency departments used in England and Australia (Hughes, 2010; IHI, 2014a,b; Jones and Schimanski, 2010; Weber et al., 2012); and the "office visit cycle time," defined as the time between a patient's arrival and departure times at a medical office, which can be used to separate productive time from waiting time. Each of these scheduling tools is focused on a delay in a different part of the patient care continuum. For example, TNA captures the delay in getting an appointment or service, whereas cycle time measures the delay at the appointment or service. They are different methods designed to capture delays in different processes. Patient views of acceptable wait times are also poorly captured in available scheduling assessment tools, and the measurement of these factors becomes costly and is often imprecise (Paterson et al., 2006). Some of the terms commonly used in discussions of patient scheduling are listed in Box 2-1.

BOX 2-1
Concepts and Terms in Patient Scheduling

Access includes contact with the health care system, availability of appropriate services, and the delivery of the services necessary to meet patient needs.

Actual wait time, a measure currently used by the U.S. Department of Veterans Affairs, is a retrospective time stamp that uses the date the appointment was created in the scheduling system or the date that the patient desired as the start date for the wait-time computation. The time of the completed appointment is used as the end point.

Advanced open access scheduling, also referred to as advanced access, open access, or same-day scheduling, offers a patient calling for an appointment the opportunity to be seen on the same day, preferably although not necessarily by the patient's customary clinician.

Block scheduling schedules patients within specific times throughout the day, such as morning or afternoon, and then they are seen on a first-come, first-served basis within that time frame.

Capacity, or supply   is traditionally defined as the number of appointment slots available for a given period of time, such as 1 day, for all clinicians available during that period. Previous demand that has not yet been matched with appointments

BOX 2-1 Continued

shows itself as a backlog of work or a waiting list. The committee considers it important to view the term more broadly so that supply also entails resources that include labor, equipment, and any required physical environment for safe delivery. Demands can be met by supply elements that include face-to-face meetings, as well as other means, e.g., through a virtual care delivery infrastructure.

Demand traditionally refers to the total number of patient calls for appointments over a fixed period of time, such as 1 day, plus the number of walk-ins and the number of follow-up appointments generated by the physicians at a given practice site. Demand includes those patients that cannot be accommodated on a given day, as demand is independent of the limit of available appointments. The committee considers it important to view the term more broadly, so that demand not only covers the actual visits of patients but comprises all patients reporting problems daily.

Individual scheduling is the most commonly used scheduling technique in the United States, implemented through patient-by-patient scheduling for a specific point in time on a specific day, according to care provider availability in the care setting.

Modified block scheduling assigns a smaller number of patients to smaller segments of time throughout the day, such as hourly.

Office visit cycle time is a term applied to wait times that occur during an appointment. The office visit cycle time is generally measured from check-in to checkout for that appointment and can be broken down into various components of the visit. Each step in the cycle can be classified as either non-value-added time, such as time spent waiting for the next step in the visit, or value-added time, such as time spent with a care team member.

Supply–demand mismatch. An immediate cause of poor access to health care can be an imbalance between the demand for services and the available service capacity. Permanent imbalance, or mismatch, leads to a continued rise in delays until patients choose to seek medical care elsewhere. However, mismatch can also be impermanent, resulting from shifting variations in either supply or demand.

Third next available appointment (TNA) is a value determined by assessing appointment availability and is aimed at providing a reliable indication of the number of days that a patient has to wait to get an appointment (Murray and Berwick, 2003). Because the first and second available appointments are often the result of last-minute cancellations or other events, the third next available appointment best represents the performance of the appointment access system as a whole. TNA can serve as one metric to measure scheduling performance. It allows organizations to capture the TNA before and after an improvement is made.

Wait time to obtain an appointment within the health care system is a measurement of the access delay in the system and reflects the time differential between a patient's call or request for an appointment and an opening in a provider's schedule.

SCHEDULING PRACTICES BY SETTING

Health care scheduling practices vary by setting. Practices in the emergency room, for example, are different from those used by primary care physicians. This section provides an overview of the scheduling practices typically employed in various health care settings. It also discusses some of the issues that lead to delays and increased wait times.

Primary Care

Primary care providers typically serve a large and steady pool of regular patients, and relatively few new patients. The demand for primary care appointments usually has a predictable variation. There is higher demand for the first and last appointments of the day to accommodate work schedules and increased demand on Mondays and in the winter months. The variation in supply is less amenable to change, due to several factors, including competing priorities and responsibilities of the providers and workforce shortages. As a result of the recent Medicaid expansion and the number of patients who are now insured through state exchanges, a shortage has developed in the supply of primary care physicians in some areas of the country relative to the demand (Petterson et al., 2013). Although hiring additional physicians might seem to be the obvious solution to this shortage, given the financial constraints in today's health care sector, this is not a viable option for many health care organizations, and thus they need to find ways to make better use of the existing provider capacity.

No matter which of the three major scheduling techniques is used—block, modified block, and individual scheduling—the majority of scheduling decisions are generally based on predictions of patient need. Priority-based scheduling assigns different wait times to different patients according to assumptions made concerning the level of acuity or need associated with various conditions. For example, an individual with a history of congestive heart failure may be scheduled for follow-up visits at a periodic interval based on patient trends, rather than being given a schedule that reflects his or her actual needs, preferences, or circumstances. Priority-based scheduling creates multiple queues, each associated with a different wait time.

Specialty Care

Referrals and Transfers

The term *specialty care* describes any specialized practice that focuses on care for certain conditions or diagnostic or treatment approaches and primarily receives work as a consult, referral, or transfer (JHU, 2015).

Providing timely appointments for specialty care requires the same baseline measurements that are needed for primary care. Specialty care scheduling can be affected by a number of external factors that are not within the control of either the practice or the patient. These include delays caused by the requirement for insurance preauthorization, the need for additional diagnostic tests that are performed by third parties, and the referring provider not being co-located with the specialty care provider (Murray, 2002). For some conditions, it may be necessary for multiple specialists to coordinate their care, which introduces another level of variability that must be accommodated. An additional challenge for specialty care practices is responding to new patients with urgent needs while maintaining available appointments for returning patients.

Academic specialty practices experience a high degree of variability in providers' availability because the providers tend to have competing education, research, and clinical responsibilities. Although the natural variation in demand in an academic specialty setting is similar to what is seen in other types of settings, the higher degree of variability in supply can lead to challenges. These challenges are complicated by the presence of resident physicians, who are found in specialty care practices as well as other settings. Residents can increase the capacity of a clinic as their experience and training progress, but they can have frequent absences from the practice and require a more flexible model, with additional senior physician oversight. It is a challenge to achieve the competing goals of having patients see their own physicians, minimizing delay, and offering an educational environment for resident physicians. Any scheduling system used in specialty care must not only accommodate a clear definition of a care team, variable caseloads, and clinical times, it must also accommodate providers with substantially different experience levels.

Specialty Care: Providing Mental Health Services

With the implementation of the Affordable Care Act and the expansion of Medicaid, an increasing number of people are gaining access to treatment for mental health and addiction services because of the increased use of public and private insurance coverage. Yet timely access to these services is already a challenge for many Americans, especially veterans. And, given that both public and private health systems require patients to engage with primary care providers before allowing access to mental health care, the total wait times for such services are even longer. Because of the requirement to first see a primary care clinician, mental health patients waiting for transfer to facilities outside of the local health care system were found in one study to experience waits that averaged 15 hours (Weiss et al., 2012).

Emergency Care

Overcrowding, prolonged waiting times, patient care delays, and scarce resources are common in urban emergency medicine today (Yoon et al., 2003). Besides contributing to increased levels of patient frustration and anxiety, prolonged waiting times and protracted lengths of stay can also increase the proportion of patients who leave emergency departments without being seen by a physician (Johnson et al., 2009; Monzon et al., 2005). Emergency department wait times are often caused by hospital systems that require patients to remain in the emergency department while awaiting an opening elsewhere in the hospital (Hoot and Aronsky, 2008). Many hospitals in the United States have attempted to reduce emergency department wait times, but for various reasons their efforts often fail to produce sustainable results. One reason that many emergency department improvement programs do not produce long-lasting results is that the programs focus primarily on discrete processes, disregarding staff behaviors and overall system performance or organizational culture (Melon et al., 2013).

A factor considered as a critical contributor to emergency department overcrowding is patient boarding, or holding patients in the emergency department for observation, rather than discharging them or admitting them to the hospital (ACEP, 2008). Research has demonstrated a correlation between the length of stay in the emergency department and an increased risk of adverse events in patients who are subsequently admitted to the hospital (Guttmann et al., 2011). For example, as a relatively fixed resource for hospitals, bed availability becomes an increasing concern as occupancy increases. Using systems strategies, industrial models and optimization techniques, health care institutions can serve more patients treated in hospitals without increasing the number of actual beds, as is discussed in greater detail in Chapters 3 and 4.

Inpatient Care

Supply and demand are interconnected in a hospital process. There are entry points, exit points, and various steps or nodes involving patients within the system. Three types of delays can result: input delays, which are delays in access to a service, such as the delay for a bed, measured as the time between the decision to admit and the time the patient is actually admitted; throughput delay, or a delay that affects the length of time between a patient's admission and the time he or she is ready to be discharged from in the hospital; and output delay, a delay in the amount of time it takes to get a patient discharged from the hospital, such as a delay caused by a lack of availability of beds in a rehabilitation or extended-care facility (Hall, 2013).

Flow Coordination

Optimizing performance requires measuring the demand, capacity, and flow into and out of each node within the system, and system-wide assessments and adjustments are required to improve the overall collection of steps, including such steps as consolidating or removing processes in order to streamline patient service flow (Lee et al., 2015). The typical hospital includes individual departments and providers who work to meet or exceed patient care standards for their particular discipline. Although this can be an admirable goal, it can also lead to unintended inefficiencies, and it is preferable to rely on a whole-system model rather than a unit- or provider-centric model, which emphasizes performance in specific areas, often at the expense of interdepartmental or system-wide cooperation and coordination (IHI, 2003).

Transfer

Ideally, the movement of patients from admission through treatment and on to discharge should occur without significant delays. However, a department-centric or provider-centric environment focuses on the needs of individual areas, and one area's needs are not necessarily compatible with another area's priorities. For instance, nurses on a medical/surgical unit may not notify bed management that a bed has been vacated or may do so only after a substantial delay—because such notifications are not a high priority for the medical/surgery unit. This can lead to a situation in which there are vacant beds that could be occupied by patients who may be kept waiting somewhere else, including hallways or the emergency department.

Discharge

The discharge planning and placement processes require coordination and communication among personnel from different departments. The processes also need to have an agreed-upon care plan, and attention to various logistical challenges to ensure a patient's safety outside of the hospital setting, such as the arrangement of rehabilitative or in-home care. Ideally, discharge planning begins on the day of admission. Delayed discharges can cause problems because of their impact on hospital admissions and patient throughput. Delayed discharges may, for example, lead to a situation in which there are not enough available beds to meet incoming demand. Critical care units can find it difficult to move patients into step-down areas, which then directly affect admissions from the emergency department. Perioperative services can also experience backups while waiting for beds to become available in the post-anesthesia care unit (Jweinat et al., 2013).

Even under the best of circumstances, the discharge-planning process in hospitals is inherently complex. Patient-specific information (such as medical status and needs, patient and family preferences, and information about available community resources) must be gathered from many sources. Currently, Web-based discharge instructions have the potential to improve readmissions and transitional care (Bell et al., 2013). Poor-quality hospital discharge planning not only will affect the flow of patients within the hospital setting but also puts patients at risk for adverse events outside of the hospital, which in turn can lead to emergency department visits and hospital readmissions.

Rehabilitation Services

When returning to a home care setting is not an option, transfer to an inpatient rehabilitation facility (IRF), a skilled nursing facility (SNF), or a long-term care facility becomes necessary. The committee's review of the literature found scant information regarding IRF and SNF access, although reports are common of poorly informed family preferences leading to transfers and increased health care costs (Lamb et al., 2011).

IRFs provide hospital-level treatment with a focus on rehabilitation and face many of the same challenges related to access and wait times as acute care hospitals do. As with acute care hospitals, insurers have an influence on access to these facilities. In determining demand, it is important to have accurate measurements of admission trends, patient characteristics, and costs. At this time, the best practices for access to inpatient rehabilitation hospitals and skilled nursing facilities remain largely undocumented or validated and will require further development and evaluation.

FACTORS IN SCHEDULING DELAYS AND VARIABILITY

Some of the causes of prolonged wait times are inefficiencies in operation, in care coordination, and in health care organizational culture that result in flow disruption, the underuse of resources, and an imbalance between the demand of patients to be seen and the supply of providers, facilities, and alternative strategies to care for them at any given time (Mazzocato et al., 2010; Young and McClean, 2008). Organization-specific factors, including leadership and the resulting culture, can contribute to access difficulties and long wait times. The many complexities and process interdependencies of our health care system can complicate the challenge of balancing supply and demand.

Supply and Demand Issues

The most fundamental concept in scheduling is attention to the balance of supply and demand (Murray and Berwick, 2003). Unfortunately, most clinical settings do not take a broad enough view of the various options for either increasing supply or reducing demand, nor do they maintain the analytic capacity to observe and understand the dynamics involved (Murray and Berwick, 2003). As noted in Box 2-1, demand traditionally refers to the total number of patient calls for appointments over a fixed period of time, such as 1 day, plus the number of walk-ins and the number of follow-up appointments generated by the physicians at a given practice site. But many facilities define their supply simply in terms of the number of slots they have to fill on a given day or other period of time—that is, only in terms that relate to the availability of clinicians in that period of time. It is very unusual for a practice or clinic to keep a running record of the calls received, appointments made, wait-times, walk-ins, and no-shows, or to document how many queries could be handled by alternate clinicians, telemedicine, and electronic consults (Murray and Berwick, 2003).

Similarly, "supply" as traditionally defined in Box 2-1 is the number of appointment slots available for a given period of time, such as 1 day, for all clinicians available during that period. But often, for scheduling purposes, supply is viewed primarily as the slot availability for the clinician of record or requested by the caller, without consideration of (or the offering of) ways to augment the supply, such as other physicians and clinicians who are available; backup arrangements with other clinics for appropriate circumstances; and other sources, including digital and telephonic sources, that are available to meet callers' needs for information, referral, or advice. Without information of this sort, patterns of variability will be unobserved, alternatives will go untapped, and a supply–demand mismatch—which is often unnecessary—will be inevitable and chronic.

The committee considers it important to view the terms of supply and demand more broadly. Daily patient "demand" covers not only the actual visits of patients but also all contacts from patients reporting problems that day—each query requiring contacts from health care system resources to accommodate properly. Supply entails resources that include labor, equipment, and any required physical environment for safe delivery. Demands can be met via face-to-face setting or virtually. By reframing and expanding the notions of supply and demand, the relationship between a given care team and a patient panel could be expanded and redefined (Murray et al., 2007). Experience from various systems, including Kaiser Permanente and Group Health, suggest that at least 25 percent of patients calling in on a given day will not require an in-person visit but can have their needs addressed using methods such as telehealth (Darkins et al., 2008; Hsu et al.,

2012; Pearl, 2014). Regardless of the use of in-person appointments or alternatives, the supply and demand associated with any strategy that is adopted is dynamic and will become mismatched if not continuously measured, monitored, and readjusted as necessary.

The Current Provider-Focused Approach

The U.S. health care system is influenced by many competing priorities. Health care providers focus on providing care with autonomy and on receiving payment for that care. Providers have incentives to deliver higher paid services that can be supplied at low costs. Consumers seek accessible services and low out-of-pocket costs. Payers desire to select risks and limit costs. Because of these differences, the needs and priorities of different stakeholder groups are not always aligned (IOM, 2001a). The health care system currently reflects mainly the priorities of providers and organizations, which has resulted in a focus on traditional scheduling systems that have not been engineered to engage or satisfy patients but that instead are designed to fit a staff schedule that may be poorly aligned with patient perspectives or circumstances.

One emerging consequence is that, faced with the challenges of navigating the scheduling process for primary care, people often turn to other settings for their health care, such as retail health clinics (Zamosky, 2014). A 2013 survey of retail clinic users found that 58.6 percent of these patients used retail clinics because the hours were more convenient, and 55.9 percent because they could get care without an appointment (Tu and Boukus, 2013).

Outmoded Workforce Models

The Association of American Medical Colleges estimates that without an increased use of non-physician clinicians and staff, by 2025 the United States will have a shortage of 46,000-90,000 physicians (AAMC, 2014). Due to growth and replacement needs, the Bureau of Labor Statistics' Employment Projections 2012-2022 released in December 2013, projects 1.05 million job openings for registered nurses by 2022 (Bureau of Labor Statistics, 2013). The committee learned that efforts are under way, including within the VA/VHA, to identify and address the challenges of hiring and retaining core staff. For example, the LASI human resources workgroup's recommendations focused on such "areas as student loan repayment, the credentialing process, the pay system, hiring time frames, and nonmonetary incentives" (VA, 2014g).

Despite expected problems with physician understaffing, prevailing practices continue prioritizing physicians over other providers, and not

using non-physician clinicians and other staff to their full capacity, such as in the provision of immunizations, pre-visit record screens, escorting patients to exam rooms (Gabow and Goodman, 2014; Toussaint and Berry, 2013), and by making use of other means of providing needed information and by offering remote site consultation. Such current workforce models will not be sufficient to meet future health care demands without other practice transformations (IOM, 2011).

As described in the IOM's *The Future of Nursing* report, transforming the health care system from one that is centered on provider convenience to one that is patient-centered will require re-conceptualizing the roles of all health care professionals, including physicians, nurses, allied health professionals, social workers, pharmacists, and other staff (IOM, 2011). As patient demands shift away from a focus on acute care to greater needs for primary care and especially chronic care management, the roles of health care professionals in the primary care setting need to be reevaluated in particular (IOM, 2011). Improving the performance of the primary care workforce will require practice redesigns. Small changes include such strategies as divesting from physicians tasks and responsibilities that can be performed by other members of the care team, while greater transformations through the enhanced role of nurses may include using nurses to facilitate care coordination, implement and manage informatics systems, act as health coaches, and serve as primary care providers themselves (IOM, 2011). Improving primary care capacity will also require making use of other means of delivering needed information and consultation (e.g., phone and Web-based video consultations). To that end, non-physician clinicians have the opportunity to play a greater role in the development, redesign, implementation, and delivery of such technology-based services (IOM, 2011).

Priority-Based Queues (Acuity Model)

As noted above, priority-based scheduling assigns different wait times to different patients according to assumptions made about the predicted need associated with different categories of conditions. This not only tends to limit the services provided and to require additional visits for other primary care services, but it also creates multiple categories—groups or queues—each with a wait time threshold established through assumptions about predicted clinical urgency associated with a given classification. Visits presumed to be routine or less acute are put off until a future date.

These estimated wait times reflect the best clinical judgment of providers, and the scheduling model was originally developed to help ensure patient safety and fairness. However, little formal evidence exists for the estimates of risk and need that should guide protocols for the timing of

clinical appointments (Desalvo et al., 2000; Sirovich et al., 2008; Welch et al., 1999; Yasaitis et al., 2013). Furthermore, there are a number of challenges associated with the model. For example, urgent appointments placed through priority-based scheduling practices often address only one need per visit, which limits the opportunity for the care provider to meet multiple needs of the patient in a single visit. In addition, patients diverted to other settings for urgent care often want to follow up with their primary doctor later on, expanding a need for one visit into a need for multiple visits, and patients requiring visits deemed to be routine or less urgent can experience increased wait times (Murray and Berwick, 2003). Another challenge with the model is that—apart from truly immediate-need circumstances—the process of determining urgency in primary care using predictions of acuity that are based on a classification system is complex, difficult, and unreliable (Jennings, 2008).

Indeed, because of the limitations of the mathematical models used, priority-based scheduling models are likely to be unreliable any time that there is poor information on variation in demand or capacity. Because patients are sorted into multiple waiting queues, the provider supply is spread out, which introduces inefficiency and wasted time into the system. Queuing theory holds that the effect of variability on wait times will be more pronounced in a system with an increased number of queues (Saaty, 1961).

Care Complexity

As a result of health care innovation and the development of new treatments, patients are living longer with complex, chronic diseases, which has resulted in an aging population with increasing medical needs, involving physical and emotional conditions that require different types and amounts of health and related services (Bodenheimer et al., 2009). Providing appropriate, cost-effective care for a patient with multiple conditions can require coordination with multiple subspecialists, which can further complicate scheduling challenges. In the current provider-centered health care model, this requires the patient or the family to schedule multiple appointments, often on different days and in different locations, creating multiple opportunities for scheduling failures. Provider efforts are consistently challenged and strained by care complexity because of the limits of individual provider capacity (IOM, 2012).

Reimbursement Complexity

The ongoing changes in reimbursement have had a direct effect on patient access to health care. Medicaid patients, both adults and children,

are limited in their access to health care, by virtue of limited acceptance among physicians of Medicaid payments. They also often experience poorer health outcomes than privately insured patients (Bisgaier and Rhodes, 2011; Hwang et al., 2005; Merrick et al., 2001; Wang et al., 2004). As Medicaid reimbursement rates have decreased, the number of providers refusing to accept Medicaid patients has increased (Tanne, 2010). As a result, Medicaid patients have an increasingly limited choice of providers from which to receive primary and specialty care.

Also contributing to prolonged wait times is the requirement for pre-approvals imposed by payers. A preapproval is an authorization required by health insurance plans that patients must obtain before receiving certain services. Although intended as a cost-cutting measure to reduce unnecessary services, this requirement places an additional obstacle in the flow of care. A delay in any step of this process can lead to a prolonged wait time.

Financial Access

The Affordable Care Act has reduced the number of Americans without health insurance, but many in the United States still lack the financial means to pay for health care (KFF, 2015). In addition, as noted above, many practices, particularly specialty practices, do not accept patients who have public insurance. In one survey of wait times, the average rate of Medicaid acceptance by physicians across five specialties in 15 major metropolitan markets in 2013 was 45.7 percent, down from 55.4 percent in 2009, while in 2013 the average acceptance rate of Medicare patients was 76 percent (MerrittHawkins, 2014). Studies have also shown that children with Medicaid or Children's Health Insurance Program (CHIP) coverage are more likely than those with private insurance to be made to wait more than 1 month, even for serious medical problems (Bisgaier and Rhodes, 2011; Rhodes et al., 2014).

Geographic Access

The Veterans Access, Choice, and Accountability Act of 2014 offers a new national standard for geographic access for veterans and provides a choice to receive care in the private sector for those living more than 40 miles from the nearest VHA medical facility. The Department of Defense Military Health System has designated a standard of a 30-minute drive time for primary care appointments and a 60-minute drive time for specialty care appointments (DoD, 2014). For non-veterans receiving care in the private sector, access is typically determined by their insurance status, which requires patients to live within a specific geographic service area for

enrollment and varies with each payer program. Care provided outside of the insurer network typically has higher patient copayments.

The Centers for Medicare & Medicaid Services (CMS) has also developed its own criteria for geographic access for applicants for its Medicare Advantage program. In a sampling of geographic areas, CMS analyzed the percentage of beneficiaries with access to a specialty type and varied travel time and travel distance to improve the system, which resulted in maximum time and distance criteria that vary by specialty type and geographic area. Providers within Medicare Advantage must demonstrate that 90 percent of their provider network meets the established time and distance requirements (CMS, 2015d).

Underlying these geographic and physical barriers to access is the reliance of the U.S. health care system on the office visit as the default model of care. Telehealth, or telemedicine, and the use of electronic information and technologies to support long-distance health care can be an alternative to an office visit and is discussed later in more detail.

BENCHMARKING IN THE ABSENCE OF STANDARDS

With all the different factors in play and with the lack of organizational attention to issues of prolonged wait times, the wide variation in the wait times is not surprising. As previously noted, according to access data publicly reported from VA facilities, statewide data from Massachusetts, and private-sector data from 15 metropolitan areas, there is significant national variability in wait times among care settings, among specialties, and over time (Council, 2014; MerrittHawkins, 2014; VA, 2014d). In addition to the significant variability in wait times among care settings, among specialties, and over time, there is a lack of national standards and benchmarks for appropriate wait times. Although references to timely care appear regularly in legislative proposals, a prevailing definition of timeliness has not yet emerged.

Instead, individual institutions are developing varied approaches and standards for appropriate wait times. For example, the Military Health System and the California State Department of Managed Health Care developed benchmarks for access and included the following (DoD, 2014):

- 30-minute drive time for primary care
- Specialty care appointments within 4 weeks
- Routine appointments within 1 week
- Urgent mental health care by a physician or non-physician clinician within 48 hours
- Non-urgent appointments with specialist physicians within 15 business days

- Non-urgent appointments with a non-physician clinician within 10 business days
- Urgent care appointments generally not to exceed 24 hours
- Emergency room access available 24 hours per day, 7 days per week
- 60-minute drive time for specialty care
- Office wait times not to exceed 30 minutes unless emergency care is being rendered to another patient

Benchmarks such as these have served as useful reference points at the practice level in various places. Yet, because they have not been validated for national use, they are of limited applicability. Though useful as examples, they can even carry the potential for unintended adverse consequences if applied arbitrarily and without consideration to local circumstances. The committee contends that although benchmarks can help an organization set a goal and move toward improvement, the benchmarks should be determined according to the unique capacity and demand of each organization and care site.

3

Systems Strategies for
Continuous Improvement

The health care system is a complex collection of interacting elements, each of which affects the others in myriad ways. Effectively dealing with any health care system issue—especially as basic as scheduling and access—requires dealing with the various system dynamics in a coordinated way that takes into account how changes in one area will affect the functions in other areas. That is, it requires systems strategies and approaches.

Over the past 15 years, the Institute of Medicine (IOM) and the National Academy of Engineering (NAE), working both independently and collaboratively, have released publications calling attention to the growing concerns of patient safety, the quality of care delivered, and the cost of health care and also identifying potential solutions based on systems engineering approaches that have been widely adopted in technology and service industries (IOM, 2000, 2001a; IOM/NAE, 2005; Kaplan et al., 2013). For instance, the 2005 report *Building a Better Delivery System*, jointly published by the IOM and the NAE, observed that moving toward a functional system requires each participating element to recognize the interdependence of influences with all other units (IOM/NAE, 2005). More recently, a discussion paper described that a systems approach to health is "one that applies scientific insights to understand the elements that influence health outcomes, models the relationships between those elements, and alters design, processes, or policies based on the resultant knowledge in order to produce better health at lower cost" (Kaplan et al., 2013, p. 4).

Many other industries have faced issues similar to the scheduling and access issues faced today by the health care industry and have dealt successfully with them using systems strategies. In this chapter, the commit-

tee looks in particular to various industrial sectors for lessons on systems strategies that can be applied to health care. The chapter reviews the theory and practice of systems strategies as they have been applied to achieve continuous improvement in industry and how those strategies might be applied in health care, especially to improve scheduling and access.

LESSONS FROM INDUSTRIAL ENGINEERING PRACTICES

The tools of operations management, industrial engineering, and system approaches have been shown to be successful in increasing process gains and efficiencies (Brandenburg et al., 2015). In particular, a wide range of industries have employed systems-based engineering approaches to address scheduling issues, among other logistical challenges.

Systems-based engineering approaches have also been employed successfully by a number of health care organizations to improve quality, efficiency, safety, and customer experience, and these approaches have great potential for enabling further improvements in health care delivery (IOM/NAE, 2005). The success of these approaches will be dependent on achieving an overall integration across various health care domains and an application across interrelated systems rather than piecemeal testing across individual processes, departments, or service lines. By approaching improvement as a whole-system effort, a number of industries coordinate operations across multiple sites, coordinate the management of supplies, design usable and useful technologies, and provide consistent and reliable processes. With the right approach, it is likely that these principles can be applied to health care (Agwunobi and London, 2009).

Box 3-1 provides examples of systems strategies that originated in industry. The following sections further describe certain systems strategies that have been more widely applied to improve health care operations and performance. They are intended to illustrate the potential of systems approaches to improve health care scheduling and access.

Lean and Six Sigma

Lean is a value-creation and waste-reduction philosophy that was initially developed within the context of an automobile manufacturing system—the Toyota Production System—but that has now spread widely to service industries throughout the world. According to Lean philosophy, value is defined from the customer's orientation, meaning that valuable products and services are those that contribute to a customer's experience and needs and that can be provided to the customer at the right time and for the right price, all as defined by the customer (Womack et al., 2005). Correspondingly, waste is anything that does not add customer-defined

BOX 3-1
Systems Strategies

Deming Wheel or Plan-Do-Study-Act (PDSA) is a systematic series of steps for continuous improvement of a product or process. The cycle involves a "Plan" step, which involves identifying a goal and putting a plan into action; a "Do" step, in which the plan is implemented; the "Study" step, in which outcomes are monitored for areas for improvement; and the "Act" step which can be used to adjust the goal, to change methods, or to reformulate the theory.

Flow management is an operations research methodology involving the study of work flow and the introduction of dynamic control into processes.

Human factors engineering works to ensure the safety, effectiveness, and ease of use of various technological designs by explicitly taking into account human strengths and limitations in interactions with complex systems.

Lean is an integrated socio-technical systems approach and is derived from the Toyota Production System. The main objectives are to remove process burden, inconsistencies, and waste. In health care, the application of Lean has focused on the reduction of non-value-added activities and involves the identification of system features that create value and those that do not.

Queuing theory applies the mathematical study of waiting lines or queues in order to better design systems to predict or minimize queues. A variety of nonlinear optimization techniques (some based on the principles of statistical process control) have been put to work on different queuing applications, including challenges in telecommunications (phone call traffic), banking service management, vehicle routing, and even the express delivery of mail. Queuing theory has begun to be applied to multiple processes in health care involving groups or queues of patients.

Six Sigma is a quality management and continuous process improvement strategy. It improves efficiency by reducing variations in order to allow more capable and consistent products or processes. Six Sigma relies on the ability to obtain process and outcome data adhering to five principles: define, measure, analyze, improve, and control.

Statistical process control is a method of quality control that uses statistical methods to monitor and control a process to ensure that it operates at its full potential. This model focuses on the analysis of variation, the early detection of problems, and the reduction of waste and repeat work. In non-manufacturing applications, it has been used to identify bottlenecks in a system and reduce delays, including wait times.

Theory of constraints is a management paradigm used in complex systems to identify the most important limiting factors (constraints) in order to improve the performance of the system. Its application to health care is slowly increasing, and it has been used to increase capacity and revenue.

value to a product or service. The Lean approach relies on the continuous improvement of workflows, handoffs, and processes that function properly (Holweg, 2007; Ward and Sobek II, 2014). These workflows, handoffs, and processes required to produce and deliver a product to the customer constitute a "value stream." Value stream mapping is an important tool of the Lean approach. It documents in great detail every step of each process in a flow diagram, and it provides a visual portrayal of the many intricate details, sequences of workflow, and interdependencies in a process, which makes it possible to more easily identify problems and inefficiencies. As such, value stream mapping facilitates identifying activities that contribute value or waste or that are in need of improvement.

Lean is well suited for making changes to groups of processes rather than for making small, discrete changes to a single process, and in health care it has typically been used in large settings like hospitals. Lean has been used to improve both operational processes and clinical care, with applications ranging from improving insurance claims processing and improving patient safety processes to establishing a standardized set of instruments for surgical procedures (Varkey et al., 2007; Womack et al., 2005). The Lean philosophy has also been applied to health care delivery to reduce wasteful activities such as delays, errors, and the provision of unnecessary, inappropriate, or redundant procedures or care (Young et al., 2004). This capability is particularly promising for improving scheduling and access in health care.

Another business management and continuous process improvement strategy that has been widely adopted across service industries is Six Sigma.[1] Originally developed in Motorola, the approach is rooted in statistical process control and is aimed at dramatically reducing errors and variation. The term Six Sigma refers to achieving a level of quality so that there are no more than 3.4 defects per million parts produced. The Six Sigma approach has five phases, identified as define, measure, analyze, improve, and control (Harry, 1998). After its development at Motorola, the method was quickly adopted by industries ranging from hospitality to finance. Like Lean, Six Sigma has been applied to improve health care operations and delivery, with applications ranging from insurance claims processing to reducing medication errors and improving patient flow through laboratory services (Kwak

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[1] Six Sigma is a data-oriented practice that originated in the manufacturing sector with interests to dramatically reduce defects from a production process. The approach has been applied both from a technical sense and a conceptual sense across various fields of practice. Sigma in statistics denotes deviation from the standard. At a one sigma level, the process may produce 691,462 defects per million opportunities (DPMO), and at three sigma, approximately 66,807 DPMO. At a six sigma, the process produces only 3.4 DPMO with a total yield of 99.99966 percent. Beyond the technical approach, Six Sigma concepts have also been used as a generic root cause analysis to detect and rectify defects toward reaching strategic goals (Evans and Lindsay, 2015; Schroeder et al., 2008).

and Anbari, 2006). Lean and Six Sigma are often combined when a key goal is to reduce waste and errors (Gayed et al., 2013; Paccagnella et al., 2012).

Crew Resource Management

In response to a series of airplane crashes caused by human error, the airline industry developed Crew Resource Management (CRM), a system for job training and information sharing (Cooper et al., 1980). Since CRM has been adopted industry-wide, pilots, flight attendants, and ground crews proactively communicate and work cooperatively, using tools such as checklists and dedicated listening techniques that have greatly reduced the hazards of commercial air travel. In the United States, the rate of fatal commercial aviation accidents fell from approximately seven per million departures in the mid-1970s to around two per million departures in the mid-1980s (Savage, 2013). Since 2005, the rate of fatal aviation accidents has remained under one per million departures (Savage, 2013).

The value of using checklists is already beginning to be realized in health care (Pronovost et al., 2006). Most notably, the checklists used in preoperative team briefings to improve communication among surgical team members are indicative of the potential that checklists have to improve patient safety (e.g., reduce complications from surgery) and reduce mortality in general (Borchard et al., 2012; Haynes et al., 2009; Lingard et al., 2008; Neily et al., 2010; Weiser et al., 2010).

Customer Segmentation and Cluster Analysis

Service and e-commerce industries commonly use customer segmentation and cluster analysis—modeling and marketing techniques that group potential customers by characteristics and preferences in order to appropriately tailor products and services. For example, Amazon looks to previous purchases and browsing behaviors to profile and segment its customer base (Chen, 2001). Netflix uses data mining and machine learning techniques to cluster user behavior data, like product ratings and page views, as well as product features such as movie genres and cast members to recommend new movies that customers are likely to rate highly (Bell and Koren, 2007). Values, Attitudes, and Lifestyles (VALS) is a commonly used research methodology for customer segmentation. Developed in 1978 by social scientist Arnold Mitchell at Stanford University, VALS breaks down customer motivations and resources and remains an integral aspect of large company marketing strategies to this day (Yankelovich and Meer, 2006).

One setting in which patient segmentation has been applied in health care is the use of patient streams in emergency departments. Patient streaming is the use of set care processes (or streams) to which patients are assigned

upon triage; a subset of streaming is fast track, in which lower acuity patients are assigned to a fast track stream (Oredsson et al., 2011). Evidence on patient streaming is limited, although studies suggest that use of severity-based fast track in emergency departments can be effective at reducing waiting times, length of stay, and the number of emergency department patients who leave before being seen, while also increasing patient satisfaction (Oredsson et al., 2011). These limited uses of patient segmentation therefore focus on patient characteristics like severity, urgency, and likelihood of adherence, but less information is known about the potential of segmentation by patient-driven characteristics, such as preferences and values (Liu and Chen, 2009).

Deming Wheel or Plan-Do-Study-Act (PDSA) Cycle

Deming Wheel or Plan-Do-Study-Act (PDSA) cycle is the scientific method used for action-oriented learning (Taylor et al., 2013). The PDSA cycle is a series of steps for gaining insight of the control and continuous improvement of a product or process. The cycle involves a "Plan" step, which involves identifying a goal and putting a plan into action; a "Do" step, in which the plan is implemented; the "Study" step, in which outcomes are monitored for areas for improvement; and the "Act" step, which can be used to adjust the goal, to change methods, or to reformulate the theory (Taylor et al., 2013). The PDSA steps are repeated as part of a cycle of continuous improvement. The Institute for Healthcare Improvement (IHI) Model for Improvement focuses on setting aims and teambuilding to achieve change. The model uses a PDSA cycle to test a proposed change in the actual work setting so that changes are rapidly deployed and disseminated, and it is best suited for a continuous process improvement initiative that requires a gradual, incremental, and sustained approach to process improvement changes that are not undermined by excessive detail or unknowns (Huges, 2008).

Common to each of these practice areas is the integrative dimension. A systems approach emphasizes integration of all the systems and subsystems involved in a particular outcome. Adjusting each component of a system separately does not lead to an overall improved system. The fundamental elements of a systems approach to health care scheduling and access and the potential of systems strategies to improve scheduling and access are discussed in the next section.

SYSTEMS STRATEGIES FOR HEALTH CARE
SCHEDULING AND ACCESS

The committee's view is that by using systems strategies, the organizational capacity or performance of health care system can be dramatically improved. Essential to the process is an understanding of the many system complexities and interdependencies. Although different resources and talents may require near-term additions, the aim is for better performance with fewer resources per service provided. Additional personnel and financial investment are generally not essential to achieving significant improvements in capacity over time (Lee et al., 2015b; Litvak, 2015). Figure 3-1 depicts the key principles of capacity management and their operational applications at Cincinnati Children's Hospital Medical Center (CCHMC), which was able to significantly improve productivity. CCHMC includes an administrative group that oversees the capacity of the system and evaluates and designs strategies to match changing demand. Using techniques of production planning from industry, CCHMC combines management and staff to set operating rules, monitor supply, measure delays, and make decisions about how shared resources are deployed.

Initiative	Operations Possibilities
Management of Variability	Identify Patient Streams – Inpatient/Outpatient Stream management, supply chain, best practices
Predictable Care Delivery	Best Practices, Identification of ALOS and outliers Physician Practice Models, Metrics of care delivery
Capacity Prediction	Integration of simulation modeling and planning Plan for flow vs reactive flow to plan
Capacity Management	Simulation to design for unit use and patient placement
Optimization of Flow Delivery	Placement initiatives – D:C Matching plans D/C planning, Home Care, Parent Initiatives
Flow:Safety Matching	Demand:Capacity Matching, SSE/Near Miss events related to placement, flow *watch-points* of care

FIGURE 3-1 System capacity management roadmap.
NOTE: ALOS = average length of stay; D:C = demand to capacity; D/C = discharge; SSE = serious safety event.
SOURCE: Cincinnati Children's Hospital Medical Center.

Defining Focus, Identifying the Components, and Building the Capacity

The basic building blocks of applying a systems approach to health care scheduling include fixing the system orientation on the needs and perspectives of the patient and family; understanding the supply and demand elements; creating capacity for data analysis and measurement strategies; incorporating evolving technologies; creating a culture of service excellence; assuring accountability and transparency; committing to continuous process improvement; and developing a supportive culture and organizational leadership that empowers those on the front lines to experiment, identify the limitations, and learn from those trials. These elements of health care scheduling from a systems perspective are discussed in more detail in the remainder of the chapter. With additional research and testing, these elements of health care scheduling could potentially serve as general principles for improving primary, secondary, hospital, and post-acute care. Although these elements are discussed independently, the central premise lies in their interplay; health care organizations are not discretely separated environments or services, but they are complex groups of processes, personnel, and incentives. These core access principles are therefore interdependent.

Fixing the System Orientation on the Patient and Family

Systems approaches focus on improving products and services placing customer needs at the forefront. When translating these approaches from the commercial setting to health care, however, identifying the "customer" has been challenging, because customers of health care may include patients and their families, providers (e.g., physicians), hospitals, and payers (e.g., the government, insurers, taxpayers) (Womack et al., 2005; Young et al., 2004). For example, improving scheduling includes reducing wasted time for both providers and patients. However, as described in Chapter 1, the committee's "How can we help you today?" philosophy for health care scheduling and access is driven by meeting patient need. Fundamentally, the patient is the primary focus for the organization and delivery of health care services and products. The activities to improve health care scheduling and access should aim to improve the patient experience and meet patients' needs as the foundational tenet of a patient-centered health care system (Bergeson and Dean, 2006).

The committee developed a framework for patient and family engagement for care, scheduling, delivery, and follow-up (see Figure 3-2). The framework uses a value-stream map for an office visit documenting the patient's care through the visit from the perspective of the patient as well as the attributes of an ideal system. As shown in Figure 3-2, each step encountered by the patient during a visit is documented, including the many

1. Query: Patient presents health question
- Patient can access system 24/7; system responds immediately
- Patient's concerns are respected

2. Engage: There is a collaborative process to answer question
- Communication is provided in an understandable and convenient way

3. Schedule: Patient can easily/quickly schedule consultation
- Patient can schedule care 24/7 and can do so online
- Rescheduling is easy and readily available
- New appointments can be synchronized with existing ones

4. Prepare: Patient can make preparations in the interim
- Needed prior approvals and forms are obtained automatically
- Needed lab tests are arranged and scheduled automatically
- New appointments can be synchronized with existing ones

5. Meet: Patient has encounter with health care provider
- Encounter takes place in person, online or by telemedicine
- Encounter takes place on time; patient is given alternatives to waiting (when delays occur)
- Staff is respectful and courteous; exam space private and comfortable
- Team goes to patient

6. Act: The patient and provider take follow-up action
- Understandable visit summary is provided on patient portal and hard copy
- Team uses teach-back to ensure patient understands critical information
- Rest of care team fully informed about visit
- Prescriptions are e-prescribed

7. Communicate: Patient has ongoing care from care team
- Any follow-up appointments are scheduled
- Care team checks in to answer questions or ensure follow-up care
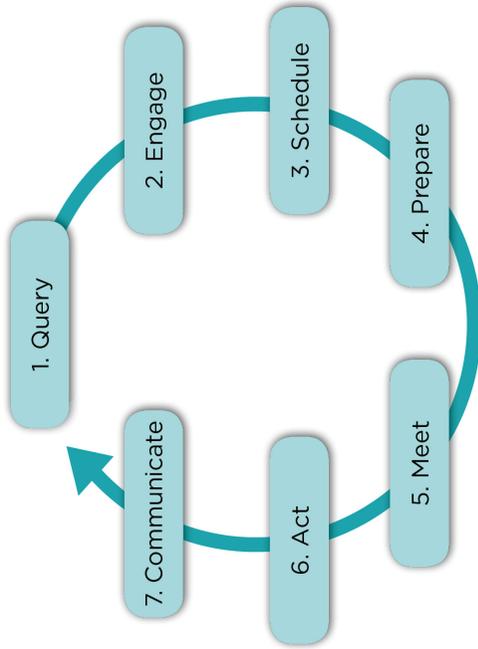
FIGURE 3-2 Framework for patient and family engagement: Care scheduling, delivery, and follow-up.

individual steps that are not intentional yet are part of the typical process. This is followed by a determination of whether each step actually improves the patient visit in some way. Following such an analysis, steps that are not valuable to patients are eliminated.

Institutions that have involved patients in systems redesign activities have reported positive results from such efforts, including improvements in patient safety with reductions in medical errors and improved satisfaction among patients and health care providers (Davis et al., 2007; Graban, 2012; Longtin et al., 2010; Toussaint and Berry, 2013). It is important to note that while involving patients in systematic improvement efforts has shown to have positive impacts, many unresolved questions remain that deserve additional study beyond the scope of this report, about who should be involved and how to ensure that patient involvement has more than a token impact (Armstrong et al., 2013; Martin and Finn, 2011).

Balancing Supply and Demand

Balancing supply and demand at each step along the care continuum is essential for an efficient and effective health care system (Hall, 2012). Poorly performing systems often contain design flaws, due to an excessive focus on the supply side and not on the demand side (Grumbach, 2009). Inherent capacity, for example, the number of appointment slots available, refers to the amount of demand each system can tolerate without creating a mismatch (Anupindi et al., 2005). Imbalance of patient demand and provider supply creates delays and increases wait times. If demand equals capacity, no delay exists. However, variations in either supply or demand can cause temporary mismatches that may increase wait times. Systems strategies require ongoing assessment of supply, demand, work flow, and patient flow, adjusting capacity across days and services, and continuous improvement.

In ambulatory primary care settings, temporary supply deficiencies can often be overcome by flexing or adjusting supply to keep up with demand, by temporarily increasing office hours, or adding another provider. In the primary care setting, capacity is determined by the number of providers, their hours worked, and the total number of patients seen each day. Capacity in the primary care setting is maximized through balanced panel sizes, a commitment to continuity, an appointment decision logic that directs patients to their own provider rather than the first open slot, and fully developed contingency plans that can address demand or supply variations. Optimal performance in this setting is currently measured as a TNA of zero for each patient's regular primary care provider (Murray and Berwick, 2003).

In the specialty care setting, capacity is affected by competing demands, with provider presence having the greatest impact. Capacity, therefore, is

influenced by the frequency of which specialists are absent from the office. A key factor in this setting is that new patients can be a more critical part of a specialty care practice, which necessitates the creation of specific provisions for accommodating both the high volume of work associated with a new patient and the large number of returning appointments that must also be available. As a result, capability in specialty care settings is often determined by the volume of new patients. Whereas primary care systems are designed for providers to act and function as independent units, specialty care systems are designed to function as units of interchangeable providers. In that respect, the design elements that can enhance the capability of specialty care practices include a logic that offers appointment to the first available new patient slot for any provider among the entire set of interchangeable providers, a commitment to continuity once a new visit is completed, and fully developed contingency plans to address demand or supply variation.

Creating the Infrastructure for Data Analysis and Measurement

A health information technology infrastructure, including the creation and implementation of electronic health records (EHRs), is designed to generate data that will enhance the quality of patient care. Better use of the capacity to track patient flow through the health care system is a logical application, with potential to improve understanding of patterns of patient demand, provider supply, and bottlenecks to patient flow, and, as a result, improved revenues, hospital performance, and patient care (Devaraj et al., 2013). Indeed, implementing and sustaining systems strategies to improve scheduling in health care requires real-time performance data. However, most data systems do not currently include operational (e.g., wait times) data.

New systems should ensure that operational data integrate seamlessly with existing processes, and also that operational data are interoperable to enable communication and data exchange with other health care organizations to allow for the creation of a nationwide health information network. To facilitate operational data interoperability and the assessment of comparative performance across various care settings, practices, and circumstances, data need to be collected in a standardized, consistent, and sustained manner. Several aspects of health care scheduling and access that should be measured and for which standards should be identified include: patient and family experience and satisfaction; care match with patient goals; scheduling practices, patterns, and wait times; cycle times, provision and performance experience for alternative care models (e.g., telehealth and other remote site services); and effective care continuity.

The most important standards-setting organization is the individual health care organization itself. Therefore, each health care organization will need to define measures to assess its commitment to creating a standard of

care and performance culture that supports timely scheduling and access. However, to define these measures and identify appropriate standards for scheduling and wait times, for which there are no existing national standards or benchmarks, health care organizations will need reliable information, tools, and assistance from various national organizations with the requisite expertise in developing and testing standards. Furthermore, given the need for flexibility of measures to assess the goals and performance of individual organizations, developing a measurement infrastructure for operational data will require inter-organization coordination to ensure harmony of reporting instruments and reference resources across the nation.

Once standards and benchmarks for access and wait times and corresponding patient experience measures have been identified, such performance data should be accompanied by analytic tools that can continuously monitor current conditions, including the scheduling measures of supply and demand. Health care organizations, again with the assistance of national organizations with expertise in developing and testing standards, will also need to develop, test, and implement standardized approaches to analyzing operational data.

Incorporating Evolving Technologies in Health Care

Various technologies are emerging with strong potential to improve real-time access to care, with the promise of totally new ways of scheduling and delivering care and gathering information on its utility. Use of digital and social media, telemedicine and telehealth, remote monitoring, and related evolving technologies are also well suited for deployment in health care practices. Still, their uptake has been relatively limited to date, for such reasons as unfamiliarity, system mismatch, and absence of reimbursement. Quickening use of these tools in health and health care will require receptivity to innovation, novel partnerships, and collaborative information and experience gathering. Health care providers are slowly developing new skills and integrating novel uses of technology into their organizations. The Health Information Technology for Economic and Clinical Health (HITECH) Act has accelerated use of EHRs, including more use of patient portals to aid information exchange with hospitals and other providers within the same system (Adler-Milstein et al., 2011).

Expanding EHR capabilities foster substantially enhanced insights into the continuum of patient and family experience, documentation of different patient information and preferences, analysis of data trends and predictions, and the integration of real-time monitoring of operations. To effectively use technology requires trust in the tools, adequate education of its potential, and a greater service commitment from the technology sector both for those working within the health care arena and for the patients.

The benefit to both parties must be demonstrated and reinforced, in part through organizational leadership and through individual providers. As practice efficiency and reimbursement changes occur, additional payment reform may be needed (Howley et al., 2015).

Some patients are beginning to take control of their own scheduling as they are gaining access to their medical information. This is not an entirely novel practice, having been implemented in high-performing, early-adopting organizations and practices. The changes described above point to a time when all clinical information is instantly available throughout the nation; when the EHR reveals not only past and scheduled appointments but also the sequence of referrals to specialists and resulting input, and patient preferences are documented throughout the scheduling process.

Creating a Culture of Service Excellence and Leadership Stewarding Change

Implementing systems approaches in health care, including strategies to address scheduling and access issues, requires changes not only in operational processes but also a fundamental shift in thinking. All members of a health care organization must transition from the siloed, independent, and fragmented mentality of traditional health care culture to a culture of service excellence, an integrated approach with shared accountability in which physicians, employees, and patients treat one another with respect and as partners, and patient satisfaction and employee engagement are high.

Organizational and cultural changes needed to support the implementation of systems approaches will require new competencies and participation from all members of a health care organization's senior management team (Trastek et al., 2014). Moreover, because changing an organization's culture often happens slowly, leadership and governing bodies at each level of the health care delivery sites are important in order to drive culture change and manage ongoing process changes (Kabcenell and Luther, 2012). Leadership is also important to establish and model standards of behavior for all employees and to establish educational opportunities to help employees learn the new behaviors. Finally, leadership and governing bodies' commitment at each level of the health care delivery sites is essential to promote transparency, accountability, successful adoption of technology, and continuous process improvement through ongoing monitoring of performance and process to avoid backsliding.

Transparency and Accountability

Transparency on performance draws data from disparate sources and delivers them to those at the front lines of care, including both patients

and providers. Transparency helps employees understand the relevance and impact of change, informs and motivates their actions (on access, scheduling, or the other important elements of the care process), and helps organizations track the progress that they are making toward the desired new culture. Applied to scheduling and access, transparency about operational processes and their effectiveness can facilitate identification of delays and their causes, and also the progress made to reduce those delays. Finally, transparency facilitates messaging that creates organizational consistency—when everyone hears the same message from their leaders, they are motivated to respond in similar ways, and this behavior change can reinforce culture change.

The corollary requirement to transparency is accountability, or shared responsibility for organizational performance, to ensure that change is sustained in an organization (Blumenthal and Kilo, 1998). Accountability for all persons promotes accountability at all levels of an organization (O'Hagan and Persaud, 2009). Whereas the fragmented, independent nature of traditional culture may lead to lack of accountability or individual blame, in a culture of service excellence that takes a systems approach to improvement, accountability ensures that problems are analyzed in a holistic manner. Applied to scheduling and access, accountability may help ensure that delays in patient flow are addressed by all relevant stakeholders across the care continuum, rather than with independent, piecemeal process changes.

Continuous Process Improvement

A defining characteristic of modern health care is the rapidly accelerating increase in information that is available to assist with the delivery of care and system management. This places a high premium on the need for systems to effectively manage the flow of information, but it also requires a commitment by the organization to build and incorporate processes for continuous learning, knowledge sharing, and innovative change. Such characteristics are shared by health systems, including Denver Health, Geisinger Health System, Kaiser Permanente, Seattle Children's Hospital, ThedaCare, and Virginia Mason Hospital and Medical Center, who have adopted methods of continuous improvement such as Lean, the IHI Model for Improvement, and Six Sigma to empower teams to question how things are done and recommend operational changes to improve efficiency (Brandenburg et al., 2015).

Continuous process improvement uses data for ongoing improvement of the quality of a product or service. Continuous process improvement encourages all health care team members to continuously question how they and their system are performing and whether performance can improve (Edwards et al., 2008). Data, transparency, and accountability are critical

enabling factors for a learning culture, which requires the creation of a structured approach to process and outcome evaluation.

CHALLENGES AND BARRIERS

Even in the face of substantial promise from the application of systems strategies to improve scheduling and access in health care, the committee is fully cognizant of the potential barriers and challenges to achieving the gains possible (see Table 3-1). Many have already been introduced in this report. They include practice and infrastructure barriers, such as those related to the challenge of obtaining reliable data (Kim et al., 2009), the capacity of existing technology (Murray et al., 2003; Pearl, 2014), the lack

TABLE 3-1 Possible Barriers to Implementing Systems Approaches in Health Care

	Practice and Infrastructure Challenges
Data	Metrics for organizational performance and clinical outcomes and systems
Technology	Digital health records designed for data needed, patient portals, telephone consultation systems
	Flexibility to accommodate variable information technology uptake and use by patients
	Staff retraining and rescheduling for telephonic and digital communication with patients
Staffing needs	Need for intervention design teams
	Availability of trained nurses, other non-physician clinicians
	Patient interface personnel, reframing responsibilities, training
Regulatory	Health Insurance Portability and Accountability Act (HIPAA) standards (facility and process redesign standards)
	Cultural Challenges
Preconceptions	Convincing that Lean production works with patient care as well as in manufacturing
Leader buy-in	Belief that systems strategies are evidence-based and refocus existing resources rather than requiring new ones
Staff buy-in	Assurance that retraining and reclassification are not threats and that jobs will not be lost
Patient skills	Need to communicate and educate patients about use of new practice procedures
Organizational	Moving organization from siloed, independent, and fragmented to integrated, aligned consultative, with shared accountability

of systems expertise, and the procurement and training of the necessary clinicians and staff (Coleman et al., 2006; Dhar et al., 2011; Jack et al., 2009), and the pressures of organizational and national regulations (Lee et al., 2015; Pearl, 2014). Cultural barriers include those related to pre-conceptions on the use of industrial systems engineering in complex patient circumstances (Kim et al., 2006), the need for leaders, staff, and patients to develop new skills, and preexisting tendencies for organizational units to prefer to work autonomously (Cima et al., 2011; IOM, 2015; Kim et al., 2006, 2009; Krier and Thompson, 2014; Lee et al., 2015; Meyer, 2011; Murray et al., 2003). In each, committed leadership is critical to identifying and addressing these issues.

4

Building from Best Practices

EXPERIENCES IN SERVICE EXCELLENCE

There are a number of emerging best practices associated with systems approaches, and the committee believes that testing, disseminating, and applying these best practices to various systems approaches to improving access and wait times is currently the most promising approach to making progress in this aspect of health care. Therefore, in this chapter the committee describes some emerging best practices in systems approaches that can be applied to the health care sector.

Identifying Emerging Best Practices

The committee identified case examples and innovative systems models that have been shown in limited settings to improve scheduling and wait times while having either neutral or positive effects on the quality of care and on the patient experience. With further research, these models have the potential to be adopted more widely and to become a foundation for standards of care. Such examples are found in all specialties, in all care delivery settings, and in different business models and geographic regions. The committee believes the changes illustrated in these examples can usually be achieved without significant additional investments in personnel or facilities, relying instead on process reengineering, resource reallocation, and behavioral change strategies within the individual settings.

Although national standards for access and wait times do not currently exist, the committee did also identify examples of organization-specific

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BOX 4-1
Representative Benchmarks by Setting

- **Primary care:** Same- or next-day engagement for new and returning patients, contingent on their needs and preferences.
- **Primary care backup for urgent services:** Providers who are unable to see patients for urgent services within 48 hours refer them to others.
- **Specialty care:** Third next available waits of 10 days or less for specialty care new visits. For specialty care visits accompanied by greater sense of patient urgency (e.g., oncology), waits of no more than one day for new patients.
- **Emergency departments:** Ten-minute door-to-provider time (contact with a provider will occur within 10 minutes of patient arrival at an emergency room).
- **Hospital admissions from emergency department:** Holding time in the emergency department should not exceed 4 hours after a decision to admit.
- **Hospital discharge assessment:** Discharge planning begins immediately after admission and initial discharge assessment is completed in the first 24-48 hours of admission.

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benchmarks within various health care settings. For example, some organizations set internal benchmarks of same-or next-day engagement for new and returning patients in primary care (Southcentral Foundation's Alaska Native Medical Center) or first time appointments of newly diagnosed cancer patients (Dana-Farber/Brigham and Women's Cancer Center in Boston);[1] internal benchmarks guide door-to-provider times within emergency departments (Virginia Mason Hospital), wait times for specialty new visits (Cincinnati Children's Hospital), and primary care backup practices for urgent services (Tufts Health Plan Network Health). The Joint Commission has also developed standards pertaining to emergency department boarding times and hospital discharge risk assessments. Organization-specific benchmarks, such as these, serve as promising reference points for future research and validation.

Box 4-1 presents these representative benchmarks and is followed by detailed information on various examples of innovative system models that have demonstrated promise in improving health care operations and performance.

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[1] This information was provided in a Dana-Farber Cancer Institute news release: http://www.dana-farber.org/Newsroom/News-Releases/dana-farber-brigham-and-women%E2%80%99s-cancercenter-now-offers-next-day-appointments-for-new-patients.aspx (accessed June 5, 2015).

Ambulatory Care

The committee has identified best practices for an immediate responsiveness approach to new or returning primary and specialty care patients. These include scheduling strategy models, such as working toward same-day engagement and continuous monitoring and matching capacity and demand, and activities intended to achieve the optimal alignment of supply and demand, including team-based workforce improvement strategies and technology-based alternatives to in-person visits.

Scheduling Strategy Models

Open access/same-day scheduling The advanced access model of patient scheduling, also known as open access or same-day scheduling, has as a core principle that patients can obtain an appointment on the same day if desired (Murray and Berwick, 2003). Appointments are not booked weeks or months in advance, but rather each day starts with a sizable share of the day's appointments being open, with the remainder being appointments for people who elected not to come to the office on the day they called. This workflow model involves only one primary care appointment type. In the early stages of implementation, appointments are divided into two queues or groups of patients, one dedicated to that day's urgent demand and the other open for appointments made when patients called on previous days but did not wish to come in on that day (Murray and Berwick, 2003).

Successful use of the open access model requires accurate forecasting, an engaged team of schedulers and providers, and a carefully determined transition plan. It also requires a commitment, as demonstrated by Baylor Family Medicine (see Box 4-2), to significantly transform scheduling practices. As outlined in Appendix A, the phases of the advanced access method include the initial measurements necessary to determine demand and capacity, the steps for matching demand and capacity, and a transition strategy to scheduling for same-day access, as well as lessons learned on the maintenance of the method and contingency planning.

An effective transition to this model requires the disciplined measurement of demand and capacity, the addition of providers if there is a permanent mismatch of demand and capacity, and the elimination of appointment types. Of key importance in the transition is the elimination of the unnecessary patient backlog, that is, of those patients who have been booked for future visits as a result of an insufficient supply of same-day or next-day visits. Eliminating this backlog requires a temporary increase in patient visits each day until the backlog is eliminated. As the backlog is eliminated, which may require several months, patients are told to call the office when they are ready to be seen, and future appointments cease

BOX 4-2
Examples of the Advanced Open Access Model
in Primary Care

Southcentral Foundation's Alaska Native Medical Center

Southcentral Foundation's Alaska Native Medical Center had some patients who waited hours for acute care or months for nonurgent appointments. To decrease wait times, the center's managers took the following steps: matched patients with physicians, actively worked to address the appointment backlog, developed surge contingency plans, encouraged continuity of care, and adjusted the workforce by assigning tasks to non-physicians (Murray et al., 2003). Now that advanced access scheduling has been implemented, patients are guaranteed same-day appointments if they call before 4 p.m. Although it took months to eliminate the appointment backlog, once it was resolved, roughly half of all appointment slots during the next month were held open for same-day appointments. Implementation challenges included poorly functioning telephones that prevented patients from calling for same-day appointments and, because patients can call for same-day appointments until 4 p.m. daily, a high volume of patients late in the day which can strain clinicians. The keys to successful implementation included the involvement of the entire staff, implementing a data system to track patient access, and technical assistance from outside experts with experience implementing advanced access (Murray et al., 2003).

Baylor Family Medicine

At Baylor Family Medicine, an academic primary care practice, TNA (time until the third next available appointment) ranged from 10 to more than 60 days. When planning to implement advanced access, the practice's projection was told that it would take 11 months to work down the backlog. Matching daily supply and demand in the face of the day-to-day variation in physician availability was also a challenge. To address these implementation challenges, Baylor Family Medicine opted to set a "go live" date for advanced access scheduling and, beginning 3 months prior to the "go live" date, made no appointments past that date. To give patients some flexibility in scheduling appointments, the practice also established a 5-day appointment window, which allowed patients to schedule either a same-day appointment or one in the next 5 days. Patients requiring follow-up appointments were told to call to make that appointment when they were ready to be seen, and the practice established a system to send patients reminders for necessary appointments. Patients were given access to their physicians' clinic schedules through the phone system, in a printed handout, and on the practice's website. The practice also established rules for provider leave, established a new process for complete physical exams, and maintained existing staffing levels. Baylor developed a daily activity report to review daily scheduling and monitor appointments over the coming 5 days. The changes reduced the length of the third next available appointment from an average of 17 days to 1 day, which the practice has sustained for more than 2.5 years (Steinbauer et al., 2006).

to exist. Using this model sustainably requires a deliberate and continuous evaluation of supply and demand and a recognition that the model is a quality improvement method that requires dedicated time and personnel within the practice. It also requires a significant change in thinking about how scheduling occurs—to a model where appointments are available in the near term rather than weeks of months into the future. Despite these implementation challenges, a systematic review found that implementing the advanced access model reduces wait times and no-show rates, although patient satisfaction outcomes are mixed (Rose et al., 2011). Box 4-3 describes case studies of how two primary care practices, Southcentral Foundation's Alaska Native Medical Center and Baylor Family Medicine in Houston, Texas, have implemented the advanced access model to improve scheduling and reduce wait times.

The smoothing flow scheduling model A different approach to achieving same-day access uses the operations management technique of smoothing flow. This method identifies and quantifies the many types of variability in patient flow (demand) and identifies the resources available to different

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BOX 4-3
Example of the Smoothing Scheduling Flow Model
in Primary Care

St. Thomas Community Health Center

St. Thomas Community Health Center, a consortium of safety net practices throughout New Orleans, Louisiana, offers an example of system capacity management in the ambulatory setting. Following the passage of the Affordable Care Act, the amount of uninsured patients at the center increased from 18 percent to greater than 35 percent by early 2014. With fixed financial resources provided by Medicaid and clinic reimbursement rates averaging $30 per visit, the consortium needed ways to be more efficient and cost-effective. At the direction of the chief executive officer, techniques to smooth patient demand were used to improve practice capacity and performance. Improvement efforts based on the science of operations research targeted the widespread variability in the clinics. The methods were focused on improving efficiencies with both appointment setting and patient visits in order to increase throughput and flow. St. Thomas experienced a 35 percent increase in appointment capacity and a 25 percent increase in clinic visits. Increased efficiency has also resulted in reduced patient wait times, additional time slots for same-day and next-day appointments, and improved patient, family, and care team satisfaction. Although the improvement efforts were critical for the center's financial stability, they also proved invaluable in optimizing the center's function as a medical home and increasing its ability to provide high-quality care (Rickard, 2015).

patient groups (supply), with the goal of achieving improvements in wait times. Scheduling practices are tailored to minimize the number of appointment types in order to streamline patient visits (Litvak and Fineberg, 2013).

This approach, which can be applied in both primary and specialty care offices (see Boxes 4-3 and 4-4), involves the study of work flow in the office setting and uses smoothing as a form of dynamic control of the patient and work flow. Phase 1 of the approach focuses on balancing resources for the flow of patients with time-sensitive medical and elective or scheduled appointments. Phase 2 turns attention to the challenge of smoothing elective or scheduled patient flow, such as appointments for yearly physicals, immunizations, or blood pressure checks. Phase 3 addresses artificial variability in demand caused by individual priorities in order to ensure that patients are seen in the right setting, by the right provider, at the right time (IHO, 2015; Litvak and Long, 2000). Box 4-3 describes how St. Thomas Community Health Center, a primary care provider in the New Orleans, Louisiana, area, used the smoothing scheduling flow model to target variability in patient flow within a consortium of primary care safety net practices, and Box 4-4 describes how the Cincinnati Children's Hospital and Medical Center used the smoothing scheduling flow model, focusing on improving existing capacity, to improve and continuously monitor scheduling and wait times in its specialty outpatient clinics.

BOX 4-4
Example of the Smoothing Scheduling Flow Model
in Specialty Care

Cincinnati Children's Hospital and Medical Center Outpatient Clinic

Specialty clinics at Cincinnati Children's Hospital faced increasing demand. To balance this demand with their existing supply and thereby improve access, Cincinnati Children's focused its efforts on improving capacity, namely, provider and resource supply (IOM, 2015). The center first analyzed the supply in its clinics. To improve flow, appointments were reduced to two types (new or return visits), supplemental appointments were temporarily added to reduce backlog, clinic operations were standardized, and the center implemented a clinic cancellation policy (Krier and Thompson, 2014). Following implementation of these changes, the medical center was able to achieve its access target of 10 days or less for the third next available appointment for new visits (Krier and Thompson, 2014). Key to implementing these changes was leadership at all levels and engaging clinical leaders of each division. Although the center has been optimized to perform at peak capacity, continuous monitoring is still required. To that end, Cincinnati Children's Hospital has developed several tools, including a scheduling algorithm and an outpatient supply management tool. The center has also found it important to make financial and productivity data available to providers (IOM, 2015).

Reframing Supply-and-Demand Options

Team-based workforce optimization strategies The adoption of Lean and other techniques of continuous quality improvement could potentially help health care systems to become more team oriented. Team-based approaches to providing health care offer a means to provide health care more efficiently (Grumbach and Bodenheimer, 2004; IOM, 2001a; Leape et al., 2009; Wagner, 2000). These approaches all emphasize such concepts as shared goals, clear roles for team members, mutual trust, and effective communication among different parts of an organization, all in an effort to meet the goal of improving efficiency and eliminating waste (Grumbach and Bodenheimer, 2004). Team-based approaches have the potential to improve quality, productivity, efficiency, and satisfaction among both patients and employees (Montebello, 1994). In addition to increasing overall productivity and efficiency, appropriately and safely delegating certain tasks to non-clinician team members can help increase capacity and thereby improve scheduling and decrease wait times (Brandenburg et al., 2015).

Improving the health care workforce requires data for use in forecasting and managing patient demand in order to avoid an artificial provider-driven component. In practice, however, most forecasts are based on historical averages rather than on the use of newer methodologies based on predictive analytics. Workforce optimization also depends on optimally assigning care tasks to the appropriate members of the care team. For example, wait times for an appointment at the outpatient cardiology clinic at a children's hospital were exceeding 40 days until the program was redesigned to include management by pediatric nurse practitioners. After that, not only did wait times decrease in comparison to clinics run by physicians, but patient satisfaction scores remained high (Evangelista et al., 2012). Another study demonstrated the value of using extended role practitioners, such as physical and occupational therapists, to increase capacity and decrease wait times in an arthritis clinic (Passalent et al., 2013). The increased capacity allowed the clinic to accommodate a rise in patient volumes over the 2-year study period and enabled earlier detection and intervention for patients.

Box 4-5 describes how Group Health in the Northwestern United States implemented team-based care using a patient-centered medical home model (which broadened the role of registered nurses and clinical pharmacists) to improve scheduling in primary care and in chronic care management in particular. Within specialty care, the Thunder Bay Regional Medical Center in Ontario, Canada (profiled in Box 4-6), implemented a shared care clinic that co-locates mental health and primary care services in order to increase coordination across primary and mental health care and to reduce barriers to accessing timely mental health services.

BOX 4-5
Example of a Team-Based Approach to
Scheduling in Primary Care

Group Health

Group Health is an integrated delivery system serving more than 600,000 patients in Washington State and Idaho (Hsu et al., 2012). Having successfully implemented a patient-centered medical home (PCMH) pilot program at their Seattle clinic, Group Health decided to undertake a large, systemwide transformation and spread the PCMH model to all 26 of its primary care practices over 18 months (Hsu et al., 2012). Following a Lean management approach, Group Health implemented four system-level changes and four practice-level changes. Central to the practice-level changes was a team-based approach to chronic illness management. Providers were organized into physician-led teams. Key to this approach was the development of goal-driven chronic illness collaborative care plans and evaluations (Hsu et al., 2012). Physicians used a standardized, generic, disease-specific template to develop care plans with patients, and aimed to develop a care plan for each patient with a targeted chronic condition (e.g., diabetes, asthma, hypertension, chronic obstructive pulmonary disease). Physicians could also use care plans to identify patients requiring additional support. These patients received counseling and follow-up from a registered nurse or clinical pharmacist on the patient's care team until their condition improved. An evaluation of the prototype reported that patients used more e-mail, telephone, and specialist visits, but fewer emergency department visits, and patients reported greater satisfaction with the quality of their care (Reid et al., 2010).

An analysis of the PCMH spread throughout Group Health's integrated practice was also conducted. Among all adults impacted by the intervention, there was a 123 percent increase in the use of secure electronic message threads, a 20 percent increase in telephone encounters, no statistically significant changes for hospital admissions, and declines in emergency department visits at 1 and 2 years (13.7 percent and 18.5 percent) following the spread (Reid et al., 2013).[a]

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[a] The text in this box has been modified since the prepublication to include additional information about the analysis of the PCMH spread through Group Health's integrated practice.

Technology-based alternatives to in-person visits In the primary care setting, the care team often works to minimize or eliminate delays for each day's telephone appointment requests and return appointment requests. Some have suggested that many of the needs of the patients requesting appointments—both in primary and specialty care—could be addressed by non-physician providers or by phone, via telemedicine, or via mobile health units; these alternatives would not serve as a replacement for a needed visit but rather as an alternative form of health care (Charles, 2000; IOM, 2000;

BOX 4-6
Example of a Team-Based Approach to
Scheduling in Mental Health Care

Thunder Bay Regional Health Sciences Center Shared Care Clinic
Because long wait times for mental health care are associated with higher rates of missed appointments and less usage of mental health services overall, Thunder Bay Regional Health Sciences Center decided to implement a shared care model in one of its clinics to reduce wait times for mental health care in the clinics. Shared care for mental health services involves co-locating mental health services within primary care offices. The mental health and primary care providers also shared a common health record, engaged in consultations, and cared for their patients collaboratively. At the Thunder Bay shared care site two full-time mental health counselors and a part-time psychiatrist were added. Primary care physicians referred patients to the mental health services, where the counselors triaged patients to either counseling or psychiatry services, including cognitive-behavioral, psycho-educational, and supportive counseling. Before the establishment of the shared care clinic, the median wait time for mental health care was 97.6 days. For the 3 years after the shared care clinic was established, the median wait time for shared care was just over 30 days, while the median wait time across nonshared care sites was more than 80 days (Haggarty et al., 2012).

Naylor and Imison, 2010). This approach could be used in particular as a way to deal with issues in rural and underserved areas.

Technology can improve patient access to health care both directly and indirectly (IOM, 2012). Telemedicine, the use of electronic information and technologies to support direct clinical services, can be used as an alternative to an in-person visit to a physician and as a way to improve access at a lower cost (Charles, 2000; IOM, 2000). The development of virtual care platforms has made possible a variety of new care models, including electronic-visits, video chat consultations, and other approaches to home-based care. One key to expanding the use of these models will be the development of new payment models to ensure that providers are properly reimbursed and incentivized to install and use these capabilities in their practices. It will also be necessary to develop a technology infrastructure that makes it possible to track, report on, and provide oversight of these patients and their care.

Patient-tracking technologies can help caregivers work more efficiently and improve patient safety by providing real-time information on a patient's location in the hospital system and identifying obstacles to smooth and timely patient flow (Dobson et al., 2013). Interoperable and interactive health information technology systems can alert a care team of

missed appointments to a referring specialist, the presence of new results, or the need for follow-up appointments. Patients can receive reminders of upcoming appointments, manage their prescriptions, or schedule their own appointments (Pearl, 2014).

Technology can assist in the ambulatory environment by routing some office visits to telemedicine visits, with the patients being examined by a virtual clinician; such telemedicine options range from uploading a smart phone photo (e.g., of a skin rash) and sending an e-mail question to the clinician, to sending data from a personal device to the office. One important use of technology will be found in the prework portion of a health care visit. Patients could have a virtual previsit interview to determine the appropriate provider and time for a visit, the need for laboratory or testing in advance of the visit, the need for a medical record screen for outstanding specialist visits and reports, and the transportation needs of patients.

Box 4-7 provides details about how Teladoc in California, Kaiser Permanente Northern California (KPNC), and Virginia Mason Medical Center in Seattle, Washington, have all used technology-based alternatives to improve access to timely primary and specialty care, especially care outside regular business hours. Teladoc, a telemedicine provider with consultant physicians who have no regular relationships with the patients or their regular providers, provides round-the-clock consultations with licensed physicians via telephone or secure Internet video. KPNC offers patients access to providers in primary and secondary care via secure e-mail, telephone, or Web-based video in lieu of and in addition to regular office visits. Virginia Mason Medical Center uses a telephone triage tool to facilitate immediate access to urgent care and to improve scheduling for primary and secondary care appointments for patients presenting with headache symptoms.

Inpatient and Emergency Care Scheduling Strategies

The strategies for implementing an immediate responsiveness approach to inpatient and emergency care patients fall into several categories: admission strategies, care coordination strategies, and the use of predictive models.

Admission Strategies

As described below, some hospitals have redesigned operating room environments to balance resources and the flow of time-sensitive surgical cases with elective scheduled surgeries (Litvak and Fineberg, 2013; Litvak and Long, 2000). The focus of these efforts is to improve access to the operating rooms, emergency department, intensive care unit, and telemetry

BOX 4-7
Examples of Technology-Based Alternatives to
In-Person Primary Care Visits

Teladoc

Teladoc is a large telehealth provider in the United States offering 24-hour access to consulting Teladoc physicians via telephone or Internet video. Teladoc physicians have no established relationship with patients, but patients are matched with physicians licensed to practice in their state. To use Teladoc, patients must create an online account and enter their medical history. Patients can then request either a phone or video consultation with a Teladoc physician whenever they need care. Physicians typically respond to requests within 20 to 25 minutes of receiving the request. In April 2012 the California Public Employee's Retirement System began offering Teladoc consultations as a covered benefit with no copayment to members enrolled in its Blue Shield of California health insurance plan. An early evaluation of Teladoc among these users found that less than 1 percent of eligible members used Teladoc in the first 11 months of coverage; similarly, Teladoc visits made up less than 1 percent of total monthly visits to offices, to emergency departments, and via Teladoc combined. The evaluation found that more than one-third of Teladoc visits occurred on weekends or holidays, which was similar to the rate of weekend and hospital emergency department visits (36 percent) and substantially higher than the rate for office visits (8 percent). The top three diagnostic categories were for acute respiratory illness, urinary tract infections and urinary symptoms, and skin problems. This suggests that Teladoc can help increase access to after-hours primary care while also diverting non-urgent care away from emergency departments. Moreover, 21 percent of Teladoc visits were made by patients who had no previous health care use in 2011, suggesting that Teladoc could potentially increase access to care for individuals without a regular physician or who have difficulty accessing primary care. Finally, contrary to expectations, Teladoc visits were significantly less likely to result in a follow-up visit for a similar condition than visits to a physician's office or the emergency department. Although this early evaluation is suggestive of the potential for Teladoc to increase access to primary care, Teladoc users were younger, healthier, lived in more affluent neighborhoods than average, and may have fewer access needs than individuals with the greatest challenges accessing primary care, such as those living in rural or socioeconomically disadvantaged areas (Uscher-Pines and Mehrotra, 2014).

Kaiser Permanente Northern California

Kaiser Permanente Northern California (KPNC) provides alternatives to in-person office visits via secure e-mail, telephone, or Web-based video. KPNC members can send secure e-mail messages directly to their primary care physicians or to specialist physicians treating them. In addition to asking non-urgent questions in text, patients can attach images and submit completed forms. Frequently, physicians are able to resolve patient's concerns without scheduling inpatient visits. Physicians respond to 83 percent of cases the same day and to 98 percent of cases within 2 business days. For more than a decade, KPNC has

continued

BOX 4-7 Continued

offered 10-to-15-minute telephone visits with a physician in lieu of office visits, and patient satisfaction with the telephone visits is high. Finally, encrypted video technology has been adopted by a number of specialty practices. For example, KPNC began offering video visits to provide after-hours care among patients with urgent needs—but not emergency needs—during hours when both regular practices and urgent care clinics are closed. While patients requiring immediate care were directed to go to emergency departments, the physician consulting via video was able to input information from the video consultation in the patient's electronic health record and thereby facilitate the patient's treatment in the emergency department. These alternatives to office visits have the potential to provide high-quality care at a lower cost than in-person care, although the cost savings have yet to be seen. Assessing the effect of these technologies on the quality of care has also been challenging, because they were implemented at the same time as other quality improvement measures. Barriers to implementation include ensuring compliance with the Health Insurance Portability and Accountability Act (HIPAA) standards; differing uptakes by age, race/ethnicity, and region, which makes it necessary to maintain parallel paper, phone, and in-person systems for patients not using virtual technologies; and the need to readjust physicians' schedules to accommodate time to respond to patient e-mails (Pearl, 2014).

Virginia Mason Medical Center in Seattle

At Virginia Mason Medical Center in Seattle, Washington, a health system transformation using Lean methodology has been going on since 2002 (Nelson-Peterson and Leppa, 2007). One piece of this effort involved the redesign of care for patients with uncomplicated headaches. Analysis of internal data showed that roughly 80 percent of patients who contacted Virginia Mason with headache symptoms had uncomplicated headaches. Such headaches do not require magnetic resonance imaging (MRI) or other specialized imaging, emergency care, or a consultation with specialists; nonetheless, 14 percent of these patients underwent an MRI (Blackmore et al., 2011). To reduce avoidable visits to the emergency department and specialists as well as unnecessary imaging, Virginia Mason created and deployed a simple telephone triage tool consisting of questions that a lay telephone operator can ask to determine what initial level of care each caller needs. Patients with symptoms like fever or trauma that require immediate evaluation were directed to the emergency department, while all other patients were given the option of a scheduled appointment with either their regular doctor or a clinician in the headache clinic. Analysis of this staged triage intervention showed that a single visit with telephone follow-up was sufficient for the evaluation and initial treatment of most patients with uncomplicated headache and avoided multiple visits and referrals. Evaluation of the program between January and June 2010 found that same- or next-day appointments with the headache clinic nurse practitioner were available for 95 percent of the patients needing care, and patient satisfaction scores of patients leaving the headache clinic averaged 91 percent (Blackmore et al., 2011).

beds as well as to improve the quality of care and to determine the required hospital resources (e.g., nurses, operating rooms, beds).

Smoothing flow scheduling model The same strategy used to smooth variability in patient demand in primary care settings can also be used to improve patient flow in the admission process through providing a more structured and balanced scheduling of elective patients and surgical cases (Litvak and Fineberg, 2013). By balancing resources and the flow of time-sensitive emergency and urgent cases with elective and scheduled surgical admissions, the competition for beds and delays in surgical cases can be improved. The uneven influx of elective surgical cases—for which the standard practice is to schedule as many are requested by surgeons with admitting privileges—is a major reason why the demand for beds often exceeds capacity in inpatient units (Litvak and Fineberg, 2013). Smoothing elective admissions has been shown to be an effective mechanism for improving capacity in a busy hospital (Litvak and Fineberg, 2013). Appendix C includes an admission improvement plan detailing one way to smooth elective and scheduled patient flow, and Box 4-8 describes how Mayo Clinic, Florida, and Cincinnati Children's Hospital Medical Center used the smoothing scheduling flow model to improve surgical capacity.

BOX 4-8
Examples of Smoothing Patient Flow in
Inpatient and Emergency Care

Mayo Clinic, Florida, Operating Room Use

Faced with an increasing demand for surgical services, the Mayo Clinic, Florida, used a variability method to increase capacity without building new operating rooms by improving patient flow into hospital operating rooms. First, the surgical team, working with a design team familiar with variability methodology, defined surgical cases as urgent/emergent (cases that due to clinical need must be performed within 24 hours), work-in, or elective. Due to clinical need urgent/emergent cases had to be performed within 24 hours and were further subdivided into five classifications. Work-in cases were defined as those that needed to be performed within 5 days, but not within 24 hours, and were further classified based on clinical versus administrative needs. All other cases were defined as elective. Next, the hospital collected data for 3 months, during which time no changes were made to operating room scheduling procedures. These data were then used to model various scheduling scenarios and allocate rooms to perform urgent/emergent, work-in, or elective cases. For elective rooms, data were also used to

continued

BOX 4-8 Continued

allocate elective operating room block time across rooms and throughout the week to ensure that elective cases were evenly distributed. All existing policies regarding operating room scheduling and functioning were reviewed and modified to align with the redesigned process. The new scheduling procedure was implemented for the entire surgical practice beginning November 1, 2010. The design team managed the implementation, using dashboards covering daily, weekly, monthly, and quarterly data to monitor the program, and they developed decision trees to facilitate real-time scheduling decision making and to manage conflicts. One year after the reengineered scheduling program had gone into effect, surgical volume had increased by 4 percent, representing nearly 500 additional cases annually. Staff overtime decreased by 27 percent, resulting in more than $100,000 in cost savings. The day-to-day variability in surgery case volume and the number of same-day changes to the elective surgery schedule both decreased substantially as well (Smith et al., 2013).

Cincinnati Children's Hospital Medical Center

As is the case in many hospitals, surgeons at Cincinnati Children's Hospital Medical Center scheduled elective surgeries unevenly throughout the week (Litvak and Bisognano, 2011). The hospital chief executive officer used variability methodology to spread these surgeries out over days in order to smooth the flow of patients through operating rooms (Litvak, 2009). By focusing on capacity management and patient flow through the hospital, hospital management was able to achieve a reduction of 28 percent in weekday operating room wait times for emergency and urgent surgical cases, even with an increase in case volume of 24 percent (Litvak, 2009). Furthermore, weekend operating room waiting time fell by 34 percent, despite a 37 percent increase in volume (Litvak, 2009). Using a "pit crew" approach to bed management, the hospital management used coordinated team efforts to complete critically important tasks in the minimum amount of time while avoiding errors (Reid et al., 2009; Ryckman et al., 2009). It has been estimated that, if each of the 5,700 hospitals in the United States achieved only 10 percent of the financial savings that Cincinnati Children's did through this approach, the U.S. health care system would avoid $57 billion in capital costs associated with building new operating rooms and hospital bed occupancy would increase from 65 percent to greater than 80 percent, enough to provide hospital care for every American lacking health insurance (Litvak and Bisognano, 2011).

Implementing a Coordinated Approach to Care

Care coordination is a strategy to improve effectiveness, efficiency, and quality in health care (Bodenheimer, 2008; Hall et al., 2013; IOM, 2001a). Increased care coordination has the potential to prevent unnecessary delays by eliminating redundancies and inefficiencies (Bodenheimer, 2008). Care coordination is particularly critical at various transitions, such as between

providers. In the hospital and post-acute setting, coordinating care is particularly important at discharge. Thus care coordination interventions that have nurses or other non-physicians deliver and coordinate care after discharge, that promote patient self-management in the community, or that otherwise facilitate comprehensive discharge planning can improve patient flow through hospitals by both improving output flow (i.e., assuring timely discharge) and preventing readmissions (Coleman et al., 2004, 2006).

Box 4-9 contains two case studies of organizations that applied a coordinated approach to improving scheduling and wait times in inpatient and emergency care. Specifically, the box describes the UPMC Health System Patient and Family Centered Care Method, which established

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BOX 4-9
Examples of Coordinated Approach to Improving Scheduling and Wait Times in Inpatient and Emergency Care

UPMC Health System Patient- and Family-Centered Care Method

UPMC Health System, formerly the University of Pittsburgh Medical Center, is a nonprofit, integrated delivery system containing 20 hospitals, outpatient sites, and a health insurance division (Meyer, 2011). Anthony DiGioia, an orthopedic surgeon at UPMC in Pittsburgh, and colleagues developed a care process, the Patient and Family Centered Care Method, to improve patient experiences in the hospital's orthopedic program (DiGioia et al., 2010). The method has six steps: (1) selecting a care experience; (2) establishing a care experience guiding council; (3) evaluating the current state of the care experience using tools such as patient shadowing, care flow mapping, patient storytelling, and patient surveys; (4) developing a working group to develop an improvement strategy; (5) creating a shared vision of the ideal patient and family care experience; and (6) identifying improvement projects and assigning project teams (DiGioia et al., 2010). In 2007, UPMC Presbyterian used the method to improve its trauma service care experience. The staff at UPMC Presbyterian began by establishing a PFCC trauma care guiding council, which identified cervical spine collar clearance as an initial project area. A multidisciplinary working group composed of representatives from a variety of professions including: nursing, parking operations, admissions, pharmacy, corporate communications, and physical therapy was then established for this project (DiGioia et al., 2010). The working group shadowed patients and their families and conducted care flow mapping. Next, they mapped out an ideal care experience from the perspective of patients and families. Based on these activities, the working group created a prioritization process for patients requiring cervical spine collar clearance, upgraded the health information technology system for online X-ray reading, and implemented an alert system that uses pager

continued

BOX 4-9 Continued

messages to notify care managers about potential avoidable delays or avoidable hospital days (for which there were an existing process and existing resources) (DiGioia et al., 2010). Within 2 weeks of appointing the working group, wait times for cervical spine collar clearance for priority patients had been cut in half, from 26.5 to 12 hours. In addition, patient satisfaction rates for the emergency department, general trauma inpatient unit, and trauma step-down unit all increased roughly 10 percent (from 77 to 87.4 percent for the emergency department, 70.3 to 79.7 percent for general trauma, and 68.3 to 72.5 percent for trauma step-down) (DiGioia et al., 2010). There are various implementation challenges, particularly as the hospital system scales up the intervention, and one of the more important is getting buy-in from leadership at all levels—specifically, getting hospital executives and departmental leadership to understand that the method is intended to make better use of existing resources and not to increase costs with new purchases (Meyer, 2011). Despite these challenges, the program has since been applied widely to other departments in eight hospitals in the UPMC Health System.

Boston Medical Center

Boston Medical Center is a large, urban, safety net hospital that wanted to reduce the rates of rehospitalizations and emergency room visits after discharge. To improve discharge services, the hospital implemented a program called re-engineered discharge (RED). The RED intervention is built around nurse discharge advocates and clinical pharmacists. Nurse discharge advocates are trained using a standardized manual with scripts and practice sessions to coordinate the discharge plan within the hospital and to educate patients about and prepare them for discharge. Specific activities include making appointments for post-discharge clinician follow-up or testing, coordinating who will follow up with results from any pending tests, confirming the medication plan, reviewing processes for what to do if problems occur, and ensuring that each discharge plan is aligned with national standards. The nurses then assemble information gathered from these activities into an after-hospital care plan, an illustrated, individualized booklet designed to be accessible to individuals with low health literacy. Following scripts and using teach-back methodology, the nurses review the after-discharge care plan with patients prior to discharge. On the day of discharge, nurses send both the after-hospital care plan and the discharge summary to the patient's primary care provider. Two to 4 days after discharge, a clinical pharmacist calls the patients, making at least three attempts to reach them, and follows a scripted interview with them to review the discharge plan. The pharmacist also reviews medications by asking the patients to bring their medications to the phone, addresses potential problems, and reports any issues to the patient's primary care provider or nurse discharge advocate. Results from a randomized study found that patients participating in the RED intervention were significantly less likely to have a subsequent hospitalization than patients under usual care. Patients participating in RED also reported a higher follow-up rate with their primary care physician (62 percent) compared to usual care patients (44 percent). The intervention also resulted in cost savings of roughly one-third, compared to usual care (Jack et al., 2009).

multidisciplinary teams to identify priority areas, obtain patient and family input, and address wait times for cervical spine collar clearance for priority patients, as well as a program at the Boston Medical Center that used nurses and clinical pharmacists to improve discharge processes.

Use of Systems and Simulation Models

Simulation models use a set of rules, or assumptions, to forecast how different scenarios will play out and can be used as a planning tool to match hospital capacity to patient need (Everett, 2002). In the case of inpatient or emergency department planning or scheduling, these assumptions may cover such things as the number of patients, the interval between patients, the number of staff, the number of operating rooms, and the number of patient beds. Working from these assumptions, simulation models can then examine the effect of various hospital staffing configurations on patient flow (Jones and Evans, 2008). Different scenarios can then be compared in order to identify optimal scheduling scenarios (Kolker, 2008). Simulation models can also be used to model how individual patients move through a health care unit. By showing patient flow, simulation models can help identify bottlenecks and indicate ways to improve patient flow and decrease delays (Coats and Michalis, 2001; Stainsby et al., 2009).

Emergency departments have used a variety of techniques, including Lean (the Toyota Production System) to guide redesign efforts (Holden, 2011). As discussed in Chapter 3, Lean is a method to achieve continuous improvement which identifies the features of a system that create value and those that create waste. Lean processes can be used to identify and continuously monitor inefficiencies that may lead to imbalances in patient demand and hospital capacity that in turn lead to delays in patient flow and thus increased wait times, although additional research is needed about the opportunities and implementation challenges associated with modeling for the purposes of predicting and improving scheduling practices. Box 4-10 describes how Grady Memorial Hospital in Atlanta, Georgia, used systems engineering techniques to re-engineer the hospital's emergency department and how Mayo Clinic, Rochester, used Lean and Six Sigma methods to improve surgical processes.

Scheduling Models in Post-Acute Care

Systems approaches and tools from systems engineering applied to scheduling in primary and acute care can also be applied to post-acute settings such as rehabilitation hospitals and skilled nursing facilities. Increased care coordination, the use of multidisciplinary teams, and alternative approaches to in-person visits are all strategies that can be used to improve

BOX 4-10
**Examples of Employing Systems Engineering Techniques to
Predict and Monitor Work and Patient Flow in
Inpatient and Emergency Care**

Grady Memorial Hospital

Grady Memorial Hospital in Atlanta, Georgia, is the fifth-largest safety net hospital in the United States; the hospital serves a population with diverse socio-economic groups, and before the implementation of the Affordable Care Act only 8 percent of patients whom Grady Hospital served were covered by private insurance. Struggling to remain financially solvent, in 2008 Grady management in collaboration with operations researchers undertook a seven-step process to reengineer emergency department operations. This included process mapping of emergency department patient and work flow; analyses of patient arrival, emergency department service processes, and hospital data; the development of a predictive analytic framework to assess patient admissions demands; the application of a simulation model to improve the emergency department system performance; the identification of system improvements for implementation; and the evaluation of system improvements. The optimization model identified several areas for system improvements, of which the hospital adopted the following: combining registration and triage for certain patient groups, reducing laboratory and X-ray turnaround time, optimizing staffing, eliminating batching of patients to bring from walk-in to one of various treatment zones, and establishing a walk-in center to treat non-urgent patients. These changes resulted in a 33 percent reduction in average length of stay, a 70 percent reduction in average wait time, an increased annual throughput across the emergency department, a 32 percent reduction in the number of patients who left without being seen, a 28 percent decrease in avoidable 72-hour and 30-day readmissions among patients with emergency and urgent conditions (Emergency Severity Index acuity levels 1 through 3), and substantial cost savings. Grady Memorial Hospital has subsequently applied this methodology to other units. The emergency department model has also been implemented in 10 other emergency departments, in which performance and clinical outcomes have been similar to those seen at Grady (Lee et al., 2015).

Mayo Clinic, Rochester

Mayo Clinic, Rochester, is an academic medical center with 88 operating rooms in two acute care hospitals (Cima et al., 2011). To improve operating room efficiency, Mayo Clinic, Rochester, used Lean and Six Sigma methods to implement a surgical process improvement intervention. The hospital first developed a value-stream map of patient flow through operating rooms that detailed event location, personnel, and information technology requirements; alternative pathways; and key performance elements (Cima et al., 2011). A multidisciplinary leadership team then analyzed the map and identified five work streams to organize process improvements:

BOX 4-10 Continued

1. To reduce unplanned variation in elective surgical cases, details about prescheduled cases (e.g., case time and estimated duration) and planned surgeon absences were made available to all surgeons, and each surgical specialty was required to develop a standardized case description.
2. To streamline the preoperative process, the hospital developed standardized preoperative assessment criteria, staggered operating room start times (assigned to each operating room and did not change) and respective report times, and staggered patient entry through three self-triaging check-in lines based on report time.
3. To reduce time in operating rooms spent on nonsurgical tasks, the hospital implemented parallel processing, in which these tasks were performed in parallel with ongoing cases in non-operating rooms. The hospital also established targets for turnover time between cases and posted weekly performance metrics outside each operating room monthly.
4. To reduce redundancies in patient documentation, the hospital streamlined its electronic health record in which information collected earlier in the preoperative process was automatically put into future records.
5. Finally, to ensure staff engagement, the hospital established a communication council composed of representatives from all stakeholders that developed and delivered consistent communication plans to stakeholders and resolved concerns. The hospital also conducted staff satisfaction surveys.

The surgical process improvement intervention resulted in significantly fewer wait times of longer than 10 minutes at surgical admissions, significantly higher rates of on-time arrival to the preoperative area, and significantly quicker operating room turnover times. Furthermore, these efficiency improvements resulted in better financial performance and the need for fewer nursing and other non-clinical staff for daily operations, and late shift and overtime needs among surgery and anesthesia nurses decreased despite an increased surgical volume. Despite efficiency and effectiveness gains, there was a need for enhanced staff support/liaison efforts, with three-fourths of respondents to a staff satisfaction survey reporting that the improvement program increased their efforts and staff expressing concerns about job security even though no nursing or allied health staff were either laid off or reassigned to other work (Cima et al., 2011).

scheduling and patient flow and to decrease wait times. Similarly, as is the case in both primary and acute care settings, systems engineering tools that facilitate system-wide assessments and adjustments can be used to streamline patient flow in post-acute care (Litvak and Fineberg, 2013). For example, the Veterans Affairs Polytrauma Telehealth Network (profiled in Box 4-11) supports increased access and care coordination in post-acute care by using video teleconferencing and peer-to-peer networking across rehabilitation teams and between patients and specialty care providers.

BOX 4-11
Example of Innovative and Emerging
Scheduling Models in Post-Acute Care

Veterans Affairs Polytrauma Telehealth Network

Injuries sustained in combat during Operation Iraqi Freedom and Operation Enduring Freedom are of unprecedented severity and complexity, and they frequently require long-term rehabilitation; some combat-wounded veterans will require rehabilitative services for the rest of their lives (Darkins et al., 2008). The reduction in time between sustaining a battlefield injury and arrival for care in the United States further complicates the rehabilitative needs of combat-wounded veterans. To meet this need, in 2006 the Department of Veterans Affairs (VA) established a telerehabilitation system consisting of four polytrauma rehabilitation center (PRC) hub sites that support 21 regionally based polytrauma network sites (PNSs). The Polytrauma Telehealth Network (PTN) was established to make specialist expertise in PRCs available at PNSs and to coordinate rehabilitation services across sites. PTN is also intended to provide comparable or enhanced quality of care at the same or lower cost. Specifically, PTN supports videoconferencing and peer-to-peer networking of rehabilitation teams across the VA, links care across the VA sites and also to Department of Defense counterparts (e.g., Walter Reed Army Medical Center and Bethesda Naval Hospital), allows patients and their families to access distant VA sites (e.g., for specialty care), and supports multicasting for clinical and education activities (e.g., grand rounds). For severely injured patients who may require acute inpatient care in the early stages of their rehabilitation, PTN can facilitate ongoing outpatient care with the same providers in later stages while also allowing the patient to live in his or her local community. For less severely injured patients, PTN allows access to specialty care in their local communities (e.g., direct patient care) and also facilitates care coordination across treatment teams. In 2006 the VA provided 37,234 teleconsultations for patients with mental conditions and supported 25,586 telehealth devices for patients at home who would otherwise have required institutional care (Darkins et al., 2008). Since 2006, the program has been expanded to include 5 PRCs, 23 PNSs, 86 Polytrauma Support Clinic Teams, and 39 Polytrauma Points of Contact located at VA medical centers nationally (VA, 2015b).

Engaging Patients and Families in Systems Design and Implementation

As has been emphasized throughout this report, the committee recognizes that it is important for patients to be core partners in systems redesign. Studies have shown that patients' active management of their own health care is associated with the patients' greater satisfaction with their care and with better health outcomes, quality of life, and economic outcomes (Hibbard and Greene, 2013; IOM, 2013). However, as noted in Chapter 1, providing patient-centered care goes beyond consideration

and concern in direct care. It requires a delivery system that supports the provision of care that meets patients' needs—and thus one that integrates patient values, experiences, and preferences into the design and governance of the health care organization. Designing such a system requires engaging patients in organizational design and governance as well as in their direct care (Carman et al., 2013).

With regard to scheduling and access, as described in Chapter 3, a patient-centered health care system understands its inherent capacity, patient demand, and variations in this supply and demand; this leads to a system that performs at its optimal capability, including with minimal delays, but that is also sufficiently flexible to handle temporary fluctuations in either its provider supply or patient demand. Engaging patients in the assessment, design, and improvement processes can lead to a better understanding of patient demand and thus how the system can be realigned to meet that demand.

Simply implementing an advanced scheduling system is not a patient-centered action unless it strengthens the patient–clinician partnership, promotes trust and collaboration, and facilitates the patient's involvement (Davis et al., 2005). To assess patient experiences and patient satisfaction, including with access and scheduling, health care organizations can use and analyze survey data concerning patient experience and satisfaction, such as data from the Consumer Assessment of Healthcare Providers and Systems (CAHPS) surveys that were described in Chapter 1. These data can then be used to identify areas of waste or delays and also to inform access improvement activities such as process redesigns. The implementation of partnerships with patient advisors and the development of patient and family advisory councils have proven to be effective ways to gather this essential information; however, other methods are needed to evaluate the patient's ability to obtain ambulatory and office-based appointments quickly.

Currently, little information exists on the effects of patient involvement in access-related improvement activities on either operational or health care outcomes. However, areas in which patients could be included in efforts to improve access and optimize scheduling may include: defining preferences, exploring alternative access strategies, contributing to the design of pilot improvement efforts, helping to shape communication strategies, and interfacing with governance and leadership. Box 4-12 describes how Seattle Children's Hospital incorporated patient and family needs and preferences when designing its scheduling approach.

Additional opportunities to engage patients in scheduling and access include increasing transparency and communication through publishing wait times data and developing information systems to support communication about scheduling and future care needs. Currently, few data are available to patients regarding wait times, whether for scheduling appointments or

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BOX 4-12
Example of Patient and Family Engagement
in Design and Evaluation

Seattle Children's Hospital

For over a decade, Seattle Children's Hospital has used a Continuous Performance Improvement (CPI) program, a modified version of the Toyota Production System that adapted Lean methods for the health care setting, to improve the quality of the health care that it delivers (Hagan, 2011). A core principle of CPI is focusing primarily on patients. In practice, this means examining each process and determining which steps add value to the patient from the patient's perspective and which do not (Hagan, 2011; Stapleton et al., 2009). The hospital also involves patients and their families in many, but not all, of its improvement efforts, and their direct participation early in the improvement process has reinforced the value of their input (Hagan, 2011; Toussaint and Berry, 2013). For example, when the hospital built its new Bellevue Clinic and Surgery Center, input from patients and their families early in the construction process revealed that it was important for parents to be able to stay with their children in the preoperative area. The space was designed and built accordingly, resulting in more efficient construction (Toussaint and Berry, 2013). However, patients and their families were not always included in quality improvement activities early on. When Seattle Children's redesigned its ambulatory center, it discovered that despite having reduced appointment wait times by 50 percent, patient satisfaction measures were actually falling (Brandenburg et al., 2015). Further inquiry revealed that many families were less interested in same-day access than in the choice to make an appointment on a more convenient day, and Seattle Children's subsequently changed the scheduling algorithm to include an assessment of family needs and preferences (Brandenburg et al., 2015). Thus, despite the use of multidisciplinary teams including members of executive and clinical leadership (e.g., the chief operating officer, the chief medical officer, and department chairs) and representatives of care teams (e.g., physicians, nurses, and residents) (Stapleton et al., 2009) to improve hospital processes driven by a focus on the patient, without direct patient participation in the process the organization was making inaccurate assumptions about patient preferences (Brandenburg et al., 2015). Leadership is now evaluating other organizational assumptions about patient needs and preferences (Brandenburg et al., 2015).

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for receiving on-time care at the time of an appointment; similarly, there are few data available concerning which systems are achieving the best results with reducing wait times (Brandenburg et al., 2015). The transparency of such data could potentially help patients make better-informed decisions about their care. Patient-centered care requires communication and education, such as providing patients with details on recommended treatment

plans and on the need for and availability of future appointments. The integration of care plans, scheduling, and automatic reminders is a promising application of information technology that could improve access and scheduling throughout the care continuum (Pearl, 2014).

COMMONALITIES IN SUCCESS

This chapter has explored a range of potential approaches and strategies for achieving timely care access across different populations and health care institutions. Because of the nature of the access challenge and the diversity of care settings, it is necessary to employ strategies that can be adapted to local conditions and that are flexible enough to meet changing needs. In the ambulatory care setting, best practices prioritize same-day care and rapid response to ensure that capacity is aligned with demand. Inpatient and emergency care are more variable, so that both care coordination strategies and more sophisticated analyses using predictive modeling may be required. Post-acute care presents an even higher level of variability and may benefit from strategies that prioritize multidisciplinary approaches and developing alternatives to in-person visits that meet patients' needs. Based on a review of the cases as well as the scan of the literature presented in Chapters 2 and 3, the committee identified a number of commonalities among exemplary practices that serve, in effect, as a set of basic health care access principles for primary, specialty, and hospital and post-acute care scheduling (see Box 4-13). These basic access principles are as follows:

Supply–demand matching. A formal and ongoing quantitative assessment of supply and demand is the first principle in providing timely appointments for each request requiring a visit. As described in detail in Chapter 3, measuring and then balancing supply and demand at each step along the care continuum is essential to efficient and effective health care and is also the basic component of a systems approach to managing scheduling and

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BOX 4-13
Basic Access Principles for All Settings

- **Supply–demand matching** through formal ongoing evaluation.
- **Immediate engagement** and exploration of need at time of inquiry.
- **Patient preference** on timing and nature of care invited at inquiry.
- **Need-tailored care** with reliable, acceptable alternatives to clinician visit.
- **Surge contingencies** in place to ensure timely accommodation of needs.
- **Continuous assessment** of changing circumstances in each care setting.

access to health care. Predictive analyses and simulation models are potentially helpful mathematical tools that health care organizations can use to assess patient demand and to project optimum capacity (see Box 4-8).

Immediate engagement. Every patient or family request for care should be engaged upon inquiry, with a query concerning what the problem is and what might be helpful in the moment. "Immediate engagement" may result in setting a goal of same-day appointments in primary care (see Box 4-2), in specialty care clinics meeting their internal scheduling goals of 10 days or less (see Box 4-4), or in practices that seek alternatives to in-person visits to meet immediate, non-emergent needs (see Box 4-5).

Patient preference. Patients should be invited to express their preferences on the timing of the care interaction (Berry et al., 2014). As detailed in Chapter 3, the focus on meeting patient need should drive systems strategies aimed at improving health care, and systems-based approaches to improving health care scheduling and access should be aimed to improve the patient experience and meeting patients' needs, as defined by patients themselves. At UPMC Health System (see Box 4-9), the collection and analysis of patient preference data, assembled using such methods as patient shadowing, patient storytelling, and patient surveys, is an important component of the institutional strategy to improve access. As was the case with Seattle Children's Hospital (see Box 4-12), patient preference data contributed to the redesign of the health system's existing systems program.

Need-tailored care. The options for same-day response should include various proven methods for meeting patients' needs or concerns. As described in Chapter 3 and presented in the examples above, these tailored methods for providing immediate engagement may incorporate evolving technologies in health care for the scheduling and delivery of care, including providing various options for in-person visits with physicians such as phone calls, e-mails, teleconferences, telehealth, e-prescribing, and other forms of e-consults (see Box 4-7). Other methods may use non-physician clinicians such as nurses and clinical pharmacists in new capacities (see Boxes 4-5 and 4-9).

Surge contingencies. Every practice setting should have contingency provisions for accommodating patients' acute clinical problems or questions that cannot be addressed in a timely manner. As discussed in the examples above, technology-based alternatives to in-person visits (e.g., phone calls and videoconferences) to treat urgent but not emergency medical issues after regular office hours have been shown not only to meet patients' immediate concerns but also to allow consultant physicians to ensure the continuity of

care by, for instance, scheduling follow-up in patient visits with the patient's regular doctor and entering clinical notes and messages for the patient's regular doctor through an interoperable electronic health record (see Box 4-7).

Continuous assessment. Patient access metrics—including data on patient and family experience and satisfaction, scheduling practices, patterns, and wait times, cycle times, provision and performance experience for alternative care models, and effective care continuity—should be collected, evaluated, and reported for each practice and clinic. The data collected within each health care organization can serve as tools for evaluating daily activity and monitoring appointments over a specified time period (see Box 4-2), or data can be used to design and test various scheduling models (see Box 4-8). Moreover, to facilitate the interoperability and assessment of comparative performance across care settings, standards and benchmarks on access and wait times should also be developed, tested, and implemented with the assistance of national organizations with expertise in standards development and testing.

CAPACITY IMPLICATIONS

Standards and Quality Improvement Organizations

Throughout the report, the committee has noted that few standards and measures exist to adequately reflect performance on health care access. Reviewing the current evidence and the current state of health care systems, the committee determined that it is not currently possible to develop a nationwide standard, but instead standards must be tailored to reflect the influences of the specific setting. As the evidence base grows, standards and quality improvement organizations should design more specific measures and standards to complement and even replace the current best practices. It is important that these measures and standards be evidenced-based and achievable.

Under the auspices of the Department of Health and Human Services (HHS), both the Centers for Medicare & Medicaid Services (CMS), and the Agency for Healthcare Research and Quality (AHRQ) provide federal oversight of health care quality throughout the nation and provide the leadership needed to incorporate access and methods for improvement into the national strategy for health care redesign. Together the two agencies can assist with the incorporation of access and the integration of systems strategies and operations management.

A particularly important possibility is that CMS could incorporate access and scheduling elements into its current portfolio of funded projects, including the Center for Medicare & Medicaid Innovation, the Hospital

Inpatient Quality Reporting Program, the Hospital Outpatient Quality Reporting Program, the Physician Quality Reporting System, and other long-term care and ambulatory care projects. AHRQ can further the development of access and performance-based measures and incorporate them into the National Quality Measures Clearinghouse.

Representing the private sector, the National Quality Forum (NQF), the National Committee for Quality Assurance (NCQA), and The Joint Commission offer natural complements to the efforts of the federal agencies to spur attention and needed improvements in health care access. Further improvements can be achieved through the integration of routine measures and standards of access as a starting point of a national health care redesign. As the clearinghouse of performance measurement, preferred practice, and frameworks for health care improvement, NQF is an essential stakeholder in the efforts to implement, assess, and improve the recommendations of this report. Of particular importance will be the role of NQF in the development of access measures, specifically patient experience measures that are linked to outcome. In addition, the integration of systems engineering, capacity management, and operations research into their education and outreach programs will be key to ensuring further development of the field.

As a consensus builder in the field of quality improvement and standards, NCQA can assist in the spread of the best practices described in this report. In particular, NCQA's work with technology development and uptake and with the integration of access measures into the Healthcare Effectiveness Data and Information Set and Consumer Assessment of Healthcare Providers and Systems is essential to the redesign to a patient-centered model of health care. The Joint Commission initiative Outcomes Research Yields Excellence is well suited to integrating access-related performance measures into accreditation for hospitals and retail health care clinics. In addition, the inclusion of access measures into the National Patient Safety Goals, and partnership with patient safety organizations that advocate for transparency for patients and consumers (such as the Leapfrog Group) will be a key to introducing and enforcing national attention to this critical component of health care redesign. See Box 4-14 for additional information on these organizations.

Engaging Stakeholders in Design and Implementation

To successfully apply emerging best practices, health care delivery organizations need the expertise and vision of a range of stakeholders, including patients and families, health care organizations, professional societies, insurers and other payers, and the government. The section below describes key stakeholders that are important for implementing, regulating, and sustaining scheduling approaches.

BOX 4-14
Standards and Quality Improvement Organizations

A variety of organizations are involved in establishing and maintaining standards in health care as well as developing measures for the monitoring and assessment of these standards. Brief descriptions of key standard organizations are provided below.

- The Centers for Medicare & Medicaid Services (CMS) plays an important role in the development of standards through the administration of Medicare, Medicaid, the Children's Health Insurance Program, and related insurance and care programs. This includes standards for providers and organizations nationwide as well as a range of programs aimed at improving quality, safety, and payment in the health system, many of which are housed in the CMS Innovation Center (CMS, 2015a).
- The Joint Commission is an independent accreditation and certification program for health care organizations. This includes the development and maintenance of standards for health care quality and performance as well as measures to enable evaluation. The Joint Commission conducts on-site surveys of all certified organizations every 2 to 3 years (JC, 2015).
- The National Committee for Quality Assurance is a care quality organization that administers a variety of programs to support measurement, improvement, transparency, payment reform, and accountability. This includes the accreditation of health plans and the development of measures, standards, and tools for tracking progress and comparing performance, including the Healthcare Effectiveness Data and Information Set (NCQA, 2015).
- The National Quality Forum is a membership-based organization that endorses health care quality measures. Activities include convening multi-stakeholder working groups to evaluate measures, seeking continuous feedback on measure performance, and serving as a forum for stakeholders in the health care measurement community (NQF, 2015).

Patients and Families

A key foundation of this report is that patients and their families are essential to the redesign of health care to improve access. Therefore, their preferences should be actively sought and considered when developing and implementing systems approaches to scheduling. Patients and their families can contribute expertise to help clarify patient demand challenges and help seek innovative solutions. Through a number of informal or formal channels (e.g., patient and family advisory councils, surveys, and focus groups), patients and their families can help define preferences, explore alternative access strategies, and contribute to the design of pilot improvement

efforts, shape communication strategies, and interface with governance and leadership.

Engineering and Operations Research Leaders

As health care further changes with increased financial uncertainty, a continuing need for improved efficiency, and continued vigilance for high quality and safety, the leaders of systems engineering and operations management could contribute to the redesign of scheduling practices. The role of systems engineering leaders could involve offering education to physician executives and administrative leaders as well as the development of an infrastructure of talent and expertise (Valdez et al., 2010).

Professional Societies

Developing partnerships between providers and systems engineers will require the introduction of professional societies to systems approaches and to their potential applications in health care. Professional societies have enormous potential to drive policy, determine priorities for their members, and provide an important lever of change for leaders within organizations and practices. Participating in joint workshops and education efforts will begin the process of creating an interdisciplinary partnership and developing the field of systems engineering in health care. Research has always been a high priority for professional organizations and could be focused on designing and overseeing a systems engineering portfolio of projects. Professional societies could then assist their members in the development of appropriate projects and the implementation of new methods within their practices and organizations (Valdez et al., 2010).

Insurers and Other Payers

Governmental agencies, including HHS, the Department of Veterans Affairs (VA) and the Veterans Health Administration (VHA), and the Department of Defense's Military Health System together influence the delivery of health care to millions of people in the United States and are intimately involved in a variety of efforts that affect health care access. Together with private insurers, they can play a crucial role in the redesign of health care to improve access and decrease cost (DoD, 2014; Levinson, 2014; Murrin, 2014; Nelson et al., 2014).

Insurance company policies have a significant influence over the delivery of health care. Incentivizing providers and administrators to use the techniques of systems engineering to reduce wasteful processes and to streamline health care would lead to a beneficial partnership for all (Valdez et al.,

2010). Insurers are increasingly partnering with providers in accountable care efforts, and the associated financial support could serve to drive a large number of much-needed improvement activities. Insurers play an essential role in health care access reform because of their interest in having a strong financial performance over a longer period of time. As many of the financial effects resulting from systems engineering approaches accrue over several years with no rapid return on investment, this partnership will require a careful calibration of expectations (Gong et al., 2015).

Government

HHS has provided the impetus for the adoption of health information technology (health IT) through the Health Information Technology for Economic and Clinical Health Act (HHS, 2015). As part of the meaningful use of IT, interoperability has been singled out as an area requiring further development, and it is a factor that will have a direct impact on health care access (McGowan et al., 2012). HHS's role in driving additional changes in IT infrastructure and governmental oversight cannot be overstated. The introduction of additional IT functionality through the Office of the National Coordinator for Health Information Technology to ensure standardized measurement and scheduling would allow successful access reform (ONC, 2015). As the national agency responsible for the training, design, and monitoring of the health care workforce, the Health Resources and Services Administration (HRSA) will play an important role in implementing the recommendations, partnering with professional organizations to educate the health care workforce and offer new roles for members of the care team (HRSA, 2015).

Also under HHS, the CMS Innovation Center is involved in funding many start-up projects investigating new payment and delivery models that align with the triple aim to achieve better care for patients, better health for our communities, and lower costs (CMS, 2015c). CMS has already provided funding for the first group of improvement efforts, including the use of e-Consult and e-Referral, and it will be a valuable partner in overseeing the implementation of the recommendations in the heterogeneous setting of health care (CMS, 2015e). The CMS Partnership for Patients was an important partner for emphasizing the need for the patient-centered focus in care redesign, and it laid an important foundation for how this principle of patient-centeredness can be applied to solving access challenges. Because access reform involves a movement toward patient-centered care, CMS wields strong influence in this movement through funding efforts, spreading success, and generally broadcasting the success of using systems engineering and operations management techniques to address the profound delays within the health care system (CMS, 2015b).

National health care providers are also important for facilitating scale and spread of best practices and expanding the evidence base. As presented in this report, the Department of Defense Military Health System is already studying variability of wait times within its own organization, seeking strategies for geographic barriers, and developing benchmarks for wait times and access (DoD, 2014). The VA/VHA efforts will require significant attention to the roles of leadership and the command and control management found within the organization. However, with some of the new efforts recently put into place and the staged introduction of techniques that were previously successful in various VA/VHA facilities, systems approaches could yield very rich results. In a system combining both financial and clinical data, the VA/VHA is set to be the national leader of integrating systems engineering into health care (VA, 2014a).

The cases presented within this chapter, as well as the literature reviewed by the committee, provide a foundation for the committee's recommendations (presented in Chapter 5), which emphasize the needs to anchor scheduling practices within the identified access principles; to adopt systematic approaches to health care scheduling; to address variation of scheduling practices through coordinated efforts to build the evidence base, test best practices, and develop standards; and to incorporate the perspectives of patients and other stakeholder groups in planning, implementing, and evaluating new approaches to scheduling.

5

Getting to Now

CAPTURING THE MOMENT

As chronicled in the committee's assessment, access and wait time challenges exist for patients and families—as well as for providers—throughout the nation. On the other hand, the committee has found ample potential for positive and far-reaching improvements. The term "Getting to Now" reflects the committee's determination—based on their expertise, models found within other sectors, and the literature and case examples found within health care—that there is currently an opportunity to develop systems-based approaches to scheduling and access that provide immediate engagement of a patient's concern at the point of initial contact. These approaches include use of in-person appointments as well as alternatives like team-based care, electronic or telephone consultations, telehealth, and surge capacity agreements with other caregivers and facilities. To reach the goal of immediate engagement, given the complexity of the health care system and the interdependence of participants and processes, no single stakeholder alone can bring about the changes needed to improve access.

In the face of both the increasing complexity of diseases and interventions and the need for greater efficiency and effectiveness, the roles of health care providers have been changing rapidly, from the traditional model of autonomous practice to the current ideal of collaborative, team-based care. This is a significant change and requires the development of an entirely new mental model, particularly for physicians, who may have little experience or training in team-based care. The application of a systems perspective is

a similarly novel concept for practice cultures that have been substantially bounded by their own siloed cultures.

The committee has found that the problems resulting from access and wait time issues go beyond the costs imposed on patients by prolonged wait times, delays in the provision of care, and geographic limitations. These access challenges also generate significant costs associated with the poor quality and waste caused by delays and decreased access. Despite the extent of the challenges, this is an issue that has received little attention, is not routinely measured and reported, and is under-studied. Existing standards for appropriate wait times to get an appointment are few, are based on little evidence, and amount essentially to little more than general reference points.

Still, experiences in various places indicate that the potential exists for progress through process, service, and workforce redesign that need not be resource intensive. Although areas of excellence are steadily becoming more common—including many such areas found in the Department of Veterans Affairs (VA) and the Veterans Health Administration (VHA)—best practices are not yet broadly disseminated, and there has been limited uptake of proven tools and techniques. The collective use of systems strategies, new management approaches, and improved involvement of patients and families can move the current system forward to one that is more patient-centered and can help to provide convenient, efficient, and excellent health care in a variety of settings, without the need for costly investment. As part of the redesign process, decision makers must make creative use of the full range of factors that help to smooth demand and improve supply, including digital technologies, social media, telemedicine, and other new avenues of care delivery. Continuous personal, organizational, and national learning should be the driving forces for improved access, simplified scheduling, and decreased wait times for the nation.

The issues considered by the committee are emblematic of broader challenges and opportunities in health care: e.g., the need to orient all processes and decisions to the perspectives of patients, the importance of taking a systems perspective in dealing with the interplay of complex processes, and the requirements of executive-level leadership to affect change. Each of these challenges is important within the access and scheduling domain. Because change will require broad leadership from stakeholders throughout the nation, the findings and recommendations that follow are targeted to national and health care delivery leaders. With this report, the committee seeks to present both a vision and a roadmap for national progress in this vital area.

COMMITTEE FINDINGS

Throughout this report are various findings related to systemic problems the committee has observed, promising practices it has identified, basic premises for implementation, and the foundations and capacities required for progress (see Box 5-1). The committee's specific findings are presented below.

Variation in Timeliness of Care

Finding: Timeliness in providing access to health care varies widely. Variation ranges from same day in some circumstances to several months in others. This is the product of generally unstructured and nonsystematic

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BOX 5-1
Summary of Committee Findings

- **Variability:** Timeliness in providing access to health care varies widely.
- **Consequences:** Delays in access to health care have multiple consequences, including negative effects on health outcomes, patient satisfaction with care, health care utilization, and organizational reputation.
- **Contributors:** Delays in access to health care have multiple causes, including mismatched supply and demand, a provider-focused approach to scheduling, outmoded workforce and care supply models, priority-based queues, care complexity, reimbursement complexity, financial barriers, and geographic barriers.
- **Systems strategies:** Although not common practice, immediate engagement for patients is achievable through queue streamlining and related systems strategies to access and scheduling.
- **Supply and demand:** Continuous assessment, monitoring, and realigning of supply and demand are basic requirements for improving health care access.
- **Reframing:** Alternatives to in-office physician visits, including the use of non-physician clinicians and technology-mediated consultations, can often meet patient needs.
- **Standards:** Standardized measures and benchmarks for timely access to health care are needed for reliable assessment and improvement of health care scheduling.
- **Evidence:** Available evidence is very limited on which to provide setting-specific guidance on care timeliness.
- **Best practices:** Emerging best practices have improved health care access and scheduling in various locations and serve as promising bases for research, validation, and implementation.
- **Leadership:** Leadership at every level of the health care delivery system is essential to steward and sustain cultural and operational changes needed to reduce wait times.

approaches to the design, implementation, and assessment of scheduling protocols.

Consequences of Delays in Access to Care

Finding: Delays in access to health care have multiple consequences, including negative effects on health outcomes, patient satisfaction with care, health care utilization, and organizational reputation. These consequences are experienced throughout the U.S. health care system, impact how care is delivered and experienced by patients, and could be substantially diminished.

Causes of Delays in Access to Care

Finding: Delays in access to health care have multiple causes, including mismatched supply and demand, the current provider-focused approach to scheduling, outmoded workforce and care supply models, priority-based queues, care complexity, reimbursement complexity, financial barriers, and geographic barriers.

Systems Strategies

Finding: Although not common practice, immediate engagement for patients is achievable through queue streamlining and related systems strategies to access and scheduling. Contrary to the notion that same-day service is not achievable in most sites, same-day options have been successfully employed through a variety of strategies, when devoted to supply and demand assessments, working through backlogs, and achieving balance in the resource allocations and flow patterns.

Supply and Demand Assessment

Finding: Continuous assessment, monitoring, and realigning of supply and demand are basic requirements for improving health care access. Full accounting of capacity elements, scrupulously monitoring the volume and nature of demand, process redesign aimed at improving patient flow and clinic workflow, and better matching patient needs with available staff skills and duties can improve patient volume and access, decrease the cost of care, and lessen the need to add personnel.

Reframing and Expanding Alternate Supply Options

Finding: Alternatives to in-office physician visits, including the use of non-physician clinicians and technology-mediated consultations, can often meet

patient needs. Reframing the supply and demand options is possible also through electronic consultations, telehealth, and surge capacity agreements with other caregivers and facilities.

Lack of Standards for Timely Access to Care

Finding: Standardized measures and benchmarks for timely access to health care are needed for reliable assessment and improvement of health care scheduling. Standards are needed to provide reliable information on comparative performance across various care settings, practices, and circumstances with respect to patient and family experience, including care match with patient goals; scheduling practices, patterns, and wait times; cycle times; the provision of and performance experience regarding alternative care models; and effective care continuity.

Inadequate Evidence

Finding: Available evidence is very limited on which to provide setting-specific guidance on care timeliness. Reliable performance standards cannot be established without better data. To develop the evidence base, health care organizations will need reliable information, tools, and assistance from various national organizations with the requisite expertise—as well as inter-organization coordination to ensure the harmony of reporting instruments and reference resources.

Best Practices for Timely Access to Care

Finding: Emerging best practices have improved health care access and scheduling in various locations and could serve as promising bases for research, validation, and implementation. Although there is not enough available evidence to establish specific standards for scheduling and wait times, innovative systems models and case studies can be identified on the basis of empirical observations of successful practices. With further research into their efficacy, these models have the potential to be adopted more widely and to become the foundation for standards of care.

Leadership

Finding: Leadership at every level of the health care delivery system is essential to steward and sustain cultural and operational changes needed to reduce wait times. Leadership must be devoted to reflecting, sustaining, and enhancing patient-centered care in scheduling and access and the results

must be continually gathered, assessed, made available, and deployed in order to drive and reward improvement.

COMMITTEE RECOMMENDATIONS

Based on these findings, the committee offers 10 recommendations that it believes will accelerate progress toward the spirit and the practice of the immediate responsiveness envisioned as health care's goal (see Box 5-2). The committee recommendations are aimed at the widespread adoption of the basic access principles described in Chapter 4 and summarized in Box 5-3: supply matched to projected demand, immediate engagement, patient preference, care tailored to need, surge contingencies, and continuous assessment.

BOX 5-2
Summary of Committee Recommendations

For National Leadership leading to:
1. **Basic access principles** spread and implemented.
2. **Federal implementation initiatives** with multiple department collaboration.
3. **Systems strategies** broadly promoted in health care.
4. **Standards development** proposed, tested, and applied.
5. **Professional societies** leading application of systems approaches.
6. **Public and private payers** providing financial incentives and other tools.

For Health Care Facility Leadership leading to:
7. **Front-line scheduling** practices anchored in the basic access principles.
8. **Governance commitment** to leadership on basic access principles.
9. **Patient and family participation** in designing and leading change.
10. **Continuous assessment** and adjustment at every care site.

BOX 5-3
Basic Access Principles for All Settings

- **Supply–demand matching** through formal ongoing evaluation.
- **Immediate engagement** and exploration of need at time of inquiry.
- **Patient preference** on timing and nature of care invited at inquiry.
- **Need-tailored care** with reliable, acceptable alternatives to clinician visit.
- **Surge contingencies** in place to ensure timely accommodation of needs.
- **Continuous assessment** of changing circumstances in each care setting.

The recommendations that follow are aimed at building the essential foundational elements for the implementation of these basic access principles at the national level and on through to the levels of the individual health care facility. The embedded centerpiece of the recommendations is a focus on the needs of the patient and family, and the development of the skills and tools necessary to lead an organizational culture of service excellence in the execution of that focus.

Recommendations for National Leadership

The committee recommends that

1. National initiatives to address scheduling and access issues related to primary, specialty, hospital, and post-acute care appointments should be anchored in spreading and implementing basic access principles, including: supply matched to projected demand, immediate engagement, patient preference, care tailored to need, surge contingencies, and continuous assessment.

2. With active support and leadership led by the Secretaries of the Department of Health and Human Services, the Department of Veterans Affairs, and the Department of Defense, coordinated federal initiatives should be initiated to draw upon the leadership and resources of the multiple federal agencies that are important to the practical and reliable realization of access principles throughout the nation. These efforts more specifically include

    a. The Secretary of Health and Human Services, in close collaboration with the Secretaries of Defense and Veterans Affairs, should develop and test strategies to move from the office visit as the default site of care delivery to a broader care system, with expanded roles for telehealth, in-home visits, and group visits.

    b. The Agency for Healthcare Research and Quality should strengthen its efforts to identify and disseminate the experiences of organizations with effective, innovative activities to expedite patient access.

    c. The Office of the National Coordinator for Health Information Technology (ONC) should develop and test models of information technology to support the monitoring and analysis of operational data, including access metrics on scheduling and wait times. These data should integrate seamlessly into existing systems and be interoperable to enable communication and data

exchange with other health care organizations and the assessment of comparative performance. ONC should also develop and test analytic tools that can continuously monitor current operational conditions, including the scheduling measures of supply and demand. ONC should provide technical assistance to health care organizations regarding the implementation of these operational data systems and analytic tools.

d. Major federally operated direct clinical service providers, including the Department of Defense and the Department of Veterans Affairs, should work individually and cooperatively to develop and test emerging best practices across different settings and geographic locations. The principles of the most successful models should be widely implemented.

e. The Health Resources and Services Administration should strengthen the capacity of its network of community health centers to share information about successes and failures in efforts to transform access to care, and it should assist with the implementation of the recommendations by partnering with professional organizations to offer education of the health care workforce.

3. All coordinated efforts across federal agencies should include representation from leaders of health care delivery systems, patients and families, and industrial engineering who should work collaboratively with leadership of the federal departments to improve the broad application, assessment, and promotion of systems strategies for continuous learning and improvement in health and health care.

4. Measure developers and accreditors such as the National Quality Forum, the National Committee for Quality Assurance, The Joint Commission, and the Leapfrog Group should collaborate in research and development initiatives to build understanding and action for proposing, testing, and applying standards related to the access principles. These initiatives should include

a. Capacity assessments (supply)—Assessment should be conducted on staffing levels, exam room capacity, and hours and days of operation.

b. Patient factor assessments (demand)—Research should be conducted on the various implications of patient numbers, patient query volume, patient timing preferences, and impacts of no-shows.

    c.   Pilot demonstrations—Alternative approaches should be tested through pilot demonstrations.

    d.   Systems tools and expertise—Assessment instruments should be developed for use by organizations in identifying and applying systems-oriented practices and professionals.

    e.   Best practice assessment—Inventories should be developed and assessed on best practices under different circumstances.

5.   Professional societies should work with standards and certification organizations to advance professional awareness, understanding, and application of systems approaches, tools, and incentives for the implementation/uptake of systems strategies to assess and improve health care scheduling and access that are grounded in the six access principles. This includes

    a.   Engineering partnership models—Models should be developed for partnering with systems engineering professionals for care improvement.

    b.   Systems curricular components—Curriculum initiatives should develop modules for incorporating systems approaches into the education of health professionals.

    c.   Care access research and demonstration—A research agenda should be developed for demonstration projects to improve insights on the necessary education, skill sets, and cultures that are most conducive to advancing systems approaches to care access.

6.   Public and private payers—and employers who pay for care—should be active participants in system improvement through initiatives that encourage creativity and innovation in the implementation and achievement of the access principles. These initiatives include

    a.   Payment that is consistent with or supportive of innovative approaches—Payment strategies should be developed to enable innovative access improvement approaches, such as the use of teams, virtual consults, and expanded hours.

    b.   Access assurance networks—Support strategies should be developed to encourage access assurance networks, such as inter-organization backup and redundancy plans.

    c.   Access learning networks—Approaches should be developed to ensure more rapid information sharing concerning successful strategies for access improvement.

Recommendations for Health Care Delivery Systems Leadership

The committee recommends that

7. The front-line scheduling practices of primary, specialty, hospital, and post-acute care appointments should be anchored in basic access principles, including supply matched to projected demand, immediate engagement, patient preference, care tailored to need, surge contingencies, and continuous assessment.

8. The leadership and governing bodies at each level of the health care delivery sites should demonstrate commitment to implementing the basic access principles through visible and sustained direction, workflow and workforce adjustment, the continuous monitoring and reframing of supply and demand, the effective use of technology throughout care delivery, and the conduct of pilot improvement efforts.

9. Decisions involving designing and leading access assessment and reform should be informed by the participation of patients and their families. The potential ways that patients could provide their expertise through informal or formal channels (e.g., patient and family advisory councils, surveys, and focus groups) include contributing input on their expectations, experiences, and preferences for scheduling practices and wait times; helping representatives of health systems explore alternative access strategies; contributing to the design of pilot improvement efforts; helping to shape communication strategies; and interfacing with governance and leadership.

10. Care delivery sites should continuously assess and adjust the match between the demand for services and the organizational tools, personnel, and overall capacity available to meet the demand, including the use of alternate supply options such as alternate clinicians, telemedicine consults, patient portals, and Web-based information services and protocols.

ACCELERATING PROGRESS

Focus on Patient and Family

Achieving meaningful improvement in scheduling and access will depend directly on how engaged patients are in the improvement process. Understanding the demand side of the scheduling equation requires a

thorough evaluation of patients' needs and expectations for their care as well as a continuous monitoring of patients' ability to access the care they need. No matter whether one approaches the area from the perspective of the philosophy of the care process, the effectiveness of the clinical outcome, the satisfaction of both patients and clinicians, or the development of patient-controlled health care tools, it is clear that, to an ever-increasing degree, patients have a critical and very active role to play in health care. This role is not limited to their own care but extends to participation in shaping the progress of the nation's health system toward improved quality, efficiency, and access at every stage. Harnessing the engagement and the potential of patient and family leadership for improvements in scheduling and access can be a critical step down the path of the broader culture change that will lead to health care that is more effective and more efficient.

Systems-Oriented Strategies

The committee's exploration of successful case studies and strategies for success revealed a strong potential—and need—for learning from the practices of other sectors in which operations research and systems strategies have transformed overall performance. There is certainly much to be gained through the use of systems strategies in reducing wait times and ensuring adequate and timely access to care while improving the effectiveness and the efficiency of the health care organization. Tools such as Lean and the lessons learned from such industries as aviation and customer service have demonstrated the significant potential that exists in the health care system for gains in efficiency and access. The success in some places of applying queuing theory and engineering models to deal with the complexity inherent in health care scheduling—the diversity of populations served, the range of services provided, and the frequency of no-shows and other anomalies—offers but one example of the importance of a system-wide perspective across all aspects of health care in embedding engineering practices, tools, and skills as a fundamental component of health care that continuously learns and improves.

Leadership

Ultimately, the successful implementation of the committee's recommendations—and of broader efforts to transform performance in health care—will depend on leadership. This certainly means leadership from the top of the organization, at the level of the chief executive officer and board of directors, but it also means leadership involvement from stakeholders in every aspect of health care. Achieving meaningful access will require not only strategic vision at the outset but also sustained attention, assessment,

feedback, and initiative at every level of the organization. The basics of a culture of service excellence, with the full involvement of patients and families, commitment to continuous monitoring and assessment, transparency, accountability, and empowering organizational leadership and decision making from participants at every level, will help ensure that every patient—whether they are seeking help immediately or at a later point—receives the right care at the time they need and expect it.

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Appendixes

Appendix A

Background Papers

OPEN ACCESS OR ADVANCED ACCESS SCHEDULING

Mark Murray, M.D., M.P.A.
Mark Murray & Associates, LLC

Primary care services form the core of the ambulatory health care system, are in high demand, and are characterized by the most prolonged waits. Access to robust primary care also lies at the heart of effective delivery system reforms, such as with the formation of accountable care organizations (ACOs) and patient-centered medical homes. Current attempts to triage health care appointments based on anticipated patient acuity are unreliable, costly, and operationally difficult. Preferable is the presumption of same-day response to requests, with patient preference serving as the key determinant of the actual timing and nature of care or provision of alternative arrangements. Presented below is one successful method to provide same- or next-day appointments. Although presented in sequence, many of the steps will overlap in practice. Active involvement of patients and their families is an integral part of the design, implementation, and evaluation of this plan.

Actions in Phase One:
Past and Prospective Data Collection

Current visit rate = total number patient visits in the last year ÷ total number of patients

Demand = the number of appointments generated on any given day. This includes appointments made ON today FOR today and appointments made ON today FOR any day in the future.

* If demand is counted only as appointments seen on any given day, it would only equal the number of appointments on the schedule. The demand calculation could then potentially miss any appointments that could not be accommodated and were therefore pushed out to a future day.

Supply (Capacity) = (the number of appointment slots per day for each clinician in a practice) × (the days of work per week by the clinician)

Activity = the daily number of patients who arrive and receive care from a provider

Panel size = the number of patients seen by a physician in the past 12 months

    a.   Patients who have seen only one provider for all visits are assigned to that provider.

    b.   Patients who have seen more than one provider are assigned to the provider they have seen most often.

    c.   The remaining patients who have seen multiple providers the same number of times are assigned to the provider who performed their most recent physical or health check.

Backlog = appointments booked for future dates = previous demand showing as work to be completed in the future.

Actions in Phase Two:
Balancing Demand and Capacity

- Determine panel size for the practice and for each provider within the practice, and calculate the unique unduplicated patients seen in the last year. The panel sizes for each provider may be different.
- Determine the practice visit rate using the practice average as well as the individual visit rates. Recognize that the patient visit rate includes visits to the patients' preferred provider in addition to visits to someone else in the practice.
- Develop a spreadsheet that compares *demand* to *capacity* at both the practice and individual practitioner level.
- If the practice balances but the individuals do not, develop a plan to achieve balance by an immediate transfer of patients or a gradual change of patients through natural attrition. The goal is for each provider to be slightly underpaneled to provide some surge capacity and slack.
- If providers are overpaneled (too many patients per provider), use strategies to reduce demand and improve capacity enhancement to achieve a balance before addressing any backlog.
- Start to measure and record daily demand, capacity, and activity.
- Monitor panel size monthly.
- Determine the current third next available appointment (TNA) for the practice and each provider. In the case of an extended TNA, develop a backlog reduction plan.
- Book future appointments for 3 to 4 months in advance only and do not hide demand within a waiting list.
- After initial review of patient panels, restrict the responsibility for shifting patients from one provider to another to a single individual (a "broker"), and keep track of the reasons for change.

Actions in Phase Three:
Addressing Backlog

- Measure extent of backlog. This can be done by TNA or by counting the number of prebooked appointments on the schedule. Some of these patients are appropriately prescheduled in the future due to physiology. The backlog is not as bad as count.
- Set a date to start backlog reduction and an expected end date. The end date will be the start date for the new advanced access schedule

template. Backlog reduction is "everybody work," not just provider work—staying late involves everyone.

- Add capacity in the form of more visits per day in order to stop the delay from accumulating and to catch up to the delay.
- During backlog reduction, there will be three queues:
  — A queue for the currently prebooked appointments for the day,
  — A queue for urgent/same-day appointments, and
  — A queue for patients booked into the future, backlog appointments.
- Initially, the urgent slots will fill early and most of the backlog slots will be urgent. With progress toward eliminating the backlog, gradually loosen the criteria for who gets into the backlog slots. At the end of backlog, as evidenced by a significant reduction in TNA, the backlog slots will be filled by traditional types of appointments.
- Once the backlog is gone, eliminate both the urgent slots and the backlog slots and commit to finishing all the work each day.

Actions in Phase Four:
Using the New Scheduling Template

- The goal is to see patients on the day they call the office and not schedule the majority of visits into the future.
- Build the new schedule template with a single appointment type, which will involve a significant workflow change. Instead of appointing new patients to the first open slot on any schedule, schedulers will look for the specific designated provider and appoint to that provider.
- Once there is no daily backlog, as evidenced by open slots each day, continue to measure the TNA for the single appointment type.
- Schedule return patients back late in the week and early in the day, when demand is usually lowest. This is load leveling.
- When scheduling return appointments, it is essential to look at the entire schedule to avoid overbooking of any particular day in the future. The goal is to spread out demand from patients who choose a day other than today with prescheduled return visits in order to preserve enough time for expected daily demand.
- Develop contingency plans:
  — Plan for post-vacation and out-of-office recovery. Make a plan for equitable coverage of patients from the absent providers.
  — Develop a plan to manage the end of the day, particularly when the schedule is "full."
  — Develop a safety-recovery plan to determine if a patient needs to be seen immediately. In the absence of urgency, all patients are offered an appointment today. Most are appointed today. Some may be

seen immediately. Patients who choose to wait are appointed onto the future schedule.

- Use a care team workload analysis for the entire practice to drive unnecessary work away from providers.
- Demand reduction strategies can help balance an unbalanced equation or can serve to open capacity for new patients entering the practice when supply and demand are balanced. Examples of demand reduction strategies include:
  — Committing to continuity to reduce "system churn"
  — Doing more with each visit
  — Extending visit internals
  — Using the telephone as a means for follow-up
  — Expanding the use of staff for some appointment work
  — Scheduling group visits when appropriate
- Distribute the new patient work only to underpaneled providers. Monitor the over-under panel monthly, and open or close providers to new patients either monthly or weekly.
- Once the practice is in a steady state, new patients are accepted at the same rate that patients graduate from the practice.
- Create a flow map of the patient journey at the encounter, and identify delays between steps. Use office efficiency strategies to improve the flow of work.

REENGINEERING FLOW THROUGH THE PRIMARY CARE OFFICE

Eugene Litvak, Ph.D.
Institute for Healthcare Optimization

The balance of providing timely appointments to patients who need and want them while maintaining a smoothly running practice can be a challenge. Transition is often best accomplished in phases and involves the active participation of all those affected by the change, including patients and families. The following represents one three-phased approach. Phase one focuses on balancing resources and flow of patients with time-sensitive medical complaints with those with elective or scheduled appointments. The main goals of this phase are to improve patient access for those with time-sensitive needs (same-day access and walk-ins) and to decrease the operational chaos that results from competing demands for appointments. The second phase turns attention to the challenge of smoothing elective or scheduled patient flow, such as appointments for yearly physicals, immunizations, or blood pressure checks. The main goals of this phase are to maintain continuity with a specific provider to maximize the quality of care, decrease competition between scheduled and unscheduled appointments, and to enhance office throughput of patients. The third phase aims to optimize capacity in the office to improve quality, safety, and throughput. Using alternative ways of addressing patient concerns, alternative settings of care, and alternative providers when needed creates the opportunity to correct the size of the appointment type and number to better match capacity with demand.

Actions in Phase I

- Separate patients into homogenous groups (i.e., same-day access or walk-ins versus scheduled flows, new patients versus return patients). or
- Develop and implement a physician-driven urgency classification system for triage based on key patient symptoms.
- Prospectively collect 3 months of data based on the above classification system to accurately determine case mix in terms of urgency.
- Calculate how many appointment slots are needed based on past statistics and staff accordingly.
- Develop and establish standard operating procedures and processes to appropriately accommodate unscheduled and scheduled patients.
- Reduce waiting times for same-day or walk-ins, increase throughput, and decrease overtime for staff by evaluating patient flow through clinic and the involved processes that provide roadblocks.

- Walk-ins and same-days may not always get to see their own doctor. Continuity is not a problem—another set of eyes may be good.
- Implement redesign, and monitor patient flow performance.

Actions in Phase II

- Prospectively collect 3 months of data based on the above classification system to accurately determine case mix in terms of urgency.
- Track cancellations and no-shows.
- Develop a cancellation policy for scheduled appointments and no-shows. Options include
  — Overbooking patient appointments if the number is less than 10 percent. If for a particular weekday, statistics for a single provider reveal that there are two no-shows, then on average, two patients can be overbooked without any risk of overtime.
  — Allow additional overbooking if providers agree to work until all patients are seen.
- Smooth the flow of scheduled patients to decrease the competition from unscheduled office arrival, such as walk-ins and same-day appointments, maximizing the throughput to decrease wait times.
  — Analyze drivers of variability, and identify necessary scheduling changes to achieve schedule smoothing.
  — Increase officewide throughput to achieve consistent nurse-to-patient staffing.
  — Increase patient placement in appropriate areas within the clinic, such as in registration, lab, office, and checkout.
- Phone call data can be used as a means to improve throughput.
  — Determine the distribution of calls for each day and hour of the day.
  — Determine the drivers of call variability.
  — Develop office strategy and resources for answering phone calls to minimize the loss of potential patients.

Actions in Phase III

- Once scheduled demand is smoothed, determine the number of appointment slots needed for same-day, walk-ins, and prescheduled patients.
- Evaluate the role of artificial variability in flow and scheduling bottlenecks to minimize the influence of provider and staff preference on throughput.
- Estimate resources (e.g., providers, staff, rooms, shared equipment) needed for each type of flow to ensure right care.
  — Determine alternative ways of addressing patient concerns (phone call, e-mail, smart phone data, etc.).

- — Consider alternative settings of care (group visits, virtual clinician, mobile health unit, etc.).
- — Develop alternative providers when needed (office staff for prescription refills, postdischarge follow-up by nurses, scheduler-led triage, managers for billing and insurance triage, etc.).
- — If the number of nonclinical calls is negligible, an ad hoc method to address them could be adequate; however, if the number of these calls is significant, carve out a resource with a defined role to provide nonclinical intervention.
- Prospectively collect data based on the above criteria to accurately determine demand.
- Review office capacity scenarios using data, and make necessary changes to better match capacity to demand.

REENGINEERING FLOW THROUGH THE
ACUTE CARE DELIVERY SYSTEM

Eugene Litvak, Ph.D.
Institute for Healthcare Optimization

Coordinating the function of the operating room and inpatient units is one of the most challenging tasks in health system reengineering and is perhaps best tackled in stages. Key to the successful design, implementation, and evaluation of these plans is the active participation of patients and families. The following represents one three-phase approach. Phase one focuses on balancing resources and flow of time-sensitive emergent/urgent with elective/scheduled admissions (mostly surgical). The main goals of this phase are to improve patient access and decrease daily operational chaos that results from competing demands. The second phase turns attention to the challenge of smoothing elective/scheduled patient flow (e.g., surgical, catheterization lab, or radiology procedure) to inpatient units. The main goals of this phase are to improve quality and safety of care on corresponding units, decrease competition between scheduled and unscheduled flow on inpatient units, and to enhance elective surgical or medical throughput (or both) depending on the hospital's priorities. The third phase aims to correctly size inpatient units to improve quality, safety, and throughput to alleviate medical ward bottlenecks that can feed back to the operating room. This phase addresses artificial variability in admissions, discharges, and transfers and improves throughput in selected medicine units by ensuring appropriate patient placement and improving the timeliness of admissions, discharges, and transfers out. In doing so, it also creates the opportunity to correctly size medical wards to better match capacity with demand.

Actions in Phase I

- Develop and implement a surgeon-driven urgency classification system that will determine the maximum acceptable wait time for each surgical case.
- Prospectively collect 3 months of data based on the above classification system to accurately determine case mix in terms of urgency.
- Develop and establish standard operating procedures to appropriately accommodate unscheduled and scheduled flows.
- Evaluate and choose from redesign models based on data.
- Implement redesign, and monitor patient flow performance.

Expected Outcomes in Phase I

- Increased surgical throughput.
- Decreased operating room overtime.

- Decreased wait time for urgent/emergent surgeries, and improved compliance with desired maximal acceptable wait times.
- Decreased hospital acute length of stay for urgent/emergent patients
- Improved outcomes for urgent/emergent surgical patients.
- Enabled further operating room efficiency improvement such as on-time starts, lower turnover time, and high-performance teams for elective blocks.
- Improved patient satisfaction relating to decreased elective case delays.
- Improved staff satisfaction and retention.

Actions in Phase II

- Accurately determine your truly elective inpatient admission volume for the selected service(s).
- Collect prospective data if needed.
- Analyze drivers of variability, and identify necessary scheduling changes to achieve schedule smoothing.
- Assess and realign weekend resources as needed.
- Evaluate and choose from redesign models based on collected data.
- Implement smoothing redesign, and monitor patient flow performance.

Expected Outcomes in Phase II

- Increased throughput in smoothed inpatient unit.
- Increased placement of patients in the optimal units with decreased postanesthesia care unit boarding and interunit transfers.
- Higher reliability in nurse-to-patient staffing level leading to lower morbidity and mortality.
- Improved staff satisfaction and decreased use of nursing overtime.
- Quality improvement in terms of decreased readmissions, decreased use of rapid response teams, decreased rate of hospital-acquired infections, and patient safety issues.

Actions in Phase III

- Develop and implement patient-centered admission, discharge, and transfer criteria that will determine what clinical characteristics are necessary for admission to and discharge from the selected unit(s).
- Implement admission, discharge, and transfer criteria; monitor adherence to criteria as well as patient flow performance.
- Prospectively collect data based on the above criteria to accurately determine demand and clinically appropriate length of stay for the selected unit(s).

- Review bed capacity scenarios using data, and make necessary changes to better match capacity to demand.

Expected Outcomes in Phase III

- Increased placement of patients in the optimal units.
- Decreased waits and emergency department boarding.
- Decreased interunit transfers.
- Improved emergency department and inpatient unit staff satisfaction.
- Potential decrease in acute length of stays.
- Quality improvement with decreased readmissions, decreased use of rapid response teams, decreased rate of hospital-acquired infections, and increased patient safety.

FRAMEWORK FOR ACTIVE PATIENT INVOLVEMENT IN ACCESS AND SCHEDULING

James B. Conway, M.S.
Harvard School of Public Health

Core Principles of Patient- and Family-Centered Care

- Dignity and respect: Providers listen and honor patient and family perspectives and choices.
- Information sharing: Providers share complete and unbiased information in ways that are affirming and useful.
- Patient and providers equally participate in care and decision making.
- Patients and providers equally collaborate in policy and program development, implementation, and evaluation, as well as the delivery of care (IPFCC, 2010).

Tenets of a Patient- and Family-Centered Access and Scheduling System

- Patients are the source of control (IOM, 2001).
- Access is defined from the patient perspective.
  - I get information and services that meet my needs, not just a visit, by using a wide range of asynchronous approaches—smart phone apps, e-visits, my home or workplace, and online scheduling.
  - I have access to the right people to match my needs, not just to physicians, but to community health workers, lay care coordinators, interdisciplinary teams, and pharmacists.
- Right care, right place, right time, every time.
  - "I get the care and information I want and need when, where, and how I want and need it"—Donald Berwick, IOM Engineering Optimal Health Care Scheduling: A Public Workshop (2014).
- Waits can contribute to the burden of illness.
- All health systems set the goal of offering an appointment on the day and time the patient choses.
- The system meets the patient where they are:
  - By expanding hours worked per day and number of days worked per week;
  - By addressing cultural and technological competency;
  - By including navigation assistance whenever needed; and
  - By remembering that, for many patients and family members, engagement is therapeutic.
- All health systems set goals of increasing access, supporting care continuum, and reducing time to next appointment.

- As part of future models, the team comes collectively to the patient as opposed to the patient seeking out multiple individuals.
- Engagement is not just looking good but doing good.

Hypothetical Model of Application

1. Questions arise around health and health care:
   — Patient, family, and staff seek counsel when new questions arise or new information is needed.
   — The system for moving forward is understood by all.
2. Collaborative processes are implemented to move forward and to get answers:
   — Focus first and foremost on meeting the needs of the patient: providing the right care, at the right place and the right time, every time.
   — Use a wide range of asynchronous approaches.
   — Ensure access to the right people to match needs.
   — Engage patient and family members in full partnership, with questions prompted, invited, answered, and understood by all.
   — Make a consultant immediately available.
3. Scheduling test, treatment, consult, and so on:
   — Ensure an efficient processes: one person, one call, one time.
   — Offer a wide range of approaches, such as scheduling online, in person, or over the phone, with navigation and other assistance, such as language and access support, when needed.
   — Determine what works best for the patient and family.
   — Seek out and address any special needs and requirements.
   — Prepare in advance, and provide fact sheets.
4. In the interval: focus on questions and preparations:
   — Ensure immediate access to a person 24/7.
   — Solicit and answer questions.
   — Distribute and follow through on preparations.
   — Provide directions.
   — Provide preappointment notifications.
5. Once the appointment is held:
   — Update administrative needs and medication.
   — Ensure that all parties are on time (patient, family, and staff), or are informed if not.
   — Deliver care in appropriate and respectful setting.
   — All parties prepare questions, listen, and respond.
   — Patient choses who is with them.
   — Document in electronic health record (EHR) system.
   — Next visit follow-up before leaving.

6. Follow-up actions taken:
   — Results and follow-up actions are communicated to patient and family members in real time in person, via end-of-visit note, and in patient portal.
   — Results are communicated to care team in real time.
   — Patient and family members are engaged in any revision to care plan.
7. Ongoing care is provided with care team (patient, family, and all staff).

Patient and Family Collaboration in Design and Continuous Improvement of Access and Scheduling Systems

- Overarching principle: Patients and family members collaborate in policy and program development, implementation, and evaluation, as well as in the delivery of care (IOM, 2011).
- Application: This principle is applied in the individual experience of care, in microsystems, in organizations and systems, and in the community.
- Specific to access and scheduling:
  — Design/re-design: Any time groups meet to design or redesign access to and scheduling of care, patients and family representatives are full members of the design team from the beginning through the end of the process.
  — Continuous improvement: The voice of the patient and family is sought as a key collaborator in improvement.
  — Construct design: Embracing application of the findings on high reliability and mindfulness is a helpful illustration (Weick and Sutcliffe, 2001).
  — Transparency of real-time performance is the goal.
  — Improvement practice is grounded in high-reliability principles of mindfulness as explained in Table A-1.

TABLE A-1 Application of Mindfulness to Patient- and Family- (P&F-) Centered Access and Scheduling

Principle	Definition	Applications to Scheduling
Preoccupation with failure	Regarding small, inconsequential errors as a symptom that something is wrong; finding the half-event	Staff asking, P&F reporting, and everyone listening to what P&Fs experienced in access and scheduling or almost experienced.
Sensitivity to operations	Paying attention to what's happening on the front-line	Staff seeks to understand from P&F the gap between system designs on paper versus actual delivered. P&F are probed for their experience as they moved over time and across the continuum.
Reluctance to simplify	Encouraging diversity in experience, perspective, and opinion	Staff measures the effectiveness in meeting what matters most to P&F. Diverse counsel is sought in all system design. "One-size-fits-all" solutions are rejected.
Commitment to resilience	Developing capabilities to detect, contain, and bounce back from events that do occur	There is a commitment to resilience. Whenever things go wrong, P&F are engaged in the solution. All simulations of new processes are conducted in partnership with P&F.
Deference to expertise	Pushing decision making down and around to the person with the most related knowledge and expertise	There is respect for all that the P&F bring as partners in care at every level of the organization.

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Appendix B

IOM Workshops in Brief

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Engineering Optimal Health Care Scheduling: Perspectives for the Nation— Workshop in Brief

On November 21, 2014, the Institute of Medicine's (IOM's) Committee on Optimizing Scheduling in Health Care convened a public, one-day workshop titled "Engineering Optimal Health Care Scheduling." Funded by the Department of Veterans Affairs (VA), the aim of the session was to explore standards for patient access to health care services across the continuum of care to inform the work of the committee and to shape the content of their upcoming consensus report.

As outlined in introductory comments by committee chair Gary Kaplan, CEO of Virginia Mason Health System, the identification and assessment of best practices and standards for wait times in health care require looking at the entire care delivery system as a single and complex entity with many interrelated and dynamic parts. The workshop convened leading authorities on care delivery, operations management, systems engineering, and patient engagement and satisfaction to

- Better understand the current practices and standards in appointment scheduling and reasons for variation;
- Consider optimization strategies and experiences in health care and other industries;
- Discuss the role of patients and family as catalysts for achieving operational excellence in health care;
- Explore the changing mental model for frontline personnel involved with scheduling improvements; and
- Examine the disciplined structure for change and a strategic and scalable approach to continuous improvement.

The workshop included four panels: current best practices, patient experiences and expectations, technical approaches to wait time improvement, and an overview of the day's discussion. In addition, a working lunch session considered issues in identifying a toolkit for health systems to implement optimal scheduling practices. For each panel, a moderator and several speakers provided framing comments and presentations that then opened to general discussion. This brief summary of the workshop captures the major topics and issues that emerged over the course of the day and is accompanied by a Workshop in Brief specifically targeted to perspectives for the Veterans Health Administration. Statements, recommendations, and opinions expressed are those of individual presenters and participants and are not necessarily endorsed or verified by the Committee on Optimizing Scheduling in Health Care or the IOM, and they should not be construed as reflecting any group consensus.

Current State: Practices, Standards, and Innovation

Throughout the course of the workshop, many presenters and commenters, including Kaplan and Mark Hallett of ThedaCare Center for Healthcare Value, emphasized the importance of addressing this issue from a systems view, focused on the value stream throughout the continuum of care. "Underlying the system changes are the stories that either propel us to new pinnacles or keep us pinned to our current performance," said Peter Pronovost of Johns Hopkins Medicine.

The observation came from many speakers that the components that drive the scheduling process are dynamic and require continuous monitoring and balancing of the supply and demand on the system.

> Our scheduling process actually begins with a single question when we get a patient calling on the phone. That question is: "Would you like to be seen today?" Recognizing that patients have different needs and different behaviors, and in fact, those behaviors, be it speed sensitive or relationship sensitive, aren't static. They are dynamic. They change based on the situation (Hallett).

David Krier of Cincinnati Children's Hospital emphasized in his presentation that "from [Cincinnati Children's] perspective, it is not terribly complicated, but that doesn't mean it is easy . . . For the most part, we have kept our focus on supply. That is primarily because it was within our sphere of control to do so." Terra Thompson, also from Cincinnati Children's Hospital, expanded upon this concept, detailing the processes and measurements that the health system uses to gauge their capacity (see Figure 1, page 3). They have found that making the financial and productivity data available to their providers is key.

Continuing the notion of using a systems approach to improve access and wait times, Andrew Gettinger, of the Office of the National Coordinator for Health IT, stated in his presentation that managing outcomes goes beyond managing IT. He outlined the variation in the scheduling systems at the Dartmouth Hitchcock Hospital and Lahey Clinic, explaining that neither system was better, but rather built to produce outcomes specific to their unique environments. "I don't believe it is about the IT. I believe it is about the operations that implement the IT," he said. Reflecting on the panel, Steven Lawless of Nemours introduced the distinction between designing a system to be optimal versus efficient. "Efficient could be more of an internal phenomenon; optimal has to be from the customer's perspective," said Lawless.

Patients and Families as Change Agents: Experiences and Expectations

The need to engage patients and family members in the beginning stages of designing a better scheduling system was raised by several speakers and discussants, both with respect to improving patient satisfaction in current systems as well as achieving optimal systems in the future. Panelists divided their comments to focus on the human factors aspect of scheduling and the patient perspective on wait times.

Sara Czaja from the University of Miami provided an overview of the changing trends in consumer expectations and roles in their care. Cjaza noted that "consumers are expected to be empowered and take a more active role in health self-management. There is an increased use of technology within the health care arena that has expanded the realm of health-related tasks that consumers are expected to or can perform." Pascale Carayon, University of Wisconsin, continued on this theme, speaking to the multifaceted role of the scheduler. As Carayon put it, "They also have huge social organizational functions. Their role is a lot more than a formal role. There are a lot other informal roles... [and] it is really unclear whether providing different technology is something that is going to reduce or potentially increase visits in the clinic."

David Andrews noted that from his standpoint as a patient with significant experiences with waits and scheduling, "How much of the issue is the wait, [and] how much is the communication about the wait?" He and several other commenters discussed the importance of turning time spent waiting into valuable time in which information is exchanged between the provider and patient. Ashley Benedict of the VA spoke to the potential value that could be added if IT systems could integrate patient appointment times with clinical needs, to identify and complete work that could be done prior to the patient–physician face-to-face.

The discussions of human factors and patient perspective were synthesized into closing remarks by Kristen Carmen of the American Institutes for Research, who noted that "efficiency and optimization is always from a perspective, purchaser's perspective, payer's perspective, patient's perspective, and provider's perspective. I think we need to do a much better job of making those differences in perspective or those commonalities in perspectives transparent."

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FIGURE 1 Cincinnati Children's Hospital scheduling algorithm to effectively match supply and demand to improve access to care.

NOTES: AUH = agreed-upon hours; EOY = end of year; FTE = full-time equivalent; SMT = supply management tool.

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SOURCE: Cincinnati Children's Hospital, as presented by David Krier and Terra Thompson on November 21, 2014.

A Roadmap for the Nation

William Pierskalla of the UCLA Anderson School of Management facilitated a discussion on developing a short-term roadmap for institutions to address scheduling issues and to begin transitioning to an optimal method of scheduling and access to care. He highlighted the major components of the care delivery process: the pre-visit period of scheduling and patient arrival to the care facility, the waiting period prior to connecting with the provider,

and the period in which care services are delivered. He emphasized that improving patient flow through these stages required continuous process improvement rather than addressing issues and increasing resources in each discrete period.

To kick off the audience participation portion of the workshop, Pierskalla asked where the roadmap begins. A range of ideas emerged. Both Kaplan and Andrews underscored the need to engage patients at the ground level of transformation. Michael Davies of the VA noted the importance of increased transparency and standardization of acceptable wait times used across the nation, in both public and private sectors. Jackie Griffin of the Department of Defense (DoD) advocated for increased flexibility in hospital operating procedures, and Michael Dinneen of the DoD re-emphasized the need to assess the entire value stream rather than individual parts.

Pierskalla guided the conversation from high-level comments on culture change to focus on the specific measures that health care institutions could implement to affect said change. Several participants considered the incorporation of a measure assessing the linkage between mortality and wait times. Teri Pipe of Arizona State University suggested that measures should focus on the patient and caregiver experience as well as the experiences of inter-professional and interdisciplinary teams in the hospital setting. Patricia Gabow, formerly of Denver Health, described the need to distinguish measures by application, on the individual or system level. Warren Sandberg cautioned against focusing on individual metrics given the complexity of the system, saying that by doing so, "we may actually sub-optimize the system." Kaplan echoed this sentiment and described the approach at Virginia Mason, in which every employee is required to have a comprehensive understanding of the management system and its basic principles.

Technical Approaches to Wait Time Improvement

Thomas Nolan from the Institute for Healthcare Improvement framed the panel by acknowledging that other industries have had success with implementing technical approaches, using "scheduling as an intervention" to optimize customer satisfaction and reduce waste in systems. The presenters used their experiences working both in health care and other industries to detail the ways in which IT tools can be harnessed to implement systems changes to scheduling processes in the care delivery setting.

Wes Walker of Cerner described innovative health IT tools, such as mobile scheduling platforms and patient portals that are being implemented by individual organizations across the country that view access and scheduling improvement as a key component of achieving high-quality care. As he put it, "[The University of Missouri Health System] put the patient at the center, and they looked at the holistic process with the understanding and the idea that the appointment was a means to an end. The goal was the clinical interaction."

Speaking from her expertise in operations research, Zelda Zabinsky of the University of Washington provided several anecdotes of the consequences related to a segmented approach to improving patient flow, thus emphasizing the importance of maintaining a systems view when tackling these issues. Determining the specific bottleneck in the system is difficult, said Zabinsky, describing the phenomenon: "You have a big balloon, and you squeeze one place, and it pops out another place."

Judy Worth, of the Lean Transformations Group, LLC, provided strategies for creating sustainable organizational change across a value stream according to Lean principles (see Figure 2, page 5). Reflecting on the implementation of Lean principles in manufacturing operations, Worth highlighted the need to connect these principles to the institution's broader purpose and goals, as was learned from the Toyota experience.

Several of the discussants raised the issue of an unevenly distributed workflow burden with the implementation of some of these IT tools, and stressed that the tools showing the most promise are those that are collaborative in nature. While agreeing that IT tools are adding value, Michael Harrison, from the Agency for Healthcare Research and Quality, noted, "You can get a really fantastic algorithm that is going to solve a specific problem, but it doesn't generate capacity among the members of that system to deal with the next thing down the line, whether it is an unintended consequence or something else."
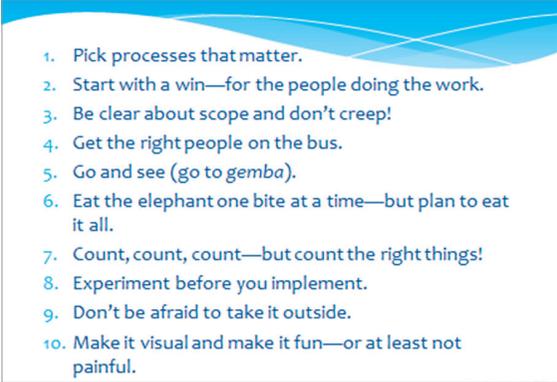
1. Pick processes that matter.
2. Start with a win—for the people doing the work.
3. Be clear about scope and don't creep!
4. Get the right people on the bus.
5. Go and see (go to *gemba*).
6. Eat the elephant one bite at a time—but plan to eat it all.
7. Count, count, count—but count the right things!
8. Experiment before you implement.
9. Don't be afraid to take it outside.
10. Make it visual and make it fun—or at least not painful.

FIGURE 2 The Lean Enterprise Institute's 10 Strategies for Organizational Change.

NOTE: Gemba = Japanese word for "the real place."

SOURCE: Judy Worth of the Lean Transformations Group, LLC, as presented on November 21, 2014.

Best Practices for Health Care

Donald Berwick from the Institute for Healthcare Improvement reminded the workshop audience of the charge set by Kaplan at the beginning of the day to inform the committee on the best practices and strategic priorities that could be included in the report recommendations. He opened the final panel with a series of questions: "What did you hear that is cross-cutting and memorable? What are the implications of what we heard today for future steps to take? One of the things I am going to be thinking about and hope our panelists will comment on is: is there any way to accelerate the embrace of the sciences of systems in the kind of care we give?"

Maureen Bisognano of the Institute for Healthcare Improvement re-emphasized the need to redesign the care delivery system around the user, patients and caregivers. Christine Sinsky of the American Medical Association highlighted the discussion points surrounding balancing supply and demand from a systems view. Robert Dittus of Vanderbilt University reviewed the players and resources that health care organizations need in order to fully implement systems engineering methods. He advocated for more coordination among health care teams, and for redefining these teams to include industrial engineers, mathematicians, and most importantly, patients as equal contributors. Additionally, he spoke to the variation across the care continuum and recommended that systems be flexible, saying, "If your scheduling system doesn't acknowledge the different settings that can be utilized, you are not going to have the right system."

Kaplan closed the session by inviting the audience to view the workshop as a call to action. "We need to create a movement," he said. "I think the trump card is really the patients and how we galvanize our communities around what is reasonable to expect from the health care system, and then, how do we make sure that we use the systems engineering approaches as well as the many other things that we have talked about to make that happen."

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Engineering Optimal Health Care Scheduling: Perspectives for the Veterans Health Administration— Workshop in Brief

On November 21, 2014, the Institute of Medicine's (IOM's) Committee on Optimizing Scheduling in Health Care convened a public, one-day workshop titled "Engineering Optimal Health Care Scheduling." Funded by the Department of Veterans Affairs (VA), the aim of the session was to explore appropriate standards for access, triage, and scheduling of health care services across the continuum of care to inform the work of the committee and to shape the content of their forthcoming consensus report.

As outlined in introductory comments by committee chair Gary Kaplan, CEO of Virginia Mason Health System, the workshop convened leading authorities on care delivery, operations management, systems engineering, and patient engagement and satisfaction. Kaplan discussed the potential role that systems engineering could play in driving improvement in health care. "How do we better bring together the systems engineering principles that have been so effective in so many industries and yet have gotten only very little traction in health care?" he asked. He said that applying systems thinking and intelligently deploying measurement and analysis could be transformative for the health care system by unlocking new potential pathways for change.

The workshop included four panels: current best practices, patient experiences and expectations, technical approaches to wait time improvement, and an overview of the day's discussion. In addition, a working lunch session considered issues in identifying a toolkit for health systems to implement optimal scheduling practices. For each panel, a moderator and several speakers provided framing comments and presentations that then opened to general discussion.

This brief summary of the workshop captures the major topics and issues discussed over the course of the day that are most applicable to the Veterans Health Administration, and it is accompanied by a Workshop in Brief targeted at perspectives for the broader U.S. health care system. Statements, recommendations, and opinions expressed are those of individual presenters and participants and are not necessarily endorsed or verified by the Committee on Optimizing Scheduling in Health Care or the IOM, and they should not be construed as reflecting any group consensus.

Current VA Practices and Standards in Appointment Scheduling

Peter Pronovost of Johns Hopkins Medicine introduced the session on current practices and standards, saying that the controversy regarding VA wait times for available appointments brought to light needless suffering and the disrespect associated with poor management of scheduling and resources at the VA and in the health care system nationally. This session was an opportunity, he said, to hear stories told by organizations that were able to make meaningful improvements in this area. "Underlying the system changes are the stories that either propel us to new pinnacles or keep us pinned to our current performance," he said.

Throughout the first panel discussion, speakers discussed the challenges, limitations, and opportunities for the VA in its efforts to improve scheduling. Mike Davies of the VA noted that the VA faces a variety of technical challenges. "The VA's information system is 30 years old," he said, and the VA has been asked to measure individual

patient waiting times, which is a complex and sophisticated function. David Krier of Cincinnati Children's Hospital noted that the VA currently measures wait times, in the context of an appointment visit cycle time, as the time between when registration ends and when a clinician begins to document in the electronic record. As a result, he said, the VA has not yet been able to monitor how long patients wait in the exam room, or more generally, how much time may be wasted once a clinical encounter begins. He acknowledged that this challenge exists in the private sector as well. "I think that is what our biggest struggle is," said Krier.

Patients and Families as Catalysts for Achieving Operational Excellence in Health Care

The second panel of the day focused on the perspectives, needs, and roles of patients in optimizing scheduling. Matt Puglisi, a veteran now working at Aptima, Inc., provided background on some of the specific challenges the VA faces in meeting patients' expectations for timely care. "The VA system was not consciously designed," he said, instead growing over time, beginning with the Civil War, in reaction to post-war needs for expanded health care resources for veterans. He noted that categorization and associated eligibility requirements for veterans contribute significantly to the complexity of connecting veterans with needed health care services at the VA. "The eligibility for an individual veteran depends. Did you serve during the war? Do you have a service-connected disability? How bad is that disability? That affects what care can be provided by the VA." These decisions about eligibility are further complicated when patients are also eligible for Medicare and/or Medicaid or have private insurance.

Several commenters, including Ashley Benedict from the VA and Pascale Carayon from the University of Wisconsin, also discussed the significance of variations in patients' perceptions of wait times. "The idea of perceived versus actual wait is not the same for every patient," said Benedict. Additionally, Benedict noted a need for balancing measures for people's perceptions. "From the IT component, if we could predict what patients needed and their appointments coming up, and I could get my lab work done, that might not be a waiting time for me because there is a value-added activity that is happening between now and being seen in my actual appointment." Carayon and Puglisi discussed some of the potential limitations of measuring time alone in assessing waits, noting that measures of perceived wait times or of patients' satisfaction with wait times could add critical additional meaning. "You may find that by talking a little to patients if you can spare the time, they may be able to withstand longer wait times and be as or more satisfied," said Puglisi.

Optimization Strategies and Experiences in Health Care

Mark Hallett from ThedaCare Center for Healthcare Value discussed patient-centered scheduling and the practices to improve capacity of their system:

> Our scheduling process actually begins with a single question when we get a patient calling on the phone. That question is: "Would you like to be seen today?" Recognizing that patients have different needs and different behaviors, and in fact, those behaviors, be it speed sensitive or relationship sensitive, aren't static. They are dynamic.

The presenters from Cincinnati Children's Hospital, Krier and Terra Thompson, acknowledged the similarities between their home organization and that of Hallett's as adopters of systems-thinking to transform their systems and achieve high quality results. Yet they also cautioned that even once a system is optimized and performing at its peak capacity, it is still extremely complex and fragile and thus challenging to sustain. As a strategy for maintaining performance, Thompson highlighted the importance of leadership at various levels, stating the need to ensure that clinical leadership at the division level is engaged and aware of their role in the optimization strategies for the system (see Figure 1).

FIGURE 1 Cincinnati Children's Hospital scheduling algorithm to effectively match supply and demand to improve access to care.

NOTES: AUH = agreed-upon hours; EOY = end of year; FTE = full-time equivalent; SMT = supply management tool.

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SOURCE: Cincinnati Children's Hospital, as presented by David Krier and Terra Thompson on November 21, 2014.

Several speakers and commenters, including Patty Gabow (Denver Health), Krier, and Hallett, also discussed centralized scheduling as a necessary precondition for achieving a meaningful reduction in wait times, while ensuring that high-quality clinical decision making is applied in triage. Krier said that he would support separating scheduling and triage functions, such that scheduling becomes centralized and triage functions move closer to clinicians.

Andrew Gettinger of the Office of the National Coordinator for Health IT spoke of the operational details that contribute to optimizing scheduling, such as open access to appointment times and appointment pre-approvals. In discussing the ability to enhance capacity using advanced IT tools, such as virtual visits, Christine Sinsky of the American Medical Association cautioned that "they are an enhancement, but they are not necessarily the solution."

Identifying a Structure for Change

In the closing session on common themes and best practices, participants including Davies, Pronovost, and Donald Berwick, Institute for Healthcare Improvement, commented on potential approaches to both improving scheduling at the VA and ensuring that scheduling is well managed throughout the care system. Berwick identified "two different voices in the room"—(1) the conversation focused specifically on the challenges surrounding scheduling mechanics and immediate strategies for improvement, and (2) the conversation focused on broader organizational changes possible by implementing and embracing systems engineering techniques.

Davies and Berwick discussed the potential benefits of identifying baselines and benchmarks for scheduling and wait-time performance, as a tool for both understanding the causes and consequences of wait times and for monitoring progress as interventions are undertaken at the VA. Davies said:

> In the context of all of these forward thinking, clearly exciting and relevant comments, I would just ask you to think about the question of how do we ensure some floor, some standards, something that is a little deeper that would have given us some predictive [indicator] that this was going to happen.

Several discussants, including Benedict and Robert Dittus, Vanderbilt University, emphasized the importance of ensuring that systems engineering approaches are incorporated into the care delivery setting. Kaplan closed the session by reminding the audience that this issue is a national challenge. "We need to create a movement," he said. "I think the trump card is really the patients and how we galvanize our communities around what is reasonable to expect from the health care system, and then, how do we make sure that we use the systems engineering approaches as well as the many other things that we have talked about to make that happen."

Appendix C

Committee Member Biographies

Gary Kaplan, M.D., FACP, FACMPE (*Chair*), has served as Chairman and CEO of the Virginia Mason Health System since 2000. He is also a practicing internal medicine physician at Virginia Mason. Dr. Kaplan received his medical degree from the University of Michigan and is board certified in internal medicine. Since Dr. Kaplan became Chairman and CEO, Virginia Mason has received significant national and international recognition for its efforts to transform health care. The Leapfrog Group named Virginia Mason "Top Hospital of The Decade" for patient safety and quality, a distinction shared with only one other hospital. For the fifth consecutive year, The Leapfrog Group also named Virginia Mason as 1 of 65 U.S. hospitals to be designated as a "Top Hospital." In addition, Virginia Mason has received HealthGrades' "Distinguished Hospital Award for Clinical Excellence" for 5 consecutive years. Virginia Mason is considered to be the national leader in deploying the Toyota Production System to health care management. In addition to his patient-care duties and position as CEO, Dr. Kaplan is a clinical professor at the University of Washington and has been recognized for his service and contribution to many regional and national boards, including the Institute for Healthcare Improvement, the Medical Group Management Association, the National Patient Safety Foundation, the Greater Seattle Chamber of Commerce, and the Washington Healthcare Forum. Dr. Kaplan is a founding member of Health CEOs for Health Reform. In 2007, Dr. Kaplan was designated a fellow in the American College of Physician Executives. In 2011, he was named the 12th most influential U.S. physician leader in health care by *Modern Healthcare* magazine, and the same publication ranked Dr. Kaplan 33rd on its list of the "100 Most

Influential People in Healthcare." In 2012, he was named the second most influential U.S. physician leader in health care by the same publication. In 2009, Dr. Kaplan received the John M. Eisenberg Award from the National Quality Forum and The Joint Commission for Individual Achievement at the national level for his outstanding work and commitment to patient safety and quality. Additionally, he was recognized by the Medical Group Management Association (MGMA) as the recipient of the Harry J. Harwick Lifetime Achievement Award. Each year, the MGMA and the American College of Medical Practice Executives honor one individual who has made outstanding nationally recognized contributions to health care administration, delivery, and education in his or her career, advancing the field of medical practice management.

Jana Bazzoli, M.B.A., M.S.A., CMPE, joined the Cincinnati Children's Research Foundation and the Department of Pediatrics as vice president of Clinical Affairs. Ms. Bazzoli has nearly 20 years' experience in hospital administration, having earned her M.B.A. at Augusta State University in Georgia and her M.S.A. at Central Michigan University. Her most recent position was associate administrator of outpatient operations at Nemours/Alfred I. DuPont Hospital for Children in Wilmington, Delaware. At Cincinnati Children's, Ms. Bazzoli works closely with departmental business directors and division directors to improve clinical care and systems. One of her primary responsibilities is to develop and implement new initiatives to achieve the departments' clinical, operational, and academic goals while maintaining Cincinnati Children's quality of care.

James C. Benneyan, Ph.D., is a leading authority on health care systems engineering, founding director of two federally awarded health care engineering centers, and professor of Industrial Engineering and Operations Research at Northeastern University. Dr. Benneyan has served as director, codirector, principal investigator, or co–private investigator in seven engineering research centers, and research laboratories totaling more than $32 million in funding. His research focuses on mathematical modeling and optimization of health care systems broadly, with particular emphasis and area expertise in patient safety, access, logistics, comparative effectiveness, quality, and treatment optimization. Dr. Benneyan currently serves as a director of the National Science Foundation (NSF) Center for Organization Transformation, the New England U.S. Department of Veterans Affairs (VA) Engineering Resource Center, and Northeastern's Quality and Productivity research laboratory. The work of these three enterprises collectively integrates academic research, real-world application, and workforce development. Methods research foci include statistical quality engineering, probabilistic optimization, computer simulation, risk-adjusted statistical

methods, rare events, spatial surveillance, risk-benefit, and comparative effectiveness models. Benneyan has published more than 100 papers and served as senior or associate editor of 4 academic journals in the above areas, has received 6 teaching, service, and research awards, and has taught engineering to ages 6 through 60. Dr. Benneyan is a vice president of the Institute for Industrial Engineers (IIE), past president of the Society for Health Systems (SHS), senior fellow and faculty at the Institute for Healthcare Improvement, fellow of SHS and the Healthcare Information and Management Systems Society (HIMSS), operations research faculty for Northeastern's NSF-Nanoscale Science and Engineering Center, Center for High-Rate Nanomanufacturing (CHN), and board member or advisor for several health care organizations. Prior to joining Northeastern, Dr. Benneyan was senior systems engineer for Harvard Community Health Plan, principal of Productivity Sciences Incorporated, and an industrial engineer at IBM and later Digital Equipment Corporation. Primary funding sources include NSF, National Institutes of Health, Veterans Health Administration, National Institute on Drug Abuse, Regenstreif Institute, United Network for Organ Sharing, U.S. Air Force Surgeon General's Office, and Agency for Healthcare Research and Quality.

James Conway, M.S., is an adjunct lecturer at the Harvard School of Public Health in Boston and Senior Consultant for Safe and Reliable Healthcare in Evergreen, Colorado. From 2006 to 2009 he was Senior Vice President of the Institute for Healthcare Improvement (IHI) and from 2005 to 2011, Senior Fellow. During 1995-2005, Mr. Conway was Executive Vice President and Chief Operating Officer of Dana-Farber Cancer Institute, Boston. Prior to joining DFCI, he had a 27-year career at Children's Hospital, Boston, in Radiology Administration, Finance, and as Assistant Hospital Director. His areas of expertise and interest include governance and executive leadership, patient safety, change management, crisis management, and patient- and family-centered care. He holds a Master of Science degree from Lesley College, Cambridge, Massachusetts. Mr. Conway is the winner of numerous awards, including the 1999 ACHE Mass. Regents Award, the 2001 first Individual Leadership Award in Patient Safety by The Joint Commission and the National Committee for Quality Assurance. In 2008, he received the Picker Award for Excellence in the Advancement of Patient Centered Care, in 2009 the Mary Davis Barber Heart of Hospice Award from the Massachusetts Hospice and Palliative Care Federation, and in 2012 both the Institute for Patient and Family Centered Care Leadership Award and the first Honorary Fellowship of the National Association for Healthcare Quality. A Lifetime Fellow of the American College of Healthcare Executives, he has served as a Distinguished Advisor to the Lucian Leape Institute for the National Patient Safety Foundation. Institute of Medicine (IOM)

committees have included Identifying and Preventing Medication Errors and a Learning Healthcare System. Current board service includes board member Winchester Hospital; board member American Cancer Society, New England Region; and member, Board of Visitors, University of Massachusetts, Boston. In government service, he served from 2006 to 2010 as a member of the Commonwealth of Massachusetts Quality and Cost Council.

Susan Dentzer is Senior Policy Adviser to the Robert Wood Johnson Foundation, the nation's largest philanthropy focused on health and health care in the United States. In this role, she works closely with foundation leaders to carry out the organizational mission of building a culture of health and improving the health and health care of all Americans. One of the nation's most respected health and health policy thought leaders and journalists, she is also an on-air analyst on health issues on the PBS *NewsHour*. From 2008 to April 2013, she was the editor-in-chief of *Health Affairs*, the nation's leading peer-reviewed journal of health policy, and led the transformation of that journal from a bimonthly academic publication into a highly topical monthly publication and website with more than 120 million page views annually. From 1998 to 2008, she led the PBS *NewsHour*'s health unit as on-air health correspondent and was the recipient of numerous honors and awards. Ms. Dentzer is an elected member of the Institute of Medicine and the Council on Foreign Relations. Ms. Dentzer graduated from Dartmouth College, is a trustee emerita of the college, and chaired the Dartmouth Board of Trustees from 2001 to 2004. She is a member of the Board of Overseers of Dartmouth Medical School and is a member of the board of directors of the International Rescue Committee, a leading humanitarian organization. She is also on the board of directors of Research!America, an alliance working to make research to improve health a higher priority; is a public member of the Board of Directors of the American Board of Medical Specialties; and is a member of the board of directors of the Health Data Consortium, which seeks to foster use of public and private data to improve the health and health care of Americans. A widely admired communicator, Ms. Dentzer is a frequent speaker before a wide variety of health care and other groups and a frequent commentator on such National Public Radio shows such as the *Diane Rehm Show* and *This Life*.

Eva Lee, Ph.D., is a professor in the H. Milton Stewart School of Industrial and Systems Engineering at Georgia Institute of Technology, and Director of the Center for Operations Research in Medicine and HealthCare, a center established through funds from the National Science Foundation (NSF) and the Whitaker Foundation. The center focuses on biomedicine, public health, and defense, advancing domains from basic science to translational medical research; intelligent, quality, and cost-effective delivery;

and medical preparedness and protection of critical infrastructures. She is a Distinguished Scholar in Health Systems, Health System Institute at Georgia Tech and Emory University. She is also co-director of the Center for Health Organization Transformation, an NSF Industry/University Cooperative Research Center. Dr. Lee partners with hospital leaders to develop novel transformational strategies in delivery, quality, safety, operations efficiency, information management, change management, and organizational learning. Dr. Lee's research focuses on mathematical programming, information technology, and computational algorithms for risk assessment, decision making, predictive analytics and knowledge discovery, and systems optimization. She has made major contributions in advances to medical care and procedures, emergency response and medical preparedness, health care operations, and business intelligence and operations transformation. Dr. Lee received the NSF Faculty Early Career Development (CAREER) program Young Investigator Award for research on optimization and parallel algorithms and their applications to large-scale logistics and medical applications. She is the first and only industrial engineer/operations research recipient for the prestigious Whitaker Foundation Biomedical Grant for Young Investigators. In 2005, she received the Institute for Operations Research and Management Sciences Pierskalla Best Paper Award for research excellence in HealthCare Management Science for her work on emergency response and planning, large-scale prophylaxis dispensing, and resource allocation for bioterrorism and infectious disease outbreaks. Together with Dr. Marco Zaider from Memorial Sloan Kettering Cancer Center, they were named winners of the 2007 Franz Edelman award for their work on using operations research to advance cancer therapeutics. Dr. Lee was selected by the National Academy of Engineering (NAE) to serve on the organizing committee and to lead the "Engineering the Healthcare Delivery System" cluster for the 2009 NAE Frontiers of Engineering Symposium for outstanding young engineers. In 2011, her work with the Centers for Disease Control and Prevention on emergency response and mass dispensing was selected as an Edelman finalist. In the same year, her paper on vaccine response immunogenicity prediction in *Nature Immunology* was named "Paper of the Year" by the International Vaccine Society. Her work on optimizing and transforming emergency department workflow and patient care was recognized as second prize winner in the 2013 Daniel H. Wagner Prize Excellence in Operations Research Application. She has received seven patents on innovative medical systems and devices.

Eugene Litvak, Ph.D., is President and CEO of the Institute for Healthcare Optimization (IHO). He is also an Adjunct Professor in Operations Management in the Department of Health Policy & Management at the Harvard School of Public Health, where he teaches the course "Opera-

tions Management in Service Delivery Organizations." Since 1995 he has been leading the development and practical application of the innovative Variability Methodology for cost reduction and quality improvement in health care delivery systems. Application of this methodology has resulted in significant quality improvement and multimillion dollar margin improvements for every hospital that has applied it. Dr. Litvak was a member of the Institute of Medicine committees on The Future of Emergency Care in the United States Health System and The Learning Healthcare System in America, as well as a member of the National Advisory Committee to the American Hospital Association for Improving Quality, Patient Safety and Performance. On behalf of IHO, he serves as principal investigator in many hospital operations improvement projects in the United States and internationally, including the Centers for Medicare & Medicaid Services–funded Partnership for Patients initiative with 14 hospitals in New Jersey and the nationwide Whole System Patient Flow Improvement initiative in Scotland.

Mark Murray, M.D., is an international authority on the development of access and flow systems within health care. He has specific expertise in areas such as patient access to appointments in primary, specialty, and ancillary care; patient access to information; and health care demand/supply matching and balance. Drawing from his direct experience in health care delivery and management, Dr. Murray has a unique perspective as a physician who practiced in multiple environments, as well as an understanding of how other businesses and industries use flow and demand/supply matching. He has also initiated and developed multioperational quality improvement efforts and has consulted with health care organizations worldwide on a variety of quality improvement strategies, including efficiencies in office practices, the development of health care teams, change management in health care settings, physician compensation, and "big system" flow. Dr. Murray has worked with various types of organizations, including the U.S. government; fee-for-service and capitated environments; health practices, systems, plans, and organizations; insurance companies; and various medical groups. In addition, he has worked extensively abroad. Dr. Murray completed his undergraduate training at St. Mary's College in California; attended Creighton University Medical School in Omaha, Nebraska; completed a residency in Family Medicine at the University of California, Davis; and obtained a master's degree in Health Services Administration from St. Mary's College. Following his medical training, he organized and developed a medical practice in an underserved rural area in Northern California. He also worked for Kaiser Permanente for 19 years, holding various administrative positions, including Assistant Chief of Medicine, North Sacramento Valley, where he had operational responsibility for the care of 270,000 patients; and director

of a regional call center that served 1.2 million patients. He left Kaiser in 1999 to pursue independent consulting on waits and delays in health care.

Thomas Nolan, Ph.D., is a statistician, author, and member of Associates in Process Improvement, a group that specializes in the improvement of quality and productivity. Over the past 25 years, he has assisted organizations in many different industries in the United States, Canada, and Europe. He is a Senior Fellow of the Institute for Healthcare Improvement (IHI). At IHI he has guided the Research and Development function and led several of IHI's strategic international initiatives such as the Triple Aim. His health care experience includes helping integrated systems, hospitals, and medical practices to accelerate the improvement of quality and the reduction of costs in clinical and administrative services. Dr. Nolan holds a doctorate in statistics from George Washington University and is the author of three books on improving quality and productivity. He has published articles on quality and safety in a variety of peer-reviewed journals, including the *Journal of the American Medical Association* and the *British Medical Journal*. He was the year 2000 recipient of the Deming Medal awarded by the American Society for Quality. In 2010 the Statistics Division of the American Society for Quality awarded him the William Hunter Award for innovative applications of statistical methods.

Peter Pronovost, M.D., Ph.D., is a practicing anesthesiologist and critical care physician who is dedicated to finding ways to make hospitals and health care safer for patients. In June 2011, he was named director of the new Armstrong Institute for Patient Safety and Quality at Johns Hopkins, as well as Johns Hopkins Medicine's senior vice president for patient safety and quality. Dr. Pronovost has developed a scientifically proven method for reducing the deadly infections associated with central-line catheters. His simple but effective checklist protocol virtually eliminated these infections across the state of Michigan, saving 1,500 lives and $100 million annually. These results have been sustained for more than 3 years. Moreover, the checklist protocol is now being implemented across the United States, state by state, and in several other countries. *The New Yorker* magazine says that Dr. Pronovost's "work has already saved more lives than that of any laboratory scientist in the past decade." Dr. Pronovost has chronicled his work to improve patient safety in his book, *Safe Patients, Smart Hospitals: How One Doctor's Checklist Can Help Us Change Health Care from the Inside Out*. In addition, he has written more than 400 articles and chapters related to patient safety and the measurement and evaluation of safety efforts. He serves in an advisory capacity to the World Health Organization's World Alliance for Patient Safety. Dr. Pronovost has earned several national awards, including the 2004 John Eisenberg Patient Safety

Research Award and a coveted MacArthur Fellowship in 2008, known popularly as the "genius grant." He was named by *Time* magazine as 1 of the world's 100 "most influential people" for his work in patient safety. He regularly addresses Congress on the importance of patient safety, prompting a report by the U.S. House of Representatives' Committee on Oversight and Government Reform strongly endorsing his intensive care unit infection prevention program. Dr. Pronovost previously headed Johns Hopkins' Quality and Safety Research Group and was medical director of Hopkins' Center for Innovation in Quality Patient Care. Both groups, as well as other partners throughout the university and health system, have been folded into the Armstrong Institute.

Ronald M. Wyatt, M.D., is the medical director in the Division of Healthcare Improvement at The Joint Commission. In this role, Dr. Wyatt promotes quality improvement and patient safety to internal and external audiences, works to influence public policy and legislation for patient safety improvements, and serves as the lead patient safety information and education resource within The Joint Commission. Dr. Wyatt collaborates in the development of National Patient Safety Goals, and oversees data management and analyses related to the Sentinel Event database. Prior to coming to The Joint Commission, Dr. Wyatt served as the director of the Patient Safety Analysis Center at the Department of Defense (DoD) where he directed and maintained the DoD Patient Safety Registries. These registries house de-identified clinical, root cause analyses, and failure mode and effects analyses data on the DoD's adverse patient safety events. Previously, Dr. Wyatt was the medical director at several health care organizations where his responsibilities included directing patient safety and quality improvement activities. He also served as a captain in the U.S. Army Reserves and was on active duty in the Internal Medicine Clinic at Reynolds Army Hospital in Ft. Sill, Oklahoma. He has received numerous awards, including a U.S. Army Commendation Medal for his service in Desert Storm. Dr. Wyatt served on the Food and Drug Administration (FDA) Drug Safety Oversight Board, the Agency for Healthcare Research and Quality (AHRQ) Science of Public Reporting Special Emphasis Panel, and the Comprehensive Unit-Based Safety Program to Eliminate Health Care–Associated Infections (CUSP) Technical Expert Panel. He is a mentor to the Center for Medicare & Medicaid Innovation (CMI) Advisors program at the Centers for Medicare & Medicaid Services (CMS) and a member of the American College of Physicians. Dr. Wyatt is on the faculty at the Institute for Health Care Improvement. He was named 1 of the "Top 50 Patient Safety Experts" in the United States by *Becker's* magazine in 2013 and 2014. Areas of special interests include social determinants of health, health disparity, patient activation, and professionalism (disruptive behavior). Dr. Wyatt co-authored the DoD

Patient Activation tool kit. He contributed to the National Patient Safety Goal on Medical Alarm Management, the revised Sentinel Event Policy, and the development and writing of the Patient Safety Systems chapter for The Joint Commission hospital accreditation manual. Dr. Wyatt is an internist with more than 20 years of practice experience and is currently licensed in the state of Alabama. He earned his medical degree at the University of Alabama at Birmingham and completed residency at the St. Louis University hospital, where he served as the first African-American Chief Resident in the department of Internal Medicine. Dr. Wyatt earned the Executive Master of Science in Health Administration (MSHA) from the University of Alabama at Birmingham. In 2000, the Morehouse School of Medicine conferred Dr. Wyatt with an honorary Doctor of Medical Sciences degree. As a George W. Merck Fellow with the Institute for Healthcare Improvement in 2009-2010, Dr. Wyatt was trained in performance improvement, measurement, epidemiological, and statistical principles. He also completed a Harvard School of Public Health program in Clinical Effectiveness—a joint program of Brigham and Women's Hospital, Massachusetts General Hospital, Harvard Medical School, and Harvard School of Public Health. Dr. Wyatt actively presents on a variety of patient safety topics throughout the United States and Canada. He has written and published numerous articles on patient safety topics.

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Assessment E (Workflow – Scheduling)

September 1, 2015

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Preface

Congress enacted and President Obama signed into law the Veterans Access, Choice, and Accountability Act of 2014 (Public Law 113-146) ("Veterans Choice Act"), as amended by the Department of Veterans Affairs (VA) Expiring Authorities Act of 2014 (Public Law 113-175), to improve access to timely, high-quality health care for Veterans. Under "Title II – Health Care Administrative Matters," Section 201 calls for an independent assessment of 12 facets of VA's health care delivery systems and management processes.

VA engaged the Institute of Medicine of the National Academies to prepare an assessment of access standards and engaged the Centers for Medicare & Medicaid Services (CMS) Alliance to Modernize Healthcare (CAMH)[1] to serve as the program integrator and as primary developer of the remaining 11 Veterans Choice Act independent assessments. CAMH coordinated the assessments and is furnishing a complete set of reports of individual assessment findings and recommendations to the VA Secretary, the House and Senate Veterans Affairs Committees, and the Commission on Care. This report describes the results of assessing workflow processes for scheduling appointments for Veterans at VA medical facilities.

The research addressed in this report was conducted by McKinsey & Company, Inc., and Atlas Research under a subcontract with The MITRE Corporation.

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[1] The CMS Alliance to Modernize Healthcare (CAMH), sponsored by the Centers for Medicare & Medicaid Services (CMS), is a federally funded research and development center (FFRDC) operated by The MITRE Corporation, a not-for-profit company chartered to work in the public interest. For additional information, see the CMS Alliance to Modernize Healthcare (CAMH) website (http://www.mitre.org/centers/cms-alliances-to-modernize-healthcare/who-we-are/the-camh-difference).

The views, opinions, and/or findings contained in this report are those of the assessment team and should not be construed as an official government position, policy, or decision.

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Executive Summary

Health systems across the U.S. have struggled with ensuring optimal patient access to the services they provide, and Veterans Health Administration (VHA) is no exception. Although VHA has faced public concerns about access to outpatient care for several decades, many factors that influence access have been only partially analyzed to date at VHA and were called out in the Choice Act as areas for independent assessment. The Choice Act tasked Assessment E with assessing the "workflow process at each medical facility of the Department for scheduling appointments for Veterans to receive care, medical services, or other health care from the Department." The assessment was also asked to address several supplemental areas related to provider scheduling templates, scheduler training, the use of call centers and the appointment scheduling system. All of these factors – as well as others explored in Choice Act assessments such as overall health care capabilities (Assessment B) and clinical staffing (Assessment G) – are critical to ensuring that our Veterans receive improved access to care.

In this assessment, we have reviewed VHA performance in the scheduling workflow areas against best practices from both within VHA and across the private sector. The major finding of this assessment is that VHA is not fully leveraging provider resources, scheduling best practices, or scale to deliver the best possible scheduling experience and access for Veterans. These shortcomings have a negative impact on both patient access to outpatient appointments (in terms of total number of appointments available and the matching of patients to those available appointments) and the patient experience of scheduling an appointment with VHA. It is likely that, with improved data visibility, more streamlined processes and performance management, VHA could expand the supply of appointments even with its existing provider base, as well as improve overall utilization of appointment supply and patient experience.

More specifically, we observed the following challenges that reduce the overall effectiveness of VHA scheduling today:

- **System limitations prevent accurate visibility into the supply of available appointments, inhibiting VHA's ability to understand the gap between total appointment supply and demand and to effectively manage current performance and plan for the future**. Due to system design limitations, some providers operate across multiple, potentially overlapping, booking templates or "clinic profiles" for any given day or session. As a result, these profiles, when aggregated, provide an inaccurate picture of total available appointment supply and make it challenging to easily understand whether appointment supply matches the quantity VHA should expect given the number of providers. The issue of overlapping profiles not only affects centralized calculations of overall and provider-level appointment supply, but also makes it challenging to calculate provider utilization rate, which is an essential metric for managing access to care. These limitations mean VHA cannot determine how much patient demand its current provider capacity can meet in a timely manner.

- **Imbalance between supply and demand has led to policies that add responsibilities for schedulers and administrators.** Because VHA has a persistent backlog of patient demand, VHA created additional policies that do not exist in the private sector, such as the capture

of patient desired date and the use of the Electronic Wait List (EWL). These policies for measuring wait times and managing waitlists have resulted in a significant number of additional activities required within the scheduler's day-to-day workflow. Further, the implementation of these policies is left largely to frontline interpretation, which may also result in inconsistent experience for patients across clinics or facilities. For example, use of the EWL varies across clinics; some clinics use it solely to measure backlog while others use it to highlight patients who may be willing to take an appointment that becomes available at the last minute (Choice Act site visits, interviews 2015). Veterans may then experience variation in when they are removed from the waitlist depending on how their clinic has implemented EWL.

- **Clinics do not consistently employ standard industry practices related to schedule setup and other scheduling processes.** VHA clinics are inconsistent in their use of industry and VHA best practices in scheduling, resulting in a fewer appointment slots available than may be possible within existing provider capacity and a significant number of booked appointments not being completed as originally scheduled. On schedule setup, examples of these practices in common use in industry and within certain services (such as Primary Care) within VHA include using standard appointment lengths within a sub-specialty and determining appointment mix (for example, number of new patient slots) based on patient demand (Institute for Healthcare Improvement (IHI), "Reduce Scheduling Complexity," n.d.; Primary Care Clinic Profile Standardization Guide, 2014). Similarly, inconsistent scheduling practices, such as the ways in which appointment reminders are used, exist across facilities and clinics. For example, a patient could expect a reminder from a clinic and not receive it (and potentially not go to the appointment as a result). Ultimately, the variability in these practices may result in reduced appointment availability and utilization as well as inconsistent patient experience.

- **Facility-level differences in performance management and accountability limit system-wide improvements in access.** VHA facilities lack consistent organizational structures for managing scheduling or access and, in many cases, lack dedicated resources to manage performance and outcomes for these activities. Given structural differences, formal monitoring of schedules is not a clearly defined duty for any staff members at the facility level, which hinders cross-system sharing of best practices, policy dissemination, and process standardization. In addition, this lack of consistency in organizational structure and accountabilities limits VHA performance management of facilities, as no one individual is specifically accountable and data analysis is cumbersome.[2] The Veterans Choice Act (section 303) identified this lack of accountability and aims to assign management of access responsibilities to a particular role within each clinic and to provide tools and processes to help perform this duty ("Veterans Access, Choice, and Accountability Act of 2014," 2014). VHA plans to fulfill this mandate without any new facility hires; instead, the organization will designate current FTEs as owners of these

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[2] For example, at present, there is no easy or automated way to consistently and accurately monitor provider schedules.

responsibilities at the clinic and facility levels (Access and Clinic Administration Program [ACAP], interviews, 2015).

- **VHA-specific processes paired with a scheduling system that does not simplify processes leads to a greater reported need for scheduler training**. In response to a survey, 90 percent of schedulers noted the need for additional training in at least one area (for example, wait times and wait list policies) to become proficient at executing their basic responsibilities (Assessment E VHA Employee Survey, 2015). This perceived need for enhanced training may be due to systems and processes that do not simplify scheduler responsibilities, a common focus among private sector health system executives we interviewed. For instance, scheduling systems of private sector health systems have more user-friendly interfaces, fewer unique programs, and more automated processes (Private sector health system, interviews, 2015). As a result of greater complexity, VHA schedulers must receive additional training (on wait times and wait list policies, for example) to become proficient at executing basic VHA scheduler responsibilities.

- **Scheduling call centers are not maximizing their performance due to their small scale and disparate service offerings.** VHA call centers are smaller than industry standard (median size of 12 agents within VHA compared to 28 agents in private sector health systems and 110 agents across other industries) (Assessment E national data call, 2015; Belfiore et al., 2015). The scheduling call centers that do exist provide different services and support different specialties depending on the facility. Due to efficiencies in managing call demand that can lead to service improvement for patients, other provider systems have, in some cases, moved to pooling call volumes in more central locations. Larger scale call centers can also have lower per-unit costs and put less stress on space-constrained facilities than facility- or clinic-based operations. Further, larger call centers may be able to offer more coaching, training and career options to schedulers.

VHA has received significant feedback on ways to improve its scheduling and access performance. In fact, since 1999, more than 35 reports by the Government Accountability Office, VA itself, VA Office of the Inspector General (OIG), and independent contractors have commented on possible approaches for VHA to improve scheduling and access. Despite the number of reviews, there has been little articulation of the fundamental need for VHA to solve its ability to manage provider appointment slot supply until the Institute of Medicine's February 2015 "Innovation and Best Practices in Health Care Scheduling" white paper, which recommended that VHA get "back to the basics" to understand provider supply vis-a-vis patient demand and ultimately design schedules that optimize the two. With the access crisis and subsequent Choice Act in 2014, VA/VHA have accelerated several efforts to address issues raised in past reports, including funding provider hiring and non-VA care, initiating the procurement of a commercial off-the-shelf (COTS) scheduling system referred to as the Medical Appointment Scheduling System (MASS), and designing a clinic manager training program to better manage the scheduling process. However, to drive overall improvement to scheduling and address the specific challenges described above, we recommend that VA and VHA successfully complete in-flight initiatives and consider additional actions, which would be most effective if executed in an integrated manner. These actions include the following:

- **Address system limitations to provide visibility into aggregate appointment supply, alternative measures of wait times, and provider-level performance data.** VHA providers can operate across multiple and sometimes overlapping clinic schedules (also known as "profiles"),[3] which can result in double-counting of appointment slots when aggregated. VHA has a current initiative to clean-up overlapping schedules and unused clinic profiles that should result in a more accurate view of each clinic's appointment slot supply. Although this is an important first step, the effort may not eliminate all overlap in schedules and will not by itself allow understanding of appointment supply and utilization. One consolidated schedule for each provider would allow VHA to capture total appointment supply and measure the industry-standard wait time metric. With VA OI&T's current procurement of a new scheduling system (discussed in detail in section 7, Scheduling System), VHA may be on the path to addressing system limitations. Of course, when updating or acquiring a system to support scheduling, it is important to understand the business case relative to modifying the existing system or locally sourcing solutions at the facility/regional level.

- **Codify proven scheduling practices and empower clinics to improve appointment utilization and deliver a consistent patient experience.** Several pockets of scheduling best practice exist within VHA, such as the predictive missed opportunity model. However, many of the best practice VHA tools and processes are not widely disseminated nor utilized. The VHA ACAP Office reported that it is beginning to codify system-wide knowledge of scheduling best practices, but there is also an opportunity to ensure that these practices are consistently utilized in the field (ACAP, interviews, 2015). This will require addressing the lack of clinic management resourcing, addressing scheduler vacancies and ensuring that providers have an understanding of why certain practices (for example, overbooking) may be necessary to provide access.

- **Streamline scheduling policy implementation with supporting tools and implementation guidance; where possible, utilize technology to support.** The current Scheduling Directive policy is designed to aid VHA facilities in managing in an environment of excess demand relative to the appointment supply it is offering. This has resulted in policy steps, such as wait time capture and wait list management being added to the scheduling process, which can result in inconsistent patient experience due to discrepancies in policy interpretation and implementation in the field. For instance, to adhere to the policy regarding the Electronic Wait List, the scheduler will place a patient scheduled outside of 90 days on a wait list, an additional step in the scheduling process (Choice Act site visits, interviews, 2015). Further, while the EWL prioritizes Veterans to be scheduled based on policy, schedulers can find it challenging to use the list in conjunction with other policies (e.g., how many times the patient should be called before moving to the next patient on the list). In contrast, an ideal system would automatically place relevant patients on the EWL, provide a manager with a comprehensive dashboard for monitoring the waitlist demand, and prioritize which patients should get the first available appointments based on

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[3] Described in Provider Availability Section 5 of this report

additional parameters. As a result, these changes would improve schedulers' efficiency and improve consistency of policy implementation.

- **Improve scheduler training by sharing local best practices and increasing experiential and on-the-job training, while also minimizing the need for training by simplifying policy implementation and improving system functionality.** Currently VHA's need for scheduler training is exacerbated by its scheduling software, policies (like EWL), and clinic- and provider-specific scheduling rules. Improvements to the scheduling systems, streamlining policy implementation, and minimizing unnecessary clinic-specific rules would reduce demands for schedulers' training and create more consistent patient scheduling experience. To optimize its training program, VHA should also leverage local best practices to create an improved and standardized curriculum for training and minimize duplication of materials development at the facility-level. In addition, training should be delivered using more experiential training methods to increase its effectiveness and information retention by schedulers.

- **Design scheduling call centers that can provide expanded services for Veterans relative to current state.** Currently, VHA scheduling call centers are managed locally at the facility level. As a result, most are small (median size of 12 schedulers, based on facilities that responded to our data call) and each call center varies in regards to the responsibilities and specialties for which it is responsible (Assessment E national data call, 2015). Decentralized call centers are difficult to centrally monitor and manage with regards to patient experience. Through the new MyVA effort, the organization is examining how it interacts with Veterans across various channels (such as, web, call centers, mail). This includes a VA-wide Call Center Task Force that may ultimately address scheduling; however, the scope does not yet appear to be clearly defined. VA has an opportunity to evaluate its current call center use for scheduling and develop an approach based on existing VHA call centers in other areas (like Health Resource Centers) and leading private sector scheduling call centers. VHA can then evaluate which responsibilities and specialties should be handled at larger scheduling call centers. Additionally, VHA should analyze the appropriate degree of centralization (for example, regional or virtual call center) and the call center locations.

- **Ensure that the clinic manager training program and subsequent implementation are appropriately scoped and resourced to drive access and clinic management.** Different roles, accountabilities and levels of expertise exist across facilities for managing access and scheduling, which affects how access and scheduling is managed and prioritized at different facilities. Via the Choice Act, VHA was directed to develop a clinic management training program to address these gaps within the system. While many important scheduling functions are reported to be addressed in the training curriculum as it is currently envisioned, resourcing and accountability for these activities will be equally important in ensuring that VHA is able to fully utilize its provider capacity and the appointment supply made available to Veterans. Further, tools need to be developed and distributed to ensure that these new clinic managers are successful.

Despite many of its broader organizational and operational challenges, VHA can leverage multiple positive aspects of its current scheduling and access management practices in the

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future. For instance, VHA's scheduling policy has created the mechanism to identify potential supply-demand imbalances by tracking patients waiting for care at the clinic level. Similarly, VHA's efforts to encourage patient appointment adherence through a multi-pronged patient reminder approach, coordination of transportation and efforts to coordinate multiple services, where possible, demonstrate a commitment to supporting Veterans receiving care. Additionally, locally developed scheduling innovations demonstrate the potential for new scheduling tools and practices within the organization. For example, several VA Medical Centers (VAMCs) have developed home-grown "best practice" tools, including the predictive missed opportunity model, aggregated views of provider availability, and facility-centralized patient reminder systems across multiple modalities. In addition, VHA can build on its early efforts to modernize its patient-facing scheduling capabilities, such as online self-scheduling. This foundation suggests that VHA can draw on experience and assets within the organization, as well as on external best practices, to improve its scheduling processes.

In summary, if VA/VHA were to continue to build on existing assets, execute on its in-flight initiatives and supplement them by executing on the recommendations above, it may be able to offer a more consistent experience across clinics and facilities, expand appointment supply with existing provider resources and ensure better utilization of its supply. The impact of this for Veterans could come in the form of both improved experience and improved access.

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1   Introduction

The task of Assessment E was to assess the "workflow process at each medical facility of the Department for scheduling appointments for Veterans to receive care, medical services, or other health care from the Department." There are two major factors that affect the ability of any provider system to meet patient appointment demand in a timely matter: overall provider capacity, which translates into the supply of available appointments, and the effective matching of that capacity with patients, the "scheduling process" and its supporting elements such as having well-trained schedulers. The act of booking an appointment is only one part of the scheduling workflow picture, and its effectiveness often depends on the state of appointment availability. A scheduler cannot book an appointment for a patient if there are no appointments available to be booked. Therefore, Assessment E focused on understanding the ways scheduling workflow could be optimized to both increase the appointment availability of current providers and ensure more effective matching of this availability to demand through the scheduling process. This assessment was conducted within the constraint of current provider capacity. Note that provider availability is also influenced by patient demand as demand should inform the mix of appointments (e.g., new, urgent, follow) offered by an individual provider.

The following exhibit defines the elements of the scheduling workflow that Assessment E considered:

Figure 1-1. Overview of the Relationship Between the Components of Assessment E
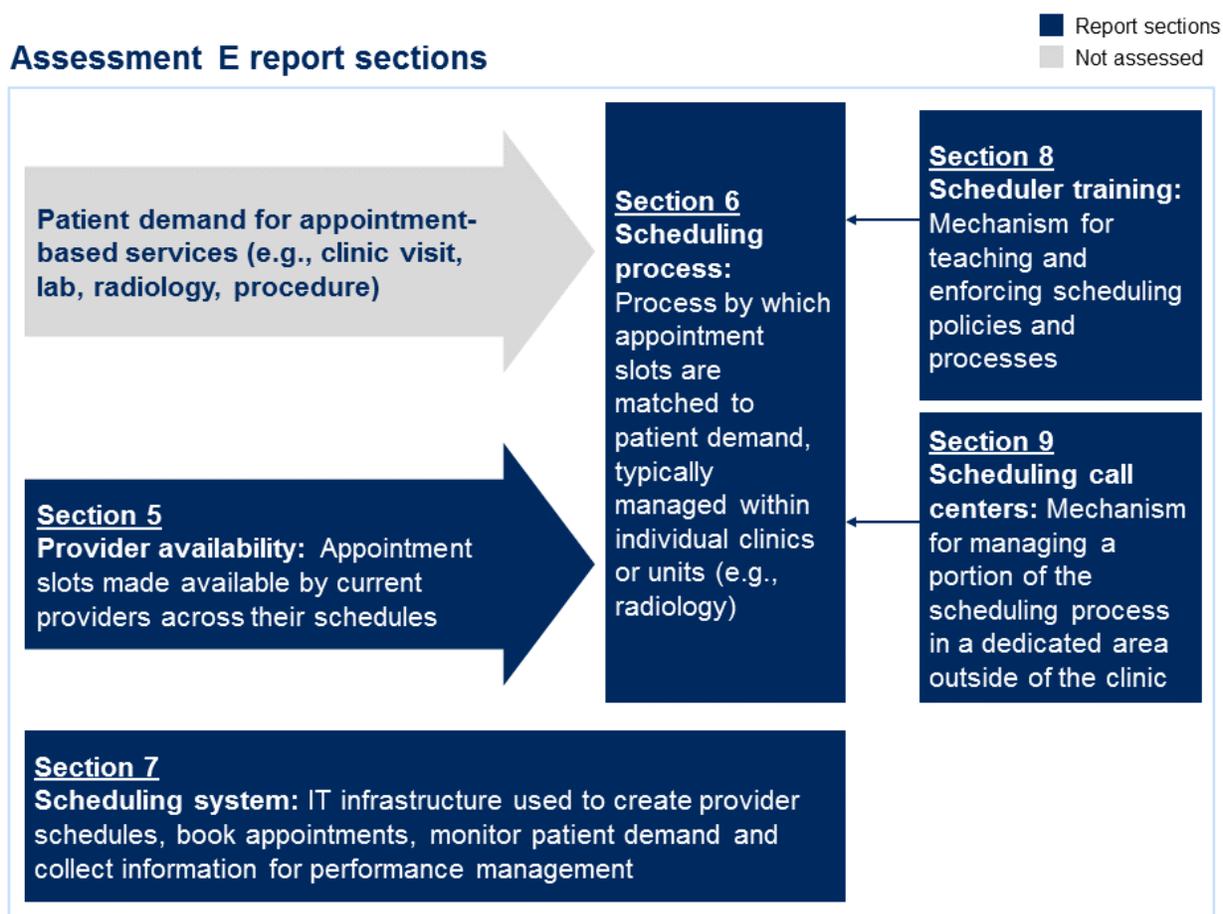
The following table describes the way in which the report is structured across these elements to address the requirements of the Choice Act:

Table 1-1. The Five Areas Correspond in the Following Way to the Choice Act Elements

Report section	Corresponding Choice Act language	Chapter
▪ **Provider availability**: This considers the availability of providers to offer care for Veterans in outpatient clinics, including how overall time in clinic is managed; how schedules are developed; and how schedule changes may affect the availability of appointments.	*(1) (E) The workflow process at each medical facility of the Department for scheduling appointments for Veterans to receive hospital care, medical services, or other health care from the Department.* *(2)(A)(iv) Assess whether health care providers of the Department are making changes to their schedules that hinder the ability of employees*	5

Report section	Corresponding Choice Act language	Chapter
	conducting such tasks to perform such tasks. *(vi) Assess whether booking templates for each medical facility or clinic of the Department would improve the process of scheduling such appointments.*	
▪ **Scheduling process**: This assesses the scheduling process from beginning to end, including making appointments for clinic visits, surgery, procedures and ancillary services (e.g., radiology); measuring wait times; managing wait lists and backlogs; monitoring patient appointment adherence; and defining the role of the scheduler (Medical Support Assistant or MSA).	*(1) (E) The workflow process at each medical facility of the Department for scheduling appointments for Veterans to receive hospital care, medical services, or other health care from the Department.* *(2)(A)(viii) Recommend actions, if any, to be taken by the Department to improve the process for scheduling such appointments, including the following:* *(II) Changes in monitoring and assessment conducted by the Department of wait times of Veterans for such appointments.*	6
▪ **Scheduling system**: This covers the technology used for scheduling, including where the pain points are for administrators, schedulers and patients. This section also looks at proposed efforts to procure a new scheduling system.	*(iii) Assess whether changes in the technology or system used in scheduling appointments are necessary to limit access to the system to only those employees that have been properly trained in conducting such tasks.* *(vii) Assess any interim technology changes or attempts by Department to internally develop a long-term scheduling solutions with respect to the feasibility and cost effectiveness of such internally developed solutions compared to commercially available solutions.* *(viii) Recommend actions, if any, to be taken by the Department to improve the process for scheduling such*	7

Report section	Corresponding Choice Act language	Chapter
	appointments, including the following: *(III) Changes in the system used to schedule such appointments, including changes to improve how the Department—* *(aa) measures wait times of Veterans for such appointments;* *(bb) monitors the availability of health care providers of the Department; and* *(cc) provides Veterans the ability to schedule such appointments.*	
▪ **Scheduler training:** This evaluates who has been trained on scheduling; MSA scheduling training content; delivery practices; and the organizational reporting structure for MSAs.	*(2)(A)(i) Review all training materials pertaining to scheduling of appointments at each medical facility of the Department.* *(ii) Assess whether all employees of the Department conducting tasks related to scheduling are properly trained for conducting such tasks.* *(viii) Recommend actions, if any, to be taken by the Department to improve the process for scheduling such appointments, including the following:* *(I) Changes in training materials provided to employees of the Department with respect to conducting tasks related to scheduling such appointments.*	*8*
▪ **Scheduling call centers:** This studies the use of call centers for scheduling, and considers whether further centralization could improve timeliness and the scheduling experience.	*(v) Assess whether the establishment of a centralized call center throughout the Department for scheduling appointments at medical facilities of the Department would improve the process of scheduling such appointments.*	*9*

Please see Appendix A for findings and recommendations from this report mapped to the Choice Act language.

Assessment E is closely connected to several other assessments within the Choice Act, including, but not limited to, assessments B (health care capabilities), D (access standards), G (clinical staffing), H (information technology), and L (leadership). In order to avoid overlap and duplicative analysis, assessments were completed in coordination where possible. We have indicated instances where further relevant analysis is included in related assessment reports. In particular, with respect to access standards including wait times for appointments at VHA relative to the broader industry, Assessment E relied on the findings of the Institute of Medicine's Assessment D. Wait times are influenced by a number of factors including provider supply/availability, patient demand (including services required and the location of patients relative to VHA locations), as well as the scheduling process itself. Therefore, Assessment E focused on scheduling outcomes around available appointment slots and appointment slot utilization rates rather than wait times, which are influenced by a number of other factors, to describe the current state of VHA scheduling workflow performance.

A number of other factors beyond the workflow process for scheduling appointments and other areas of the Choice Act assessments contribute to access to care for Veterans. However, this assessment did not examine several areas that were out of scope of the Choice Act legislation, but may warrant further study:

- Outpatient clinical workflows that could drive provider productivity improvements, including facility/space resources, clinical and non-clinical staffing levels, outpatient clinic throughput/clinic operations
- Other mechanisms to create access, such as the increased use of new care delivery models like telehealth, specialty patient-aligned care teams, or outsourced care provision
- The requirements, career path, and pay grade of the Medical Support Assistant (MSA), a position with significant scheduling responsibility
- Scheduling for non-VA care, including that which is facilitated by the Choice Act; however, this assessment did consider the hand-off to the non-VA care office

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2   Methodology

To design and conduct this assessment, we developed a methodology that drew on literature review on scheduling workflow best practices, previous VA/VHA scheduling workflow-related reports, private sector case studies, and our experience with successful access/scheduling transformations across public and private sector health systems in the U.S. Our approach included the following three steps:

2.1   Assessment Design and Best Practice Codification

To design this assessment, we developed a detailed data/information request covering categories typically available from provider systems, including appointment-level data, scheduling policies, and other information detailed in Appendix B.1. Concurrently, the assessment team researched best practices[4] in literature, interviewed health system leaders responsible for training and scheduling systems sourced from a third party market research group, interviewed leadership from two integrated systems, Kaiser Permanente and Geisinger Health System, and drew on our previous assessment work with other systems. This input informed an on-site interview guide and collection tool for our site visits (site visit selection described in more detail below), a frontline survey, and a set of standard analytics to complete (for example, provider time in clinic).

Note, there are significantly fewer published academic or professional association standards in the patient scheduling area than in other areas impacting patient care, such as quality. Despite this, we attempted throughout the report to compare and contrast VHA performance in scheduling to external standards, where possible. To supplement literature, we use "private health system practices", drawn from private health system leadership interviews and McKinsey scheduling/access transformations, or specific health system examples (where those health systems are known for access or have integrated characteristics similar to VHA) to demonstrate common practices that health systems utilize to improve scheduling and access. We use the term "high performance" selectively to refer to practices utilized by select VAMCs that performed well on certain metrics (e.g., telephone average speed of answer).

2.2   Information/Data Collection, Analysis and Comparison to Best Practice and Industry Practice

This step focused on our assessment through site visits and data/information collection (full list of sources and site visit selection methodology is detailed in Appendix B.2).

VHA site visits: We visited 25 randomly selected VA Medical Centers (VAMCs) and 23[5] community-based outpatient clinics (CBOCs) near these facilities. In combination, these

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[4]   Best practices detailed in Appendix C.1, D.2, E.2, F.2, and G.1

[5]   We had originally been scheduled to visit 24 CBOCs (one CBOC per randomly selected VAMC, plus additional CBOC in Lexington during pilot phase). However, our visit to Northport VAMC's Bay Shore CBOC did not occur due to closure, resulting in 23 total CBOC visits.

facilities were statistically representative of VHA facilities across a selection of criteria: size, geography, access performance, and other factors detailed in the Appendix B.2. We also visited two additional VAMCs not randomly selected, Indianapolis and Phoenix. Indianapolis was chosen because it is the only VHA facility in the country that uses a software system other than VistA to schedule outpatient appointments. Phoenix was visited due to its attention in previous reports. We completed group interviews for both schedulers and administrators at each of the 25 facilities, which included 187 schedulers and 174 administrators. In addition, we conducted 486 total interviews, including 31 with schedulers, 126 with providers,[6] and 329 with administrators.[7]

VHA data analysis: Wherever possible for our quantitative analyses, we attempted to look at large datasets across facilities and clinics to understand differences in scheduling performance. These datasets included the Clinic Access Index available through the Veterans Support Service Center (VSSC) and Corporate Data Warehouse (CDW) booked appointment data, which we reviewed across site visit facilities and the system more broadly, where possible. It should be noted that we did not conduct a *review* to validate the accuracy of data that was provided, although, where applicable, we did note potential data integrity issues highlighted during site visit interviews.

In some cases, our analysis is based on manual sampling of provider schedules where accurate centralized data was not available (for example, time scheduled in clinic). However, the scale of these manual reviews was selective due to their time-intensive nature and the ability of sites to provide data in a timely manner. As a result, we have attempted to use these as examples of individual provider-level variability rather than representations of VHA-wide performance.

In addition, to understand certain aspects of the scheduling workflow across all facilities, we requested VAMC data and information from a national data call to which 102 VAMCs (67 percent facility response rate, assuming 152 VAMCs)[8] responded and a front-line survey of schedulers, providers and administrators that was distributed nationally and received 6,649 responses.[9]

VHA interviews: We supplemented our site visits with an additional 37 VHA Central Office and subject matter expert interviews to obtain a fuller picture of the scheduling workflow. These interviews included clinical, administrative and technology leaders.

Additional industry interviews: As described above, we conducted 20 interviews of leaders in private sector health systems with responsibility for patient access or specific elements of the scheduling workflow, for example, technology. We also visited Kaiser Permanente and

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[6] Includes Chief of Staff interviews

[7] Includes clinic- and facility-level administrator interviews

[8] The number of facilities cited in Assessment E's report may differ from numbers cited in other assessments. Our facility statistics come from 2014 VA Site Tracking (VAST) data, which was provided in December 2014. A new site classification system was announced in March 2015, which reclassified a number of VAMCs and CBOCs (Clancy, 2015).

[9] Response rate unknown, as total numbers for these groups were not available

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interviewed leadership within Geisinger Health Systems; both are integrated systems known for leadership in access.

Using this information, we then compared our qualitative and quantitative observations of VHA performance to best and broader industry practices to assess the current state of VHA scheduling workflows and provide insight into overall findings and potential recommendations.

2.3   Synthesis of Findings and Recommendations

In this step, we synthesized findings to draw out the most prominent insights from our assessment as a whole. From this set of synthesized findings, we developed recommendations that VHA could consider.

An independent Blue Ribbon Panel, consisting of high-level health care industry leaders, was formed by CAMH to provide expert input throughout the assessment process. The panel members possessed a thorough understanding of health care industry best practices and leading edge practices. The Blue Ribbon Panel provided advice and feedback on the emerging findings and recommendations for the assessment.

Due to a significant finding around the lack of available appointment slot supply data, we were limited in our ability to estimate the impact of recommended changes. This data limitation is due to system design constraints, described in detail in Provider Availability Section 5, that prevent accurate measurement of appointment supply.

2.4   Limitations

This assessment has several important limitations including: we were not able to survey Veterans or collect their input at scale, we operated under an aggressive time frame, and – as often noted – there were limitations on the availability of data.

Two of the significant data/information limitations were relevant to Scheduling Process Section 6 and Scheduling Systems Section 7:

Scheduling Process:

We requested data from VHA to analyze scheduling outcomes data (for example, appointment slot utilization) across a range of appointment-based services, including clinic visits, lab and radiology (note, our interviews suggested that not all facilities schedule services such as lab and radiology in advance, and instead use same day scheduling or do not schedule appointments at all). For lab and radiology, VHA was not able to provide data on appointment slot supply, where it would be applicable (facilities that schedule the services), nor utilization rates for these services. Therefore, our understanding of challenges in appointment scheduling for services beyond clinic visits was limited to interviews with administrative heads of the lab, radiology and procedure units at a sub-set of site visit facilities, and was noted, where there were unique insights, in Scheduling Process Section 6. As mentioned in the Executive Summary, clinic appointment slot supply cannot be calculated in aggregate due to overlapping provider schedules (described in Provider Availability Section 5); however, we were able to analyze data

on completed clinic appointments to understand scheduling outcomes and potential challenges (shown in the Scheduling Process Section 6).

Scheduling System:

For Assessments E and H, a full scope assessment of the current plan to acquire a commercial off-the-shelf solution via the MASS procurement was not possible due to sequestration and legal constraints on VA and VHA staff during the selection period. Due to the constraints surrounding the technical evaluation for MASS, we were unable to interview key members of the MASS procurement team, including program management leadership, which would have provided insights into the budgeting, vendor selection process, and implementation planning for the scheduling system replacement. These MASS team members were involved over the life of the RFP development (initiated May 2014), and some have had a far longer involvement in both Scheduling and other VHA/OI&T programs and projects. As of July 2015, the technical evaluation was still on-going.

3   Cross-Cutting Findings

This assessment has surfaced six cross-cutting findings that suggest significant opportunity for improvement to the VHA scheduling process. In total, we believe that these issues are negatively impacting both patient access to outpatient appointments (in terms of total number of appointments available and the matching of patients to those available appointments) and the patient experience of scheduling an appointment with VHA.

3.1   System Limitations Prevent Accurate Visibility Into the Supply of Available Appointments, Inhibiting VHA's Ability to Understand the Gap Between Total Appointment Supply and Demand and to Effectively Manage Current Performance and Plan for Future

Due to system design limitations, some providers operate across multiple potentially overlapping booking templates or "clinic profiles" for any given day or session. As a result, these profiles, when aggregated, provide an inaccurate picture of total available appointment supply and make it challenging to easily understand whether appointment supply matches the quantity VHA should expect given the number of providers. The issue of overlapping profiles not only affects centralized calculations of overall and provider-level appointment supply, but also makes it challenging to calculate provider utilization rate, which is an essential metric for managing access to care. These limitations mean VHA cannot determine how much patient demand its current provider capacity can meet in a timely manner.

3.2   Imbalance Between Supply and Demand has led to Policies That Add Responsibilities for Schedulers and Administrators

Because VHA has a persistent backlog of patient demand, VHA created additional policies that do not exist in the private sector, such as the capture of patient desired date and the use of the Electronic Wait List (EWL). These policies for measuring wait times and managing waitlists have resulted in a significant number of additional activities required within the scheduler's day-to-day workflow. Further, the implementation of these policies is left largely to frontline interpretation, which may also result in inconsistent experience for patients across clinics or facilities. For example, use of the EWL varies across clinics; some clinics use it solely to measure backlog while others use it to highlight patients who may be willing to take an appointment that becomes available at the last minute (Choice Act site visits, interviews, 2015). Veterans may then experience variation in when they are removed from the waitlist depending on how their clinic has implemented EWL.

3.3   Clinics do not Consistently Employ Standard Industry Practices Related to Schedule Setup and Scheduling Processes

VHA clinics are inconsistent in their use of industry and VHA best practices in scheduling, resulting in a fewer appointment slots available than may be possible within existing provider

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capacity and a significant number of booked appointments not being completed as originally scheduled. On schedule setup, examples of these practices in common use in industry and within certain services (such as Primary Care) within VHA include using standard appointment lengths within a sub-specialty and determining appointment mix (for example, number of new patient slots) based on patient demand (Institute for Healthcare Improvement (IHI), "Reduce Scheduling Complexity," n.d.; Primary Care Clinic Profile Standardization Guide, 2014). Similarly, inconsistent scheduling practices, such as the ways in which appointment reminders are used, exist across facilities and clinics. For example, a patient could expect a reminder from a clinic and not receive it (and potentially not go to the appointment as a result). Ultimately, the variability in these practices may result in reduced appointment availability and utilization as well as inconsistent patient experience.

3.4 Facility-Level Differences in Performance Management and Accountability Limit System-wide Improvements to Access

VHA facilities lack consistent organizational structures for managing scheduling or access and, in many cases, lack dedicated resources to manage performance and outcomes for these activities. Given structural differences, formal monitoring of schedules is not a clearly defined duty for any staff members at the facility level, which hinders cross-system sharing of best practices, policy dissemination, and process standardization. In addition, this lack of consistency in organizational structure and accountabilities limits VHA performance management of facilities, as no one individual is specifically accountable and data analysis is cumbersome.[10] The Veterans Choice Act (section 303) identified this lack of accountability and aims to assign management of access responsibilities to a particular role within each clinic and to provide tools and processes to help perform this duty ("Veterans Access, Choice, and Accountability Act of 2014," 2014). VHA plans to fulfill this mandate without any new facility hires; instead, the organization will designate current FTEs as owners of these responsibilities at the clinic and facility levels (Access and Clinic Administration Program [ACAP], interviews, 2015).

3.5 VHA-Specific Processes Paired With a Scheduling System That Does not Simplify Processes Leads to a Greater Reported Need for Scheduler Training

In response to a survey, 90 percent of schedulers noted the need for additional training in at least one area (for example, wait times and wait list policies) to become proficient at executing their basic responsibilities (Assessment E VHA Employee Survey, 2015). This perceived need for enhanced training may be due to systems and processes that do not simplify scheduler responsibilities, a common focus among private sector executives we interviewed. For instance, scheduling systems of private sector organizations have more user-friendly interfaces, fewer unique programs, and more automated processes (Private sector health system, interviews,

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[10] For example, at present, there is no easy or automated way to consistently and accurately monitor provider schedules.

2015). As a result of greater complexity, VHA schedulers must receive additional training (on wait times and wait list policies, for example) to become proficient at executing basic VHA scheduler responsibilities.

3.6 Scheduling Call Centers are not Maximizing Their Performance due to Their Small Scale and Disparate Service Offerings

VHA call centers are smaller than industry standard (median size of 12 agents within VHA compared to 28 agents in private sector health systems and 110 agents across other industries) (Assessment E national data call, 2015; Belfiore et al., 2015). The scheduling call centers that do exist provide different services and support different specialties depending on the facility. Due to efficiencies in managing call demand that can lead to service improvement for patients, other provider systems have, in some cases, moved to pooling call volumes in more central locations. Larger scale call centers can also have lower per-unit costs and put less stress on space-constrained facilities than facility- or clinic-based operations. Further, larger call centers may be able to offer more coaching, training and career options to schedulers.

Overall impact on patients

The above findings have significant implications for the patient. Overall, limited visibility into supply prevents VHA from understanding its true workforce needs such that it can appropriately plan for patient demand. Variation in how provider schedules are developed and managed likely results in more limited appointment availability for patients even at existing provider capacity. In addition, inconsistent application of policy and scheduling practices from clinic to clinic as well as different service levels and service availability outside of the clinic from call centers result in variation in patient experience, which can be confusing for the patient.

While we did not talk to Veterans directly as part of this assessment, we did review Veterans' perspectives on scheduling that were shared publically. A 2014 survey of more than 20,000 Veterans conducted by the Wounded Warrior Project echoed several of the challenges that we observed during this assessment. For mental health and physical healthcare services, more than 40 percent of respondents cited "difficulty in scheduling appointments" and "experienced lapsed and inconsistent treatment because of canceled appointments and switches in providers" as the top two most common reasons for difficulties in getting health care. Approximately 60 percent of those surveyed had VA health insurance. (2014 Wounded Warrior Project Survey Report of Findings).

Quotes from several Veterans further described their scheduling experience:

> "I think the biggest issue is the transition of health care. I always am told by VA doctors that it's "my health care," but it seems like they do very little on their end. I can't ever seem to get the appointments I need, they switch my providers constantly, dragging out even the most basic of medical issues for years now" (2014 Wounded, pg. 130)

> "I contacted the VA medical center near me to schedule my medical intake. I had a set appointment that was canceled by the VA. When I called to reschedule, I

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was given a new appointment. This was again canceled by the VA because they said I was missing paperwork which I had already given to the VA. When I called to reschedule again, they instructed me since I missed two appointments, which were canceled by the VA, I would have to restart the entire medical intake process. I have not yet been through the VA medical intake. I am in constant pain and see a chiropractor at least once a week. The VA disability states my issue is non-permanent and I will lose my rating. My pain limits me from working out and enjoying the things I used to before this pain began." (2014, Wounded, pg. 129)

 ". . . you are out there trying to work and go to school and take care of yourself by utilizing the VA health care system because it's all you can afford, but they can only schedule appointments in the middle of the day when you have to work. How about a little flexibility there!?..." (2014 Wounded, pg. 130)

These perspectives along with our findings from this assessment collectively suggest that VHA facilities have an opportunity to increase appointment supply within existing resource constraints, ensure that available appointments are fully utilized and create an improved patient experience for the Veterans it serves.

4   Cross-Cutting Recommendations & Implementation Considerations

4.1   Cross-cutting Recommendations

Given the access crisis and the recent Veterans Access, Choice and Accountability Act, VHA reports that many new efforts are already underway to address some of the issues described above. VHA plans to introduce short-term system enhancements to improve system usability for schedulers and longer-term changes to enable a resource-based view of providers and other assets (for example, facility space). VHA is also developing a clinic/group practice manager role and management training program, which was required by Section 303 of the Choice Act and requires VA to "…to provide in-person, standardized education on systems and processes for health care practice management and scheduling to all appropriate employees…" ("Veterans," 2014). Additionally, VHA released scheduling policy clarifications in May 2015 to clarify elements of the existing Scheduling Directive including the use of wait lists and other scheduling and access-related practices. Finally, in May 2015, VA launched an organization-wide Contact Center Taskforce to review the current state of telephone services at VA across various areas including scheduling. Further details of relevant efforts underway can be found in the recommendations sub-sections of the report.

If successful, the above efforts will improve the ability to monitor appointment supply and demand, introduce facility-level owners for access management, clarify policies, and improve baseline call center performance and best practices. In addition, it may be important to address limitations in these initiatives. For example, these initiatives may not create tools to ensure success and accountability of the clinic managers, do not automatically create one schedule per provider, nor address ways to automate national scheduling policies. Further, they may not ensure the dissemination of best practices, address the need to improve call center service levels, or reduce the need for training.

To address these gaps, we recommend several actions. In alignment with Section 201 of the Choice Act, Section 201 assessments' findings and recommendations were developed independently. We therefore expect these recommendations would be refined by VHA leadership and the Commission on Care. Additional detail on the supporting recommendations can be found in the sub-assessment sections of this report (Sections 5-9).

Our overarching recommendations for Assessment E are the following:

4.1.1 Address System Limitations to Provide Visibility Into Aggregate Appointment Supply, Alternative Measures of Wait Times, and Provider-Level Performance Data

VHA providers can operate across multiple and sometimes overlapping clinic schedules (also known as "profiles"),[11] which can result in double-counting of appointment slots when aggregated. VHA has a current initiative to clean-up overlapping schedules and unused clinic profiles that should result in a more accurate view of each clinic's appointment slot supply. Although this is an important first step, the effort may not eliminate all overlap in schedules and will not by itself allow understanding of appointment supply and utilization. One consolidated schedule for each provider would allow VHA to capture total appointment supply and measure the industry-standard wait time metric. With VA OI&T's current procurement of a new scheduling system (discussed in detail in section 7, Scheduling System), VHA may be on the path to addressing system limitations. Of course, when updating or acquiring a system to support scheduling, it is important to understand the business case relative to modifying the existing system or locally sourcing solutions at the facility/regional level.

4.1.2 Codify Proven Scheduling Practices and Empower Clinics to Improve Appointment Utilization and Deliver a Consistent Patient Experience

Several pockets of scheduling best practice exist within VHA, such as the predictive missed opportunity model. However, many of the best practice VHA tools and processes are not widely disseminated nor utilized. The VHA ACAP Office reported that it is beginning to codify system-wide knowledge of scheduling best practices, but there is also an opportunity to ensure that these practices are consistently utilized in the field (ACAP, interviews, 2015). This will require addressing the lack of clinic management resourcing, addressing scheduler vacancies and ensuring that providers have an understanding of why certain practices (for example, overbooking) may be necessary to provide access.

4.1.3 Streamline Scheduling Policy Implementation With Supporting Tools and Implementation Guidance; Where Possible, Utilize Technology to Support

The current Scheduling Directive policy is designed to aid VHA facilities in managing in an environment of excess demand relative to the appointment supply it is offering. This has resulted in policy steps, such as wait time capture and wait list management being added to the scheduling process, which can result in inconsistent patient experience due to discrepancies in policy interpretation and implementation in the field. For instance, to adhere to the policy regarding the Electronic Wait List, the scheduler will place a patient scheduled outside of 90 days on a wait list, an additional step in the scheduling process. Further, while the EWL prioritizes Veterans to be scheduled based on policy, schedulers can find it challenging to use the list in conjunction with other policies (e.g., how many times the patient should be called

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[11] Described in Provider Availability Section 5 of this report

before moving to the next patient in the list). In contrast, an ideal system would automatically place relevant patients on the EWL, provide a manager with a comprehensive dashboard for monitoring the waitlist demand, and prioritize which patients should get the first available appointments based on additional parameters. As a result, these changes would improve schedulers' efficiency and improve consistency of policy implementation.

4.1.4 Improve Scheduler Training by Sharing Local Best Practices and Increasing Experiential and on-the-job Training; Simultaneously, Minimize the Need for Training by Simplifying Policy Implementation and Improving System Functionality

Currently VHA's need for scheduler training is exacerbated by its scheduling software, policies (like EWL), and clinic- and provider-specific scheduling rules. Improvements to the scheduling systems, streamlining policy implementation, and minimizing unnecessary clinic-specific rules would reduce demands for schedulers' training and create more consistent patient scheduling experience. To optimize its program, VHA should also leverage local best practices to create an improved and standardized curriculum for training and minimize duplication of materials development at the facility-level. In addition, training should be delivered using more experiential training methods to increase its effectiveness and information retention by schedulers.

4.1.5 Design Scheduling Call Centers That can Provide Expanded Services for Veterans Relative to Current State

Currently, VHA scheduling call centers are managed locally at the facility level. As a result, most are small (median size of 12 schedulers, based on facilities that responded to our data call) and each call center varies in regards to the responsibilities and specialties for which it is responsible (Assessment E national data call, 2015). Decentralized call centers are difficult to centrally monitor and manage with regards to patient experience. Through the new MyVA effort, the organization is examining how it interacts with Veterans across various channels (such as, web, call centers, mail). This includes a VA-wide Call Center Task Force that may ultimately address scheduling; however, the scope does not yet appear to be clearly defined. VA has an opportunity to evaluate its current call center use for scheduling and develop an approach based on existing VHA call centers in other areas (like Health Resource Centers) and leading private sector scheduling call centers. VHA can then evaluate which responsibilities and specialties should be handled at larger scheduling call centers, and which ones to outsource. Additionally, VHA should analyze the appropriate degree of centralization (for example, regional or virtual call center) and the call center locations.

4.1.6 Ensure That the Clinic Manager Training Program and Subsequent Implementation are Appropriately Scoped and Resourced to Drive Access and Clinic Management

Different roles, accountabilities and levels of expertise exist across facilities for managing access and scheduling, which affects how access and scheduling is managed and prioritized at different

facilities. Via the Choice Act, VHA was directed to develop a clinic management training program to address these gaps within the system. While many important scheduling functions are reported to be addressed in the training curriculum as it is currently envisioned, resourcing and accountability for these activities will be equally important in ensuring that VHA is able to fully utilize its provider capacity and the appointment supply made available to Veterans. Further, tools need to be developed and distributed to ensure that these new clinic managers are successful.

4.2   Implementation Considerations

Below, we have listed the changes that we believe are fundamental preconditions for successfully implementing the recommendations described in Section 3 and the detailed report sections, as well as suggested immediate actions to be taken at the national level.

4.2.1   Pre-conditions for Implementation

Many of the challenges we and other assessment teams have observed are interrelated and highly complex. Implementing solutions to long-standing challenges will require collaboration among Congress and the Executive Branch, VA and VHA leadership (VA Central Office, VISN, and VAMC) and staff, as well as the unions and external stakeholders. We see this assessment as an opportunity for improvement, to be achieved by all stakeholders through a combination of local, regional, and national action. Addressing these challenges will require sustained commitment as a part of an integrated transformation effort for the system as a whole.

The VHA scheduling process involves many complex policies and processes, some of which do not exist in private industry. The recommendations summarized earlier in this section include both fundamental shifts to the system as well as tactical changes that can be made at the local level, while more far-reaching solutions are being implemented. We believe there are several essential preconditions to implementing these and transforming scheduling at VHA:

4.2.1.1   Introduce End-to-end Owner of Access & Scheduling Implementation to Ensure Successful use of Desired Policies and Scheduling Practices

Policies that impact scheduling are developed centrally by VHA (for example, by the VHA ACAP office) and then implemented in the field by local frontline leaders. The intended purpose of a policy is not always clear to the facility and clinical leadership. As a result, many policies are not implemented as intended or not implemented at all. In other cases, facility and clinical leaders understand the policies but do not feel that they have the tools (for example, standard operation procedures, prediction models, waitlist dashboards) to successfully implement the desired policy. Further, groups at VHA that are tasked to create the national policies do not have the operational control to test and refine policies in the field due to a lack of reporting oversight of operations. As a result, policies are not always informed by the frontline view of how best to operationalize. By introducing an end-to-end owner of access and scheduling management in the VHA field organization (e.g., above the VISN level), the organization can increase accountability and ensure timely implementation of needed changes. This end-to-end

ownership for cross-cutting areas should be developed in the broader context of organizational changes recommended in Assessment L.

4.2.1.2 Increase Performance Management and Accountability for Access and Scheduling Performance

Today, the field is held accountable for facility performance through VISN leadership reporting up to the Deputy Undersecretary for Health for Operations and Management. There is a wide range of targets and metrics the field is held accountable for across its operations. However, if VHA is to prioritize performance on specific dimensions (e.g., access), it may need to refine and streamline its performance management systems, including operational measures, targets, and rewards, as described in detail in Assessment L.

4.2.1.3 Convene a Standing Group to Streamline the Policy Approval Process to Allow Flexibility and Responsiveness to the Field

Currently, new policies must be approved by a myriad of departments across various levels of VHA. As a result of this well-intended consensus-driven approval process, policies or policy clarifications take months or even years to approve and launch, which hampers the ability to respond to the needs of the field in an ever-changing environment. For instance, the Scheduling Directive was released in 2010, but the first clarification was not released until May 2015. An accelerated policy approval process could reduce the ability of any individual or group to prevent the policy from gaining approval. It would also significantly simplify the approval process needed for simple clarifications of existing policies that currently need to be approved by the same process as national directives.

4.2.1.4 Improve the Existing Hiring Process to Ensure Adequately Skilled Scheduler and Provider Staffing

Today, as documented by Assessment F, the hiring process for both clinical and non-clinical staff is challenging due to both national and local hiring practices. As a result, it is not atypical for a facility to go six months before replacing a vacant position. With fewer providers, clinics have fewer appointments to offer patients, which may result in their inability to meet demand. With fewer schedulers, standard practices may not be used on a daily basis and patients may have to wait longer before a scheduler can attend to their scheduling needs. By improving the hiring process for all staff, VHA can ensure it has the manpower to follow best practices scheduling processes and provide timely appointments to its patients.

4.2.1.5 Ensure Progress Against Organizational Effectiveness Recommendations Described in Assessment L

Large-scale change management efforts, such as what would be required to meaningfully improve the scheduling workflows at VHA, will require several fundamental organizational changes that go beyond scheduling. Assessment L describes these changes in detail. Specific to scheduling, VHA will also need to undergo a change management process in which clinical leadership and providers are engaged in the scheduling transformation. Given the number of

process, system and organizational changes suggested by this assessment, engaging and empowering clinical leadership in the transformation effort will be critical. In our experience with scheduling/access transformations, clinical leadership engagement has been a key determinant of success in improving patient experience and increasing access in all situations.

4.2.2 Immediate Actions for Consideration

Across our recommendations, some actions should be considered for immediate implementation, while others will likely require more advanced planning and resourcing before meaningful design or implementation can begin. Recommended immediate actions against each of our cross-cutting recommendations should include:

Table 4-1. Recommendations and actions for consideration

Recommendation	Potential immediate actions
Address System Limitations to Provide Visibility Into Aggregate Appointment Supply, Alternative Measures of Wait Times, and Provider-Level Performance Data	▪ Within VHA, continue effort to clean-up clinic profiles; ensure that facility-level clinical leaders are committed to this effort ▪ Across VA and VHA, ensure that process design, budgeting and implementation/roll-out planning (including for non-systems changed required to get the full value of any new scheduling system) are progressing for MASS (assuming imminent vendor selection)

Codify Proven Scheduling Practices and Empower Clinics to Deliver a Consistent Patient Experience, Improve Appointment Utilization	▪ As part of ACAP's continued efforts on scheduling and access,
	
	  — Engage clinical leadership at the facility level on the principles of provider scheduling management, supplementing the development of the clinic manager training program
	
	  — Direct clinics to increase use of strategic overbooking, which does not require new resources, and provide "how to" principles to accelerate the work down of current backlog (can revisit strategy over time)
	
	  — Redistribute and offer training on the VHA-developed missed opportunity predictive model to VISNs/facilities

Recommendation	Potential immediate actions
	to build awareness of the tool where it may not exist today
Streamline Scheduling Policy Implementation With Supporting Tools and Implementation Guidance; Where Possible, Utilize Technology to Support	▪ Assemble a cross-functional working group with the charge of policy approval ▪ Determine a regular process and timeline that ensures that (1) decision-making occurs in a timely manner (2) any proposed changes are accompanied by supporting implementation tools that are field-tested (3) there is a clear plan for subsequent disseminated to all relevant personnel (4) there is a mechanism for measuring impact (positive or negative) of any policy or policy changes that should be centrally addressed
Improve Scheduler Training by Sharing Local Best Practices and Increasing Experiential and on-the-job Training; Simultaneously, Minimize the Need for Training by Simplifying Policy Implementation and Improving System Functionality	▪ Building on the materials received during this assessment's national data call, ACAP should continue to codify best practice training materials examples and share at VISN/facility level
Design Scheduling Call Centers that can Provide Expanded Services for Veterans Relative to Current State.	▪ VA/VHA should clarify scope and timeline of activity for VA Call Center Taskforce as it relates to scheduling call centers ▪ Building on the materials received during this assessment's national data call, ACAP should develop recommendation on scope (scheduling services offered, clinical services covered) and size of scheduling call centers for facilities to consider

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5 Provider Availability

5.1 Context & Approach

The Institute for Healthcare Improvement (IHI) describes the fundamentals of access management as consisting of two management processes: 1) monitoring appointment demand, and 2) managing appointment supply to that demand ("Measure," n.d.). In any provider setting, appointment availability can fluctuate due to several factors, including last minute clinic cancellations, vacation, leave, and other changes to schedules. These factors have a significant impact on patients when a lack of availability inhibits access or when clinic-initiated reschedules result in an additional administrative burden for patients and schedulers. According to the 2014 VHA Access Audit, the "highest scored single barrier or challenge [to timely access to care] was lack of provider slots" based on frontline staff responses ("Access Audit," 2014).

The Choice Act identified two areas to assess related to provider availability: 1) whether providers were making changes to their schedules that inhibit scheduling, and 2) whether standard booking templates[12] at each facility or clinic could improve scheduling process. To conduct this assessment, we considered the following elements (described in Figure 5-1), which can all contribute to the need for a standard template.

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[12] A booking template refers to the basic structure of a provider's schedule, including clinic hours, appointment slot lengths, and types of appointments offered in each slot (Kumar et al., 2014).

Figure 5-1. Elements of Provider Availability

Provider availability overview

Schedule creation

Modifications to schedule

Expected bookable time[1]

Provider's effective bookable time

Available appointment time

Monitoring of time in clinic
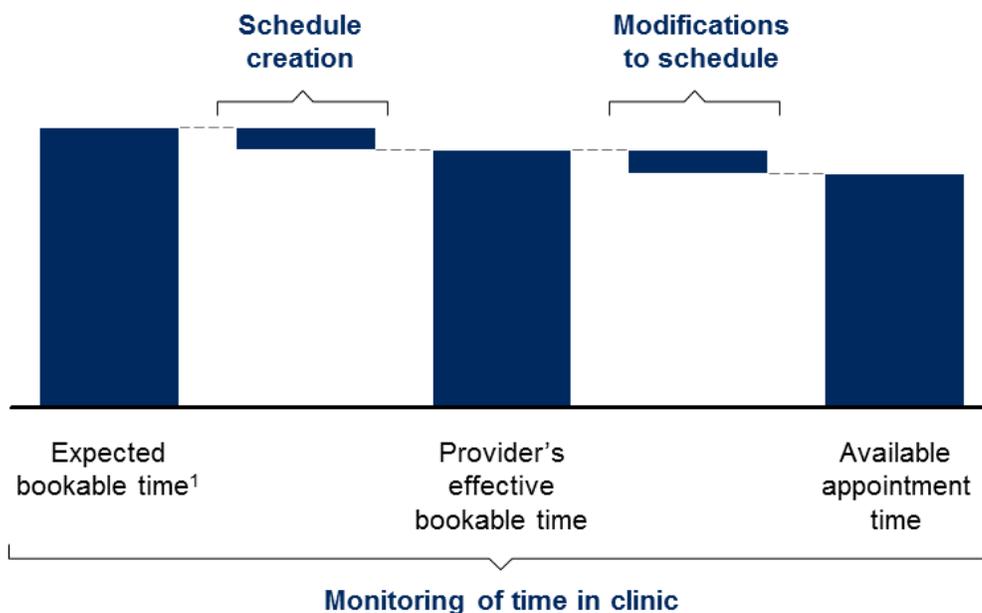
1 Equal to expected time in clinic (percent of clinical FTE) minus allowed time for support tasks (e.g., documentation, patient messaging)

Expected bookable time is defined as the amount of time a provider should be making available for appointments based on the provider's contractually-defined clinical full-time equivalent (clinical or cFTE), a measure of a provider's time for clinical activities in total, and expected time in clinic (versus other settings of care like the operating room). When schedules are created in the scheduling system, the schedule should be created to reflect this bookable time. Any deviation from the expected bookable time that happens when schedules are created or modified can reduce the overall available appointment time. The number of available appointment slots (appointment supply) is then dependent on how the appointment time is distributed across appointment types (e.g., urgent, new, follow-up), which may also have different lengths.

VHA providers (independently licensed clinical practitioners) work with their specialty's administrative leadership (including administrative officers (AOs), service chiefs, and section chiefs)[13] to confirm the hours in which they will see patients (bookable time) and to determine the length and mix of appointments (appointment slot supply). This information is then

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[13] Service and section chiefs are both clinical leaders. The key difference is scope of management, as sections are a sub-component of services (e.g., Orthopedic Surgery is a section underneath the Surgery service).

translated into the provider's schedule through a request from the clinical administrative leadership to the IT group responsible for generating profiles in the VistA Scheduling System. The turnaround time and processes for changes can vary due to the volume of change requests and the capacity of the group who generates the profiles in the scheduling system (Choice Act site visits, interviews, 2015). The administrative leadership is ultimately responsible for making sure that providers have structured their schedules to ensure they are offering the expected level of bookable appointment time (ACAP, interviews, 2015).

What is unique to VHA is that a provider's schedule is often spread across multiple "clinic profiles," another term for any individual schedule that a provider maintains for specific appointment types. Several important terms and definitions related to clinic profiles will be used frequently throughout the rest of this section. These terms include:

- **Clinic profile or profile**: One of several individual schedules a provider might be required to use, which combined together form his or her full schedule. Providers may have multiple profiles to differentiate appointment types by specialty, type of care, location, hours, and length of appointment (ACAP, interviews, 2015; Brandenberg et al, 2015). VHA policy requires separate profiles for each:
  - **Stop code**: Stop codes, a VHA-specific identifier used to track outpatient workload, serve as the building blocks for VistA Scheduling System. A profile requires a unique stop code so that completed appointments can be counted consistently across the facility and VA system. For the purpose of capturing workload, only one stop code can be used per profile (VHA Directive 1731, 2013). Examples include 409 – Orthopedic Surgery; 306 – Diabetes; 322 – Women's Primary Care.
  - **Standard length clinic day**: An individual profile can have a daily clinic length of no more than eight hours.
  - **Single location per profile**: An individual profile can have only one location per profile.
  - **Identical base time unit**: An individual profile can have only one base unit of time[14]
- **Overlapping profiles:** If a provider's profiles are mutually exclusive (non-overlapping), then they can be summed to determine accurate provider appointment supply; however, if providers have appointment availability within different profiles at the same time, then profiles will overlap, which can result in overestimation of true supply.
- **Schedule:** Aggregation of a provider's availability across all clinic profiles.

In addition to definitions, it is important to understand that primary and specialty care operate under different working models; this affects both how profiles are created and how productivity is monitored. Primary care providers manage a given number (or "panel") of patients in a team-based model known as Patient-Aligned Care Teams (PACT). National

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[14] The base unit is the minimum bookable amount of time (15 minutes, 20 minutes and 30 minutes) and must be established for each clinic. Only multiples of the base unit can be booked within the same profile (e.g., a 15 minute visit and a 40 minute visit cannot be booked in the same profile, whereas a 15 minute and a 30 minute visit can) (ACAP, interview, January 8, 2015; SCS, 2015).

guidelines govern panel size, as well as access and quality outcomes (VHA Handbook 1101.10, 2014). It should be noted that a new primary care guide for profile creation was released in 2015, but was not in time for its impact to be observed on our site visits (Choice Act site visits, interviews, 2015). In contrast, specialty care providers generally are not responsible for panels of patients, but rather treat patients with specific problems for a limited period of time. In both cases, however, the set-up and management of clinic profiles is an important component of patient access.

To understand these elements in detail, we relied on several specific data sources, including:[15]

- Interviews at 24 VAMCs and 23 CBOCs with 109 providers (39 percent primary care, 42 percent specialty care, 18 percent mental health care), 17 chiefs of staff, 111 clinic administrators[16] (35 percent primary care, 26 percent specialty care, 14 percent mental health care, 12 percent lab/radiology, 11 percent OR/procedure suite, 3 percent multiple care types), separate group interview discussions with approximately ten schedulers and ten clinic managers at each VAMC visited
- National survey of 1,054 providers from 111 VAMCs and 173 CBOCs
- National data call responded to by 617 clinics across 102 VAMCs focusing on provider policies
- Clinic Access Index data for the 25 VAMCs that were visited as part of this assessment's site visits, including metrics such as the ratio of new to existing patients seen and reasons for cancellations
- Analysis of Corporate Data Warehouse (CDW) appointment-level data from 152 out of 152 VAMCs and 811 of 819 CBOCs, including 5,644 total clinics, over seven-month timeframe in 2014
- Manual review of provider schedules and comparison to time-in-clinic for two specialties at one VAMC; 15 physicians and 12 profiles over a six-month timeframe in 2014-15

5.2   Findings

5.2.1   VHA Lacks an Understanding of Aggregate and Provider-Level Appointment Supply Relative to Demand Due to System Design Constraints

According to the IHI, "the foundation of improved access scheduling is the matching of supply and demand on a daily, weekly, and monthly basis. This work requires a very good understanding of demand and supply" ("Balance," n.d.). Senior leaders at Kaiser Permanente, a leading integrated provider system, also assert that an access transformation can only be accomplished with a quantitative and disciplined approach to understanding appointment supply and demand (Kaiser interview, 2015). Mayo Clinic, Seattle Children's Hospital, and other

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[15] For detailed methodology on data sources, clinics chosen for analysis and time frames of data, see Appendix B

[16] Administrative officers (AOs), nurse managers and other clinic administrators

private sector health systems similarly depend on an understanding of appointment supply and demand to achieve access improvements (Brandenburg et al., 2015). This capability is important when considering potential improvements to scheduling and to timely access to care.

Because of shortcomings in the current VistA systems, VHA appears to have limited insight into provider availability for outpatient services ("Access Audit," 2014), and limited ability to assess the extent to which a shortage of providers or inefficient use of current capacity are contributing to its access challenges. Much of the problem appears to be driven by choices in data capture as well as centralized reporting requirements that can result in the multiple, overlapping provider profiles described in the context. Due to this, VHA does not get a true picture of the provider's available appointment supply because the data cannot simply be aggregated.[17] To see what this means in real life, consider Figure 5.2.

Figure 5-2. Actual Orthopedic Surgeon's Profiles
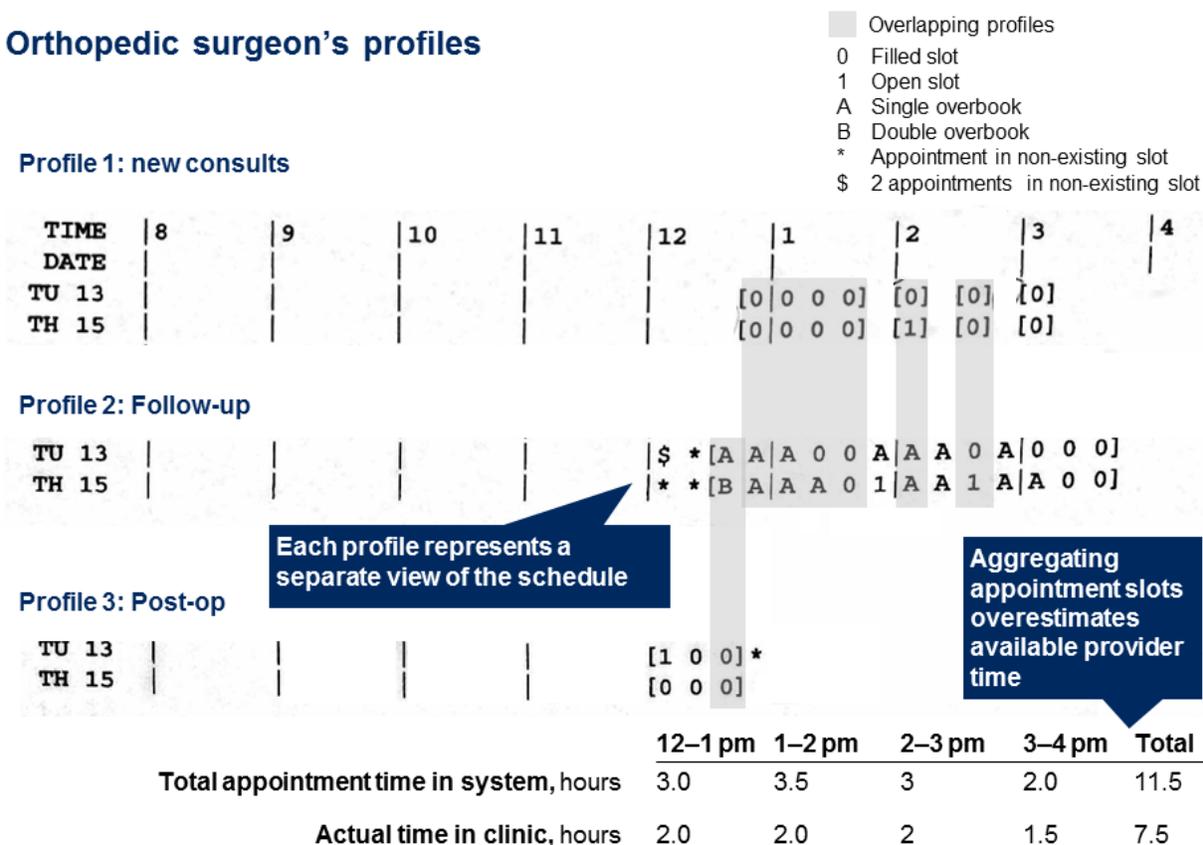
Figure 5-2 shows an orthopedic surgeon's three outpatient clinic profiles – new, follow-up and post-op – for January 13 and 15, 2015. This figure shows that while the physician is only in clinic

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[17] This is a well-known issue to facility and VHA central office leadership (ACAP, interviews, 2015); see section 5.3.2 of this report.

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for 7.5 hours over the course of the two days, the profiles suggest 11.5 hours of appointments were made available for booking. These overlapping slots represent a 53 percent artificial increase in appointment supply. These profiles were provided by a Surgery AO from a medium-sized, high complexity VAMC. Key: 0 = filled slot; 1 = open slot; A = single overbook; B = double overbook; * = patient booked outside a clinic's regular hours; $ = two patients booked outside a clinic's regular hours. Source: site visit VAMC, 2015.

The figure shows an orthopedic surgeon's three clinic profiles or schedules – new, follow-up and post-operative – in a medium-sized, high complexity VAMC for January 13 and 15, 2015. In reality, a scheduler could not view these multiple, overlapping profiles at the same time on their computer screen; these are consolidated into one view for the purpose of this example. While the physician is actually in the clinic for 7.5 hours over the course of the two days, the profiles suggest 11.5 hours of appointments were made available for booking, suggesting an inaccurate 53 percent "increase" in appointment supply.

Three primary data sources exist for understanding appointment-level information at VHA: the Corporate Data Warehouse (CDW), which houses retrospective appointment data and is limited to booked appointments,[18] the Clinic Access Index report, which, along with the Clinic Utilization Statistical Summary report, shows appointment slots and utilization; and provider schedules. Unfortunately, none of these reports provides accurate visibility into total appointment supply given the issue of overlapping profiles. The Clinic Access Index, for instance, while meant to provide a way to understand provider availability for appointments and clinic-level utilization, aggregates data from multiple profiles, which results in inaccurate numbers being reported if any profiles overlap. According to interviews with 115 AOs and clinic administrators during site visits, the only way to accurately assess appointment supply is to manually review schedules at the provider level, which is a time-consuming task that appears to be performed at fewer than five percent of VAMCs and CBOCs. Interviews with VHA Central Office leaders confirmed this estimate (VHA Central Office, interviews, 2015).

5.2.2 VHA Does not Utilize Demand Analysis and Forecasting to Develop Schedules that Match Patient Needs

Health systems can measure and forecast patient demand for appointments on both a short- and long-term basis. True appointment demand represents "the total number of requests for appointments received on any given day from both internal (e.g., provider requests for return visits) and external (new patient referrals) sources" ("Measure," n.d.). While long-term demand modeling enables workforce planning (e.g., hiring of providers), the IHI recommends health systems use short-term demand forecasting in addition to develop provider schedules ("Measure," n.d.). Specifically, the IHI recommends forecasting on a daily, weekly, and seasonal basis[19] ("Measure," n.d.). Further, a 2015 Institute of Medicine (IOM) report identified the need

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[18] Any appointment slots that go unused are not captured. VA does use the Veteran Equitable Resource Allocation (VERA) model, which uses historical utilization data to allocate VA funding annually. However, this model measures utilization (e.g., visits), not appointment supply.

[19] Currently, VA forecasts long-term demand for budget request purposes using a complex model.

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for "vigilant and dynamic management" to "make on-the-fly adjustments when events happen that upset the [supply-demand] balance" (Brandenburg et al., 2015).

VHA does not consistently use short-term demand analysis and forecasting to develop schedules that match patient needs. VHA's ability to build schedules around demand forecasts is limited in that its demand models do not provide prospective demand predictions by type of appointment (e.g., new, follow-up, pre-operative). For instance, VHA utilizes the Enrollee Health Care Projection Model (EHCPM), which is maintained and operated by private contractor Milliman, Inc. (Harris et al., 2008). This tool enables the forecasting of future demand in terms of physician RVUs by specialty at the administrative parent facility level, which refers to a medical center and all facilities under the same leadership (link to Assessment B). However, the EHCPM does not predict mix of appointments, which prevents it from being used to design schedules as is best practice (Gupta and Denton, 2007). VHA's other demand models, such as the Specialty Productivity Access Report and Quadrant (SPARQ) Tool, similarly do not enable prospective demand modeling ("Productivity," 2015).

High-performing private health systems monitor demand closely. For example, Kaiser Permanente employs a dedicated analytics team to monitor and compare expected appointment supply to forecast demand by appointment type;[20] then the system's clinical and administrative leaders review these supply and demand data on a weekly basis to identify potential gaps and to increase supply[21] if needed (Kaiser interview, 2015). Cleveland Clinic reduced wait times from 14 to seven days and added 100,000 visits a year through the use of supply-demand analytics and prediction tools ("Creating," n.d.). University of Michigan employed a similar strategy of closely matching capacity of providers to predicted demand for services from various patient populations to improve access performance (Nolan et al., 1996).

5.2.3 VHA Does not Develop Schedules to Ensure Optimal Appointment Supply or Mix (For Example, New, Urgent, Follow-Up)

5.2.3.1 Provider Schedules may be Created Without Clear Linkages to Assigned Clinic Time

The IHI suggests that provider schedules be set to match expected cFTE ("Measure," n.d.).[22] By explicitly measuring available appointment time and comparing it to time expected in clinic, clinics can identify opportunities to increase patient access without adding providers.

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[20] Based on historical demand, seasonality, membership changes and other inputs

[21] Short-term appointment supply can be increased by decreasing non-clinical time, denying non-essential leave and shifting focus to new patient appointments.

[22] For the purpose of this report, "schedulable time" is referred to as a percentage of a clinical full-time employee (FTE). In other words, for each provider, there is a specified amount of time to be spent at the VHA facility. Of that time, a certain amount is allocated to seeing patients (often called "clinical time" and defined as a percentage of clinical or cFTE). Of that clinical time, a portion is allocated to the outpatient clinic setting for direct patient care (% cFTE); this is the focus of the report.

Across VHA facilities, schedules are developed at a local level for each provider with limited central guidance on translating cFTE to expectations of bookable time (Office of Productivity, Efficiency & Staffing, interviews, 2015). Of the 617 clinics responding from 102 VAMCs to our national data call, only 8 percent reported receiving national guidance on how long their clinic sessions should be, and 31 percent received no guidance at all (Assessment E national data call, 2015). Due to a number of factors, including this lack of central guidance on the number of expected bookable hours in direct patient care based on assigned outpatient clinic time, some provider profiles are structured to reflect less bookable time than their cFTE. Consequently, fewer appointments than expected may have been available.

For example, Figure 5-3 shows two full-time physician profiles from the same outpatient clinic for the week of Sept 8-12, 2014.

Figure 5-3. Actual Physician Profiles From Same Clinic, Both Intended to be 1.0 cFTE

Figure 5-3 shows two actual physician profiles provided by one facility's Mental Health service for the week of Sept 8-12, 2014. The figure shows that one physician's standard profile provided twice as many 30-minute appointment slots per week compared to another physician's (56 slots compared to 28) and that neither is mapped fully to expected bookable time. This analysis, based on guidance from the AO, assumes 35 hours of bookable appointment time per week, with one hour per day for documentation, phone calls, and other

administrative work related to direct patient care. Key: 0 = filled slot; 1 = open slot; A = single overbook. Source: site visit VAMC, 2015.

The clinic's AO confirmed that each provider in Figure 5-3 was one full cFTE at VHA, but one provider was scheduled to provide twice as many appointments per week (56 slots compared to 28). These slot availabilities represent 93 percent and 47 percent of expected appointment supply, respectively, based on 35 hours per week of bookable time[23] with one hour per day for documentation, phone calls, and other patient-related administrative work.[24]

Figure 5-4 demonstrates similar variability across the rest of this clinic over a six month period.

Figure 5-4. Portion of Assigned Outpatient Clinic Time Made Available For Appointment, Sept 2014 – Feb 2015

Portion of assigned outpatient clinic time made available for appointment booking for one clinic's physicians
Percent, N=9 physicians

Physician	Percent
Dr. A	88
Dr. B	87
Dr. C	85
Dr. D	84
Dr. E	73
Dr. F	72
Dr. G	60
Dr. H	51
Dr. I	30
Total	71
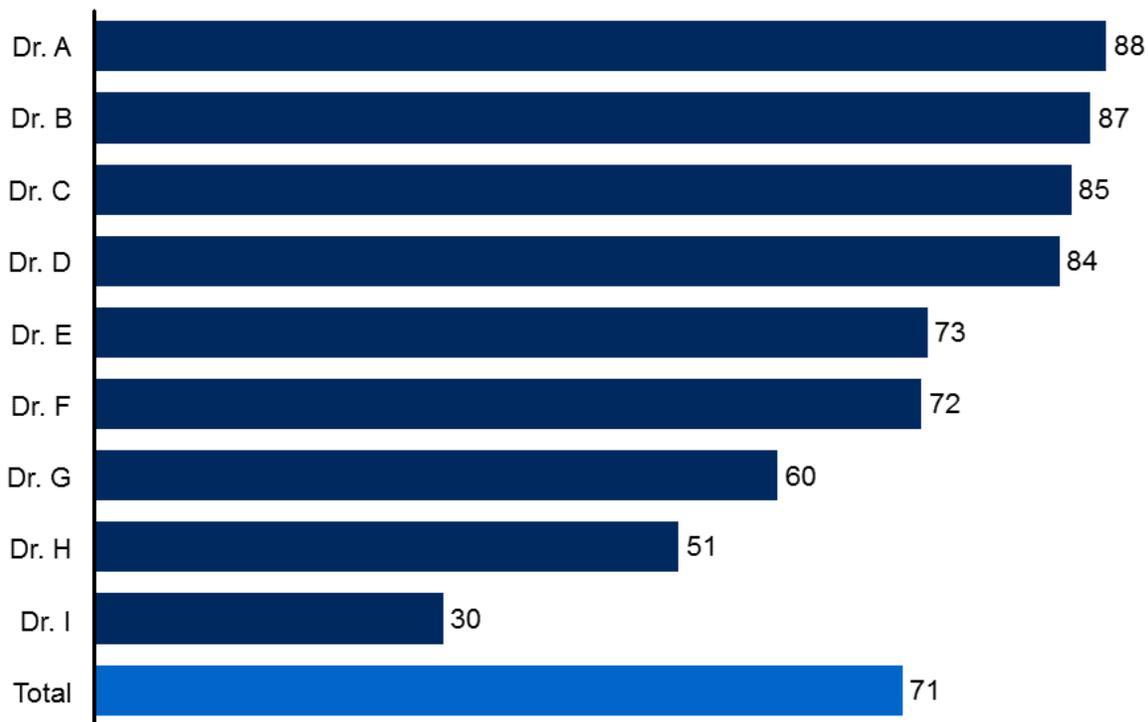
The amount of expected bookable time assumes providers work 35 hours per week, with 0.5 hours per session, two weeks of vacation, and seven holidays over the six-month period, Sept

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[23] Based on maximum of eight hours allowed in each clinic profile per day with one hour for lunch (Choice Act site visit interviews, 2015).

[24] AO provided all labor information and general expectations for bookable time and confirmed neither of the two physicians has other administrative, research or clinical duties filling the identified time gaps.

2014 – Feb 2015. Due to limitations in VHA provider time allocation data, it is not possible to understand how providers' unscheduled clinic time is being spent, so these individuals may be engaging in patient care activities (such as secure messaging) that is not captured. Source: Site visit VAMC, 2015.

Due to the manual nature of collecting FTE information and all profiles over a six-month period for every physician, only two of eight clinics asked were able to fulfill our request for this information, and representatives from other clinics reported that they could not comply given the amount of time this task would take. The time-consuming nature of this analysis given the multiple profiles clearly reduces the level of transparency of available bookable time to administrators. This can result in some providers making less time available for booking relative to their peers and should be explored more broadly across VHA given that the above analysis is an example of one clinic.

That said, the variability exhibited in this example is consistent with variability observed in more than ten health systems in which we have participated in scheduling/access transformations. Our experience has shown that even well-performing systems can generate 5-10 percent additional appointment capacity from improved matching of provider clinic schedules to assigned provider time. The constraints of other resources (such as exam rooms and non-clinical staff) would also need to be explored to validate this opportunity.

5.2.3.2 Lack of National Standards Regarding Appointment Lengths may Contribute to Patient Volume Variability from Provider to Provider

The IHI recommends that appointment slots accurately match expected appointment length for each sub-specialty ("Reduce," n.d.). Except for primary care, which has examined appointment slot lengths nationally and provided system-wide guidance on precise lengths for different appointment types, slot length determination is left to individual providers and their local clinical leadership. Of the 617 clinics across 102 VAMCs included in the data call, 67 percent had policies in place regarding appointment length, with the large majority of these policies (78 percent) developed at the service or section level (Assessment E national data call, 2015). In about 32 percent of cases, clinics reported that no policy existed at all, and that appointment length was left entirely up to the provider.

An analysis of seven months of established patient follow-up appointment data from 2014 found significant variations at the specific stop code (outpatient service identifier) level as seen in the following two Figures 5-5 and 5-6.

Figure 5-5. Follow-up Appointment Slot Length by Stop Code,
Jan – July 2014 n = 152 VAMCs, 811 CBOCs

Average appointment length by clinic stop code
Minutes, N=152 VAMCs and 811 CBOCs

90th percentile
50th percentile
10th percentile
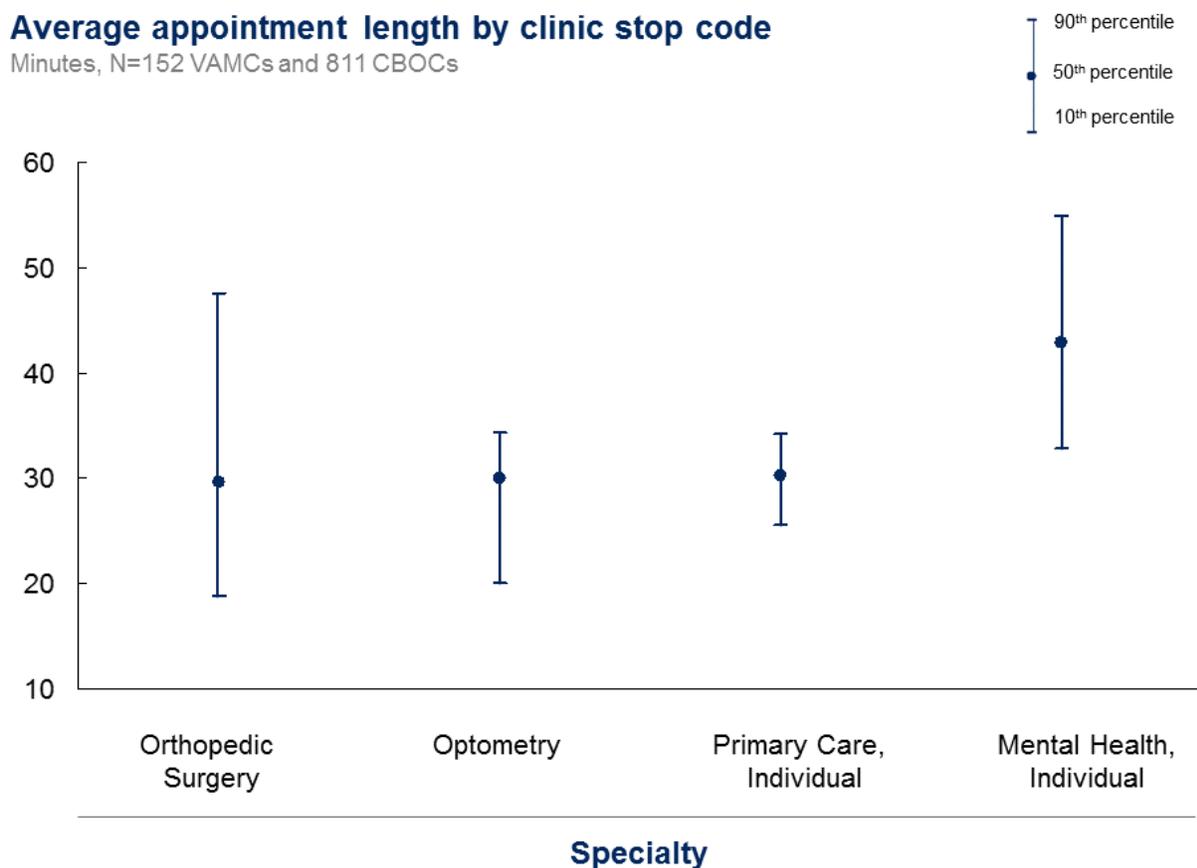
Specialty

Figure 5-5 shows the average lengths of follow-up appointment for select top codes. Average appointment length varies significantly within the same specialties across facilities. This data comes from Corporate Data Warehouse (CDW) data across 152 VAMCs and 811 CBOCs for seven months in 2014. Source: CDW, 2014.

As stop codes are identifiers that are intended to be used consistently across VHA for workload capture and accounting purposes, this type of variation is not necessarily expected. For example, across 338 facilities offering optometry services for seven months in 2014, average time scheduled for follow-up appointments for one stop code ranged from 15 to 61 minutes (10th percentile = 20 minutes, 90th percentile = 34 minutes). While an individual patient may take more or less time to be seen, these slot lengths represent the average scheduled appointment length for all of a clinic's visits. If the upper end constitutes an inefficient use of time, fewer patients would be seen, thus reducing overall access. Some of the variation in this analysis may be the result of visit types beyond "new" and "established," as the stop code categorization did not provide this level of detail. Further, primary stop codes do not enable analysis by provider type (such as physicians, mid-level providers and sub-specialties). This can also have an effect on appointment length as can in-clinic procedures/testing. However, given

the variability seen even in specialties such as optometry that have less inherent clinical variability, it is likely that appointment length represents an opportunity.

In order to further test the level of variation, we measured the average appointment length for each clinic within Optometry (stop code 408) for follow-up appointments.

Figure 5-6. Average Follow-up Appointment Slot Length for Optometry, Stop Code 408

Follow up appointment length – Optometry, stop code 408
Portion of clinics with average follow-up slot length in detailed range
Percent, N=338 clinics

Average length of appointment time in minutes
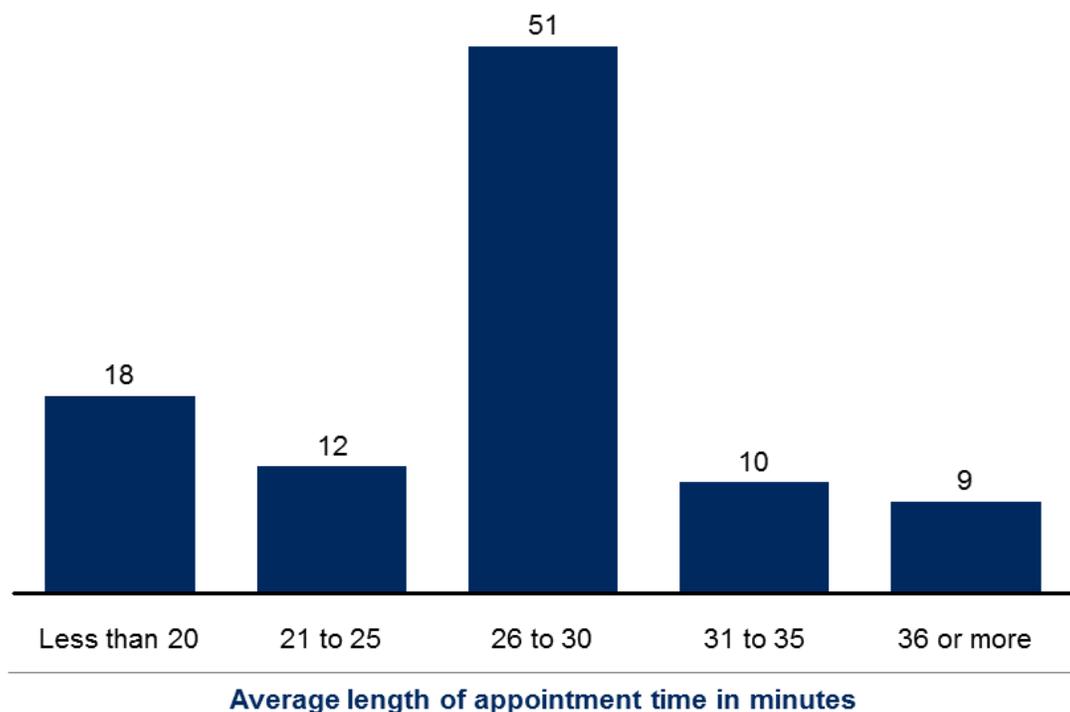
Figure 5-6 shows the distribution of average follow-up visit appointment slot length for Optometry, stop code 408. While most appointments (51 percent) lasted on average 26 to 30 minutes, 18 percent lasted 20 minutes or less and 9 percent lasted 36 minutes or more. This data comes from seven months of Corporate Data Warehouse appointment-level data in 2014. Source: CDW, 2014.

This analysis, which included multiple provider types, found a wide range of average clinic appointment slot lengths. While most appointments (81 percent) were scheduled for an average of 30 minutes or less, 10 percent were scheduled for 31-35 minutes and 9 percent for 36 minutes or more. This range represents a potentially large difference in the number of patients able to be seen. For instance, if providers could reduce appointment lengths from 40 to 30 minute average without impacting quality and service, they could see three to four more

patients a day,[25] effectively increasing capacity by a third. The finding that over 80 percent of other providers are already seeing patients within this shorter time period suggests this could be done without compromising patient care.

While there are several limitations to this analysis, other integrated provider systems including the Henry Ford Health System[26] provide guidance on appointment length at the system level. In part by implementing standard appointment lengths across providers, Henry Ford was able to reduce third next available appointment wait time, a commonly used industry metric, by 31 percent over two years (McCarthy et al., 2009). Systems working to standardize appointments lengths should also consider how clinical workflows (ability to move patients through the clinic) and individual provider capabilities (e.g., new versus experienced provider) should factor into standards.

For specialty care, the standardization of appointment lengths may be more difficult given the variability between and within specialties (Gupta and Denton, 2007). However, a sustained effort by one VAMC's department of orthopedic surgery shows that it is possible.

VHA high-performance example: Palo Alto VAMC orthopedics
In 2013, Palo Alto VAMC orthopedics was experiencing long wait times and frequent overbooking that resulted in long in-clinic waits to be seen (Choice Act Site visits, interviews, 2015). Two advanced-practitioners worked to address these issues in part by overhauling provider schedules. They measured throughput for each provider in the clinic and then calculated average visit length by appointment type. On that basis, they established standard appointment lengths for all their clinic providers. For example, they found that follow-up visits consistently lasted about 20 minutes, even though some providers had 15- minute slots and others had 30-minute slots. So they changed the system to allow 20-minute slots, reducing the need for overbooking and enabling providers to perform documentation in real-time. In conjunction with other efforts, this schedule overhaul cut average patient wait times from six weeks to less than one. In-clinic wait times improved because there was more accurate booking. Providers and staff also were pleased: "We're a lot happier with the flow of clinics," one said, "because they start and end on time, which never used to happen." Most importantly, Veterans themselves were more satisfied; patient complaints decreased from five per week to about one a month (Choice Act Site visits, interviews, 2015).

5.2.3.3   Appointment Mix May not Match Demand

Across VHA, performance on patient access metrics is generally worse for new patients than for existing ones. According to VHA, approximately 30 percent of new patients have wait times beyond VHA's access standard, compared to fewer than five percent of established patients

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[25] Assuming seven hours of bookable appointment time

[26] Henry Ford is a vertically integrated health care system that provides health insurance and health care delivery. It employs over 1,100 physicians who staff its 26 outpatient medical centers ("Henry Ford Facts and Statistics," 2015).

("Strategic," 2014). Multiple factors could be driving this, including the consult process, as discussed in detail in Scheduling Process Section 6. The way scheduling profiles are set up may contribute to these differences, specifically through appointment mix—that is, the relative number of appointment types seen by a provider. Establishing similar ratios of slots to demand (for example, new patient slots to new patient demand, follow-up slots to established patient demand), ensures more consistent access across patient types.

Differences in appointment mix are especially important within specialty care, where patients often have more acute needs. This requires specialists to determine when they can return their established patients back to the management of their primary care providers so the specialists can accommodate new patients. Within primary care, the mix is more relevant to assess at the team rather than the individual provider level, since the PACT model relies on a unit of providers and support staff working together to treat patients.

Appointment mix is generally set at the provider- or clinic-level, even within Primary Care, for which the reservation of some appointment slots for same-day appointments is mandated. Determining appointment mix at the local level is consistent with the practices of private integrated providers. The difference is that compared to the private sector, VHA has limited ability to accurately measure true supply or utilization of appointments by type due to providers' multiple profiles. Moreover, gaps in accountability and monitoring mean that VHA management may not notice mismatches between patient demand and available slots by appointment type.

To understand whether appointment mix was an issue within VHA, recognizing data limitations, we did an analysis of six months of Clinic Access Index reports for four stop codes[27] in 25 VAMCs. For specialty care, the analysis found a wide range in the ratios of established patients to new patients across 25 clinics within each specialty (Orthopedic Surgery: 0.4 to 7.6; Dermatology: 1.6 to 6.1). A number of factors outside of the control of the clinics could have contributed to this wide range in mixes, including differences in demand across new and established patients. However, schedule set-up, provider behavior, and appointment mix monitoring are important enablers for consistent patient access. For instance, if there are too few new patient slots in a provider's schedule, established patients could fill up the schedule, reducing new patient access to specialty care.

To identify such mismatches, Kaiser Permanente measures its appointment supply and demand by appointment type and adjusts provider schedules accordingly (Kaiser interview, 2015). Regular monitoring enables Kaiser Permanente to anticipate mismatches and adapt appropriately, whether by staggering provider schedules, shifting same-day slots to certain hours, or increasing the percentage of new patient appointments. Other systems incorporate patient preferences, such as demand for same-day appointment slots by time of day and day of week, into demand modeling to optimize appointment mix (Gupta and Denton, 2007).

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[27] Primary Care – Individual; Mental Health – Individual; Dermatology; Orthopedic Surgery

5.2.4 Provider Cancellation and Leave Policies are Inconsistent and Poorly Monitored

Managing cancellations by clinic, which are appointment cancellations that are initiated by the clinic, is critical because a cancelled visit can negatively impact the patient experience and also increase the workload of schedulers. An analysis of six months of appointment data in four stop codes (Orthopedic Surgery, Dermatology, Primary Care – Individual, and Mental Health – Individual) in 25 VAMCs shown in Figure 5-7 suggested significant differences in the percent of clinic visits cancelled by the clinic across our site visit VAMCs.

**Figure 5-7. Rate of Appointment Cancellations by Clinic,
Feb – July 2014, n = 99 Clinics Across 25 VAMCs**

Figure 5-7 shows appointment cancellation by clinic rate for four specialties (Primary Care – Individual, Mental Health – Individual, Orthopedic Surgery, and Dermatology). Clinic cancellation rates range from near 0 percent in some clinics to 25 percent with an average of 9 percent. This analysis comes from Clinic Access Index data from 25 site visit VAMCs.
Source: Clinic Access Index reports, 2014.

This analysis suggests that clinics cancel a large number of appointments (nine percent) before the scheduled time. There is also a considerable range in performance, from next-to-none in some clinics, to up to 25 percent in others.

Some provider cancellation is inevitable, due to illness, deaths in the family, and other unavoidable causes. These cancellation rates do not compare favorably to industry, however, where cancellation by clinic rates within large academic medical centers have been shown to range from two to five percent (Quigley et al., 2011; Davis and Glick, 2013). Similarly, unavoidable causes of cancellation also likely would not explain the wide variation observed in the analysis. This analysis, while admittedly limited, suggests that there is considerable room for improvement and cause for management attention.

Schedulers also reported that clinic cancellations can be very inconvenient for patients, as patients may have already coordinated other appointments or transportation to coincide with the original appointment, as well as delay care: "We try to reschedule patients close to the date of their original appointment, but sometimes it's just not possible, so they may have to wait an extra week or two," reported one scheduler. Rescheduling can also significantly impact scheduler workload. For instance, at one clinic our team visited, there were two schedulers that worked full-time on rescheduling cancelled clinic appointments, many of which were reportedly cancelled by the clinic (Choice Act site visits, interviews, 2015).

Potential reasons for cancellations, according to the schedulers and administrators with whom we spoke, include misalignment of leave with scheduling (meaning that a provider takes leave during a period of time that was already scheduled with patients), poor communication of approved provider leave from clinical administrative leadership to the clinic, limited enforcement of leave policy requiring advanced notice of absences, and scheduler error.

With respect to the misalignment of leave requests with how far in advance patients can schedule care, follow-up appointments can be booked up to 90 days in advance (VHA Directive 2010-027), which often exceeds the amount of notice providers are required to give for leave requests. Required leave notice in the clinics we visited varied from 30 days to six months to "as early as possible" (Choice Act site visits, interviews, 2015). Our national survey of providers supported this finding, as can be seen in Figure 5-8.

Figure 5-8. How Far in Advance do you have to Submit Requests for Leave/Vacation?
n = 1,054 Respondents from 111 VAMCs and 173 CBOCs

How far in advance do you have to submit requests for leave / vacation?
Percent, N=1,054 respondents from 111 VAMCs and 173 CBOCs
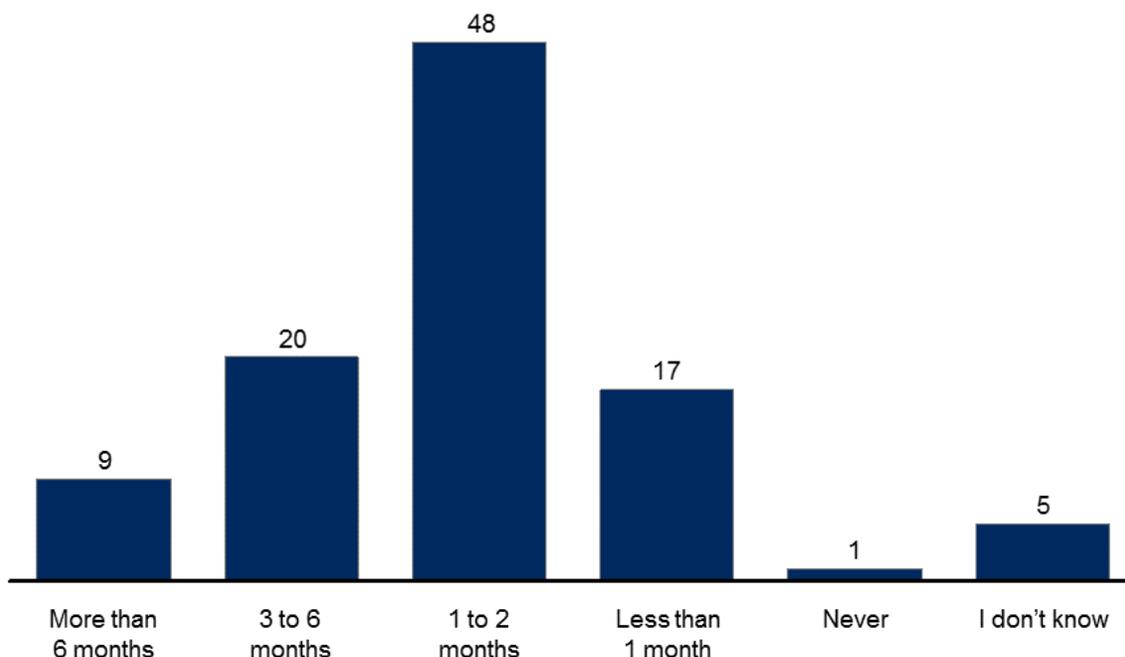
SOURCE: VHA Employee Survey 2015

Figure 5-8 shows the required amount of notice for leave/vacation reported by providers in our national survey. Amount of required notice varies widely, with only 29 percent reporting minimum notice of at least three months. This data comes from our national survey of 1,054 providers from 111 VAMCs and 173 CBOCs. Source: Assessment E VHA employee survey, 2015.

This analysis shows that the majority of clinics (71 percent) do not require providers to submit leave requests as far out as appointments can be booked. Only 29 percent of clinics require providers to give at least three months' notice for leave and vacation. As a result, while providers may be following their specific clinics' leave policies, appointment slots may already be booked for that time period. Providers then may need to cancel and reschedule patient appointments, leading to potential patient inconvenience and scheduler rework.

Additionally, the process for communicating leave to schedulers is also inconsistent. Some clinic administrators, after receiving leave requests, ensured the providers' profiles were updated in VistA by "closing" those periods for booking. Other clinic administrators did not actually close the profile, relying instead on letting schedulers know that the requested leave slots should not be booked.

Third, the existence and enforcement of cancellation policies also varies by clinic and facility. Many facilities reported having official cancellation policies, although individuals responsible for enforcement varied. Over 87 percent of the 617 clinics across 102 VAMCs responding to our national data call reported the existence of a formal cancellation policy, with the large majority (90 percent) of these policies created at the local service or section/specialty level. Policy enforcement also reportedly varies, with 59 percent enforced by the service chief, 22 percent by the section/specialty chief, and 18 percent by other individuals (such as AOs).

While most clinics have cancellation policies in place, in our group interviews with schedulers and administrators, no groups considered leave and cancellation policy to be strictly and consistently enforced. Instead, these policies were regarded as guidelines rather than rules. As one group interview with clinic administrators summarized, "Even if there's a policy in place [against taking leave on short notice], it is just words on paper if no one enforces it. The Chief of Staff approves every single clinic cancellation request." This was echoed by providers:

- "We're supposed to get in leave requests at least 30 days ahead of time, but it's not something that's strictly enforced."
- "I think the policy technically is 30 days, but it's more of a suggestion than a rule."
- "We are supposed to provide at least 90 days' notice, but I don't think requests are denied if they're less than that. Things come up."

An in-depth analysis we performed of the profiles of nine physicians at one mental health clinic from September 2014 to February 2015 at a facility that requires leave requests to be made 90 days in advance found that cancellation rates were significantly higher on Fridays. If these cancellations were based on unavoidable events such as sickness, one would expect rates of unavoidable causes to be roughly evenly distributed throughout the week, not the high incidence of Friday cancellations. Of course, this is a small sample, and this clinic may not be representative; however, the pattern suggests an area for review. AOs report that providers with cancellation issues are usually known: "It's pretty obvious which providers are cancelling a lot of their clinics." In the manual analysis, individual cancellation rates ranged from 9 to 28 percent over a six month period. At the moment, automated and centralized monitoring of provider-level cancellation rates is not possible due to VistA system limitations.[28]

These practices can be improved, as examples in the private sector demonstrate. In our interviews with integrated systems, Geisinger and Kaiser Permanente, both systems stressed the importance of having their leave policies match with their appointment booking horizons. Geisinger Health System requires all providers to submit leave requests at least 90 days in advance, and leave policies are strictly enforced (Geisinger interview, 2015). These leave requests are appropriately and consistently blocked in the scheduling system, so schedulers do not book time by mistake. Kaiser Permanente tracks and closely monitors provider cancellation rates (for any reason) at both the provider and the clinic level (Kaiser interview, 2015).

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[28] Cancellation rates for a particular clinic profile can be monitored, but because individual providers often have multiple profiles, these would need to be manually summed; Office of Informatics and Analytics, interviews, 2015).

5.2.5 Provider-Customized Rules and Schedule Holds can Result in Unfilled Appointment Slots and Difficulty in Rotating Schedulers

Providers can also influence their schedules by superimposing additional rules and restrictions onto their standard templates for schedulers to follow. According to interviews with schedulers and clinic administrators, providers are able to add rules for schedulers that range from clinically relevant (for example, no overbooking of particular types of Mental Health visits) to provider preference-based (like no urgent patients on Fridays). According to our data call, the large majority of clinics (71 percent) do not have formal policies in place on what types of rules are acceptable. These provider rules vary significantly between providers in the same clinic. According to group interviews with schedulers, these rules are sometimes incorporated into the profiles themselves in the form of text at the bottom of the profile, whereas others are not formally documented.

While in some cases these rules may increase convenience for the provider and staff without impacting patient access, provider fill rate can be impacted when informal, undocumented provider- and clinic-specific rules result in scheduler error. These rules can also impact schedule availability in general or for a specific patient type. "We aren't allowed scheduling urgent patients on Fridays in Dr. [omitted]'s clinic," reported one scheduler.

The existence of provider- and clinic-specific rules was commonly raised as an issue in facilities where schedulers rotated through different clinics. As also covered in Scheduler Training Section 8, schedulers reported:

- "Switching to a new clinic is like learning how to be an MSA all over again"
- "It's really hard to start in a new clinic because everything is different"
- "Sometimes we have to cover in unfamiliar clinics when someone's out [on sick leave]. You feel so clueless"
- "I'm trained to be a float and in theory should be able to cover multiple clinics, but even I have trouble keeping up with all the differences"
- "When I find out I'm in a new clinic for the day, I know I'm going to fail before I even start"

These rules can increase training requirements and limit scheduler cross-coverage of clinics. Schedulers reported that learning official national scheduling policy, although complex, is relatively straightforward compared to becoming proficient at scheduling for a particular clinic, even within the same facility. Indeed, even experienced schedulers reported difficulty working in an unfamiliar clinic due to variation in practices and provider preferences, many of which are not documented, but instead must be learned (Choice Act site visits, Interviews, 2015).

The IHI recommends that all non-essential rules be eliminated, increasing the ease and consistency with which schedulers can book appointments ("Reduce Scheduling Complexity," n.d.). Once this is done, clinics can document and/or codify remaining rules and provide schedulers with "tip sheets" to increase consistency. The removal of these restrictions, combined with other provider template design improvement and standardization, has been shown in the private sector to have significant impact. For instance, one academic medical center was able to release 10-30 percent more capacity across its clinics, without increasing the

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number of providers, while also improving the ease with which schedulers can move from clinic to clinic, improving overall efficiency (Kumar et al., 2014).

VHA high-performance example: Detroit VAMC
Detroit VAMC is a facility that has taken the initiative to increase availability through the codification and removal of scheduling restrictions that may have limited access. According to an administrator in Detroit, previously "we couldn't pull in a scheduler [into an unfamiliar clinic] because they didn't understand the [scheduling] grid." To address this issue, this facility requires all clinics to codify any rules specific to the clinic in the VistA profiles and also to eliminate unnecessary schedule restrictions. Now schedulers can work in any clinic,[29] improving the administrator's ability to "flex" schedulers to cover unfamiliar clinics when necessary and reducing scheduler error rates (Choice Act Site visits, interviews, 2015).

5.2.6 There is no Chain of Accountability/Ownership in Understanding and Managing Provider Availability and Schedule Design

There is no clear-cut chain of responsibility for who should monitor the areas mentioned above at the facility level. According to site visits and VHA interviews, formal monitoring of schedules is not a clearly-defined duty for anyone at the facility level and the responsibility of schedule set-up can fall to clinic administrators, AO and others, depending on the facility and organization of the clinical service/clinics. However, on monitoring time in clinic specifically, clinic administrators, nurse managers, and providers at 90 percent[30] of on-site visits reported that provider presence in clinic was observed, which could help monitor outlier behavior. Unless providers are missing significant clinic time, though, in the form of large blocks at a time, this type of monitoring may not be sensitive enough to identify gaps.

One additional reason for the general lack of monitoring and accountability is that all aspects of provider schedule management, including setting up profiles, monitoring profile changes, and monitoring overall time in clinic, are largely manual and too time-consuming for managers to do given their other clinic responsibilities. At present, there is no easy or automated way to consistently and accurately monitor provider schedules. Beyond the administrators, thirty-two percent of providers interviewed[31] reported that the creation, maintenance, and appointment booking components of VHA's scheduling system represent a significant challenge to their daily operations. Within this group, two major issues included:

- 42 percent identified VistA's inflexibility and long lead time to modify profiles

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[29] All schedulers within this facility report to ward administration, which falls under newly created Chief of Clinical Operations

[30] Site visit provider interviews, N=44 of 48 respondents; site visit clinic administrators, N=37 of 42 respondents. Question was moved to Clinic Administrator interview guide mid-way through assessment due to Provider interview guide length concerns

[31] Site visit provider interviews, N=90 asked this question

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- 26 percent reported difficulty in understanding their schedules due to multiple profiles

As a result of these issues, many providers have come to see scheduling within VHA as a barrier rather than a tool to improve clinic workflows. According to one provider, "I have no flexibility in my schedule, because the profiles can't be easily changed. If I want to work longer one day or come in early, I have to go through a weeks- or months-long process. It's a huge pain. In private practice, I could just flip a switch."

The Choice Act Section 303 identified the need for "a role-specific clinic management training program to provide in-person, standardized education on systems and processes for health care practice management and scheduling to all appropriate employees." ("Veterans," 2014). The goal of the training program is to assign management of access responsibilities to a particular role within each clinic and to provide tools and processes to help perform this duty (EES, interviews, 2015). As detailed in section 5.3's review of ongoing VHA initiatives, the scope of this role is ambitious and includes many areas of clinic management. Our site visit interviews, however, raised concerns that simply adding these duties to an existing position may prove problematic due to lack of currently available tools and time. As one AO put it, "We keep getting more and more things added to our plates, but nothing ever gets taken away" (Choice Act site visits, interviews, 2015).

5.3   Recommendations

The implication of the above findings is that current VHA providers may not be offering as many available appointment slots as they could be relative to their expected in-clinic time. Several providers in our site visit interviews suggested that one of the benefits of being within VHA was that the pressure to meet patient volume targets was more limited than what they had seen in the private sector. They also believed that this results in higher quality care as more time can theoretically be spent with each individual patient (Choice Act site visit interviews, 2015). Nevertheless, the trade-off in spending additional time with one patient is less time spent with another patient, which could affect the rate at which a clinic works down its backlog of new patients. In addition, if time is not being made available for patients in the first place due to schedule design, certain VHA providers may not be treating as many patients as they should be based on the allocation of their cFTE time to the clinic. (See Assessment G for a comparison of provider productivity and encounter volume for VHA versus industry benchmarks).

Few reports on VHA have explicitly addressed provider availability. A 2008 independent report recommended that VHA and its facilities should monitor provider productivity more closely. A 2012 OIG report similarly recommended that primary care panel sizes should be reviewed and closely maintained to ensure adequate provider workload ("Review of Veterans' Access," 2012). However, previous reports have not made specific recommendations on understanding and managing the full capacity of the clinics, including monitoring provider time in clinic, profile or template creation, or provider- or clinic-specific rules and schedule restrictions. (For a detailed review of these reports, see Appendix C.2.)

According to interviews with VHA leadership, a number of initiatives are underway to address some of the challenges presented above. These include:

- Efforts to improve the accountability and the training of clinic practice managers who would have responsibility for some of the activities mentioned in the Findings, including:

  o **Development of a clinic practice management model:** VHA is in the process of developing a standardized clinic practice management model for primary care, medical specialty care, surgical specialty care and mental health. According to several individuals leading this effort, the model will detail management practices, ownership, tools, and processes. The predicted scope of management is quite ambitious, covering data validation (for example, across sources such as the Clinic Access Index, Clinic Utilization Statistical Summary (CUSS), VSSC), patient experience (for example, Survey of Healthcare Experience of Patients (SHEP) monitoring), capacity management (such as provider profiles and contingency planning), backlog management (for example, EWL, consults), productivity (such as panel sizes), and clinic flow/throughput (for example, staffing, space, IT, equipment). As of the writing of this report, initiative leaders are sharing prototypes of the practice model, including expected tools and role ownership, with individual facilities for feedback, so the extent to which the above responsibilities will be included in the model is not confirmed. Importantly, these activities are planned to be carried out without any new facility hires; instead, currently existing FTEs will be designated as owners of these responsibilities at the clinic- and facility-level (ACAP, interviews, 2015).

  o **Creation of a national clinic manager training program:** Parallel to the development of the clinic practice management model, VHA is designing a national training program for individuals with clinic management responsibilities. This training will include a list of expected duties for each role as well as recommended processes and tools. This is a multi-stage initiative required by the Choice Act Section 303 that will be rolled out over the next two years, with an expected completion date of February 2017.

- Efforts to improve visibility of supply, including:

  o **Provider profile clean up and standardization via the Scheduling Clinic Standards (SCS) work group:** This 2015 internal, multi-disciplinary work group proposed VHA-wide streamlining and standardization of clinic profiles and labor mapping ("Scheduling Clinic Standards," 2015); the establishment of specialty-wide appointment lengths for different appointment types; and a nationally-standardized vacation and clinic cancellation process. The report does not address session length or monitoring clinic time in detail. Its recommendations have been submitted to relevant VHA program offices, and the Interim Under Secretary for Health stated in June 2015 that "clinic profile standardization is under way at every site" (Clancy, 2015). Some VISNs have begun facility-level review of clinic profiles on a regular basis to reduce overlapping clinic profiles and eliminate any unused profiles (OPES, interviews, 2015; ACAP, interviews, 2015). However, this is not required by Central Office.

  o **Stop Code Council revision of stop codes:** Stop codes increase the number of profiles under which a provider might operate. An ongoing, multi-disciplinary group meets at least once a year to review stop code use, publish standard operating procedures and

eliminate unused codes (Brandenberg, et al., 2015). Over the last ten years, the number of stop codes has been reduced from over 500 to about 360.

- o **VistA Scheduling System improvements:** As discussed in detail in the Scheduling System Section 7, VistA Scheduling Enhancements (VSE) and mobile applications are two near-term scheduling improvement programs that will address some of the software ease of use issues, including the lack of a "single screen" view of a provider's schedule and multiple unintegrated waitlists. However, these solutions cannot provide aggregate and provider-level appointment supply relative to demand due to system design choices. VHA is exploring potential replacement of the current VistA Scheduling System through the Medical Appointment Scheduling System (MASS) request for proposal, which is covered in detail in the Scheduling System Section 7.

- **Efforts to increase scheduling standardization via the Primary Care profile standardization directive:** The 2015 "Primary Care Clinic Profile Standardization Guide," which was officially released after our site visits had concluded, establishes: VHA-wide standard appointment lengths (30 minutes for established patients, 60 minutes for new patients); requirement of same-day appointment slots; maximum number of clinic profiles; and use of recall and of EWL (Prentice, "Appointment Age," 2015). This directive does not address management of delinquent recall list, clinic cancellation monitoring, or recommended appointment mix. According to ACAP leadership, local facilities generally seem to be aware of and abiding by national PC guidelines on profile standardization. Other services, including surgery, are evaluating whether to develop similar appointment length recommendations at the specialty level.

If successful, these initiatives would result in more standardized appointment schedules and thus better scheduling and monitoring capabilities. Potential gaps may include:

Implementation gaps: The eventual impact of these initiatives depends on multiple factors. One potential implementation gap identified for the clinic practice management model is resourcing. Currently, despite the wide scope of access-critical responsibilities assigned to the new clinic manager roles, there is a risk that no additional individuals will be hired, and instead these responsibilities will be designated to potentially already overextended individuals, according to interviews with VHA personnel (ACAP, interviews, 2015). This lack of sufficient dedicated time may make clinic management practices difficult to implement. Similarly, without standard processes and tools to enable management across this broad scope of activities, managers may struggle to consistently implement practices. With respect to accurately addressing provider supply, the initiatives aiming to standardize profiles depend on facility leadership and sufficient local facility IT support to manage profile clean-up, two success factors that we did not assess. With respect to provider cancellations, while the SCS work group has recommended nationally-standardized leave and clinic cancellation policies, there may be risk that these recommendations will not be adopted ("Scheduling Clinic Standards," 2015).

Scope gaps: While these initiatives will likely result in more streamlined schedules and more accurate aggregate reporting, there is a risk that several issues may not be addressed. First,

cleaning up existing profiles does not address the root causes of multiple profiles, specifically the underlying system design constraints that have resulted in the proliferation of clinic profiles and limit the ability to account for and manage appointment supply. Until there is a one-to-one schedule to each provider, data reliability will continue to be an issue. If and when MASS is implemented successfully, VHA will be on a path to addressing this. Other issues that may not be addressed by current initiatives are further standardization of booking templates and greater focus on managing clinic cancellations. On standardizing templates, for example, only primary care has moved systematically to establish guidelines related to profile design/set-up.

Given the status of these initiatives and the important gaps mentioned above, VHA should consider the following recommendations:

5.3.1 In the Short-Term, Complete the Clinic Profile Cleanup Initiative to Improve Understanding of Appointment Supply

This would be a first step to addressing the issue of the limited visibility that VHA has into supply as discussed in the first finding of this section. This effort could:

- **Identify provider and administrative champions at each VAMC to oversee clinic profile cleanup efforts:** VHA should identify owners of clinic profile clean-up for each clinical area and allow dedicated time to facilitate these processes. Facilities also should ensure appropriate staffing is in place to accommodate profile modification requests.
- **Require all services to perform clinic profile cleanups across all facilities:** VHA should provide national guidance on appropriate stop code use and clinic profile setup for each specialty to ensure standardization within specialties, as Primary Care has provided in its clinic profile standardization guide. VHA should mandate completion within three to six months, which is consistent with Primary Care's three-month implementation timeline. Virtual auditing should be managed by the central office to ensure compliance

5.3.2 In the Longer Term, Transition to a System Design That Allows Accurate Viewing of Provider Supply

The several ongoing profile clean-up initiatives, while improving the accuracy and reliability of appointment supply and utilization monitoring in the short term, will not necessarily eliminate the potential for overlapping profiles. The existence of potential overlap therefore limits the transparency of scheduling performance and the potential to view overall appointment availability. With VA OI&T's current procurement of a new scheduling system, VHA may be on the path to do this. Scheduling System Section 7 describes the recommendations for successful implementation of a new system in detail.

5.3.3 Develop an Appointment Demand Model to Supplement the Ability to Monitor and Forecast Aggregate Supply

VHA's facility and clinic-level understanding of demand is predominantly retrospective. As such, it is difficult to identify and plan for short- and long-term supply-demand mismatches. By

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improving appointment supply monitoring (as mentioned in recommendations 5.3.1 and 5.3.2) and also creating an appointment demand model, VHA will be better able to manage access holistically. The model should incorporate historical demand data as well as projected population changes to enable forecasting of hourly, daily, and weekly appointment demand at the clinic level. The historical demand data required for this tool are likely already available within the VSSC system, which houses pending appointment information, and the Corporate Data Warehouse, which contains clinic-level utilization by date, time, season, and other factors, along with other sources. The key success factors for this model will be making sure it is flexible and able to be improved upon over time as well as ensuring it is quick and user-friendly to operate on a regular (even daily) basis at the clinic level. This recommendation, in concert with improved supply visibility, will enable more dynamic access management and planning.

5.3.4 Consider National Sub-Specialty-Specific Standards/Guidance on Session/Appointment Length and Develop VHA-Wide Policies for Provider Leave and Cancellations

As mentioned above, the national Primary Care program office has taken a more active role in establishing VHA-wide standards for appointment lengths, same-day appointment slots, maximum number of clinic profiles, and use of recall and of EWL (Prentice, "Appointment Age," 2015). We would consider the standards for appointment lengths to be one element of a standard booking template. However, this directive does not address several other management practices (like clinic cancellation monitoring and appointment mix determination) or address elements of a standard booking template for specialty care.

VHA should expand upon efforts within Primary Care by providing specialty and sub-specialty-specific standards for booking templates. This effort could:

- **Develop provider template standards for each specialty and sub-specialty:** VHA should provide sub-specialty national guidance on clinic session length per clinical FTE allocation and appointment lengths for different types of patients. Recommendations on appointment length should include consideration of clinical workflow factors (such as clinical and non-clinical support staff, exam rooms, equipment, provider tenure) that may vary by provider and clinic. VHA should also provide guidance on developing appropriate appointment mix and adjusting mix to match local demand. These recommendations should standardize and improve clinic operations, resulting in better throughput, increased provider availability for patients, and improved process accountability.

- **Develop system-wide policies on provider leave and cancellations:** A system-wide leave policy should require providers to submit leave requests that match the appointment booking horizon for both new and established patients. VHA also should introduce standard operating procedures to ensure vacation/leave requests are reflected in the scheduling system and that communication practices are standardized across clinics and facilities. VHA should establish national targets for cancellation rates by clinic type and track performance against this target at a provider-level. This recommendation should result in a reduced rate of cancellations by clinics, which likely will improve patient satisfaction and reduce the amount of scheduler time spent on rework.

5.3.5 Appropriately Scope, Resource, and Implement the Clinic Manager Program to Ensure That Provider Availability is Actively Managed

- **Prioritize monitoring and managing of provider time within new clinic manager role:** VAMCs should utilize new clinic manager positions at facility- and clinic-level to monitor provider time in clinic and include the monitoring of provider clinic time in group practice manager and clinic access manager responsibility expectations. In the short term, clinic managers should manually compare time available across clinic profiles to assigned time in clinic on at least a quarterly basis and whenever a provider requests a template profile change. In parallel, profiles should be consolidated into one view to enable the monitoring of true provider supply and fill rate, as well as to reduce scheduler workload and error rate. It is important that VHA consider approving and funding additional hires to fulfill clinic management responsibilities, as the expected scope of activity outlined in the clinic management model initiative is both ambitious and necessary to improve scheduling and access more broadly. As an example, Kaiser Permanente and Cleveland Clinic both have dedicated consulting resources, informatics, and analytics resources to assist with execution of similar access management tasks (Kaiser interview, 2015; Cleveland Clinic interview, 2015). By implementing the above recommendations, VHA likely would achieve improved provider availability and increased patient access to care.

- **Continue to develop and distribute key tools and processes to enable more consistent management:** These might include operating procedures; standard tools for facility- and clinic-level performance management;[32] and comparative analyses of metrics like utilization rate, appointment length and appointment mix ratio.

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[32] Many of these tools and processes are referenced in draft GPM and clinic manager training curriculum materials ("CPM Curriculum," 2015).

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6 Scheduling Process

6.1 Context & Approach

Appointment scheduling at VHA facilities involves a number of interrelated policies, processes, performance measures and accountabilities that together can influence when a Veteran receives care and the Veteran's experience as he or she navigates the system. Many of the processes described in this section outside of the core function of scheduling are unique to VHA, both by virtue of it being an integrated system and a government organization with public reporting responsibilities.

A number of these VHA-specific policies exist at the national and local level and are aimed at gaining transparency into unmet demand and managing backlogs. These policies range from the 2010 Scheduling Directive and its recent clarification memo, which primarily articulate policies for capturing information to assess wait times and for using new patient wait lists (often referred to as the Electronic Wait List or EWL) to facility and clinical specialty-level service agreements that determine how primary care and the consulting specialty will manage patients when needs for specific specialty services arise (called the "consult" process) to the use of the Veteran's Choice List, which is utilized when patients are deemed eligible and are waiting to be scheduled for care outside VHA when access to a particular service or specialty is not available ("Veterans," 2014).

To understand wait times for care, VHA has generally used one of two measures:

1. If the patient is new to the clinic, then the wait time is calculated as the difference in days between the creation date of the appointment in the VistA system and the day of the appointment.

2. For an established patient, policy states that the wait time is equal to the difference in days between the patient's "desired date" for the appointment and the date of the actual appointment. The scheduler is responsible for inquiring about and entering the patient's desired date into the system.[33]

VHA has recently introduced two new wait time measures:

1. Preferred date, which is described as the "date the patient prefers to come in for his appointment"

2. Clinically-indicated date (CID), which is described as the "date the provider and the patient agree upon for a follow-up visit" ("Clarification" Webinar, 2015).

In addition to national, facility and clinical service-level scheduling policies, VHA requires clinics to use additional scheduling practices such as the recall system, which allows patients to defer booking a follow-up appointment until closer to the date in which they are to be seen (commonly seen in primary care and dental scheduling in the private sector when patients

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[33] See Appendix D-1 for more information

receive a reminder to schedule an annual visit). For additional background on the VHA scheduling process, see Appendix D.1.

The Choice Act specifically identifies the need to assess the workflow for scheduling appointments as well as potential changes to the monitoring/assessment of wait times that VHA uses. Therefore, this section covers the end-to-end scheduling process and related policies for new and existing patients as well as related processes that disproportionately impact scheduling, for example, the consult process. Our review included the areas highlighted in (Figure 6-1).

Figure 6-1. Overview of VHA Scheduling Process
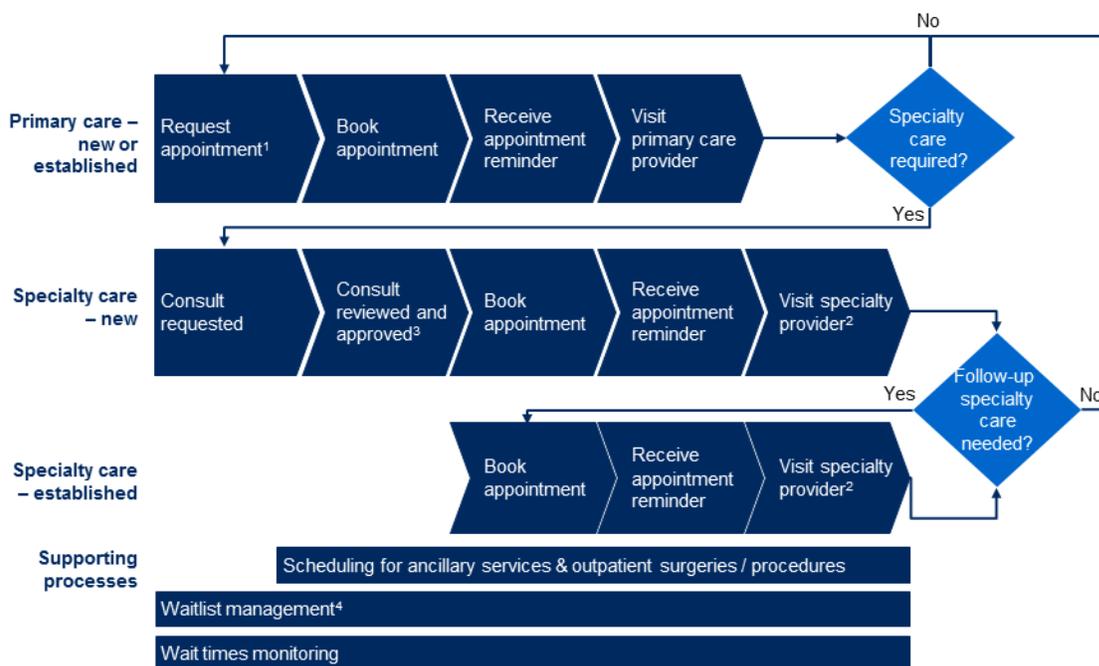
1 Assumes Veteran determined eligible
2 This step includes scheduled specialty care (visits, procedures, surgeries) as well as ancillary care (radiology, labs)
3 Request must be approved for patient to see specialist
4 Waitlists are used for new patients and certain established patients

Figure 6-1 shows the typical patient journey along with supporting processes. This flow generally applies to both new and established patients. However, patients may not need to start at the very beginning of process if they are already established with a particular clinic. Source: Choice Act site visits, interviews, 2015.

To understand these processes, we used a variety of data sources in addition to our site visits to 25 VAMCs and 23 CBOCs, interviews, and research to codify best and private sector practices. These sources and analysis included:

- Analysis of CDW appointment-level data from 152 VAMCs and 811 CBOCs, including 5,644 total clinics for a seven-month period in 2014, including information on appointment cancellations, missed opportunities and overbooking
- Clinic Access Index data for the 25 VAMCs that were visited as part of this assessment's site visits, including metrics such as clinic cancellations
- A survey of Medical Support Assistant (MSA), the primary scheduler role, supervisors (N=86) covering use of patient reminders
- Review of locally stored consult status and time statistics data from three VAMCs for a six month-period of 2014, including completion rate and processing time
- Manual review of provider schedules (often referred to as grids, profiles or templates), and assessment of time in-clinic for two specialties, 15 physicians and 12 profiles over six months in 2014 and 2015
- Analysis of MSA turnover and staffing data from 2014 and 2015, including current vacancies across all facilities as of March 2015, from VHA Healthcare Talent Management Office

6.2 Findings

6.2.1 Schedulers' Ability to Efficiently Identify and Book Available Appointments is Limited by System Usability

As described in Provider Availability Section 5, the VistA Scheduling System was designed to capture provider workload across multiple clinic profiles, and does not optimize for scheduler usability. Specifically, schedulers are not able to search across multiple profiles or weeks for available slots without "rolling and scrolling" through multiple screens as they can only see a week of availability in one profile at a time. Figure 6-2 shows screenshots from the VistA Scheduling System of an example set of profiles for one provider that a scheduler would have to review to book an appointment.

Figure 6-2. Screenshots from VistA Scheduling System
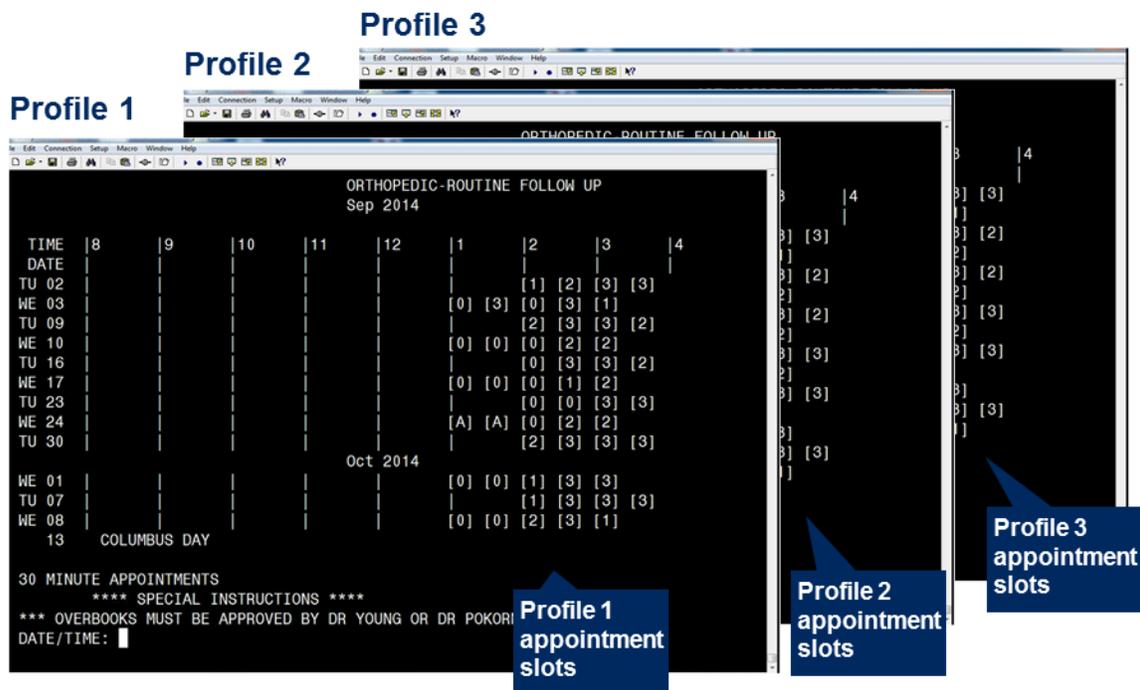
Figure 6-2 shows a screenshot from within VistA Scheduling of a set of clinic profiles for one provider. This exhibit demonstrates that a provider's schedule may be spread across multiple, separate clinic profiles. Schedulers may need to look through each of these profiles (in this example, four different profiles) to find an available appointment. Each hour is across the top and each date over an 11-day period is down the left side. Key: 0 = filled slot; 1 = open slot; 2 = 2 open slots; 3 = 3 open slots. A = single overbook. Source: ACAP office webinar ("Making Appt v2_7-23-2014 1.51.07pm," accessed June 25, 2015).

A large majority (74 percent) of scheduler group interviews[34] identified scheduling system usability as a key issue that impacts their daily lives. Thirty-nine percent of scheduler group interviews[35] specifically identified the lack of a "single screen" view of a provider's schedule as particularly cumbersome. As one scheduler described, "I have to look through three or four profiles to try to find an open appointment slot, which means it takes three or four times as long [as other systems] to book an appointment." The current system can also result in issues such as missing an available appointment slot to offer. "Sometimes there might be an open appointment slot, but if you don't know where to look for it [within multiple profiles], you can

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[34] Site visit scheduler group interviews, N=17 of 23 VAMCs

[35] Site visit scheduler group interviews, N=9 of 23 VAMCs

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easily miss it. Then that slot may go unused," reported one scheduler. Finally, the lack of an entire view of a provider's schedule in one screen potentially inhibits a scheduler's ability to effectively implement booking strategy (such as overbooking).

Beyond standard appointment booking, schedulers may need to schedule additional services that add to the number of profiles with which they must be familiar. For example, schedulers are able to schedule into any profile to which they have access, which may include, for example, radiology or procedures for schedulers who support a procedural provider specialty. Schedulers, as a service to patients, may also attempt to coordinate different types of appointments with services or providers whose schedules they may not be able to access. This coordination is often important given that a third of VHA patients have at least three chronic conditions, and 22 percent have four or more (Yoon et al., 2011). According to one scheduler, "many of our patients have a lot of appointments, and it's really difficult for us to line them all up on the same day, much less in the same couple hour window" (Choice Act site visits, interviews, 2015).

Coordinating appointments can be logistically challenging for those schedulers. Even with access to the schedules, schedulers would, for example, need to check multiple profiles from providers across two or more clinics for available appointments on the same morning or afternoon. "I have to look at four or five profiles to check when primary care is available, and then I have to look at just as many for podiatry. Then I have to call down to radiology to make sure they have availability, because I can't see their [system]. It's a mess," according to one (Choice Act site visits, interviews, 2015). This issue is further compounded in access-limited clinics as available appointment slots can be scarce and take longer to find in the system.

According to 10 private health system executives with insight into scheduling systems interviewed as part of this assessment, very few scheduling systems in the U.S. are this difficult to search. The ultimate impact of these VHA-specific limitations is that the system is not user friendly, potentially resulting in less efficient booking of appointments and patients receiving sub-optimal appointment dates/times.

6.2.2 Numerous Policies And Processes Designed to Manage Appointment Supply/Demand Imbalance Increase Complexity for Schedulers and Result in Inconsistent Patient Experience

To ensure transparency into patient access and demand management, VHA has developed a number unique processes not typically present in the broader industry's approach to scheduling. These unique processes include a series of patient wait lists as well as scheduler-driven capture of wait times, which are designed to give VHA and other organizations visibility into VHA facilities' management of wait times and backlogs. Another unique process is the consult process, which is intended to help manage the demand for specialist appointments by ensuring that only appropriately referred patients take up scarce appointment supply.

To embed the wait list and wait time management steps in the scheduling process, VHA developed a national scheduling policy to which facilities are required to adhere. The policy focuses on providing guidance for how to collect data in a standardized, reliable fashion to

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enable facilities and VHA more broadly to monitor and compare performance internally as well as report it externally. Nearly 40 percent of the most recent directive focuses on data capture; these sections focus on either definitions of care (27 sections) or desired date capture instruction (13 sections) (VHA Directive 2010-027). In addition, the definitions, purpose, and eligibility of the EWL and other VHA-specific lists (such as recall) are described. These wait lists are detailed in Appendix Table D-1.

6.2.2.1 Waitlist Policies, While Necessary to Understand Demand Backlog, Complicate the Scheduling Process Without Sufficient Implementation Guidance

When national policy is disseminated, the field receives limited guidance and support for operationalizing, according to our site visit interviews. Administrators at 14 VAMCs[36] we visited cited lack of implementation support as a major challenge to adhering to new policies. The use of the EWL was an often-cited example of a challenging policy to manage, especially for clinics with significant provider capacity issues as the wait list is most administratively burdensome in these environments due to its length. Specifically, the EWL is the "official VHA wait list" and catalogues all patients who are new[37] to a clinic but have appointments scheduled beyond 90 days (VHA Directive 2010-027). The length of this wait list often is used as a measure of backlog and provides VHA with comparable data across facilities and clinics. The Scheduling Directive provides guidance on:

- **Adding patients to the wait list**: New patients who "cannot be scheduled in target timeframes" should be added to the EWL."

- **Reviewing the wait list:** "Schedulers in all clinics at all locations (substations) must review the EWL daily to determine if newly enrolled or newly registered patients are requesting care in their clinic at their location."

- **Removing patients from the wait list:** "When appointments become available and the facility has at least three days to give patients notice, scheduling personnel [must] offer appointments to patients who are either on the EWL waiting for appointments, or currently have appointments more than 30 days past the desired dates of care."

- **Prioritization:** When "Veterans are removed from the EWL…Veterans who are [service connected (SC)[38]] 50 percent or greater, or Veterans less than 50 percent SC requiring care for a SC disability must be given priority over other Veterans."

However, to implement this policy effectively, administrators must be able to interpret it correctly and train schedulers to:

1. Determine when to put a patient on the EWL

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[36] Site visit scheduling administrative leader interviews, N=14 of 24 VAMCs

[37] Per the 2010 scheduling directive, any patient not seen by a qualifying provider type within a defined stop code or stop code group at that facility, within the past 24 months

[38] Refers to "injuries or diseases that happened while on active duty, or made worse by active military service" ("Disability Compensation," 2015)

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2. Access the EWL, in a separate program linked to VistA Scheduling, and use the EWL as a call list for patients to contact if a slot were to become available

3. Prioritize the use of EWL in light of other clinic duties (such as making appointment reminder calls)

Interviews suggested that the dissemination of tools to support administrators in doing the above was limited and left to VISNs or individual facilities to develop for their clinics. One facility, for example, designed its own aggregated dashboard for wait lists so that administrators could more effectively monitor their use. Others created step-by-step handbooks to guide schedulers through the mechanics of adding patients to the wait list programs.

Despite these local efforts at many facilities, we observed that the wait list was not used consistently or according to policy across clinics. Examples of this included:

- **Example A**: In these clinics, schedulers were encouraged to add any eligible patients to the wait list. However, the clinic would not necessarily consistently manage the list. Instead, the list was primarily used to document potential backlogs to the facility, VISN, and national leadership. This was reportedly due to a number of factors, including lack of time and limited instruction for how and when to remove patients from the list. As a result, patients on the EWL may not have been seen in as timely a manner as they could have been if the list were actively managed against open slots.

- **Example B**: Within this scenario, schedulers, like in type A, added eligible patients to the EWL, consistent with national policy. However, in addition to using the list as a measurement of backlog, it also served as a source of patients to be fit into newly available appointment slots. For instance, when an appointment became available with at least three days into the future, schedulers called patients from the EWL to ask if they wanted to move up to an earlier appointment time.

- **Example C**: In this implementation form, schedulers used the list as a measurement of backlog (like in A and B) and as a way to get patients with long waits in sooner (like in B). However, in this scenario, schedulers also prioritized patients based on policy guidance (giving preference with higher service connection) as well as other factors such as the number of contacts already made.

While difficult to understand the individual patient impact from these examples, it was clear that patients were not necessarily being treated consistently across facilities. This variability may result in patients with extended wait times not receiving an opportunity to be seen earlier, resulting in potentially worse patient outcomes and decreased patient satisfaction.

Another example of policy that the field has found challenging to manage is the Veterans Choice Program and accompanying Veterans Choice List (VCL). The Choice Program, which was rolled out in late 2014 under a compressed time frame, was designed to enable patients who have longer than 30 day wait times or live greater than 40 miles from a VA facility to seek care outside VA ("Veterans," 2014). According to VHA leadership, the pace at which the program was rolled out prevented complete implementation planning before engaging patients and the field (ACAP, interview, 2015). From the perspective of leaders of non-VA care offices at the sites

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we visited, the implementation of this program was largely left to individual facilities (Choice site visits, interviews, 2015). In addition, in our discussions:

- Seventy-one percent of non-VA care office interviews[39] cited Choice Act implementation challenges and 62 percent[40] cited the additional administrative burden/processes as a major challenge
- Seventeen percent of scheduler group interviews[41] and 43 percent of clinical administrator group interviews[42] cited "Choice" or "VCL" as challenges

"We didn't get any guidance or time to plan. We were just told, 'Go do it,'" reported one HAS administrator. Individuals from multiple roles across sites reported that while a lack of tools were an issue, the lack of clear operational planning was even more problematic. "[The Choice Program] process makes no sense. They didn't think through how it would actually work at the facilities. Now we're left to pick up the pieces," explained a surgical service AO. The ultimate result of these issues has been variable implementation. Facilities have developed different processes for identifying eligible patients for Choice, handing thee patients off from clinics to Choice Program administrators, reviewing and approving requests, contacting Veterans and non-VA providers to create the appointment, ensuring patients keep their non-VA appointments, and documenting the results of their visits. Creating these process flows locally has likely resulted in differences in patient experience and also frustration and confusion for VHA employees. One scheduler summarized the impact to the patient, "Veterans are confused and frustrated because we're confused and frustrated" (Choice Act site visits, interviews, 2015).

6.2.2.2 VHA's Consult Processes May Delay Scheduling and Affect Timeliness of Care

At 76 percent of facilities, chiefs of staff[43] identified the consult process (when one provider requests care for a patient from another provider) as a challenge for both primary care and specialty providers (Choice site visits, interviews, 2015). While national policy mandates that consult requests be reviewed within seven days of receipt (VHA Directive 2008-056), as of the writing of this report, the consult standard operating procedures (SOPs) remain in draft. VHA has embarked on an extensive training campaign for consults ("VHA Consult"; "VISN," 2015). However, these efforts may not have been fully reflected on our site visits or data analysis, which suggested that the consult review process varies by facility in terms of frequency, type of reviewer, method of communication, and likelihood that patients are accepted by the consulting service. Figure 6-3 shows consult times for 19 of the top 20 stop codes at two large urban facilities in the second half of 2014 by the average number of days between the consult being generated and the appointment for the service being scheduled.

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[39] Site visit non-VA care office interviews, N=15 of 21 respondents

[40] Site visit non-VA care office interviews, N=13 of 21 respondents

[41] Site visit scheduler group interviews, N=4 of 23 VAMCs

[42] Site visit scheduler group interviews, N=10 of 23 VAMCs

[43] Site visit chief of staff interviews, N=13 of 17 respondents

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Figure 6-3. Time From Consult Submission to Appointment Creation for two VAMCs

Time from consult submission to appointment creation for 2 VAMCs

Number of days, N=2 facilities, 19 of top 20 stop codes by volume[1]

Legend: First action, Appointment created

Facility A: 3 | 24 | 26

Facility B: 1 | 15 | 16

62% higher processing time
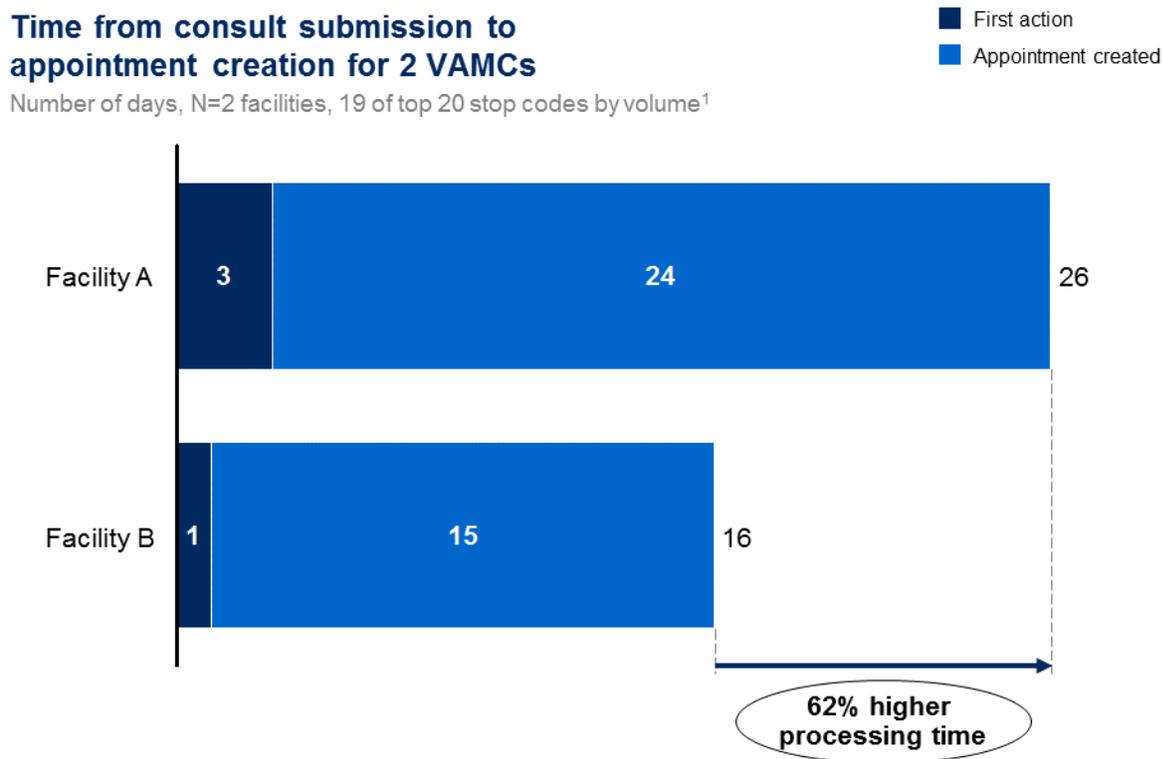
1 One facility only submitted 19 stop codes, so only these stop codes were compared across facilities
2 Includes stop codes: 203: Audiology; 205: Physical Therapy; 304: Dermatology; 305: Endo/Metab (Except Diabetes); 307: Gastroenterology; 312: Pulmonary/Chest; 313: Renal/Nephrol (Except Dialysis); 314: Rheumatology; 315: Neurology; 316: Oncology/Tumor; 321: GI Endoscopy; 349: Sleep Medicine; 403: ENT; 407: Ophthalmology; 408: Optometry; 409: Orthopedics; 411: Podiatry; 414: Urology; 420: Pain Clinic

Figure 6-3 shows average number of days until an appointment is scheduled for each step of the process for two facilities across the top 20 stop codes by consult volume. This analysis shows that the consult approval and appointment creation process takes 62 percent longer (26 days vs. 16 days) for Facility A than B. This data was compiled based on facilities' locally stored consult data metrics and represents six months of consult data from two large, urban, high complexity facilities. This time period was chosen because new business rules went into effect in June 2014. Source: Local VAMC data, 2014.

The results show that Facility A has significantly longer processing and scheduling times than Facility B. The approval and appointment creation process takes 62 percent longer (26 days vs. 16 days) in Facility A than Facility B. By simply decreasing the consult processing time to the level of Facility B's, Facility A could reduce consult wait time by 10 days.

A separate analysis of consult completion rates was performed across two large urban high complexity facilities. Interestingly, while the facilities frequently had widely different completion rates within the same specialties, neither facility consistently fared better than the other. For instance, within Optometry 95 percent of one facility's consults were completed compared to 54 percent of the other's; for the Pain Clinic, the range was similarly wide (83 percent vs. 31 percent), only this time the relationship was reversed in terms of which facility had the higher success rate. Numerous factors may be affecting these success rates. For

instance, consults may show as incomplete even if the Veteran was seen because the clinic note was not linked to the consult. Similarly, Veterans may decide they do not want to see the specialist and so never make an appointment. Providers in this situation may be reluctant to cancel the consult to protect the patient's ability to see the specialist in the future. Despite these limitations, if providers were operating consistently across facilities in terms of consult request, review, and closing of consult, then same-specialty completion rates would be expected to be similar, which they are not for at least this limited sample.

The variable time and completion performance across facilities could delay care for Veterans. This inconsistency is likely driven in part by a lack of finalized consult SOPs, as mentioned previously, as well as variable existence of well-designed care coordination agreements. These agreements between referring and receiving clinics, which specify what the consulting services will receive and/or what information they might require in order to do so, are created at the local level ("VHA Consult," 2008). Our interviews with providers suggest that comprehensive care coordination agreements can mitigate some of the review challenges as each specialty has to set forth and agree with its referring providers what constitutes a consult requiring an appointment. According to providers interviewed, the lack of a well-structured agreement between a primary care physician and a specialist may result in submitting the wrong kind of request to the specialist, improper work-ups (for example, insufficient testing done), and/or denial of a consult that requires an appointment, all of which may be contributing to the differences in completion rates described previously.

Within integrated health systems in the private sector, some have gone beyond system-wide service agreements and allow primary care providers to determine whether a patient should be seen by a specialist without the specialist's input or review in advance. For example, Kaiser Permanente allows primary care providers to directly schedule specialty appointments on behalf of the patient. Often, this is done from the PCP's office while the patient is still there (Kaiser interview, 2015). Direct scheduling of consult visits by primary care offices is encouraged within the consult policy, but this practice was not observed on site visits (VHA Directive 2008-056; Choice Act site visits, 2015). For example, one PCP mentioned that even if he knew a patient would be accepted by the consult service for a time-sensitive issue, the PCP still would have to formally request a consult electronically and then call the specialist physician to review the request before the patient could be scheduled. Kaiser's process bypasses this need for approval and reduces potential delays in care.

6.2.3 Clinics Are not Maximizing Number of Appointments Completed as Originally Scheduled

Our analysis of six months of appointment data for four high-volume stop codes (outpatient identifiers) across 25 VAMCs in 2014 suggests that approximately 35 percent of visits did not result in appointments as originally scheduled (Figure 6-4).

Figure 6-4. Percentage of Clinic Appointments Completed as Originally Scheduled

Clinic appointments completed as originally scheduled for select stop codes
Percent of appointments booked, N=25 VAMCs

■ Original appointment did not result in patient visit

	Orthopedic Surgery	Primary Care: Individual	Dermatology	Mental Health: Individual	Total[2]
	100	100	100	100	100
Canceled by patient before visit	13	11	13	13	12
Canceled by clinic before visit	9	10	9	10	9
Missed opportunity[1]	11	12	12	19	14
Visits occurred as scheduled	68	67	66	59	65
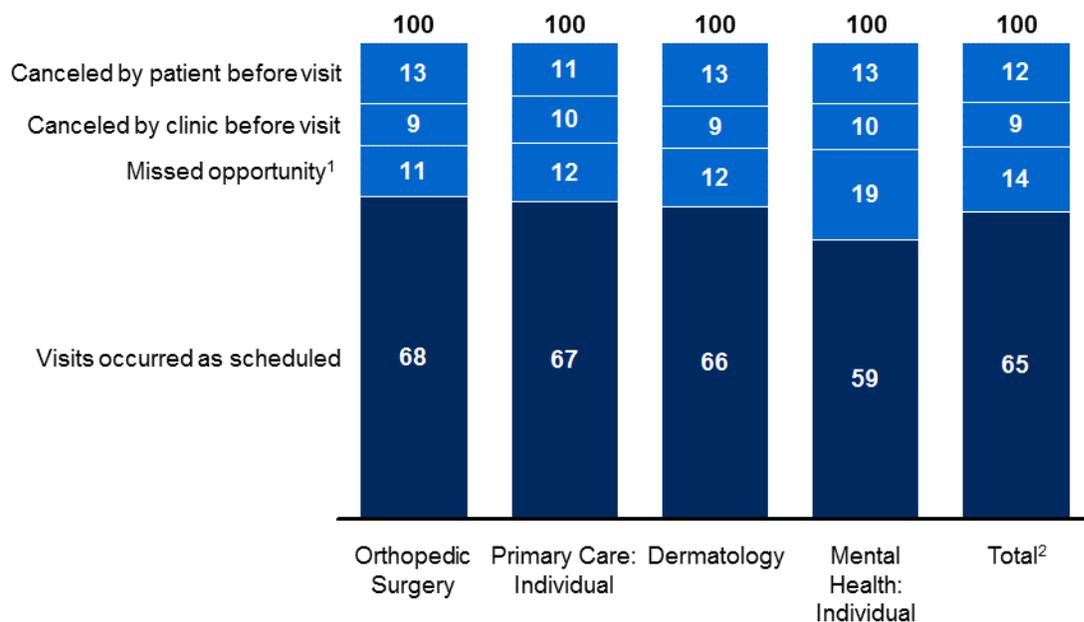
1 No-show or canceled by clinic / patient after appointment time such that provider time went unused
2 Total of these four stop codes

SOURCE: Clinic Assess Index

Figure 6-4 shows appointment outcomes for select stop codes. This analysis shows that 35 percent of visits did not result in appointments as originally scheduled. These specialties were chosen based on both volume (323, Primary Care – Individual; 502, Mental Health – Individual represent two largest stop codes) and desired representation from medical (304, Dermatology) and surgical (409, Orthopedic Surgery) specialties. All four specialties are within top 10 clinic stop codes by volume. Source: Clinic Access Index reports, 2014.

Of the appointments that did not occur as scheduled, approximately half were "missed opportunities"—meaning no shows or cancellations after the appointment time ("Access Audit," 2014). Missed opportunities result in unused provider capacity if additional patients, such as walk-ins or overbooks, cannot fill in. VHA's target rate for missed opportunities is 10 percent, but some clinic administrators reported they struggle to meet this standard. While patients failing to keep their appointments is a significant issue for private sector providers as well, best practice national rates range from five to seven percent versus 12 to 14 percent at VHA facilities (Woodcock, 2007). The issue of missed opportunities may be especially prominent in the VA patient population, among whom mental illness, multiple co-morbidities and transportation issues are more common, as these factors have been linked to higher missed opportunity rates (Defife et al., 2010).

As discussed in Provider Availability Section 5, cancellations by clinic, which make up an additional portion of the appointments not completed as originally scheduled, can result in a reduction in overall appointment supply if they are not made up, or inconvenience for the patient and schedulers in the clinic where rescheduling is required. This analysis suggests VHA has an opportunity to improve the utilization of available provider time where it may have gone unused due to missed opportunities. Reducing current levels of missed opportunities and cancellations by clinic could increase patient access with current resources, and improve patient experience and minimize scheduler rework by reducing the need to reschedule.

Beyond the average rates of missed opportunities and cancellations by clinic shown in the data above at the stop code level, variability exists across facilities. As shown in Figure 6.5, facilities vary in their ability to manage missed opportunities and clinic cancellations. Of the 25 site visit facilities, cumulative missed opportunity and cancellation by clinic rates ranged from 17 to 31 percent.

Figure 6-5. Missed Opportunity and Clinic Cancellation Rate, Feb – July 2014

Missed opportunity and clinic cancellation rate, Feb – Jul 2014
Percent of appointments booked[1]

Legend:
- Canceled by clinic
- Missed opportunity[2]

-45%
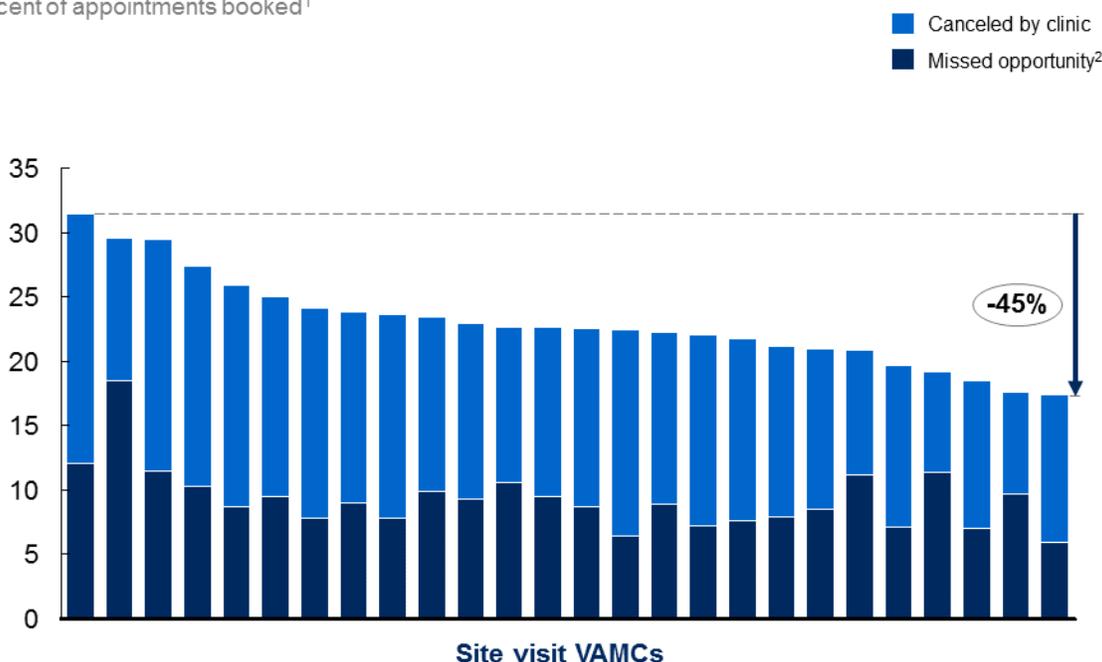
Site visit VAMCs

1 Clinics include Primary Care – Individual, Mental Health – Individual, Orthopedic Surgery, and Dermatology across 25 site visit VAMCs
2 No-show or canceled by clinic / patient after appointment time such that provider time went unused

SOURCE: Clinic Access Index

Figure 6.5 shows missed opportunity rate and cancellation by clinic rates as a percent of total booked appointments by VAMC. This analysis shows the cumulative rate of these two outcomes ranges from 17 to 31 percent across 25 site visit VAMCs. Missed opportunity rate includes no shows and cancellations by patient or clinic after the scheduled appointment time. Cancellations by clinic rate includes cancellations by providers and staff before the appointment

time. These data come from six months of Clinic Access Index reports from 2014 for each VAMC. These data include four stop codes: 323, Primary Care – Individual; 502, Mental Health – Individual; 304, Dermatology; and 409, Orthopedic Surgery. Source: Clinic Access Index reports, 2014.

Some facilities have significantly lower missed opportunity rates than others (range of 8 to 21 percent across all VAMCs). Not shown is missed opportunities for other services beyond clinic visits, such as procedures and surgeries, where missed opportunities are an especially important issue because of the resources that could go unused. Several administrators responsible for procedure or surgery scheduling[44] identified patients failing to keep appointments as a significant challenge. "If a patient doesn't show up, it's not like we can just fill the spot with someone else because there's prep work that needs to be done," said one gastroenterologist. An OR manager reported, "If a patient doesn't show up for his surgery, that's a big loss. We waste surgeon time, nursing and support staff time, and OR time that could've gone to another patient."

The variable use of scheduling practices, such as patient-friendly appointment reminders and well-designed provider cancellation policies, within certain clinics may be leading to variability in scheduling outcomes. Across VHA, scheduling practices at the clinic level vary significantly, as they often do in the private sector; however, many are not strategically using industry standard techniques to manage missed opportunities via overbooking or minimize cancellation by clinic.

VHA high-performance example: St. Cloud VAMC
St. Cloud VAMC is a low complexity, urban facility, which, at 8.4 percent, had the lowest missed opportunity rate during the sample time period of any VAMCs within the continental U.S. St. Cloud has accomplished this low rate of missed opportunities through several key actions. First, the facility has standardized appointment reminders across all clinics. Patients, regardless of clinic, receive a reminder letter 30 days ahead of their appointment date and an automated phone call two days before. Second, the facility uses a no show predictor tool to identify patients who are high-risk for failing to keep their appointments. This tool was created by the VA Systems Redesign team in conjunction with the University of Pittsburgh Joseph M. Katz Graduate School of Business to identify individuals who are most likely to fail to keep their appointments. It incorporates a large number of inputs from the patient's medical record and was shown in several VAMC pilots to significantly reduce missed opportunity rates when combined with targeted reminders (Systems Redesign, interviews, 2015). Schedulers then call all high-risk patients one day before their appointment date to remind them of their appointment and confirm their attendance. Finally, the facility adheres strictly to the national policy against "blind scheduling," in which an appointment is made without Veteran input. Schedulers are trained on this standard process and are expected to execute it consistently. In concert, these efforts have led to system-leading missed

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[44] Site visit OR and procedure unit interviews, N=3 of 5 VAMCs

> opportunity rates as well as improved patient experience (St. Cloud Business Office, interviews, 2015).

While use of the no show predictor tool was not systematically evaluated for this report, only a subset of clinic administrators at a minority (less than 10 percent) of site visit facilities reported its use. This is despite a national memo to network directors in 2014 requesting that clinics utilize the Missed Opportunity Call List available in VSSC, which provides a list of patients at high-risk for no show that should be contacted in advance ("VHA Missed," 2014). The major barrier to the tool's implementation, according to those leading the sharing effort, was that it was "just one more thing for the scheduler to have to do that they don't have time for." Because the tool was not accommodated into standard scheduling practice, some facilities abandoned it, despite experiencing success, according to Systems Redesign leadership.

In addition to addressing the missed opportunity rate, private sector health systems working to improve access employ another practice to ensure provider time does not go unused: overbooking to the expected no show (or in the case of VHA, missed opportunity) rate (Kumar et al., 2014; Gupta and Denton, 2007, see Appendix D.2). No VHA clinic administrators interviewed stated that schedulers were encouraged to overbook appointments based on the missed opportunity rate and many suggested that overbooking was typically left to the provider's discretion without a clear strategy for overbooking as a whole. According to 88 percent of clinic administrators interviewed,[45] schedulers must receive and document permission for every overbooked appointment, a time-consuming process. In addition, when overbooking policies are left up to providers, the results can be limited, as many of them are not aware of the details of their schedules.

To effectively overbook, many private sector health systems, on the other hand, closely monitor missed opportunity rates by provider, day of week, and season, and then encourage schedulers to book accordingly (Kumar et al., 2014). For example, if 10 percent of patients do not show up for their appointments with a given provider on Friday afternoons, schedulers overbook the provider's slots by 10 percent on that day. Overbooking can also help providers to trim wait lists. While overbooking's impact has not been evaluated in isolation from other scheduling initiatives, our work with provider systems on scheduling/access transformations suggests a potential 10-20 percent increase in visit volume, with overbooking playing a key role in these improvements.

6.2.4 Patient Communication With Respect to Appointments can be Confusing and Contribute to Missed Opportunities or Lost to Follow-up Cases

6.2.4.1 Patient Communication is Inconsistent Between Clinics, Creating Confusion

A common issue raised in scheduler group interviews was the level of confusion that many patients have around navigating the VHA system given its size and the number of different services offered. A particular area that was consistently surfaced was confusion around patient

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[45] Site visit clinic administrator interviews, N=59 of 67 respondents

reminders, particularly when Veterans interact with more than one clinic or service, which is common given 48 percent of Veterans have multiple chronic conditions (Yoon et al., 2011). As mentioned previously, the Veteran patient population, for a variety of reasons, is more likely than the general U.S. patient population to fail to keep appointments. As such, VHA dedicates significant effort to patient reminders, as can be seen in Figure 6-6.

Figure 6-6. Positive Response for use of Reminder at any Time in Scheduling Process From Schedulers Asked: "When do you use the Following Reminders?" VHA Employee Survey, N = 86 MSA Supervisors From 46 VAMCs and 20 CBOCs
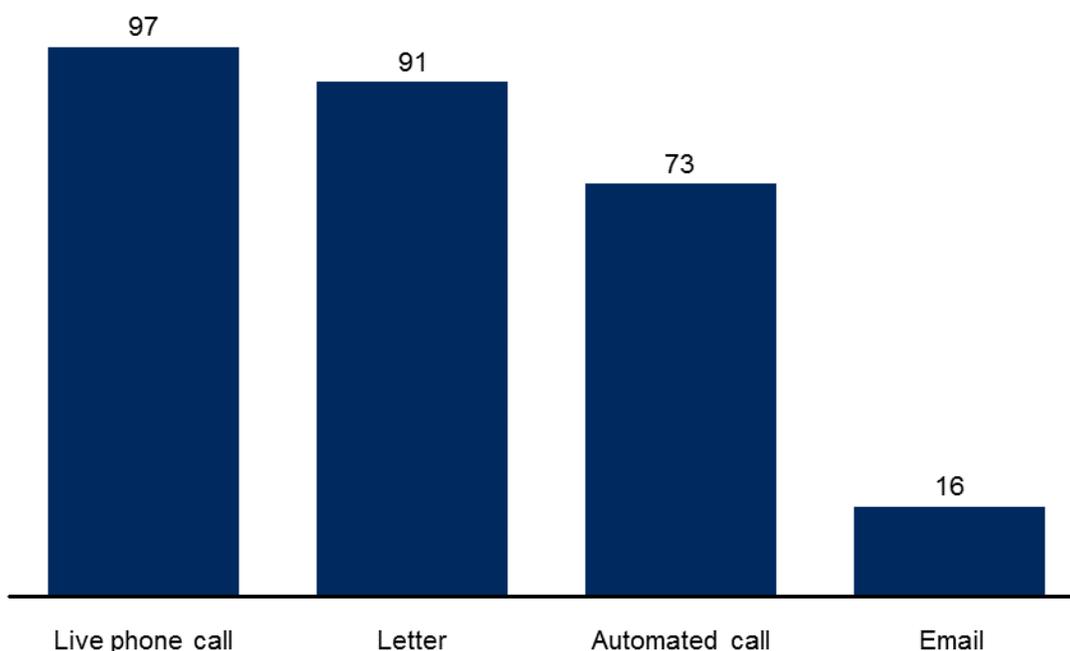
Figure 6-6 shows use of appointment reminder types by clinic. Almost all clinics use live phone calls (97 percent) and letters (91 percent) to remind patients of their appointments. Many also use automated calls (73 percent). Data come from national survey of 86 MSA supervisors from 46 VAMCs and 20 CBOCs. Source: Assessment E VHA employee survey, 2015.

Our survey showed that almost all clinics use live phone calls (97 percent). According to research, live human calls are very effective at reducing missed opportunity rates (Dockery et al., 2001; Sawyer et al., 2002). However, despite the rate of use reported within the survey, we observed on site visits that live phone calls are often not used consistently by frontline schedulers. As one scheduler supervisor noted, "Our clinic policy is to call everyone, but there's just not enough time." "When we get a few free minutes, we do the reminder calls. But most days we never get any free time." Clinics blamed high patient volume and low staffing levels as

a reason they could not make live phone calls. Some clinics were able to rely on non-clinic-based schedulers, such as volunteers or call centers for help.

Almost all clinics (91 percent) also use a standard system-generated letter to remind patients of upcoming appointments. Interestingly, the timing used varied significantly across clinics, which some scheduler group interviews reported resulted in patient confusion. Twenty-eight percent of clinics report sending a reminder letter at the time the appointment is made, 28 percent in the week leading up to the appointment, and 35 percent with no standard time. When patients receive care from multiple clinics, this inconsistency can lead to patient confusion. "The patient said that he didn't show up for his appointment because he thought he would get a reminder letter the week before like he does with his primary care doctor. We [in Cardiology] only send the letter when the appointment is made." Additionally, the actual wording of the letters may be confusing. Postcards and letters use the VistA clinic profile name in the notification, which schedulers suggest can be hard to interpret, as the reminder does not necessarily specify the provider name or reason for the appointment. Further, the scheduling system limits the number of characters for the clinic name and often can lead to the use of names that Veterans or their caregivers may not recognize. A hypothetical example taken from the Primary Care Profile Standardization Guide for appropriate clinic naming is "MIA PACT REDTEAM" (Prentice, "Appointment Age," 2015); a Veteran may understandably find it difficult to understand that this reminder is for a visit with his or her primary care doctor at the Miami VAMC.

Seventy-three percent of clinics in the above survey also opted to use a "robocall" system to deliver an automated reminder about an upcoming appointment. However, clinic administrators noted that robocalls provide very little information about the appointment itself. Robocalls offer listeners the option to press a button to leave a message, but this message box often goes unmonitored. "Patients sometimes get upset that they don't get a call back but we can't even access the mailbox," reported one scheduler. According to a clinic administrator, "Patients get confused because they think leaving a message will reschedule their appointment, but then the appointment never gets cancelled and no one calls the patient back to reschedule." This confusion and lack of straightforward communication with VHA may contribute to higher missed opportunity and late cancellation rates.

Many private sector health systems allow patients to choose how and when they would like to be reminded. Beyond live calls, text messaging is particularly popular, and also effective (Koshy et al., 2008, detailed in Appendix D.2). Cleveland Clinic, for instance, allows its patients to opt in to text message reminders; when they receive a reminder text the day before their appointment, they can then confirm or cancel the appointment ("Appointment Checklist," n.d.). With the exception of a text message reminder pilot at one VAMC, VHA does not permit the use of text or email reminders due to security concerns. While some clinics reported using secure messaging to remind patients of upcoming appointments, no clinic administrators identified that as a standard practice. By using patient-centered appointment communications, clinics can improve the patient experience and manage capacity better.

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VHA high-performance example: Detroit VAMC

The Detroit VAMC, operating with guidance from VISN 11, has overhauled its facility-wide reminder process to make it more patient communication more consistent by contracting with a third party vendor to operate its reminder system (Choice site visits, interviews, 2015). Across all clinics within Detroit VAMC, the third party vendor provides written appointment reminders. The vendor mails all reminders ten days before the appointment, which include postcards with patient-friendly naming of clinics[46] and directions to the facility. Additionally, automated phone calls are all performed three days before the appointment. According to the administrator interviewed, using this system has not only improved patient service but also reduced scheduler workload as they no longer have to prepare the reminder letters. One drawback mentioned to this standardized communication method is that some appointment notices (for example, cancellations) may look too similar to appointment confirmations and reminders, potentially resulting in patient confusion. Overall, patient response to the standardized reminder letters has been positive. According to one scheduler, "The patients like it because they know what to expect" (Choice site visits, interviews, 2015).

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6.2.4.2 Current Recall Process and 90-Day Scheduling Horizon may Also Create Patient Confusion, Limit Future Access for Individual Patients and Increase Scheduler Workload

Under current national policy, schedules should be kept open three to four months into the future and patients who need an appointment beyond that timeframe may be placed on the recall list (VHA Directive 2010-027). Placement on the recall list means that the clinic will follow up with the patient at a future date with a reminder to schedule an appointment. [47] The recall process was intended to reduce missed opportunity rates for follow-up appointments scheduled far in advance; internal VHA research on appointment data has shown that longer appointment lead times are associated with fewer appointments being kept (Prentice, "Appointment Age," 2015). However, there have been a number of unintended consequences for scheduler workload and patient access.

Scheduler group interviews at 35 percent of site visit VAMCs[48] identified the recall reminder process as a major challenge they would like to see addressed. First, schedulers noted that the recall process is confusing for patients, as the recall notice can look similar to appointment reminders, and some patients would have preferred to have been scheduled while they were leaving the clinic. Second, some patients cannot be reached at a future point and may be "lost" to the clinic without receiving their recommended follow-up appointments. Third, patients may

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[46] Instead of using the VistA system name (e.g., "DET PACT MD1 RED TEAM"), the postcards may use "Primary Care")

[47] Some clinics reported not using recall. According to the 2015 national scheduling directive clarification, facilities can opt out of recall if missed opportunity rates are below 10 percent for three months and clinics can opt out if backlog is greater than 90 days.

[48] Site visit scheduler group interviews, N=18 of 23 VAMCs

The views, opinions, and/or findings contained in this report are those of the assessment team and should not be construed as an official government position, policy, or decision.

find that the clinic does not have available appointments when they are supposed to return if the clinic is using recall in a backlog situation.

According to the schedulers with whom we spoke, patients are called during daytime hours; those who work full-time jobs during daytime hours may not be able to answer the clinic's calls. A significant percentage, the schedulers say, never do. Typically, after two daytime call attempts, the patient is notified by letter; the onus is then on the patient to call the clinic to schedule an appointment (the 2015 scheduling clarification requires that "a minimum of three documented contacts [usually two phone calls and a letter] must be made on separate days using available contact numbers") ("Clarification," 2015). Schedulers also report that contacting patients to schedule follow-up appointments can be time-consuming at the expense of other activities, especially if the patient is unavailable during normal business hours. "I have two full-time schedulers who exclusively call patients on the recall list," said one clinic supervisor.

While the overall process of reminding patients to book follow-up appointments is consistent with industry standards in the private sector, there are several areas of difference. With respect to the scheduling horizon, Geisinger Health System, for instance, generally sets scheduling horizons for its clinics as the normal return visit interval for that specialty plus one month[49] to allow more patients to leave with scheduled appointments (Geisinger interview, 2015). In addition, the private sector uses a wider range of communications. Dental practices, for example, often use text messaging to remind patients to schedule their annual cleanings ("Dental Practice," 2013). Of 10 private sector health system leaders responsible for training who we interviewed, the majority said that their health systems asked patients about preferred hours and phone numbers to increase the likelihood of actually reaching them (Private sector health systems, interviews, 2015). Additionally, increasing contact success rates reduces scheduler workload. According to one scheduler, reducing the number of times needed to reach patients would "cut down easily the most time-consuming part of [his] day."

Facilities are looking at ways to improve the recall process (Choice Act site visits, interviews, 2015). For instance, in Texas, the Temple VAMC's Medical Administration Service is surveying patients about which hours they would prefer to be contacted (Choice Act site visits, interviews, 2015). By improving communication methods, schedulers are more likely to be able to contact patients in fewer attempts, reducing overall workload and improving patient satisfaction.

6.2.5 VHA-Specific Personnel Issues, Including Vacancies, may Hinder Use of Scheduling Best Practices

While employees in a variety of roles are able to schedule (as described further in Scheduler Training Section 8), MSAs are the primary VHA frontline scheduling clerks in the clinics. Currently, of the 21,407 approved MSA positions in VHA, almost a quarter are vacant, as shown in Figure 6-7.

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[49] For instance, if primary care normally has patients return every six months for follow-up visits, then the scheduling horizon would be seven months (three month interval plus a one month buffer).

Figure 6-7. Medical Support Assistant (MSA) Positions, on-the-job, Approved Hires, and Vacancies, Fiscal Year 2014

Medical Support Assistant (MSA) onboard positions and vacancies
N=158 VAMCs

Onboard employees — 16,398

Unfilled positions — 5,009

Approved onboard Employees[1,2] — 21,407

23%
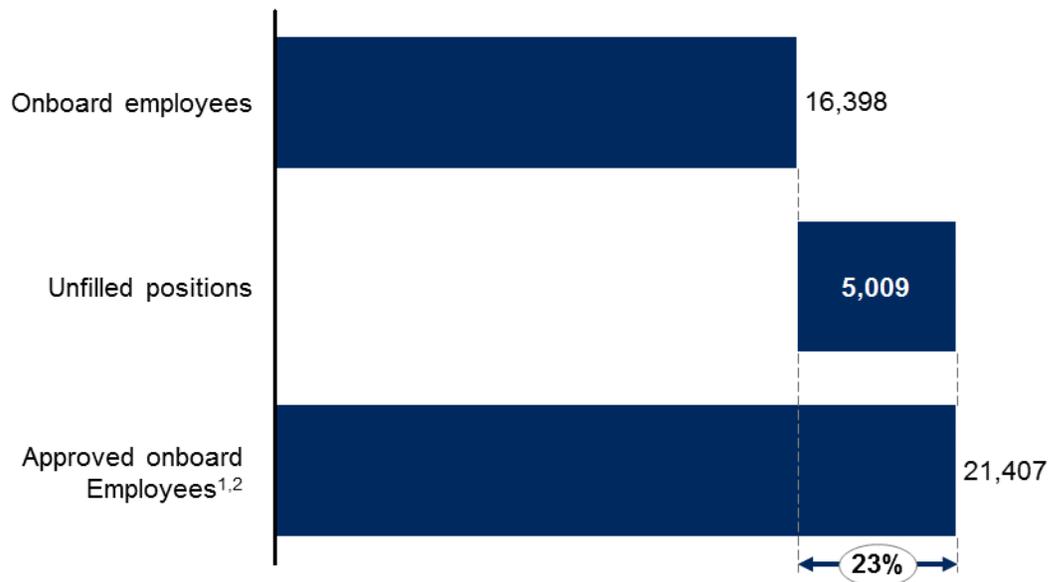
1 Onboard positions plus vacancies
2 Only includes T38 employees

Source: VSSC, FY 2014

Figure 6-7 shows number of approved, onboard and vacant scheduler (MSA T38) positions across 158 VAMCs as of 3/17/15. This exhibit shows that 23 percent of MSA positions are currently vacant across VHA. Source: VHA Healthcare Talent Management Office, FY2014.

According to interviews with clinic administrators, the lack of scheduler resources makes it difficult to employ best practices or effectively implement VHA-specific policy, because they must focus on "putting out fires" rather than making operations work as well as possible. Administrators blame inefficient human resource processes for not letting them fill the people gaps. According to one, "I have the positions approved, but it takes six months to hire anyone." Another commented, "We are currently down over 20 [schedulers] from where we should be. We have the positions approved, but HR won't fill them."

This finding is consistent with VHA's Blueprint for Excellence labeling hiring as a "critical challenge" across all of VHA ("Blueprint," 2014). Similarly, Assessment L's report states, "HR has not been able to meet the recruiting requirements of the VAMCs and VISNs. Recruiting is crippled due to the length of process and cumbersome systems that don't "talk" to one another and are not user-friendly. The length of time to hire priority positions stretches for months, and the process is not user-friendly to applicants. HR is expected to fill a position within 60 calendar

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days, 80 percent of the time, but process requirements, even if perfectly executed, take ~49-62 day."

In addition to being short-staffed, VHA schedulers also tend to be responsible for more activities than non-VHA schedulers (Figure 6-8).

Figure 6-8. Typical Scheduling Responsibilities, VHA and Private Sector

Typical responsibilities for in-clinic scheduling clerks – VHA and private sector

☐ Scheduling related

Scheduler responsibility	VHA	Private sector
Clinic-flow related tasks (e.g., check in/out patients)	X	X
Other clinic support-related tasks (e.g., answer phones)	X	X
Book / modify / cancel appointments	X	X
Remind patients about appointments	X	X
Add / remove patients from wait list if no available appointment	X	X
Manage multiple other lists (e.g., recall, EWL , VCL)	X	
Capture wait time reference data	X	

Figure 6-8 shows standard expectations for scheduling in VHA compared to private sector. This exhibit shows that VHA schedulers are typically responsible for additional scheduling-related responsibilities compared to private sector schedulers. This list was created from interviews with private sector health system administrators. Source: Choice site visits, interviews, 2015; Private sector health systems, interviews, 2015).

Individuals in 78 percent of scheduler group interviews[50] said that having so many responsibilities was a barrier to completing scheduling-related activities in a timely manner. For example, a scheduler may be attempting to schedule one patient on the phone when another patient walks up to the clinic front desk to check in. Before the scheduler can book the caller's

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[50] Site visit scheduler group interviews, N=18 of 23 VAMCs

appointment, a desired date must be determined and entered into the system to enable wait time performance monitoring. Depending on the appointment selected, the scheduler also may be required to add the phone patient to the EWL, requiring the use of a different program outside of the VistA Scheduling package, introducing several extra steps. All this takes time, and keeps the in-person patient waiting. Additionally, schedulers and administrators report that schedulers are often asked to perform tasks that do not technically fall within their job descriptions, which can decrease the amount of available time for scheduling. To reduce the pressure on schedulers, one administrator met with providers and administrators in each clinic to detail which duties schedulers were and were not responsible for. Another strategy is to devise solutions to decrease their workload, such as increased use of call centers and patient self-scheduling (e.g., through online booking). A workforce assessment around productivity was not performed, and this may represent an opportunity in the future.

6.2.6 Wait Time Metrics Require Subjective Input and Are Not Currently Supplemented With Industry Standard Metrics

The use of the patient's desired date to measure wait times can result in additional process steps and less reliable data compared to private sector wait time measurement, which is typically captured directly from the system rather than entered by schedulers. The desired date has been a frequently studied issue at VHA, with at least five recent reports focusing on its potential subjectivity and ability to impact wait times.[51] Despite these concerns, the recent Choice Act requires patient preference, a concept similar to desired date, be incorporated into nationally established wait time goals of "not more than 30 days from the date on which a Veteran requests an appointment" ("Veterans Access," 2014). While a memo on the 2010 directive was released in 2015 and provides clarity on some of the subjective components of the desired date determination process ("Clarification", 2015), schedulers still are responsible for manually entering these data, leaving wait times information susceptible to interpretation and, perhaps more concerning, manipulation. Scheduler group interviews at 22 percent of VAMCs[52] specifically identified interpretation of desired date as a challenge.

Due to the data challenges discussed in Provider Availability Section 5 associated with the lack of a consolidated view of a provider's schedule, VHA has been limited in using other standard wait time metrics. In the private sector, a standard wait time measurement is the amount of time in days until the "third next available" appointment for each provider[53] (Brandenburg et al., 2015; "Third," n.d.; Kumar et al., 2014). According to the Institute of Medicine's 2015 *Transforming Health Care Scheduling and Access* and *Innovation and Best Practices in Health Care Scheduling* white paper, the third next available metric represents "a nationally reported measure against which organizations can monitor their performance… [that] is felt to represent a more accurate assessment of actual appointment availability and function of the system,

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[51] Audit of Alleged Manipulation of Waiting Times in Veterans Integrated Service Network

[52] Site visit scheduler group interviews, N=5 of 23 VAMCs

[53] Third next available is tracked at the appointment sub-type level (e.g., new patient appointment, follow-up appointment, urgent appointment)

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rather than an opening due to a cancellation or acute event" (Brandenburg et al., 2015). Additionally, this measure removes the data capture responsibility from frontline schedulers, allowing them to focus solely on making the appointment. VHA currently can measure third next available but cannot view this metric accurately at the individual provider- or appointment type-level due to the existence of multiple provider profiles. Proposed technology changes described in Scheduling System Section 7 further describe how this might be addressed.

According to the IOM, other measures, such as patient experience or satisfaction with wait times, can also be considered (Brandenburg et al., 2015). Using patient experience or satisfaction to monitor access performance avoids desired date subjectivity and reliability issue while also monitoring an important patient-centric outcome. These metrics also would likely not require changes to the current technology system.

6.2.7 Lack of Accountability and Resources for Managing Patient Access and Scheduling Practices at the Facility Level may Limit the Spread and use of Best Practices

Ownership of access-related responsibilities across site visit facilities varied. The roles of schedulers, clinic administrators, providers and facility leaders are not always well-defined when it comes to the management of access (waitlists and wait times) and scheduling practices. Several VAMCs had a patient access champion, other facilities relied on Health Administration Service (HAS), and for others access was a clinic-level responsibility. Within many facilities, there was often no single point of accountability. This gap is in the process of being addressed through the creation of a clinic practice management model. However, as discussed in section 6.3, the program may not have additional FTEs to manage the large list of new responsibilities, and tools and processes have not yet been developed to execute many of these duties. As such, consistent implementation may be difficult.

In the private sector, health systems often provide administrative and analytical support to frontline providers and clinic administrators to help manage access. Kaiser Permanente and Cleveland Clinic both provide clinics with central consulting, informatics, and analytical support to aid in access management. This assists the frontline clinical leaders and administrators responsible for managing backlogs (Kaiser interview, 2015; Cleveland Clinic interview, 2015). One example of regular access management the IHI recommends is team "huddles," including clinic providers, staff and administrators, at the beginning of each day ("Use Regular Huddles and Staff Meetings to Plan Production and Optimize Team Communication," n.d.). These huddles help clarify provider and staff availability for the day, identify patients requiring extra time and assistance, and deal with any last-minute schedule changes such as patient cancellations (Stewart & Johnson, 2007). The IHI further recommends weekly or monthly production planning meetings with providers and administrators to help identify and address potential backlog sources. These access management meetings require provider involvement and buy-in. By replicating private sector access management accountability practices and resources, VHA may have an opportunity to improve management of existing resources and generate better patient access to care.

6.3   Recommendations

As part of this assessment, we reviewed 37 reports dating back to 1999. Over half (19 of the 37, or 51 percent) of the reports made specific recommendations on the scheduling process itself. (For additional detail on these reports, see Appendix D.3). These recommendations predominantly focused on four main areas:

- **Access management and wait lists:** Six of the 19 reports (32 percent) made recommendations to either standardize wait list management practices, improve monitoring of lists, or implement national review. These recommendations stem from findings of significant variability in wait list management practices across facilities, especially with regard to accountability.

- **Scheduling policy:** Six of the 19 reports (32 percent) recommended improving the consistency of scheduling policy implementation and compliance. These reports focus largely on the inconsistent compliance across facilities with desired date policy. The 2014 VHA Access Audit recommended revising the scheduling policy itself to reduce ambiguity and improve compliance ("Access Audit," 2014). Per the report, the scheduling process has evolved over time into an "overly complicated" system with a "high potential to create confusion among scheduling clerks and front-line supervisors." The report subsequently calls for a revision of the scheduling policy.

- **Consults:** 11 of 19 reports (58 percent) recommended improving the consult process. The recommendations included improving coordination of care, standardizing the process of addressing unresolved consults, increasing consistency in the consult process across facilities and minimizing the screening process. A consistent theme was the need to improve the consult process from the patient perspective by ensuring patients have strong handoffs from primary care to specialists and from specialists back to primary care.

- **Patient reminders:** One of the 19 reports (5 percent) recommended improved patient reminders through identification and best practice sharing. The key driver for this recommendation was inconsistent and variable use of reminders.

These recommendations are all consistent with the opportunities suggested in our findings. According to interviews with the ACAP office, the group responsible for defining, standardizing and coordinating system-wide administrative clinic operations and management, a number of initiatives are under way in this area that may not yet have presented themselves in the field, including:

- **Efforts related to access management and wait lists:** As mentioned in Provider Availability Section 5, VHA is creating a clinic practice management model with both facility- and clinic-level administrative and clinical leadership roles focused on access-related areas. Initiative leaders reported that this model and the associated training program will be implemented in 2015 and 2016, in compliance with the Choice Act. Wait list management, as well as data validation, patient experience, capacity management, productivity, and clinic flow/throughput are planned to be included as part of their responsibilities for primary care, medical and surgical specialty care, and mental health. On paper, the pace and coverage, both of which are dictated by the Choice Act legislation,

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are impressive. As discussed above, though, the lack of additional clinic- and facility-level FTEs to manage the large number of new responsibilities, combined with a limited number of existing tools and processes, suggests execution may be difficult.

To facilitate sharing of best practices, ACAP has started a Community of Practice program. Specifically, each facility is asked to provide a representative for the system-wide "Community of Practice," an informal organization through which facilities can learn from one another through a group mailing list and monthly conference call. Currently, there are three Communities of Practice, two of which are in development: clinic profile managers, scheduling leads (in development), and group practice managers (in development and dependent on clinic management model initiative described above).

- **Efforts to clarify scheduling policy**: An update to the 2010 VHA outpatient scheduling directive was released on May 18, 2015. The update provides clarification on multiple topics within the national scheduling policy, including wait time reference points (for example, desired date, return to care date) and list eligibility (like recall and EWL), to ensure more standardized data capture. This update was expected to be released in 2014 but was delayed multiple times due to need for approval from multiple organizations within VHA, according to our interviews with ACAP. Along with the new scheduling policy, ACAP reports that a scheduling handbook will be released, but the draft is still under review. ACAP also held a webinar to "train the trainer" on these updates in early July 2015 ("Clarification" Webinar, 2015).

- **Efforts to standardize consult process**: VHA is involved with multiple initiatives to improve the consult process. Two of the more prominent initiatives are ACAP's development of national consult standard operating procedures and handbook and ACAP's creation of a standard consult audit process in conjunction with the Compliance and Business Integrity (CBI) office. These are all currently in draft form. VHA has disseminated these drafts and also embarked on a VISN training program that was underway during the period covered by this assessment ("VHA Consult"; "VISN", 2015).

- **Efforts to improve patient reminder strategy**: Several ACAP initiatives aimed at improving patient appointment adherence are in progress, including a national group researching missed opportunity rates; two separate initiatives checking validity of recall system through evidence review and pilots; and a one-facility pilot of text messaging patient reminders.

- **VistA Scheduling software improvements**: As discussed in detail in the Scheduling System Section 7, VistA Scheduling Enhancements (VSE) and mobile applications are two near-term scheduling improvement programs that will address some of the software ease of use issues, including the lack of a "single screen" view of a provider's schedule and multiple unintegrated waitlists.

If successful, these initiatives could likely result in more consistent scheduling policy implementation across facilities and improved sharing of best practices. The access-focused roles at facilities will be especially helpful in standardizing the use of existing scheduling tools and processes. Implementing evidence-based patient appointment reminders should help

reduce missed opportunity variability. Standardizing consult process operating procedures and auditing should similarly reduce unnecessary variation across facilities.

However, gaps may exist in the above initiatives.

Implementation gaps: As discussed in Provider Availability Section 5, the clinic manager roles and training program may not be appropriately resourced and focused to ensure that these roles can handle the diverse range of duties that will be required. Simply adding clinic management expectations to facilities without providing dedicated staffing, processes, and tools may inhibit the effectiveness of these new clinic management roles.

Scope gaps: Several scope gaps may exist in VHA's current initiatives to improve the scheduling process. First, the initiatives may not address the lack of common scheduling practices, such as overbooking to the missed opportunity rate or the use of standard, patient-friendly communications. The clinic practice management model includes access management responsibilities, but ensuring the implementation of specific industry-standard scheduling practices, or detail on what those processes are, has not been outlined in preliminary training curriculum materials developed for either the group practice manager or clinic manager positions ("Clinic Management," 2015). Second, these initiatives may not address the lack of top-down guidance on scheduling process implementation. The recent national policy update does not provide any additional guidance on how to schedule or which processes/tools to utilize (for example, care coordination agreements, missed opportunity strategies). Third, best practice sharing between facilities and VISNs is only partially addressed by the creation of Communities of Practice, as there is no mechanism to ensure that best practices surfaced in this forum are actually implemented.

To address these gaps, VHA should consider the following recommendations:

6.3.1 More Effectively Implement Policy by Providing Supporting Tools and Processes, Utilizing Technology to Automate Tasks, and Creating National Enablers for Consult Process

- **Continue to support the consistent implementation of the scheduling process through VHA dissemination of tools and standard operating procedures (SOPs):** With the recent scheduling policy update, VHA is in the early stages of disseminating and reinforcing the use of the tools and processes necessary to ensure consistent implementation of scheduling management across facilities. Consistent with Assessment L's recommendation to increase coordination across policy (VHA Central Office [VHACO] program office 10P) and operations (VHACO program office 10N), all policy guidance should be reviewed, approved, and prioritized by operations before being released to the field. Reviews should ensure that policies are feasible to implement, have necessary resources to execute, and a proper feedback mechanism to indicate whether the field is able to successfully act on guidance. Policies should not be overly prescriptive but instead provide operational guidance and support to achieve clear, measurable outcomes. Necessary resources include tools (e.g., SOPs and protocols) to ensure consistent scheduling practices (e.g., overbooking) and outcomes (e.g., utilization of provider time) across facilities. These tools

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should draw on already existing local best practice processes and tools, such as the no show predictor model. VHA should also examine resource needs (e.g., regional best practice teams, dedicated VHACO personnel) for continued development of these tools and processes.

- **Improve scheduler efficiency and policy implementation consistency by automating as many VHA-specific tasks as possible:** Schedulers are hampered by a difficult-to-use scheduling system and the requirement to manually carry out several VHA-specific responsibilities. As covered in detail in Provider Availability Section 5 and Scheduling System Section 7, VHA should update its scheduling system design to show all of a provider's available appointments in one view and provide accurate visibility into the third next available wait time metric. Third next available is recommended by the IOM as industry standard and would eliminate data reliability concerns associated with desired date subjectivity. This recommendation would require moving to a consolidated view of a provider's schedule, as mentioned in Provider Availability and the Scheduling System sections. Similarly, VHA should automate many of the manual VHA-specific processes, including wait list addition, removal, and prioritization. These improvements will require modifications to the scheduling software package, but should ultimately result in improved scheduler efficiency as well as more consistent policy implementation across clinics and facilities.

- **Develop system-wide care coordination agreements and finalize operating procedures to standardize consult process:** VHA should create VHA-wide care coordination agreements between Primary Care and all common specialties/subspecialties that encourage consistency across facilities, where possible. These agreements should include a well-defined list of appropriate patients for automatic or expedited approval. VHA should strongly encourage Primary Care scheduling (either by PCP or scheduler) of specialist appointments before the patient leaves the clinic for pre-approved problem types. To enable this, VHA should define a clinic manager role to monitor the consult process and ensure timely and coordinated handoffs. These recommendations should result in more timely access to specialty care, improved care coordination, reduced provider time waste and more accountable process management.

6.3.2 Improve and Standardize Facility Level Scheduling Practices to Ensure Utilization of Existing Appointment Supply and Consistent Patient Experience

- **Empower clinics to implement consistent scheduling best practices:** VAMCs and VISNs should be held accountable for dissemination and implementation of nationally provided tools and processes per 6.3.1. VHA should ensure that clinics are aware of scheduling practices used in the private sector to increase access (e.g., VHA could guide clinics on how to appropriately overbook to a steady state missed opportunity level). Beyond awareness, empowering clinics to implement these practices will require sufficient clinic management resourcing, adequate scheduler staffing levels, and provider education on why certain practices (for example, overbooking) may be necessary to provide access.

- **Modify recall process timeline to make recall process more patient-friendly:** The timing of the reminder system should be changed. Specifically, reminders to book appointments should be informed by recent pilots (Prentice, "Appointment Age", 2015) and could be sent further in advance (for example, reminders sent at least six to eight weeks in advance instead of two to four weeks) or more frequently to ensure adequate availability from which patients can choose appointments. Patient-friendly communication methods, as described in the recommendation above, should be employed. Accountability should be assigned at each facility to monitor the recall list and ensure delinquent recall list patients are not lost in the process. VHA should also consider extending the scheduling horizon to reduce the number of patients requiring recall. These recommendations, paired with improved patient reminder systems and better provider leave submission operations, should improve ease of patient navigation, reduce loss of patients in the system, decrease scheduler workload, and improve process accountability.

- **VAMCs should adhere to a standard appointment reminder process, including use of patient-friendly methods and timing:** VHA should develop an evidence-based standard appointment reminder process (like robocall seven days ahead and live call three days ahead for all specialties) that incorporates individual patient preference (for example time of day and method). Clinics should be encouraged to utilize live calls to those patients identified as high risk by the no show predictive modeling tool. The use of email and/or text message reminders should be offered to Veterans who choose to opt in. The communications content should be standardized across clinics with clear, patient-friendly language. VHA also should ensure Veterans can easily manage their appointments (for example, online cancellations, dedicated cancellation line) so that they choose to cancel instead of not attending their appointments. These recommendations should result in improved use of provider time and better patient access.

6.3.3 Create and Reinforce a Strong Practice Manager Role to Ensure Implementation and Accountability

- **Establish standard expectations for clinic- and facility-level point people managing access and their roles/responsibilities:** Since VHA appears to lack coordination between its policy and operations program offices, VHA should consider a single point of responsibility in each facility for managing backlogs and disseminating policy to enable a more consistent delivery mechanism across facilities. As discussed in depth in Provider Availability Section 5 of this report, VHA currently is taking steps toward addressing this by creating a facility-level group practice manager role and possibly service-level roles as well that are focused on access. This program should be scoped to ensure appropriate resources (for example, tools and processes), are in place to enable successful implementation of activities.

- **Ensure facilities have sufficient staffing to implement access management model:** Perhaps as important as assigning ownership of access management responsibilities, VHA should provide sufficient staffing to support this increased workload. Recruiting, which was cited as a key issue in Assessment L's report as well as in VHA's Blueprint for

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Excellence as a critical challenge, will be important to ensure all positions are filled by capable individuals. Even with adequate tools and processes, managing access on a daily basis is a time-intensive duty.

7 Scheduling System

7.1 Context & Approach

VHA currently uses the Veterans Health Administration Systems and Technology Architecture (VistA) as the architecture backbone for its IT system. VistA supports major IT modules (like scheduling and medical records) as well as performance management. VistA uses Massachusetts General Hospital Utility Multi-Programming System (MUMPS) programming language, a code developed in 1966. MUMPS is a common software language in the health care space due to its ability to efficiently store and query data with many attributes (for example, encounter, procedure) by placing data in multi-dimensional arrays. Other systems use MUMPS in their platforms (Schwarz, 2010; O'Kane, 2014; Congdon 2014).

The VistA electronic medical record (EMR) has received accolades in the health care industry (Billings, 2012). In a 2014 survey across 25 specialties conducted by the American Academy of Family Physicians and Medscape, 18,575 physicians rated VistA as the top EMR, beating out popular commercial systems. Criteria included ease of use, overall satisfaction, and usefulness as a clinical tool.

In contrast, issues with the VistA Scheduling application have been the focus of several recent reviews, including the OIG 2014 report on Phoenix. Built in the early 1980s, VistA Scheduling has received criticism because it "lacks any meaningful analytical capabilities" and requires "manual workarounds" for schedulers ("Opportunities," 2014). VA's Chief Technology Officer shared with Politico that "[VistA] scheduling [is] a serious problem" (Gold, 2014). Limitations partially stem from the fact that developers did not design the scheduling system as an outpatient scheduling system, but rather for inpatient care ("MASS Business Blueprint," 2014). Schedulers use VistA Scheduling for creating and managing appointments at all VHA locations except the Richard L. Roudebush VAMC, in Indianapolis, Indiana. Roudebush purchased a commercial-off-the-shelf (COTS) scheduling solution, Resource Management System (RMS),[54] from Unibased System Architect in 2002.

VHA has made past attempts to replace the VistA Scheduling System. In Fiscal year 2002, VHA determined the need to replace VistA Scheduling. VA OI&T selected a proposal to replace VistA Scheduling with a COTS software program. However, in 2009, the project was terminated because the code was "not viable" (Department of Veterans Affairs, "RSA," 2009). VA OI&T/ VHA have several current initiatives in progress to address scheduling system enhancements:

VistA Scheduling Enhancements (VSE):

- Functions as temporary system solution to address scheduler usability issues until more comprehensive system is developed
- Provides graphical user interface (GUI) that sits on top of the existing VistA Scheduling System

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[54] Now called Streamline Health Looking Glass

- Maintains previous reporting and inter-program interfaces
- Has three original components of VSE1, VSE2, and VSE3 that provide "aggregated view of clinic profile scheduling grids, a single queue of requests lists, and a resource management dashboard" for each program respectively ("VistA 4," 2014).
- Includes the VSE4 component to address numerous VistA Scheduling issues that changes had not yet addressed, including fixing issues that developers must address in order to implement VSE1, VSE2, and VSE3 (ACAP, interviews, 2015).
- Is in the initial operational capability (IOC) phase across pilot sites as of June 2015 for VSE1, VSE2, and VSE3 (ACAP, interviews, 2015) with roll-out expected toward the end of the 2015 (ACAP, interviews, 2015)

Veteran Appointment Request (VAR) Mobile Application: Separately, the VHA Office of Connected Health is currently in the IOC phase with a patient-facing mobile application, VAR, at the Washington D.C. VAMC. The first part of VAR, VAR1, would allow patients to request primary care and mental health appointments. The second piece of VAR, VAR2, would allow patients to directly schedule a primary care appointment using their mobile devices (Connected Health, interview, 2015).

MASS Replacement System: In November 2014, VA OI&T released a request for proposal, called the Medical Appointment Scheduling System (MASS), for a commercial-off-the-shelf (COTS) scheduling system, detailed in the MASS Business Blueprint. MASS would completely replace the current VistA Scheduling System as well as VSE and VAR, with national implementation starting in 2018. The maximum total value a vendor can charge is $690 million. The selected bidder would be tasked with providing a system that delivers core capabilities (like the creation of a resource-based scheduling system) to all VHA medical facilities within the first two years of the contract, and other capabilities (for example, patient self-scheduling) that would be rolled out over the following three years ("Performance Work," 2014). The MASS Business Blueprint, a document developed in 2014, outlines the desired system capabilities, but the final list of capabilities required and the scale of MASS may depend on the success or failure of the intermediate VSE and VAR solutions (VAR also will offer some patient scheduling capabilities, for example). As of June 2015, according to the ACAP office, the procurement process is still underway. Post selection, its implementation would rely on Congressional allocation and approval of its budget.

Within the Choice Act language for assessment E, we were asked to "assess any interim technology changes or attempts by Department to internally develop a long-term scheduling solutions [sic] with respect to the feasibility and cost effectiveness of such internally developed solutions compared to commercially available solution." We were also asked to recommend any system changes required for measuring wait times, monitoring provider availability, and providing Veterans with their own ability to schedule appointments.

To address the request for an assessment of cost effectiveness and feasibility, we defined "feasibility" as VA OI&T's ability to purchase a scheduling system with the desired features, given that they are pursuing MASS. We defined "cost effectiveness" to be the ability to implement the desired scheduling system features on time with a demonstrated net benefit,

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including improvement to Veteran experience. To complete this area of the assessment, we relied on specific data sources, including:

- Interviews regarding VSE, mobile applications, or MASS with individuals at VA central office across three departments (Access Clinic Administration Program (ACAP), Office of Information & Technology (OI&T), and Connected Health)
- Interviews with 10 private health system CIOs and executives with deep experience related to procuring or implementing scheduling system products
- Review of reports and assessments on past implementation efforts

As discussed in section 2.4 and in accordance with *Federal Acquisition Regulation Subpart 15.3 Source Selection*, U.S. Government rules require the sequestration of individuals involved in the procurement process. Individuals involved with the MASS procurement signed a non-disclosure form that included language on "[not discussing] evaluation or source selection matters, including proprietary proposal information, with any unauthorized individuals (including Government personnel), even after the announcement of the successful contractor, unless authorized by proper authority" ("MASS RFP," 2014). As a result, details on MASS in this section relied on interviews with VHA individuals knowledgeable about MASS who were not sequestered, as well as publicly available information. This limited our ability to assess the cost effectiveness and feasibility of the planned procurement based on what is known currently within VA and VHA. We also did not complete an independent verification of any potential costs due to the sequestration.

7.2   Findings

7.2.1   VistA Scheduling Allows Basic Function of Booking an Appointment; However, Broader System Limitations Create Operational Challenges for Schedulers and Administrators

One-on-one observations of 31 schedulers consistently showed that VistA Scheduling provides the basic functionality to schedule appointments (Choice site visits, interviews, 2015). This is consistent with previous reports on VHA's scheduling system, including the most recent report from the Northern Virginia Technology Council in Fall 2014, which articulated that VistA Scheduling "fundamentally does what it's designed to do: it allows the scheduling clerk at the clinic or call center to schedule…an initial or follow up appointment" (p. 34). For the most part, schedulers appeared to have a reasonable level of comfort with the system once they had a chance to learn how to use it, even though many did not have any other scheduling system experience against which to compare VistA.

Beyond the basic appointment booking function, a number of interviews cited broader system issues. The most commonly raised issues included:

Usability for administrators (raised in 48 percent of site visit clinic administrator group interviews[55])

- Lacks an understanding of aggregate and provider-level appointment supply relative to demand due to system design choices (30 percent of administrator IT issues raised in group interviews[56])

- Does not automate clinic and facility-specific practices (19 percent of administrator IT issues raised in group interviews[57])

- Lacks a consolidated view of unmet demand, due to multiple wait lists and scheduling queues that are not typically aggregated in a user-friendly way (19 percent of administrator IT issues raised in group interviews[58])

- Other usability issues, such as unfriendly interface and lack of integration with the Computerized Patient Record System (CPRS) (32 percent of administrator IT issues raised in group interviews[59])

Usability for patients:

- Lacks functionality to support patient self-scheduling, which could increase convenience for patients and reduce workload for frontline schedulers (Choice site visits, interviews, 2015)

7.2.1.1 System Constraints do not Allow Industry Standard Levels of Supply/Demand and Performance Management, Including Wait Time Measurement

As mentioned in the two previous sections of this report, there are ways to improve scheduling without changes to the VistA Scheduling application. However, major limitations exist around monitoring and managing provider supply and wait times. This finding is consistent with the Northern Virginia Technology Council's report, which found that "the current system lacks any meaningful analytical capabilities" and VistA was "neither intended nor designed to be used as a measurement tool," and thus presents challenges when performance data is required ("Opportunities," 2014).

One common VistA Scheduling System challenge cited by administrators on site visits was the inability to accurately aggregate data to calculate metrics around total supply and provider performance. One AO interviewed on a site visit shared "It's difficult to look at the schedule to see how productive providers are." Further, because providers are not attached to an appointment until after a patient checks in and out, any appointments not resulting in a visit (like missed opportunities and cancellations, for example) are not able to be tracked for specific providers without tedious, manual review ("Access Audit," 2014; "Opportunities," 2014). In the

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[55] Site visit clinic administrator group interviews, N=11 of 23 VAMCs

[56] Site visit clinic administrator group interviews, 14 of 47 total issues identified

[57] Site visit clinic administrator group interviews, 9 of 47 total issues identified

[58] Site visit clinic administrator group interviews, 9 of 47 total issues identified

[59] Site visit clinic administrator group interviews, 15 of 47 total issues identified

words of a clinic administrator, describing the current system's limitations on generating performance metrics, "no one is providing us with the software and tools to make us successful."

In addition to challenges with monitoring supply and demand, VHA's current system limits its ability to accurately measure patient wait times using metrics beyond desired date, return to clinic, or create date. For example, as noted in the VHA Access Audit, this desired date is not used outside of the VHA system and is "difficult to reconcile against more accepted practices such as…using a 'return to clinic' interval requested by providers" ("Access Audit," 2014). Because of potentially overlapping clinic profiles, the calculation of the industry-standard metric for wait time, third next available appointment (Brandenburg et al., 2015), is faulty.

7.2.1.2 VistA Scheduling Does not Automate Several Scheduling Processes nor Simplify Managing Wait Lists

As stated in the MASS Business Blueprint, "VistA Scheduling was built in the early 80s with few embedded clinical delivery business rules" ("MASS Business Blueprint," 2014). Certain private sector providers build automation into their scheduling system and mobile apps to "eliminate dependence on individual diligence or memory" (Brandenburg et al., 2015). As VHA scheduling operational processes are complex and variable, it is particularly challenging to execute standard practices without a scheduling system that automates many of those practices. Because the current system lacks robust automation capabilities, there are likely greater inconsistencies across clinics (like prioritization of removing patients from waitlists, timing of patient appointment reminders, and handling of no-shows), and more onerous training requirements. It is also very challenging to fix the scheduling system to improve functionality.

One scheduler in Indianapolis who used the COTS RMS scheduling system, which supports the automation of operational processes (for example, ordering necessary lab work before an appointment), said "with RMS, you don't have to memorize [things about each provider]…you could train someone [on just the tool] and have them making appointments at the end of the day."

Automation of operational processes is a component of most enterprise scheduling products provided by major EMR and scheduling system vendors, according to the private sector executives interviewed (2015). The MASS Business Blueprint envisions that "scheduling [will be] simplified because business rules [will be] captured during setup and used throughout the scheduling processes" ("MASS Business Blueprint," 2014). This decreases the necessity of understanding complex national policies or various preferences across clinics because developers automatically code some practices into the process during setup. Additionally, it could enable increased standardization of scheduling functions at the facility or national level because clinic-specific rules (for example, overbooking is preferred during the pre-lunch session for one provider, another provider requires that all new patients complete lab work) could be programmed automatically into the system instead of memorized. Thus, a scheduler could book an appointment in any clinic, as long as the system automated clinic-specific differences.

As mentioned in Scheduling Process Section 6, one-on-one observations with schedulers during site visits indicated that using waitlists in VistA creates challenges for schedulers because they

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lack an automated way to filter waitlists by criteria that are relevant (like clinical need of the patient, for example). This may explain in part the VHA Access Audit's findings that eight percent of scheduling staff were using alternatives to the Electronic Wait List (EWL) ("Access Audit," 2014). According to the 2015 IOM report *Innovation and Best Practices in Health Care Scheduling*, manually recording waitlist information leads to inconsistencies in the ways that schedulers review the wait list and is against scheduling directive policy (Brandenburg et al., 2015; VHA 2010-027).

Clinic administrators also struggle with the current waitlists because there is not a way to consolidate them in order to measure patient demand or manage allocation of tasks within the clinic (Choice Act site visits, interviews, 2015). As detailed in Scheduling Process Section 6 of this report, waitlist challenges do not commonly exist in the private sector, as backlogs, and thus waitlists, are rare.

7.2.1.3 System Does not Offer Schedulers a User-Friendly way of Viewing Provider Availability

The way VistA Scheduling displays providers' schedules presents challenge for schedulers searching for available appointments. Schedulers are unable to look at one screen to see a provider's overall schedule if that provider operates across multiple clinic profiles. The current system requires a scheduler to "roll and scroll" through multiple screens to search just one day of a provider's schedule, which becomes even more tedious with multiple days or multiple providers. According to the 10 private health system leaders interviewed specifically on scheduling system technology as part of this assessment, very few scheduling systems in the U.S. are this difficult to search.

In contrast, schedulers using the RMS system at the Indianapolis VAMC with a GUI interface did not have to click through multiple screens as RMS, unlike VistA scheduling, does not disperse provider schedules across multiple profiles. The following figure displays what a scheduler sees in each system:

Figure 7-1. Scheduling System Comparison
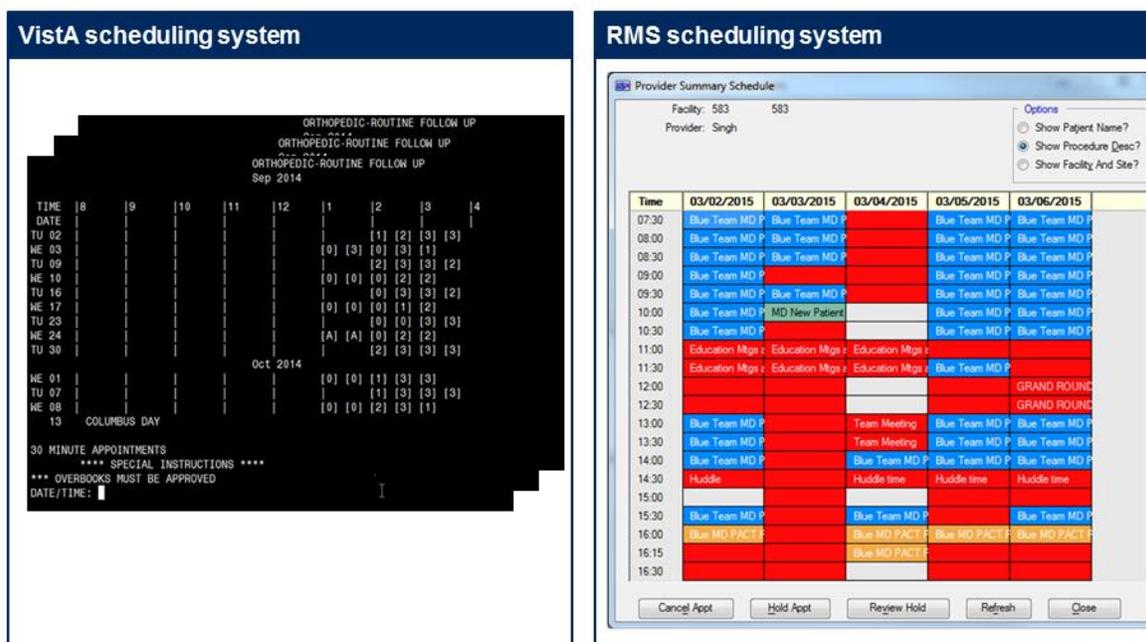
Figure 7-1 compares an individual provider's schedule in VistA to RMS. In the VistA system, the provider's schedule for one day is displayed using numerals and is only shown partially on one screen because of multiple clinic profiles. In RMS, the scheduling system displays an entire schedule in one combined calendar with different colors representing different types of appointments through a GUI interface. Available slots are easy to see, and the schedule combines different clinic profiles. Sources: ACAP office webinar (left, "Making Appt v2_7-23-2014 1.51.07pm", accessed June 25, 2015) and Indianapolis site visit screen shot (right).

In addition to streamlining the viewing of appointments, RMS allows the schedulers to search provider availability for a specific appointment type based on configured rules. Most schedulers at the Indianapolis VAMC have not used the VistA Scheduling System because the Indianapolis VAMC implemented RMS in 2002. However, in contrast to other schedulers, they did not report that finding an available appointment took a long time. The shorter time required to find availability could result in shorter hold times on the phone for patients booking an appointment or waiting in clinic to schedule. We spoke with one scheduler who had recently transferred from another VAMC that used VistA Scheduling, allowing her to compare the two systems. She said, "I can view [the doctor's] schedule all right here [on this one screen]. It is just like [Microsoft] Outlook and much more intuitive."

7.2.2 Interim Scheduling System Solutions Will Address Some Usability Challenges, But Will not Comprehensively Address Root Cause Issues

According to VHA leaders, VHA's two near-term scheduling improvement programs, VSE and VAR, will address the previously noted scheduler and patient usability challenges captured below:

Usability for schedulers

- "Single-screen" view of a provider's schedule due to system architecture choices that have led to multiple clinic profiles as well as a scheduling system (that is, VistA) that does not provide an aggregated view across these profiles. VistA also does not allow for a singular schedule beyond eight hours nor across two locations.

- An easy-to-use cancellation list, due to multiple wait lists and scheduling queues that are not typically aggregated.

Usability for patients

- Functionality to support patient self-scheduling, which could increase convenience for patients and reduce workload for frontline schedulers.

However, interim solutions will not address the following challenges with the current system:

Usability for administrators

- Ability to support an understanding of aggregate and provider-level appointment supply relative to demand due to system design choices.

- Automated clinic and facility-specific practices, making it a manual process.

- Consolidated view of demand, due to multiple wait lists and scheduling queues that are not typically aggregated to measure overall demand.

Collectively, the main features of VSE and VAR will address the major issues of scheduler and patient usability. However, these solutions are currently limited to only two specialties, primary care and mental health. Primary care was chosen because it is a high volume specialty and tends to have more standard clinic profiles. Mental health was also chosen because it is a high volume specialty and because there are many different profiles that schedulers must look at. According to VHA leaders, VSE will introduce changes that will "ease the burden on the scheduler" by providing users with an integrated provider calendar view, a centralized waitlist management tool, and a dashboard that tracks appointment "requests" as well as completed appointments. However, VSE, like RMS in Indianapolis, is still constrained by clinic profiles. As a result, VSE cannot measure aggregated appointment supply more accurately than in current state.

In addition, VHA also has efforts to provide additional patient friendly-scheduling features through VAR using the same programming code as My Health*e*Vet (Connected Health, interview, 2015). Like the other VA mobile applications, VAR will be "stand alone" and not built using the VistA Scheduling infrastructure (Frisbee, 2015). This infrastructure will enable it to be integrated with future scheduling systems. Through VAR, patients can request or schedule an appointment, but only in primary care or mental health. Capabilities exist only for patients requesting an appointment with a provider previously visited and for patients who have registered at the VAR website. Offering VAR to patients for all specialties will be challenging because any patient-facing application still has to deal with the current limitations of VistA Scheduling (like multiple clinic profiles) and VAR will require another work queue for schedulers to manage. According to interviews with the Connected Health office, physicians are generally supportive of the software, and the team piloting the software believes it will increase patient

satisfaction scores which are tracked in the national Survey of Healthcare Experience of Patient (SHEP) survey.

7.2.3 MASS Plan is Intended to Address Major Scheduling Capability Gaps Highlighted in This Report Through a COTS Product, Similar to Several Private Sector Providers

Overall, previously mentioned interim improvements (VSE, VAR) will provide a bridge between the current VistA scheduling process and a future, more comprehensive solution. MASS is under consideration to address this more comprehensive need with a COTS product.

Feature requirements listed in the MASS Business Blueprint include the following (See Appendix E.1 for detailed listing of MASS requirements):

- VistA reporting and coding must continue to support non-scheduling business processes, as it currently does today, so that all data extracts continue to support other non-scheduling processes without disruption.
- Capture of the patient preferred appointment date metric must be consistent with the national scheduling directive.
- System must support proactive resource management-based scheduling that schedules all resources, including staff, facilities, rooms, and equipment.
- Patients must be able to self-schedule and manage their engagement through multiple avenues, such as mobile applications and the web.
- System must create a single view of the patient across the enterprise so that VHA can maintain a coherent view of the patient across facilities.
- Interface must enable efficient and error-free scheduling of resources.

Over 90 percent of all U.S. hospitals have a COTS scheduling product, including 14 of the 15 U.S. News and World Report top hospitals and eight out of the 10 largest hospital systems in the U.S. ("Healthcare," 2015). This high use of COTS scheduling products is partly because health care systems are increasingly purchasing integrated electronic medical records (EMR) with most or all including scheduling capability. Most EMR implementations include a suite of products from a single vendor that better enable integration between programs.

According to the health system leaders interviewed for this assessment, most of the desired features in MASS are common in COTS systems. If paired with changes to the data capture functionality for location and stop code (which VistA currently uses multiple provider schedules to do), a COTS scheduling system can likely address most of the major usability pain points highlighted in this report. However, because waitlists are not common outside of VHA, it is not possible to evaluate how a COTS system can address challenges related to this topic.

7.2.4 Further Study is Required to Determine Whether the MASS Plan is Feasible and Cost Effective

It appears to be feasible for VA to obtain a product with the scheduling features it desires. However, our access to the leaders of the procurement has limited our ability to assess overall

feasibility and cost effectiveness in a definitive manner. While significant documentation about MASS is publically available, including its request for quotation (RFQ) to vendors and its requirements articulated in the MASS Blueprint, we have not been able to complete or verify the existence of a robust Analysis of Alternatives (AOA). OI&T and the Office of Enterprise Development completed an assessment of alternatives for a new scheduling system before the MASS effort in 2009 ("Healthevet," 2009). However, no public documents exist to confirm that VA has made any effort to refresh this cost comparison for MASS.

A complete AOA would compare the financial and non-financial costs and benefits of both MASS and all of its alternatives, including using locally sourced COTS solutions at each facility, internally developing a custom solution, and the status quo (that is, no system changes). Costs components should include all total costs of ownership including system costs, maintenance costs, and implementation costs as well as the time required to implement. Benefits considered should include, but not be limited to, financial savings, operational improvements on the scheduling process, and patient satisfaction. Further, implementation and maintenance cost estimates should be risk-adjusted based on past VA efforts to reflect the most likely cost figures (see Assessment H report).

7.2.5 VA's Past IT Implementation Successes and Failures Demonstrate That a Feasible and Cost Effective Solution is Possible, but not Guaranteed

VA has shown in the past that it is able to implement a COTS scheduling system in a cost effective way with RMS, the COTS program used in Indianapolis. RMS went through the procurement process with five vendors in 1999 and evaluated each for cost, ease of usability, and ability to integrate with VistA. The independent installment of RMS in Indianapolis was not a pilot. The project team implemented RMS under the $250,000 budget, which did not include licensing fees of $50,000 per year (Choice Act site visit interview, 2015). According to Indianapolis leaders interviewed, the main reason why the RMS COTS product was feasible and cost effective was that its project owners decided not to add significant customization. As a result, implementation successfully addressed some scheduling usability issues and demonstrated that a COTS system could successfully integrate with the overall VistA system. However, this was a small scale implementation that was not replicated again.

Despite the success in Indianapolis, other efforts to replace the scheduling system overall have not been successful. As further explored by Assessment H, the media, VA Office of Inspector General (OIG), and the Government Accounting Office (GAO) have documented many public failures over the last 15 years.

For example, in fiscal year 2000, VA determined the need to replace VistA Scheduling with a new system referred to as Replacement Scheduling Application (RSA), "due to the age of the software, as well as a 1998 GAO report concerning excessive wait times for Veterans to schedule appointments" ("Review," 2009). This effort was unsuccessful for three reasons, according to the VA Office of Inspector General:

- There was a lack of program and requirement planning due to numerous changes in direction including some due to the Health**e**Vet initiative

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- VA did not have staff members with the necessary expertise to execute a large scale IT project
- Responsibility of the project changed four times between fiscal years 2000 and 2009 leading to a lack of accountability

In 2009, in response to the failure of RSA, the VA Chief Information Officer initiated the Program Management Accountability System (PMAS). PMAS is an IT development process owned by OI&T that project teams must use across VA for IT implementations with a value greater than $250,000. According to the PMAS website, there are eight major principles of the PMAS approach: incremental development, integrated teamwork across VA, accountability, resource management, transparency, senior leadership engagement, direct participation by the customer, and an emphasis on agile practices. Unfortunately, a recent OIG audit found that PMAS has not completely succeeded in removing the project management deficiencies that led to the previous failures because it has not yet established "key management controls to ensure PMAS data reliability, verify project compliance, and track project costs have not been well established."

Findings from Assessment H, as well as a 2012 internal review of OI&T, highlight that the broader VA organizational structure for IT may also limit the ability for VA to fund and implement IT capabilities. This structure affects the likelihood that MASS could successfully roll out. For instance, Assessment H found that VHA and OI&T are not effectively collaborating with respect to the planning of IT strategies for managing and furnishing health care. Further, they found that stakeholder engagement in requirements definition is limited as a result. An internal review of OI&T in 2012 allegedly found many issues with capabilities within OI&T, including a disconnect between OI&T and the rest of the organization as well as excessive management layers between the facilities and OI&T leadership (Konkel, 2013).

Learnings from successful IT implementations outside of VA can inform continued planning efforts for MASS.

Research suggests that there are several key success factors for successfully implementing IT projects. These factors include:

- **Manage customization:** Successful efforts carefully determine the appropriate level of customization by weighing the costs and benefits of each additional build-out and avoiding "gold plating." As previously mentioned in Scheduling Process Section 6, scheduling processes vary significantly across facilities. There are over 140 instances of VistA today due to past local customization (Connected Health, interview, 2015). VHA facilities may need to change some of their processes to match a new system in order to avoid excessive customization. VA leaders interviewed do not know how much customization business owners will request as part of MASS nor what the process will be for managing it.
- **Engage the business owner:** IT rollouts are successfully completed on time and on budget if the implementation and requirements are substantially driven by the business owner (both at the top-level business sponsorship level and at the user level). The ACAP office,

the business owner of MASS, is reportedly in close communication with OI&T. However, it is unclear if OI&T has yet engaged the day-to-day users of the scheduling system.

- **Pilot and test major features/functions:** Project teams should test all major functionalities in various environments of the ultimate user base. Within VHA, this would help demonstrate the functions of the system in different facilities (for example, VAMCs, CBOCs), across multiple specialties (for example, primary care, mental health, cardiology), for multiple resources (for example, providers, rooms, equipment), and with multiple users (for example, schedulers, clinic administrators, providers, and patients).

- **Build rigorous performance management structure** by: 1) establishing a program structure with clear governance, roles, and decision rights, 2) creating a simple, visual, master program plan with logical work streams and milestones, 3) measuring and tracking progress against transparent short-term and long-term milestones, 4) engaging business customers in the project delivery, and 5) aligning incentives of project and program management team to overall project performance metrics.

7.3 Recommendations

Previous work by VA, OIG, and other independent groups indicated that there are key system capabilities missing from VistA Scheduling, which, in turn, affect the scheduling process for schedulers, administrators, and patients. Further, GAO recommended actions to introduce software changes that would allow a scheduler to view provider availability on a single screen and require fewer keystrokes for each action. According to OIG, these issues cause errors in the scheduling process.

To improve the system usability for administrators, many groups recommended system changes to address the need for increased and easier access to data. Specific recommendations included that VA standardize management data through use of standard data dashboards ("Audit," 2008). See Appendix E.3 for additional detail on previous reports.

As described in this section, VA is in the process of several changes to its scheduling system, many of which appear to be necessary improvements. Additionally, it will be necessary to address potential opportunities to ensure the effectiveness of current initiatives. Regarding its scheduling system, VA/VHA (as relevant depending on ownership of specific element of IT process) should consider the following recommendations:

7.3.1 Implement Necessary non-System Changes Described in This Report; Continue to Implement Interim System Improvements That are Already in Progress

It is evident from this assessment that system changes alone will not improve the scheduling process. Instead, scheduling system improvements need to be paired with other improvements addressing the major scheduling issues highlighted throughout this report including the lack of accountability and resourcing at the facility level for scheduling and access management (described in 5.2.6 of Provider Availability and 6.2.7 of Scheduling Process) and variability in the use of scheduling best practices at the clinic level (described in 6.3.2 of Scheduling Process). As

discussed in this section, interim solutions, VSE and VAR, are likely to address select scheduler and patient usability challenges, but will not comprehensively address all of the current underlying system issues outlined such as the need to accurately measure appointment supply. As of May 2015, VA reports that both solutions are moving through the implementation process (for example, user testing) against a fall 2015 timeline (ACAP, interview, 2015). VHA should ensure that this implementation is set up for success in terms of planning and resourcing for roll-out, while maintaining a near-term timeline given that MASS will take several years before being fully implemented.

7.3.2   Perform Full Analysis of MASS Alternatives (if one has not yet Been Completed) and Ensure Comprehensive Implementation Plan

The MASS procurement was undertaken to obtain a COTS scheduling product similar to what is used in the broader industry. As mentioned, we were not able to validate the existence of a robust analysis of alternatives (AOA) that considered the relative cost and benefits of MASS as compared to other system change or procurement approaches (e.g., changes to VistA Scheduling, local procurement of COTS products). To feel confident in the cost effectiveness of its selection, VA OI&T should ensure that this analysis has been completed and is informing the MASS plan.

In addition, VA OI&T has already been working closely with the MASS business owner, VHA's ACAP office, to develop business and technical requirements for MASS. However, OI&T should perform a careful AOA along with systematic planning (if it has not already done so) that also addresses broader IT program challenges articulated in Assessment H.

For MASS, additional robust planning (where not already in progress) could include the following:

- Ensure that VA OI&T, ACAP and field leadership are working in close coordination to make joint decisions on detailed design (e.g., minimizing custom scheduling features as is typical in the private sector) so that further requirements development occurs in a coordinated manner with an eye toward prioritization and robust cost/benefit analysis.

- Ensure that OI&T continues to enlist both the ACAP office as well as its broader stakeholders (patients, providers, schedulers, administrators) in the rollout of MASS. For the rollout, OI&T, ACAP, facility leadership and scheduling system users will all need to contribute to the planning in a meaningful way if the roll-out is to be successful. For example, the joint team could complete the initial phases of deployment across separate VISNs, in multiple care settings (like VAMC, CBOC, etc.), in various medical specialties (for example, primary care, mental health, cardiology), for multiple resources (like providers, rooms, equipment), and with multiple users (for example, schedulers, clinic administrators, providers, patients) to ensure it understands the needs of the end users and proactively manages in advance of full implementation. This could help to ensure that MASS improves scheduling across all VHA facility settings and that the full roll-out proceeds more smoothly.

- Ensure that OI&T establishes a robust performance management and governance structure addressing any known limitations to PMAS to ensure the broader cost effectiveness and feasibility of the MASS project. This could require, where not already expected to happen, a monthly cadence of performance management meetings with senior leaders to review key milestones, assess the budget, review performance metrics (like time required to complete an appointment, scheduler satisfaction, etc.), review changes in scope, and problem-solve issues.

7.3.3 Scheduling System Improvements (Likely Through MASS) Should Address the System Changes Summarized in the Table Below

Table 7-1**. Choice Act Requirements and Relevant Recommendations**

Choice Act requirements	Relevant Recommendation
(iii) Assess whether changes in the technology or system used in scheduling appointments are necessary to limit access to the system to only those employees that have been properly trained in conducting such tasks.	8.3.1 Continue requiring all schedulers to receive training before receiving access to the scheduling system; utilize more initial training, on-the-job training, and experiential methods to equip schedulers for their responsibilities
(viii,II) Changes in monitoring and assessment conducted by the Department of wait times of Veterans for such appointments. [note: this was not specific to IT, but requires IT support]	6.3.1 Update scheduling system design to accurately aggregate available appointment slot information to provide visibility into the third next available wait time metric
(viii,III,aa) Changes in the system used to schedule such appointments, including changes to improve how the Department measures wait times	6.3.1 Update scheduling system design to accurately aggregate available appointment slot information to provide visibility into the third next available wait time metric
(viii,III,bb) Changes in the system used to schedule such appointments, including changes to improve how the Department monitors the availability of health care providers of the Department	5.3.2. In the longer term, transition to a system design that enables an accurate view of provider supply; this would allow administrators to be able to accurately assess provider availability without significant manual analysis
(viii,III,cc) Changes in the system used to schedule such appointments, including changes to improve how the Department provides Veterans the ability to schedule such appointments.	7.3.1. Implement necessary non-system changes described in this report to improve patient experience; continue to implement interim system improvements that are already in progress, which would include

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Choice Act requirements	Relevant Recommendation
	VAR, a program that would allow Veterans to request and schedule appointments online for some specialties

8 Scheduler Training

8.1 Context & Approach

VHA policy requires that standard online and classroom training be provided to all individuals to obtain system privileges, regardless of role (VHA Directive 2010-027). According to ACAP, this initial training currently covers three main topics:

- Scheduling and related systems (for example, VistA Scheduling, CPRS)

- Processes and policies (for example, when to use EWL)

- Soft skills (such as patient interaction) (ACAP, interviews, 2015).

The mandatory online modules for these topics are administered through VA's Talent Management System (TMS); the modules are often referred to as "TMS training." In addition to the TMS training, a nationally developed soft skills training, comprising videos and classroom-based discussion, is administered locally by the facilities. Local facilities frequently develop supplemental materials as needed. See Appendix F.1 for details on this initial training.

VHA policy requires that schedulers receive training of some form whenever new policies are introduced or after an annual scheduling audit if deficiencies are identified, additional training can be administered at any time (VHA Directive 2010-027). All staff members who have any of the VistA Scheduling options that may be used for scheduling patients are placed on the Master List. Those on the Master List have an annual VHA assessment, which is administered by their facility (VHA Directive 2010-027). When these assessments reveal knowledge gaps, training is required and is administered on an individualized basis. Typically, this includes retaking modules from initial training and, in some cases, receiving one-on-one coaching with supervisors.

The Choice Act required a review of scheduling training material and an assessment of whether employees conducting tasks related to scheduling were properly trained.

To conduct this area of the assessment, our data sources included:

- Talent Management System (TMS) training modules required for those with system privileges

- A survey with specific training-focused questions for "schedulers," individuals who indicated that they schedule appointments for outpatient care (N=825), including both frontline MSAs (N=726) and non-MSAs with scheduling privileges (N=99); as well as MSA supervisors (N=70), clinic administrators (N=80), providers (N=1,054), administrative officers (N=86), and clinical leaders (N=121).[60]

  The survey was intended to reach all facilities and respondents represented 137 VAMCs (90 percent of all VAMCs) and 320 CBOCs (39 percent of CBOCs) overall.[61] Given this sample size the survey results have a margin of error of approximately 3.4 percent.

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[60] Response rate unknown, as total numbers for these groups were not available

[61] Assuming 152 VAMCs and 819 CBOCs (VSSC, 2014)

- A data call distributed to all VAMCs via the 21 VISN directors requesting three types of information: training content and delivery, reporting structure and audit performance, and policy dissemination. A total of 102 VAMCs responded (67 percent response rate) to at least some part of the data call. This included a survey regarding the creation, maintenance, and delivery of trainings (N=49 VAMCs, 32 percent response rate); a survey of facilities' scheduler reporting structures and scheduler audit performance (N=73 VAMCs, 48 percent response rate); and a collection of national and local training materials for MSAs on new policies (N=51 VAMCs, 34 percent response rate).

  The materials collected were analyzed for the period in which they were delivered, the topics they covered, and the format of delivery used to discover best practices currently taking place within VAMCs.

- 22 interviews related to scheduler training approach with designated lead administrator responsible for training during on-site visits at 17 VAMCs

- Interviews with 10 private sector health care system administrators with responsibility for scheduler training

8.2   Findings

8.2.1   Not All VHA Schedulers Receive Enough Initial Training or on-the-job Training; Training That is Delivered is Rarely Experiential, a Difference From Private Sector Health Systems

8.2.1.1   Some Schedulers Receive Relatively Little Initial Training; a Majority of Schedulers, AOs, and Providers Report That More Training for Schedulers Would be an Improvement

The largest groups with scheduling system access based on our data call are:

- MSAs (36 percent of total)

- Allied health professionals (22 percent of total)

- Nurses (17 percent)

- Administrators (14 percent)

- Pharmacists (3 percent)

- Other less than 2 percent each: Care coordinators, Managers (2 percent), Physicians (2 percent), Employees in ancillary roles (1 percent), Nurse practitioners (1 percent), Physician's assistants (1 percent)

According to 825 survey responses from schedulers, (MSAs [N=726] and non-MSAs [N=99]), across 97 VAMCs and 128 CBOCs, 79 percent of schedulers reported receiving at least two hours of initial training on scheduling systems. Seventy-two percent reported receiving at least two hours of initial training on policies and processes, and 70 percent did so for training on soft skills. This means that for each of the required topics of national training, more than 20 percent of schedulers report receiving less than two hours of initial training. There are several possible

explanations for this, other than incomplete implementation of mandatory training. First, because the TMS modules are self-paced, it is possible that some individuals simply took less time than expected to go through the training. Second, some schedulers may have started before training became nationally mandated in 2010. Regardless, the current state in which less than 80 percent of schedulers report receiving at least two hours of initial training on each topic suggests implementation of mandated training could be more rigorous.

We also found that the amount of training schedulers receive differs significantly between facilities. Based on the responses of 333 schedulers who come from the 20 largest facilities surveyed, there is a statistically significant variability (p value = 0.041) in how many hours of initial training facilities provide on using scheduling systems, for example. There are similarly wide ranges between facilities for training on soft skills, scheduling policies and processes, and on-the-job training. See Appendix F.1 for full analysis. If mandatory TMS training time were summed across all scheduling-specific modules, approximately half of a day of TMS training would be expected. This amount is shorter than what is typical in the private sector, where initial classroom training typically ranges from one to five days (Private sector health systems, interviews, 2015). Geisinger Health System, for instance, places new hires in clinic settings for several days to learn how a clinic operates and then provides several days of classroom training (Geisinger interview, 2015).

Consequently, among AOs, providers, and schedulers who we interviewed, a majority of each group identified current training for schedulers as inadequate. In group interviews of schedulers, 65 percent[62] identified training as a major challenge. Their focus was primarily on the content of training not matching with their actual jobs: "We learn how to book an appointment in a vacuum but then we show up on our first day and it's a whole new world," reported one scheduler.

Our survey of schedulers (see Figure 8-1) likewise showed that 90 percent listed at least one area in which they would like more training. A breakdown of how schedulers believed training could be improved is below:

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[62] Site visit scheduler group interviews, N=15 of 23 VAMCs

Figure 8-1. Response of Schedulers Asked: "How Would You Improve the Training of Schedulers?" 2015 VHA Employee survey, n = 825 Schedulers from 97 VAMCs and 128 CBOCs

How would you improve training of schedulers?
Percent, N=825 responses from 97 VAMCs and 128 CBOCs

Category	Percent
More clinic-specific training	54
More on processes and policies	50
More hands-on and on-the-job	43
More time for training	43
More scheduling-specific training	43
More soft skills training	30
Other	9
Not sure	10
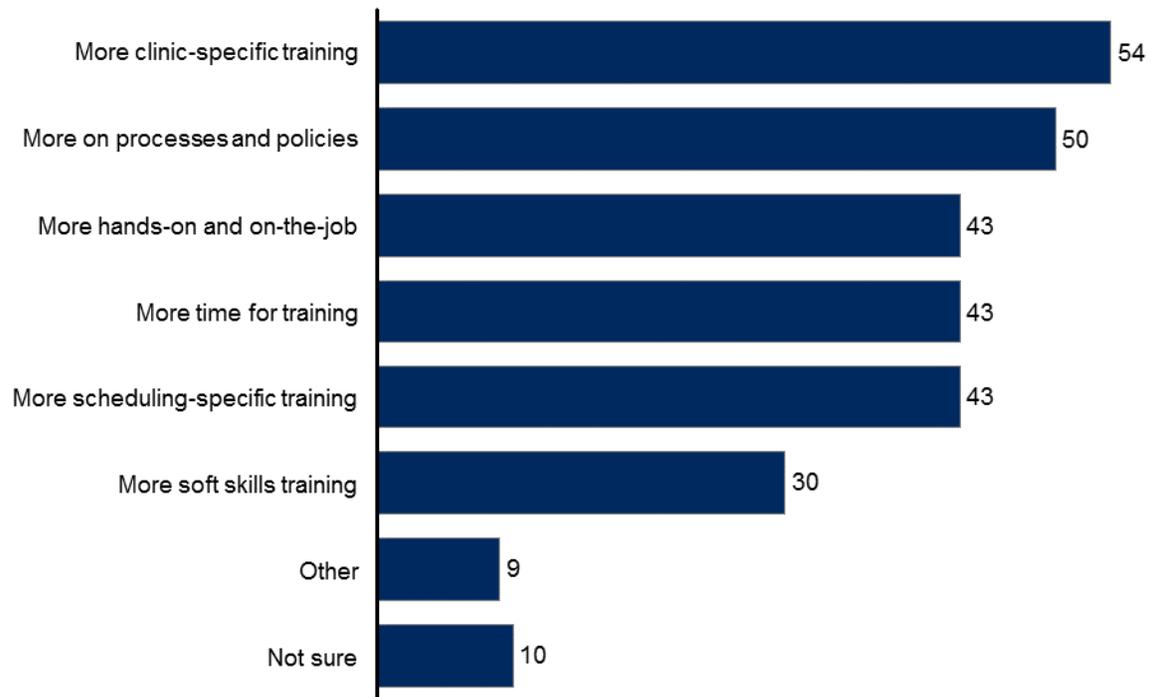
SOURCE: 2015 VHA Employee Survey

Figure 8-1 shows schedulers' desired areas for training improvement based on a national survey. This survey shows that a large portion of schedulers want more training in several specific areas, including clinic-specific content (55 percent), processes and policies (51 percent), scheduling-specific (44 percent), and hands-on and on-the-job training (43 percent). This survey includes responses from 825 schedulers from 97 VAMCs and 128 CBOCs. Source: Assessment E VHA employee survey, 2015.

From interviews with AOs and clinic managers it was clear that they, too, see lack of training for schedulers as a challenge; 65 percent of group interviews[63] identified training as an area that needs to be addressed. Their most common areas of concern were the lack of content focusing on day-to-day processes and the perceived infrequency of training. For example:

Content

- "[Schedulers] don't get enough training on how processes work in the real world."

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[63] Site visit clinic administrator group interviews, N=15 of 23 VAMCs

The views, opinions, and/or findings contained in this report are those of the assessment team and should not be construed as an official government position, policy, or decision.

- "Their training is not matched to their actual duties."
- "Schedulers get trained on how to book appointments and put people on lists, not how to function in a clinic, which involves a lot of other things."

Frequency

- "Training doesn't happen often enough."
- "Once [schedulers] finish their initial training, there's not much that happens."
- "I can't even remember the last time one of my MSAs got training."

Certain providers also indicated that a lack of adequate training for schedulers may impede their ability to see patients. In our survey of 1,054 providers, only 56 percent of providers responded "yes" when asked if they feel that their schedulers are adequately trained. Specifically, providers were concerned that training is not actually ensuring high quality scheduler performance. According to providers:

- "Scheduling mistakes among schedulers are common, which wastes [provider] time."
- "Schedulers will put new patients in follow-up slots, which is impossible for me to handle. The rest of my day then runs behind."
- "The MSAs in my clinic need more training on how to serve patients. They are the face of the clinic, and sometimes they don't act like it."

8.2.1.2 VHA Uses Less Experiential Training Than Many Private Sector Health Systems, Which may Result in More Limited Training Retention and Scheduler Performance

As described in the previous section, VHA's nationally standardized training is focused on scheduling software, processes, policies, and soft skills. These topics are consistent with private sector training content. However, the major difference between VHA and private sector initial training is the delivery method. VHA largely delivers training through online modules rather than through interactive or experiential learning. According to many schedulers, the use of online TMS modules is potentially ineffective:

- "All we do [in TMS modules] is look at screenshots of VistA and CPRS; we never get to actually use them."
- "We need more training than what we get with TMS."
- "TMS isn't helpful for our day-to-day jobs"

As described in Figure 8-2, many private sector health system use significantly more experiential training, or training that involves application of learnings in realistic settings such as through role play scenarios or in a simulation lab. In interviews, private sector administrators consistently mentioned that they used practice labs with test accounts set up for schedulers to use for practice.

**Figure 8-2. Comparison of VHA and Private
Sector Initial Training Delivery for Schedulers**

Comparison of VHA and private sector initial training delivery for schedulers

	VHA	Typical private sector
Trainer	• Usually centralized	• Centralized
Length	• 0.5-1 day in classroom	• 1-5 days in classroom
Delivery method		
Software training	• Online modules[1,2] • No live practice	• Live instruction • Practice lab with scenarios
Processes and policy	• Online modules[3] • Lecture • Occasionally scenarios	• Lecture, largely scenario-based
Soft skills	• Scenario-based role play	• Varies, with classroom role play common
Testing	• Concepts-based with no demonstration of skills	• Competency-based with skill demonstration required

1 TMS module "Make an appointment"
2 TMS module "Recall/Reminder"
3 TMS module "Business Rules"

Figure 8-2 shows a comparison of initial training delivery between VHA and best-in-class private sector health systems for schedulers. This information comes from a review of VHA national training materials and interviews with health system administrators at 10 private sector health systems. Sources: Choice Act site visits, interviews, 2015; Private sector health systems, interviews, 2015.

Experiential training typically includes trainee completion of typical scheduling scenarios. These scenarios include start to finish processes, such as registering a patient, scheduling an initial appointment, scheduling a follow up appointment, processing a referral, and other standard processes, beginning with more basic processes and moving to more complex scenarios. Multiple private sector health systems also reported requiring schedulers to successfully demonstrate scheduling competencies prior to beginning their scheduling duties.

Consistent with private sector use of experiential training, research suggests that organizations should minimize in-classroom training and online modules in favor of experiential activities (Whitmore, 2002). Specifically, research has found that experiential training (like practicing potential scenarios on a computer rather than through lectures or manuals) leads to higher retention of the content, as seen in Figure 8-3. This best practice contrasts with VHA's

nationally standardized training materials focused on online modules. For additional detail on best practices, see Appendix F.2.

Figure 8-3. Adult Learning Theory, Methods and Their Effectiveness, Based on Data From IBM Research and UK Post Office, Whitmore, 2002

Adult learning theory, methods and their effectiveness

Learning by	Effectiveness, Percent Recall after		Formats
	3 weeks	3 months	
Explanation (hearing)	70	10	• Lecture • Textbook • Video • Discussion
Example (seeing)	72	32	• Demonstration
Experience (doing)	85	65	• Role play • Simulation • Game • Exercise • Case
Expertise (teaching)	100	100	• Learner explains or demonstrates to third party

SOURCE: IBM research

Figure 8-3 outlines adult learning methods and their effectiveness. Experience (doing) and expertise (teaching) result in higher short- and long-term retention rates (65 percent and 100 percent at three months, respectively) compared to explanation and example (10 percent and 32 percent at three months). Source: Whitmore, 2002 on IBM Research and UK Post Office.

Despite the overall lack of experiential training reported by many schedulers, there are some facilities that excel in this area.

VHA high-performance example: The Robert J. Dole VAMC
The Robert J. Dole VAMC has developed a three-day training program followed by in-clinic observation. The three days include PowerPoint step-by-step instructions, instructor demonstration, and then hands-on practice for multiple scheduling processes such as scheduling an appointment, placing a Veteran on the EWL or recall list, and cancelling an appointment. Each day is concluded with a quiz to test understanding of the day's materials.

> Several VAMCs have also developed scheduler competency checklists to document the scheduler's demonstration of required competencies (Assessment E national data call, 2015)

Other facilities, which did not use as much experiential training, cited multiple challenges preventing them from adopting these methods, including a lack of space, technology limitations, and a lack of dedicated trainer time. Regarding space, several scheduling administrators mentioned that no dedicated training space exists within their facilities, so it would be difficult to find physical locations to house a practice lab or perform additional classroom-based training. As for technology, many private sector scheduling systems allow trainees to access a test environment and work through a specified set of activities; however, no facility reported using VistA Scheduling for this type of activity. Altogether the lack of space, technology limitations, and full-time trainers inhibit a facility's ability to provide experiential training, including scenarios, role plays, and practice lab activities.

8.2.1.3 On-the-job Training is Inconsistent at VHA Facilities, With Some Schedulers Reporting a Difficult Transition From Classroom to Clinic or Call Center

On-the-job training includes initial training in the actual work environment, such as side-by-side coaching and receiving feedback. In the private sector, shadowing and pairing new employees with more experienced schedulers are commonly used practices to ensure a smooth transition from the classroom to scheduling independently. Geisinger Health System, for instance, requires all new schedulers to sit with an experienced scheduler for at least two to three weeks (Geisinger interview, 2015). These new employees begin this training period by exclusively observing the scheduler and clinic flow. Over time, they take on additional responsibilities until, by the end of the period, the new employees are capable of functioning independently. In addition to providing relevant, real-world training, another benefit administrators mentioned is that on-the-job training serves as a final quality check before schedulers operate on their own. "If [a scheduler] isn't performing well, we can bring them back for more training," said one administrator.

According to interviews with administrators at site visit facilities, 47 percent of VAMCs[64] reported providing some shadowing or placement of new schedulers with more experienced schedulers. However, the delivery of on-the-job training at VHA is not standardized, resulting in variable use across facilities. Our survey of schedulers revealed that 28 percent of schedulers received more than 20 hours of on-the-job training while 45 percent received five or fewer hours, as shown in Figure 8-2. Overall, 43 percent of schedulers desire more on-the-job training (see Figure 8-4), and for the schedulers who receive few hours of on-the-job training, the experience can be challenging. As one scheduler said, "We go straight from training in the classroom to being on our own in the clinic. [We're] just thrown into the deep end."

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[64] Site visit training administrator interviews, N=8 of 17 VAMCs

Figure 8-4. Response of Schedulers Asked: "How Many Hours of Training Specific to the Following Topics did you Receive in Your Initial Training: On-the-job-training (for Example, Side-by-Side Coaching, Receiving Feedback)?" 2015 VHA Employee Survey, n = 825 Responses from 97 VAMCs and 128 CBOCs

How many hours of on the job training (e.g., side by side coaching, receiving feedback) did you receive in your initial training?
Percent of schedulers, N=825 responses from 97 VAMCs and 128 CBOCs
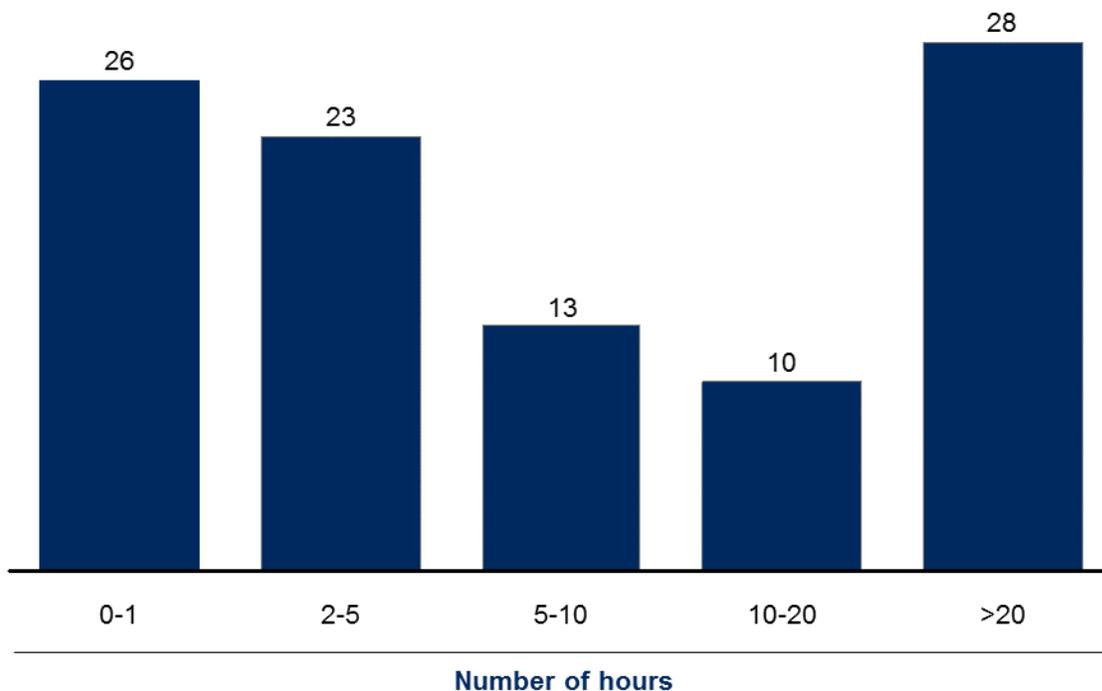
SOURCE: 2015 VHA Employee Survey

Figure 8-4 shows the number of hours of initial on-the-job training reported by schedulers for each facility. This survey shows that while some facilities provide over 20 hours of initial training (28 percent), almost half receive fewer than five hours (21 percent zero to one hour, 24 percent two to five hours). Source: Assessment E VHA employee survey, 2015.

VHA high-performance example: Cincinnati VAMC
An example of a facility that does provide on-the-job training is the Cincinnati VAMC, where all new schedulers receive at least one to two weeks of on-the-job shadowing and working one to one with another supervisor before working independently. Administrators in this facility, as well as leaders at several other facilities, mentioned that shadowing actually did not add much time to the training process, as schedulers could do this while waiting to be granted official access to the system, which can take days or weeks (Choice Act site visits, interviews, 2015).

For the 45 percent of facilities that provide five or fewer hours of initial on-the-job training, scheduler group interviews suggest that the need to quickly fill scheduler vacancies may lead to

schedulers being immediately put to work, rather than having time for on-the-job training. This same issue was raised as far back as the 2007 VA Office of the Inspector General Report. Indeed, 23 percent of scheduler positions VHA-wide are unfilled, according to the VHA Talent Management Office. As one AO reported, "In an ideal world, everyone has time to shadow. Unfortunately, we're so desperate for bodies right now that we can't wait [for them to start on their own]."

8.2.2 VHA's Scheduling Processes are not as Simple and Standardized as Those in Many Private Sector Health Systems, Increasing Schedulers' Need for Training

8.2.2.1 Unlike VHA, Many Private Sector Health Systems Streamline the Overall Scheduling Function, Which Results in a Minimized Need for Training

As discussed in Provider Availability Section 5, Scheduling Process Section 6, and Scheduling System Section 7, VHA schedulers must navigate a large number of processes and unique VHA responsibilities while relying on difficult-to-use software. This results in the need for significant training for schedulers in order to become high-functioning. Private sector health care systems, on the other hand, aim to minimize the amount of training needed by simplifying and automating as much of the scheduling process as possible. "We try to make their role in the scheduling process like clicking a button, so all they have to learn is how to provide a great patient experience," according to one private sector administrator. Some of the industry standard ways used to minimize training requirements include:

- **User-friendly software interface:** Private sector systems utilize user-friendly point-and-click GUI, which are similar to other scheduling tools used in an employee's personal life. In contrast, VHA schedulers must learn VHA's unique scheduling system. Further, compared to private sector scheduling systems, VHA scheduling software requires additional steps for even the most basic tasks such as finding an available appointment slot.

- **Minimized number of software programs:** In private sector, electronic medical record systems often have built-in scheduling functionality, reducing the number of unique systems schedulers must learn to use. VHA schedulers must learn to use multiple software programs, including VistA Scheduling to make appointments, CPRS to look at orders, VetLink for check-ins, Insurance Capture Buffer (ICB) to capture insurance information, Technical Reference Model (TRM) for documentation, and in some cases call center-specific software as well (for example Customer Relationship Management (CRM).

- **Business rules built into scheduling software:** Private sector health care systems build logic into the scheduling software to prevent mistakes from being made. As an example, if a patient is indicated to need a Sports Medicine appointment by the referring provider, only pertinent slots in the appropriate subspecialty clinic will be shown to the scheduler for booking. This capability is limited within VistA Scheduling.

- **Fewer scheduler responsibilities:** Private sector health systems have largely removed any non-scheduling related responsibilities from schedulers. One example of this is the

capture of wait times data, for which private sector schedulers usually do not play a role. VHA schedulers, on the other hand, must manage within an environment of ambiguous policies (for example, the use of desired date) used to capture data that the private sector can typically capture via its systems. See Scheduling Process Section 6 for more detail.

Compared to schedulers in many private sector systems, VHA schedulers work with a larger set of rules and processes that are widely variable in implementation and use less advanced technology. VHA has not done as much as private sector health systems to reduce the need for scheduler training.

8.2.2.2 Inconsistent Practices Within a VHA Facility's Clinics may Also Increase the Training Needs of Schedulers who Switch Between Clinics

Aspects of the scheduling process currently vary significantly between clinics. Examples include different implementations of national policies and clinic- or provider-specific scheduling rules. While some variations are necessary and found in private sector organizations as well, other variations could be standardized without harming clinical care.

When schedulers switch to a new clinic, these differences lead to challenges and mistakes. According to schedulers:

- "Switching to a new clinic is like learning how to be an MSA all over again"
- "It's really hard to start in a new clinic because everything is different"
- "Sometimes we have to cover in unfamiliar clinics when someone's out [on sick leave]. You feel so clueless"
- "I'm trained to be a float and in theory should be able to cover multiple clinics, but even I have trouble keeping up with all the differences"
- "When I find out I'm in a new clinic for the day, I know I'm going to fail before I even start"

While a portion of this clinic variability may be necessary (due to clinical differences between specialties, for example), much of the variability that makes it difficult for schedulers to rotate clinics is not. There are two sources of variation within VHA: common processes that have variable implementation and rules specific to particular providers and clinics.

An example of the former is patient reminders. As discussed in Scheduling Process Section 6, patient reminder use varies in terms of method and timing. One solution was adopted at the Detroit VAMC, where they adopted a standard appointment reminder process in which all patients receive a letter ten days ahead of time and an automated phone call three days ahead of time (Choice Act site visits, interviews, 2015). By implementing this across all of its clinics, Detroit VAMC was able to remove this source of variation while potentially improving patient access. This reduction in variation between clinics has resulted in improved ability to float schedulers across clinics. According to an administrator within the facility, "Our goal is to be able to have any scheduler work in any clinic."

An example of rules specific to particular providers and clinics was provided in group interviews with schedulers. One scheduler said, "Some doctors only want new patients in this time slot, some only want them in that time slot. How am I supposed to know all this?" Some of these

provider-specific preferences may be well-intended (for example to minimize chance of too many new patients scheduled in one day), but their impact on scheduling is clear: the more restrictions providers place on their schedules, the more difficult it is to learn how to schedule for these providers. Schedulers particularly feel the difficulty with learning a new clinic when provider preferences are not clearly documented. Undocumented rules are not written within the provider's profile or in any sort of manual for the clinic but rather must be passed down informally from one scheduler to the next or through direct conversations with providers. The existence of undocumented provider- and clinic-specific rules makes it more challenging for schedulers in a new clinic to avoid mistakes, as previously discussed in Provider Availability Section 5.2.5.

Private sector health systems have addressed the level of difficulty with which schedulers can rotate clinics in a number of ways, all with the goal of increasing the speed at which a new scheduler becomes proficient. The first way to reduce switching difficulty is through standardizing processes across clinics. According to one private sector administrator, "[We aim to provide the] same experience across our entire hospital for both patients and schedulers." This is accomplished largely through the standardization of schedule setup across providers and specialties, which is not currently done within VHA, as mentioned in Provider Availability Section 5. Additionally, private sector systems aim to minimize unnecessary clinic- or provider-specific rules and document all those deemed necessary within the system. This does not mean that all clinic should have the same practices for all processes, but rather that policies and process have a clear, published implementation practice and a clear delineation of between what processes and policies must be implemented a certain way and where facilities have flexibility. It also means that when facilities do customize a process, it is well documented and integrated into the system business rules to make the change easy to implement for schedulers. As discussed in 8.2.2 and in Scheduling System Section 7, private sector systems utilize their systems this way to reinforce clinic-specific practices.

8.2.3 Training Deployment Practices are Less Efficient Than They Could be

8.2.3.1 Facilities are Developing Duplicative Training Material

Ongoing training content creation is frequently left to individual facilities with minimal guidance, and VHA does not currently play a strong role in facilitating the dissemination of best practice materials across VHA facilities. "We are the ones responsible for our materials, but we don't get any guidance on how we should do that," reported one administrator involved with training. Administrators commonly feel that they lack the materials needed to train schedulers. As a result, many facilities develop their own ongoing training materials, as can be seen in Figure 8-5. For example, 90 percent of facilities develop materials for policies and processes. Looking deeper into policies and processes, we find most of these materials specifically cover scenarios for desired date and various lists, such as Recall and Electronic Wait List. These are nationally applicable content areas, which should be covered in TMS training, suggesting facilities do not regard the national training as adequate.

**Figure 8-5. Portion of VAMCs Locally Developing Training Material
by Content Area, 2015 National Data Call, n = 51 VAMCs**
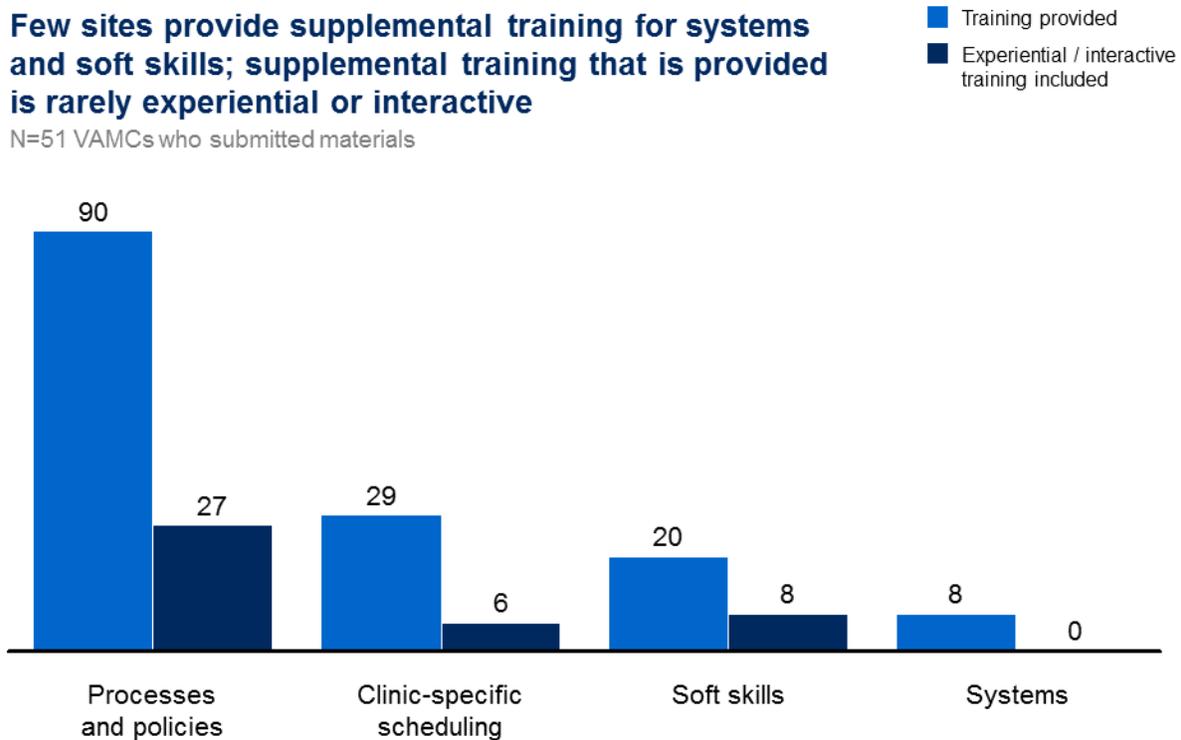
SOURCE: Choice Act Assessment E Data Call

Figure 8-5 shows the portion of VAMCs that have developed training materials locally by content area. Processes and policies represent the most common content area (90 percent of VAMCs), whereas all other areas are <30 percent. The figure also shows that the large majority of locally developed material is not experiential. This analysis is based on manual review of training materials from 51 facilities who submitted materials in response to our national data call. Source: Assessment E national data call, 2015.

The proportion of facilities creating supplemental training materials for policies and processes has three implications.

- The national level could support local facilities greatly by improving national-level training on these topics

- Facilities who do create supplemental training materials could benefit from more sharing of those resources. For example, 30 facilities have created training materials just for desired date. At least some of that work is likely duplicative and would be unnecessary if facilities were sharing more materials with one another

- Schedulers in different facilities are likely receiving slightly different training on national-level policies. For example, from training materials we reviewed, one facility's training

explained that only new Veteran patients can be placed on EWL, while another facility's training included two exceptions to that principle.

In this case, the different trainings would clearly lead to different experiences for patients seeking appointments at these schedulers' facilities.

If facilities were sharing materials with each other, potential practices that could be used by a variety of clinics include nationally consistent standard training agendas, training checklists, and guides as can be seen in Figures 8-6 and 8-7 below. Figure 8-6 reflects a facility that uses exams to assess schedulers' readiness, and also seeks for what follow up actions may be needed to prepare the scheduler. Likewise, Figure 8-7 shows how a facility can standardize detailed parts of a process for schedulers.

Figure 8-6. Excerpt from MSA Training Checklist

Module 1: Desire Date/ Veteran's Choice List	Assessment Method Used	Rating	Follow up Action
Accurately obtains a correct desire date using the common language "What date would you like to be seen?"	□ Exam □ Observation □ Demonstration □ Verbal Discussion □ Audit Report	□ Performs competently □ Performs with assistance □ Does not perform competently □ Requires action plan	
Comprehensively explains the purpose of the VCL and the basic role of Triwest to patients interested in enrollment	□ Exam □ Observation □ Demonstration □ Verbal Discussion □ Audit Report	□ Performs competently □ Performs with assistance □ Does not perform competently □ Requires action plan	
Consistently adds patients scheduled 30 days beyond desire to the Veteran's Choice List in the appropriate VCL location	□ Exam □ Observation □ Demonstration □ Verbal Discussion □ Audit Report	□ Performs competently □ Performs with assistance □ Does not perform competently □ Requires action plan	
Notifies patients that they have been added to the Veteran's Choice List and gives them the toll free number and/or flyer	□ Exam □ Observation □ Demonstration □ Verbal Discussion □ Audit Report	□ Performs competently □ Performs with assistance □ Does not perform competently □ Requires action plan	
Can accurately identify the difference between wait times one and two	□ Exam □ Observation □ Demonstration □ Verbal Discussion □ Audit Report	□ Performs competently □ Performs with assistance □ Does not perform competently □ Requires action plan	
Appropriately uses cancel by clinic and cancel by patient	□ Exam □ Observation □ Demonstration □ Verbal Discussion □ Audit Report	□ Performs competently □ Performs with assistance □ Does not perform competently □ Requires action plan	

Source: Assessment E national data call, 2015

Figure 8-7. Excerpt From "Scheduling How To's"

Desired Date	Recall Reminder
Definition: The desired date is appointment date on which the patient (external demand) or provider (internal demand) wants the patient to be seen.	**Provider Determines RTC Date (defined as internal demand)** **Definition:** Used for established patients who require a follow-up appointment greater than 90-days into the future.
• Patient Requests-Desired Dates are recorded without regard to appointment availability. • The desired date is to be determined jointly by the patient and the provider.	• Provider negotiates RTC visit with patient before patient leaves providers office. • Scheduler follows providers RTC text order in CPRS to determine if patient is to be scheduled (less than 90 days into the future) or placed on the Recall Reminder System via VISTA appointment management system.

Calculation:
A. Established Patient –Desired Date is based on Provider return to Clinic Order and patient preferred date. Established Veterans should be scheduled to be seen for the service requested within30days of their desired date.
B. New Patient-Desired Date is based on when the patient wants to be seen.
C. The patient's desired date is entered into the computer and is not altered no matter when the appointment is scheduled.
	Calculation:
	A. If the provider RTC order is identified greater than 90 days into the future, the patient is placed in the Recall reminder software for the date on the provider's order to be scheduled.
	B. Recall reminder list is pulled up daily by scheduler.
	C. Patients are called with negotiated date from providers RTC note:
	  1. Primary Care- patients are called one month prior to RTC date. Patients are called 3 times on 3 consecutive days.
	  2. Specialty Care- Recall letters are mailed 3 weeks prior to RTC date, if no response another letter is mailed 1 week prior to RTC date.

Special Notes: • The clerk is not to use the clinic availability to initiate the desired date. • If the patient does not agree or accept recommended interval and request to be seen more than 30 days later, resolution will be referred back to the provider for further guidance. • Schedulers will not Blind Schedule (defined as scheduling appointments without patient input) at any time. • When no guidance is provided by the provider, the desired date will be determined by asking the patient for his/her preference.	**Special Note:** • Desired Date changes only if patient requests an appointment greater than 30 days from the providers return to clinic order. • Primary Care- The scheduler will make three (3) documented attempts to contact the patient to schedule their appointment; if no response, a letter will be mailed to patient to contact the clinic to schedule the appointment. The patient has thirty one (31) days to call and schedule his/her appointment before being removed from the recall reminder software. When a patient is removed due to failure to contact after 31 days, a clerical note will be entered. • Specialty Care- If Patient does not call in response to the recall reminder letters, 3 documented phone attempts will be made to contact the patient to schedule the appointments. If attempts to contact the Patient have been unsuccessful, the patient will be removed from the recall reminder software.

Source: Assessment E national data call, 2015

8.2.3.2 Lack of Clear Ownership for Training Hinders Dissemination of Standard Materials and Consistent Facility-level Delivery

In our private health systems interviews, more than half had full-time trainers who deliver scheduler training. In VHA, 12 percent of site visit facilities reported using trainers,[65] and these are often provided by the VISNs for their multiple facilities. Instead, most facilities relied on other full-time staff (for example, chief of Health Administration Service (HAS),[66] Nursing administrator chief, an IT program support analyst, or an MSA supervisor) to monitor and deliver training. According to clinic administrators, this lack of a dedicated trainer results in a void of clear ownership over both training material development and delivery. Consequently, that responsibility may default to the clinics in which schedulers operate. "The burden is on [clinic managers] to make sure [schedulers] are up to date with national policy," said one AO. "It's often left to the clinics to provide training whenever rules change," reported another AO. The lack of ownership over training may result in inconsistent training, and thus scheduler behavior, across clinics, as seen with the variable uses of EWL mentioned in Scheduling Process Section 6. While training is obviously not the sole driver of variations like these, consistent training would enable more consistent process and policy implementation.

Additionally, MSA reporting structures vary significantly across VHA, potentially resulting in training differences observed across facilities. Whereas some MSAs are directly responsible to the clinic in which they sit, some MSAs, even if they sit in-clinic, report to centralized organizations. There are several different centralized organizations seen within facilities in VHA, including Health Administration Services (HAS), Medical Administration Service (MAS), and the Business Service Line. Depending on the facility, the degree to which MSAs report to these central organizations varies. These are described in Figure 8-8 below:

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[65] Site visit scheduling administrative leader interviews, N=2 of 17 VAMCs

[66] HAS performs numerous medical center-level administrative and clerical functions, including scheduling, medical records management, telephone switchboard operation, and other tasks necessary for the effective, overall management of inpatient and outpatient care (VHA 2008-056)

Figure 8-8. Archetypes of Reporting Structures Seen on Site Visits, n = 25 VAMCs
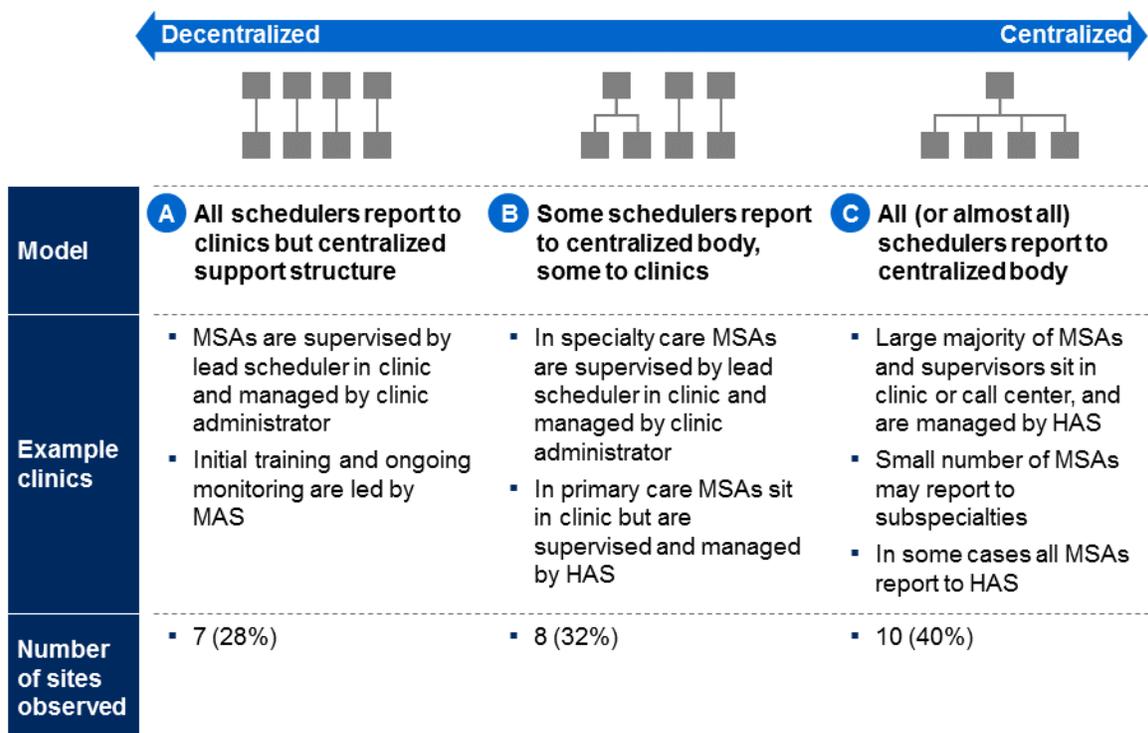
Figure 8-8 shows VHA archetypes of reporting structures observed on site visits. The chart shows that 40 percent use a fully centralized MSA reporting structure, 28 percent of VAMCs use decentralized reporting, and 32 percent use a hybrid approach. This analysis is based on site visit interviews with administrators responsible for scheduling at each facility. Source: Choice Act site visits, interviews, 2015.

Archetype C was the most common version (40 percent of site visit VAMCs[67]) we observed with schedulers reporting to a centralized body. In this archetype, a central organization manages MSAs in all services (except for a small number of complex sub-specialties in some instances) and supervisors from the centralized entity act as liaison between MSAs and clinics. All support functions for MSAs (for example, performance management, training) are operated by the central organization. Twenty-eight percent of VAMCs[68] operate in a decentralized structure, in

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[67] N=10 of 25 site visit VAMCs
[68] N=7 of 25 site visit VAMCs

which schedulers report to individual clinic leadership. Thirty-two percent[69] reported a hybrid reporting structure in which some clinics reported to a central body whereas others reported to their individual clinics.

Of note, a significant portion (20 percent[70]) of VAMCs reported an in-progress or recent move toward centralized reporting for schedulers, with many switching from fully decentralized (archetype A) to fully centralized (archetype C). The major reasons reported for this move were more consistent training and improved oversight of MSAs and scheduling processes. Some were moving towards centralization by mandate of their respective VISN. Indeed, from our national data call we found that the more centralized a facility's MSA reporting structure, the more likely its schedulers were to receive ongoing training at least once per month, as seen in Figure 8-9.

Figure 8-9. Portion of Schedulers Receiving Ongoing Training at Least Once per Month by Reporting Structure, 2015 National Data Call, n = 24 MSA Supervisors From 20 VAMCs

How often do schedulers receive ongoing training?
N=24 MSA supervisors from 20 VAMCs[1]
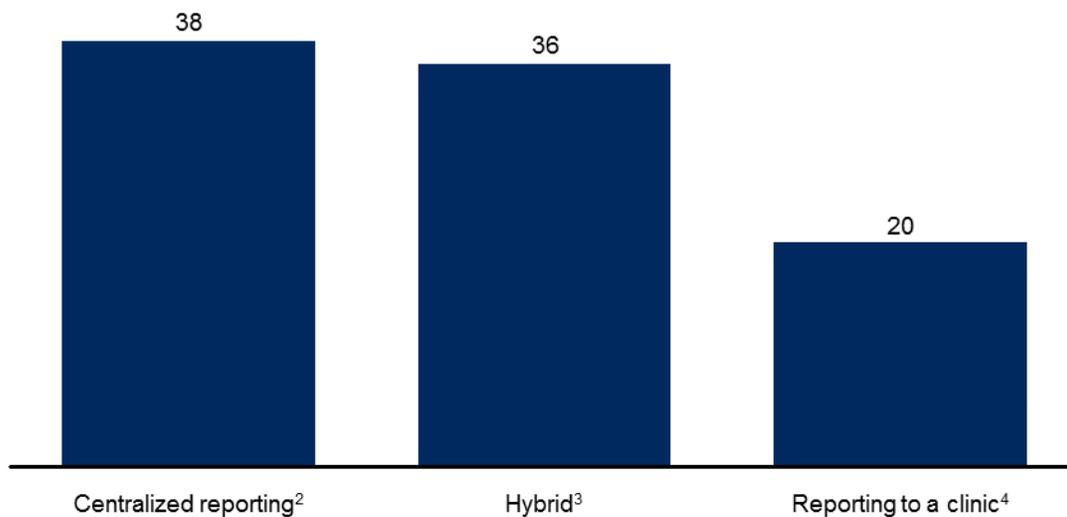
1 Data for the frequency of ongoing training comes from 70 MSA supervisors from 36 VAMCs and 20 CBOCs. Here that data is combined with results from the Data Call, which has responses from 73 VAMCs regarding their reporting structure for MSAs. Of these 73 VAMCs who responded to the data call, 20 also had MSA supervisors submit the VHA survey. From those 20 VAMCs 24 VHA surveys were received.
2 A facility is considered to have "centralized reporting" if more than 70% of MSAs report centrally
3 A facility is considered "hybrid" if between 30% and 70% of its MSAs report centrally
4 A facility is considered to have "reporting to a clinic" if more than 70% of its MSAs report to a clinic

SOURCE: Choice Act Assessment E Data Call

Figure 8-9 shows the portion of schedulers reported to receive at least monthly training by reporting structure. Schedulers in centralized and hybrid reporting structures were reported to

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[69] N=8 of 25 site visit VAMCs

[70] N=5 of 25 site visit VAMCs

be more likely to receive monthly training than those reporting to a clinic (38 percent and 36 percent compared to 20 percent, respectively). This data comes from 24 MSA supervisors across 20 VAMCs in response to our national data call. Source: Assessment E national data call, 2015.

The key difference reported between facilities with centralized reporting and facilities with decentralized reporting appears to be more consistent ongoing training. More consistent training, as shown in the figure above, is potentially due to more defined ownership of training across schedulers as well as improved ability to pull schedulers out of clinics for training, as mentioned in sub-section 8.3.2.2.

Regarding centralized reporting structures, some clinical services expressed concerns about the reorganization and how it would affect their clinic functioning. Providers, especially, were concerned that it would decrease accountability to their specific clinic needs, cause errors due to their scheduling nuances, and reduce the MSAs' sense of being part of the team. Despite these concerns, in examining the facility-reported audit performance 1,176 MSAs from 73 VAMCs in our national data call, we did not find any significant difference between the performance of schedulers at facilities with centralized reporting and schedulers at facilities reporting to a clinic. This suggests that centralized reporting structures can increase the frequency and efficiency of training for schedulers without negatively impacting scheduler performance.

8.3 Recommendations

As far back as the 2005 VA Office of the Inspector General Report (OIG), there has been a call for improved training for schedulers. A 2007 OIG report recommended mandatory and annual scheduler training, including training for the VistA Scheduling Systems. For additional detail on these reports, see Appendix F.3. While mandatory training policies were reported at all site visits, surveys showed that more than 20 percent of schedulers receive less than two hours of training per topic, and almost all schedulers believe training would be improved if it were increased.

According to interviews with VHA leadership, several initiatives are currently in progress to improve best practice sharing, which may include training materials. These include:

- **Creation of a Community of Practice:** ACAP recently launched a Community of Practice that is training-related, a virtual community meant to surface shared scheduler solutions across facilities. Training may be discussed within this community, but it is not its only focus. Over time, this program could guide facilities on creating additional training materials to simplify scheduling processes (ACAP, interviews, 2015).

- **Development of a knowledge management system:** Additionally, a knowledge management system is being created, which, although it is not exclusive to training, can facilitate the sharing of training materials across VHA (ACAP, interviews, 2015). This system is planned to be mostly functional (for example, FAQs section, inventory of training tools) by the end of 2015.

While these initiatives touch on several ways to improve best practice sharing, they may not address:

Implementation gaps: The above initiatives may not address the lack of training ownership in the form of a dedicated trainer at each facility with sufficient bandwidth to monitor and deliver training locally.

Scope gaps: The above initiatives, while potentially useful in codifying available best practices and materials already in use at the facility level, may not address the need for more national ownership of scheduling curriculum development, including content, delivery, and resource guidance. They also may not address the addition of experiential or on-the-job training for schedulers.

To fill these gaps, VHA should consider the following recommendations:

8.3.1 Utilize More Initial Training, on-the-job Training, and Experiential Methods to Equip Schedulers for Their Responsibilities

- **Ensure all schedulers, including non-MSAs, are receiving initial training, and also encourage more on-the-job training**. Increase tracking of initial training to ensure schedulers are receiving the mandated topics, and regularly report on training to facility and VISN leadership for accountability. Importantly, this training should include everyone who has scheduling privileges, not just MSAs, as per VHA's 2010 Scheduling Directive, and only schedulers who have received training should receive scheduling privileges on the scheduling system. Create a general on-the-job training curriculum, including time for the scheduler to learn facility- or clinic-level policies and processes and shadow a more experienced scheduler. Development of a competency assessment for schedulers to pass before they can begin scheduling would help ensure the delivery and effectiveness of initial and on-the-job training for schedulers. It would also provide facilities with a view of what gaps the schedulers still need to overcome and prevent schedulers from beginning to work before they are ready. With the implementation of recommendations in Assessment F to reduce scheduler vacancies (for example streamlining the hiring process and relaxing hiring regulations), VHA should be able to ensure schedulers are properly trained for their responsibilities and Veterans receive quality service.

- **Modify the national training curriculum to include more experiential training methods.** Disseminate materials to facilities along with guidance on necessary resources for successful delivery (like trainers, technology, and space). Experiential training should include live scheduling labs at each facility, as well as additional interactive classroom-based scenarios, and interaction with VHA's knowledge management system so schedulers can discover where to find additional resources. These experiential activities may require more trainer time, dedicated space, and additional technology resources than current nationally required training. However, experiential training should result in improved long-term retention of skills and higher performing schedulers.

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8.3.2 Reduce Schedulers' Need for Training through More User-Friendly System and Streamlining National- and Clinic-Level Policies and Processes

- Continue to implement interim system improvements like VSE that are already in progress and will make schedulers' jobs easier to master: As mentioned in the Scheduling System subsection 7.3.1, VSE will address some of the software ease of use issues, including the lack of a "single screen" view of a provider's schedule and multiple unintegrated waitlists as well as the inability to support online patient scheduling. By addressing these technology issues, scheduler appointment booking and waitlist management will be more straightforward and thus easier for schedulers to master, potentially reducing the need for scheduler training.

- **Develop more streamlined policies and implementation support for VHA-specific policies such as the use of EWL:** As mentioned in Scheduling Process Subsection 6.3.1, examine existing policies to identify those that are particularly onerous (like recall) or inconsistently implemented across facilities (like EWL) and provide clear guidance on and support consistent implementation across facilities and clinics. This includes development of a user-friendly dashboard to manage lists as well as automation of as many processes as possible (for example, use of text messaging reminders).

- **Minimize unnecessary clinic- and provider-specific rules**: As mentioned in Scheduling Process Subsection 6.3.2, local provider and administrative leadership should be encouraged to eliminate all unnecessary provider- and clinic-specific rules, (for example specific time slots for specific types of patients for certain providers). All necessary rules should then be incorporated into the scheduling software automatically, which would require software system changes as outlined in Scheduling System Section 7. In the meantime, all clinic- and provider-specific rules should be documented within provider profiles and clinic SOPs. This will reduce the learning curve for schedulers switching between clinics.

8.3.3 Leverage Current Best Practice Knowledge and Develop Training Personnel to Make Training Deployment More Efficient

- **Integrate local best practice knowledge into the national curriculum used for initial training, and increasingly facilitate knowledge sharing between facilities**. Establish VHA-level leadership, which could be new positions or existing personnel (for example, the current training department within VA Human Resources), to own development and dissemination of best practice training materials. Specifically, these individuals could identify areas in need of additional training, collect and identify best practice materials already created by the field, improve upon these practices where possible, and disseminate them widely. This training leadership could then develop additional material to fill any remaining gaps. Existing best practice infrastructure, such as the Community of Practice and the knowledge management system, combined with the train-the-trainer program (below), could be used to accelerate best practice dissemination and ensure regular communication with VHA-level training leadership.

- **VAMCs and CBOCs should identify training leads in their facility.** Encourage each facility to have a local training lead and simultaneously organize a committee of training leads from VHACO and from facilities to help create and disseminate experiential training materials. This committee could also support facility training leads in implementing the revised national curriculum and adopt experiential training methods. Training leads could additionally take part in the Community of Practice and be responsible for disseminating materials from the knowledge management system to their schedulers along an appropriate timeline.

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9   Scheduling Call Centers

9.1   Context & Approach

In accordance with the requirements set out in the Choice Act, this section examines whether the creation of centralized scheduling call centers would benefit the VHA scheduling process.

VHA's definition of a call center is:

> "A designated point in a VHA facility's call tree that has two or more staff dedicated solely to answering the phone. Call centers at the VHA have a scope of service of the types of calls they are designed to handle. Call centers can take many forms – from very large call centers, such as the VA Health Resource Center, to small call centers with a few staff embedded in a Community Based Outpatient Clinic" (ACAP, interview, 2015).

Outside of VHA, the typical private sector call center has 50 to 250 employees and receives inbound and makes outbound calls, usually for customer service or sales (Holman et al., 2007). Most private sector organizations (healthcare and other industries) would not consider a group of two staff to be a call center, as VHA currently does (Belfiore et al., 2015). Existing VHA-defined "call centers" (across several functions, not solely scheduling) fall into three main categories:

- National call centers, including the Veterans Crisis Line, Women's Health, and Smoking Cessation call centers
- Regional call centers, including several Health Resources Centers (HRC) and the Health Eligibility center. Both national and regional call centers are managed by the VA Corporate Business Office
- Call centers related to individual medical centers, which often include scheduling, pharmacy, and nurse triage (ACAP, interview, 2015)

Today, the majority of patient scheduling is conducted by individuals who sit within clinics at VAMCs and CBOCs (and who often have multiple roles that include scheduling and other activities). A portion of patient scheduling[71] is conducted at small call centers that support a facility or a group of facilities.

Within the Choice Act language for assessment E, we were asked to "assess whether the establishment of a centralized call center throughout the Department for scheduling appointments at medical facilities of the Department would improve the process of scheduling such appointments."

To conduct this portion of the assessment, our data sources included:

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[71] 14 percent (Assessment E national data call, 2015)

- A data call for scheduling information completed by 73 VAMCs covering VHA operating and reporting structures for scheduling, scheduler headcounts, self-reported call performance, and call center specialties and responsibilities

- A survey with training and coaching questions for frontline schedulers (N=726) that can be used to compare responses from call centers and clinics. MSA supervisors (N=70) were also asked which metrics they regularly track and their opinions towards scheduling call centers

- National provider-specific call center benchmark data set from Benchmark Portal which includes employee counts, call volume, and performance metrics (Belfiore et al., 2015)

- VHA reviews of telephone services, including the 2014 Telephone Access White Paper and recommendations from other internal studies, including Managing Veterans Access via the Telephone (MVAT)

9.2   Findings

9.2.1   Most VHA Scheduling is Conducted Outside Call Centers; Where They Exist, VHA Scheduling Call Centers are Smaller Than the Provider Average

Scheduling call centers were created by various VAMCs to address local needs to handle call volume and provide patients telephone access. As such, VA has not historically coordinated scheduling call centers on a national scale. Based on the data call, an estimated fourteen percent of VHA schedulers are working outside of clinics and in scheduling call centers nationally, yet there is no comprehensive centrally available information about VHA's scheduling call centers, including information on:

- How many scheduling call centers exist

- How many schedulers these call centers employ

- What specialties the call centers support

- Which organizations the call centers report to

- What functions the call centers serve.

Simply put by one interviewee who ran a scheduling call center, "It would be nice to know where else there are [scheduling] call centers and talk to them." This lack of information is, in part, due to the fact that there is no central owner of scheduling call centers at VHA, as scheduling call centers are typically owned by the local facility or region. The MVAT project resulted in a documentation of basic business models related to scheduling (e.g.., centralized call centers versus teams in clinic) as well as initial best practices and options for structuring contact management (e.g., at the regional level) (Managing, 2014). However, because there is no centrally available scheduling call center information on metrics such as number of FTEs per call center and call center-specific performance on average speed of answer, this assessment collected basic information to provide a fact base for VHA.

Fourteen percent of VHA schedulers from facilities that participated in the national data call operate in what VHA considers call centers. The remaining schedulers operate in clinics. Most

VHA scheduling call centers are fairly small with a median size of 12 schedulers. Eighteen percent of all scheduling call centers have five or fewer schedulers (Assessment E data call; Choice Act site visits, interviews, 2015). VHA scheduling call centers also do not necessarily handle the same type of calls as those of other organizations. Thus, it is probably not appropriate to directly compare the performance of VHA scheduling call centers to industry call center best practices, nor to differentiate them from clinic scheduling. However, for reference, call centers across private sector providers have an average of 28 agents and call centers across industries have an average of 110 agents (Belfiore et al., 2015). See Appendix G.1 for more detail on call center best practices.

9.2.2 Existing VHA Scheduling Call Centers Have Highly Variable Organizational Structures and Scopes of Responsibility

The organizational structure of VHA scheduling call centers varies by location. Sixty-five percent of schedulers who operate out of a call center report to a central administrative office at the facility. Even the names and roles of these central groups differ across facilities: for instance, names of central groups include Health Administration Service (HAS), Medical Administration Service (MAS), the Business Service Line, and Ward Administration. The remaining 35 percent of call center schedulers report to a clinical service (such as Cardiology) despite the fact that they do not operate out of a clinic.

As shown in exhibit 9-1, VHA scheduling call centers support various specialties depending on the facility to which they are connected. Primary care is the most common specialty supported. 85 percent of scheduling call centers support primary care and 52 percent of all call center schedulers are focused solely on primary care. Optometry, sleep medicine, dermatology, and pulmonology are also common specialties managed by call centers.

Figure 9-1. Response of Facilities Asked: "What Specialties Does Your Call Center support?", n = 72 facilities

What specialties does your call center support
Percent of all call centers, N=72

Specialty	Percent
Primary Care	85
Optometry	57
Sleep Medicine	46
Dermatology	44
Pulmonary	43
Neurology	42
Orthopedics	40
Mental Health	39
Ophthalmology	39
Urology	38
Endocrinology	36
Ear, Nose, and Throat (ENT)	33
Physical Therapy	33
General Surgery	32
Gastroenterology	32
Audiology	28
Infectious Disease	28
Rheumatology	26
Nephrology	26
Oncology	26
Vascular Surgery	22
Cardiology	21
Rehabilitation	21
Podiatry	18
Dental	15

SOURCE: Choice Act Assessment E Data Call

Figure 9-1 shows the portion of call centers that serve various medical specialties. Some facilities will serve only a few (or just one) specialty, while others will serve almost all of them. Source: Assessment E national data call, 2015.

Decisions on which specialties scheduling call centers support are made locally and thus specialty coverage varies significantly. One scheduling call center visited only supported primary care and mental health. Another scheduling call center did not support primary care, but did support most specialties, including oncology, pulmonology, and dermatology.

As shown in exhibit 9-2, some functions are more common across scheduling call centers than others. Eighty-five percent of all scheduling call centers can cancel patient appointments. Booking follow up appointments and routing calls are also both fairly common across VHA. In contrast, functions, such as scheduling consults and dealing with overbooking, are much rarer.

Figure 9-2. Response of Facilities Asked: "What Functions Does Your Call Center Support?", n = 72 facilities

What functions does your call center support?
Percent of all call centers, N=72

Function	Percent
Canceling appointments	85
Receiving patient calls for follow-up appointments and scheduling appointment	83
Routing calls	82
Receiving patient calls for recall and scheduling appointment	81
Receiving patient calls for new patient appointments and scheduling appointment	69
Receiving patient calls for consults and scheduling consult	49
After hours canceling appointments	32
Calling patients for patient reminders	25
Calling patients for recall	24
Calling patient for recall and scheduling appointment	24
After hours scheduling appointments	19
Calling patient for follow-up appointments based on RTC order and scheduling appointment	15
Overbooking providers	15
Calling patient for consults and scheduling appointment	11
Booking provider administrative time	1

SOURCE: Choice Act Assessment E Data Call

Figure 9-2 shows the portion of call centers that serve various functions. The figure shows that several functions (such as "canceling appointments") are performed by almost all call centers, while some other functions (such as "overbooking providers") are performed by only a few. Source: Assessment E national data call, 2015.

9.2.3 VHA Does not Consistently Measure Performance Across its Scheduling Call Centers or Clinics

VHA does not centrally track information or performance metrics on all scheduling call centers[72]. As a result, some scheduling locations do not track any metrics. In many cases, this is because the scheduling location does not have the telephone systems, such as an Automatic Call Distributor (ACD), to track and record this data. Other locations track various call metrics, but do not report them centrally because they are not required or not "asked" to do so.

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[72] VHA does however, track call metrics for all VAMCs with greater than 5000 unique patients (regardless if it has a call center or not). However, it is not tracked which data are from call centers and which are not (ACAP, interviews, 2015)

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Across both call centers and clinics, some VHA scheduling locations measure first call resolution (FCR) and average call hold time, but these measures are not tracked or defined consistently, as captured in the figures below. FCR is a typical call center quality metric that measures the percent of customer issues resolved within one phone call into the service center (Madsen, 2012). Hold time is a common quality metric to ensure callers do not have a long wait time to speak to an agent (Chaturvedi, 2005).

Figure 9-3. Response of Clinic Administrators Asked: "How frequently is Average Call Hold Time for Patients Tracked and Reported?", n = 71 from 46 VAMCs and 20 CBOCs (certain facilities submitted multiple responses)

SOURCE: Choice Act Assessment E Data Call

Figure 9-3 shows the frequency with which average call hold-time is tracked and reported at 46 VAMCs and 20 CBOCs who responded to the VHA survey. Average call hold time measures the time patients spend on the phone waiting to speak with a representative. The figure shows that the tracking and reporting of this metric is highly variable, with 35 percent of call centers tracking it weekly and 31 percent not tracking it at all. Source: Assessment E national data call, 2015.

Figure 9-4. Response of Clinic Administrators Asked: "How Frequently is First Call Resolution Tracked and Reported?", n = 71 from 46 VAMCs and 20 CBOCs

How frequently is first call resolution tracked and reported?
Percent, N=50 responses from 26 VAMCs and 16 CBOCs

Quarterly or less frequent

2

18

48 Not tracked

32
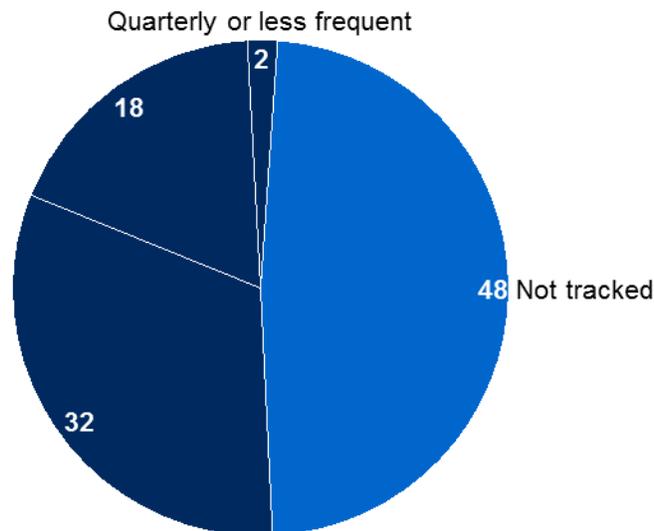
SOURCE: Choice Act Assessment E Data Call

Figure 9-4 shows the frequency with which first-call resolution rate is tracked and reported at 46 VAMCs and 20 CBOCs who responded to the VHA survey. First call resolution rate measures the percent of calls that can be resolved without a transfer to an additional representative. The figure shows that the tracking and reporting of this metric is highly variable, with 23 percent of call centers tracking it weekly and 35 percent not tracking it at all. Source: Assessment E national data call, 2015.

9.2.4 VHA Call Center Performance is Below Industry Average Where it is Measured

Call center scheduling and clinic scheduling within the VHA cannot easily be compared, as the data does not define which data points are from call centers and which are from clinics. Additionally, there is no clear data on the number of schedulers per scheduling location. Thus, it is difficult to contextualize performance for any facility, regardless of call center structure. For example, a site with large call volume but with the same number of schedulers as a site with small call volume would understandably compare poorly with the smaller-volume site. Thus, this section of the report compares the current performance of VHA-defined scheduling call centers and clinic scheduling points with VHA's own targets.

Because it is not measured centrally for all scheduling call centers, this assessment collected performance metrics via a data call. Data available shows that average speed of answer (ASA) in scheduling call centers that participated in the data call was 79 seconds and average abandonment rate is 11 percent. In comparison, average private hospital call centers achieve a 32 second ASA and a 5.15 percent abandonment rate (Belfiore et al., 2015). This signifies that patients are waiting longer to reach a scheduler at VHA, and that patients often give up and hang up the phone.

Figure 9-5. Self-Reported ASA and Abandonment Rate for Scheduling Call Centers; n=65

Self-reported ASA and abandonment rate for scheduling call centers
N=65

Average speed of response/answer for FY 2014[1]
Seconds

689 ... Ø 79 ... 1

Average abandonment rate for FY 2014[1]
Percent

32 ... Ø 11 ... 0
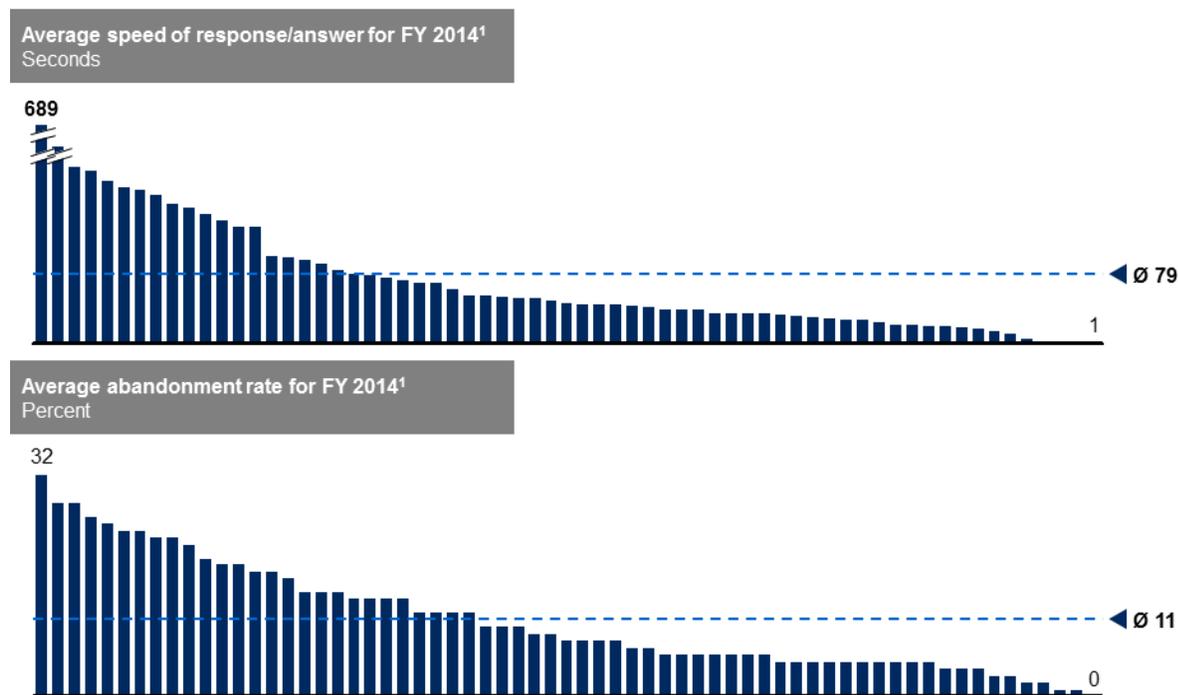
1 Based on 65 responses that indicated there was a call center and reported speed of response greater than 0
SOURCE: Choice Act Assessment E Data Call

Figure 9-5 shows the average speed of answer and the average abandonment rate for 65 call centers in 2014. The figure shows the average speed of answer is 79 seconds. The figure also shows that the average abandonment rate is 11 percent, meaning more than one in 10 callers abandons their call before being served. Source: Assessment E national data call, 2015.

9.2.5 Health System Scheduling Call Centers Seek to Maximize Performance by Leveraging Scale

9.2.5.1 Many Private Sector Provider Scheduling Call Centers are Large and Centralized

Since 2008, Cleveland Clinic has had a centralized scheduling call center with over 100 schedulers (Rodak, 2013). Centralization has led to a 28 percent decrease in abandoned calls, a decreased scheduling error rate, increased physician utilization of scheduling templates, and a 12 percent increase in the number of patient visits. According to the executive director of the call center, "By centralizing, we were able to capitalize on economies of scale," (Rodak, 2013).

Cleveland Clinic's call center provides a model for VHA; they enhanced their operations by establishing centralized call centers and achieved performance improvements as a result. As shared by Cleveland Clinic's Executive Director of the scheduling call center, "Centralized models for scheduling increase accuracy and patient access. We believe other hospitals and health systems can adopt this model and achieve similar results" (Rodak, 2013).

Geisinger Health System also has large-scale scheduling call centers in addition to its clinic schedulers who handle the processing of referrals, prescriptions, and medical records as well as book follow-up appointments as patients they leave their appointments (Geisinger interview, 2015). It has 154 schedulers across two call center locations off-site from their hospitals, completing 2.3 million outbound and inbound calls each year. They also have 26 call center agents who work from home but are virtually part of the main call centers and receive calls from the main phone queue. They support comprehensive scheduling functions for all specialties except for primary care, which is scheduled in the clinic. They also cover ancillary services such as lab testing, radiology, and procedural testing (for example, cardiac testing), but do not schedule surgeries. Schedulers are grouped into 14 "pods," each focused on a specialty or group of similar specialties. For instance, there are three medicine pods, including one that serves gastrointestinal, nutrition, and dermatology. Staff are trained to primarily support one pod and cross-trained to support one or two other pods as backup. Supervisors are grouped with pods in a ratio of 10 to 16 schedulers for every one supervisor.

9.2.5.2 Private Sector Scheduling Call Centers Measure Performance Consistently and Comprehensively

Geisinger Health System has a "very metric-driven" call center and scheduling organization, according to an executive interviewed for this assessment (Geisinger interview, 2015). Each scheduler receives a daily scorecard with his or her scheduling and call performance metrics. Schedulers are also offered an annual incentive of up to nine percent of their salary based on individual performance across a group of metrics that varies each year. In 2015, the incentive is based on the performance of the percentage of calls answered within 30 seconds, average answer delay, slot utilization, and percentage of hospital discharges that are scheduled within two days of discharge.

When asked how Geisinger Health System was able to successfully shift from a decentralized to a centralized model for scheduling, the executive interviewed said, "It's very hard, but if you provide results and you're transparent with information on your performance, you can make it work." This approach focused on proving the concept via improved performance, is similar to that of the VA New York Harbor Healthcare System, which has one of the largest and highest-performing scheduling call centers in the country. In 2014, this VAMC had the best abandonment rate performance (1.0 percent) and fourth best ASA (10.2 seconds) across all VAMCs (SAIL, 2014). This facility shared that one can "make the case [for scheduling call centers] by comparing call center metrics and clinic metrics," because call centers will outperform clinics on scheduling and phone metrics.

To ensure the quality of patient interactions with schedulers at Cleveland Clinic, calls are monitored and reviewed by supervisors and coaching staff. In order to measure the satisfaction, patients have the option to take an after call survey to rate their experience. Data collected from this survey is then used as a patient satisfaction metric in the call center. Patients are asked the following questions (Cleveland Clinic Interactive Voice Response, 2015):

- "Was your request to schedule or reschedule completed?"
- "Were you satisfied with the location of your appointment?"
- "Where you satisfied with the time of your appointment?"
- "Were you satisfied with the provider you were scheduled with?"
- "Was the person you spoke with courteous?"
- "Was the person you spoke with knowledgeable?"
- "On a scale of one to five, how satisfied were you with the overall experience?"

9.2.5.3 Private Sector Scheduling Call Centers Have Tools That Optimize the Scheduling Process

Historically, each clinic at the Cleveland Clinic had its own schedulers who booked appointments for only their assigned service areas. To ensure provider-specific scheduling rules and preferences were accommodated, schedulers followed rules from paper notes and manuals. Today, functionality in their scheduling system guides schedulers to the appropriate physicians based on key words the patient uses. For example, if the patient mentions a headache, the scheduling system triggers a series of questions about headaches for the scheduler to ask the patient. Answers to these questions automatically direct the scheduler to the appropriate department and patient. This allows schedulers to book appointments for a wide spectrum of specialties and providers (Rodak, 2013). Each scheduler at Cleveland Clinic can book an appointment with any specialty or procedure, except hematology, oncology, cardiology, and operating room procedures.

At Geisinger Health System, the leadership of the scheduling call centers credit technology as part of its success, noting that the call center technology "wouldn't be available in a decentralized model" because it is cost prohibitive. He added, "without a strong workforce management tool, we wouldn't know where our peaks and valleys [of call volume] are" (Geisinger interview, 2015). Geisinger Health System's call center has workforce management

software that tracks and projects call volume, allowing managers to adjust the staffing of schedulers accordingly.

9.2.6 Larger Scale Call Centers Have Better Performance Outcomes

9.2.6.1 Centralizing Scheduling Could Improve Customer Experience for Patients and Could Reduce Staffing Needs

The goal of managing capacity in any call center is to efficiently match the available resource capacity (supply of schedulers) against the incoming call volume (demand), while maintaining a desired service level (average speed of answer). This can be particularly challenging because calls arrive randomly and are thus hard to predict. In order to best estimate the required capacity and service levels, statistical queue modelling tools are used. The most prevalent model, the Erlang C, is a modeling formula used in call center scheduling. Erlang C is based on three factors:

- The number of agents (schedulers) answering calls
- The number of incoming calls (arriving at random times modeled as a Poisson distribution)
- The average amount of time it takes to serve each call

Given a set volume, average call duration, pattern of calls, and desired speed of answer, Erlang C can be used to understand inherent tradeoffs between service levels and staffing requirements.

Figure 9-6. Benefits of Scale in Call Centers; FTEs Required Based on Queue Characteristics

Erlang C simulation proves the benefits of scale in call centers
Agents required
FTEs to achieve 20s average speed of answer

Legend:
- Multiple queues[2]
- Single queue[3]
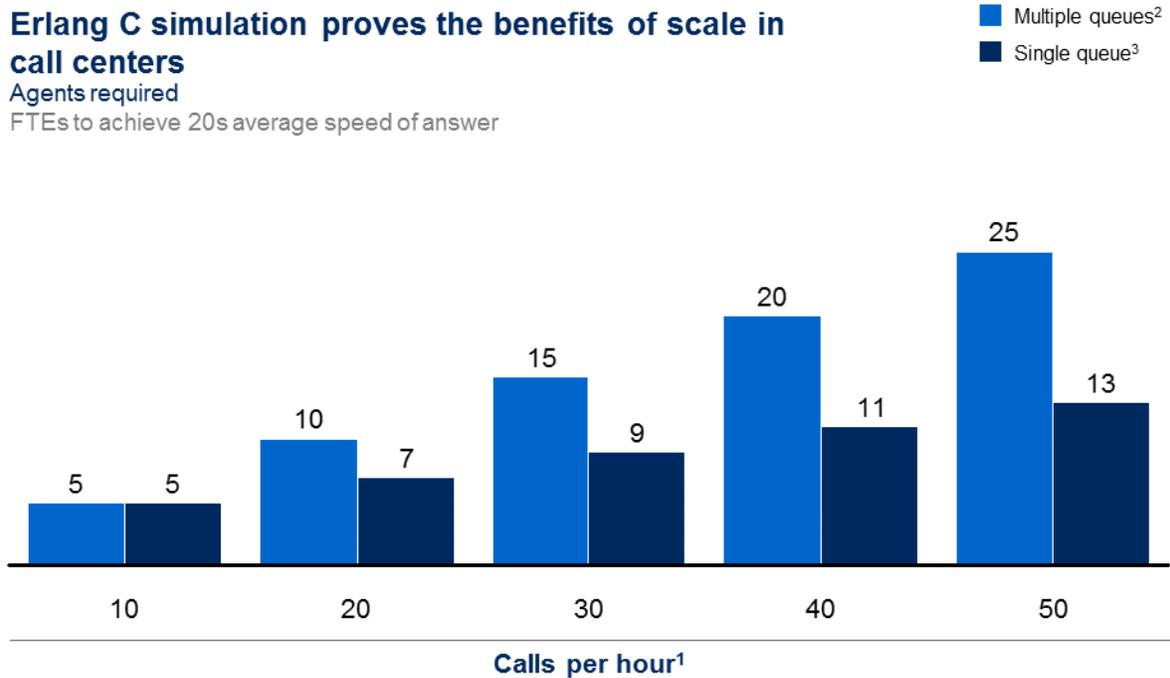
Calls per hour[1]

1 Assumes 600s average handle time
2 Number of queues scales with call volume, each queue handles 10 calls / hour
3 All call volume merged in one queue

SOURCE: Chromy, 2011

Figure 9-6 shows a relationship between call volume (calls per hour) and agents required to handle that volume. It demonstrates that the resource need is significantly lower if all call volume is pooled in one queue as opposed to handled in multiple queues of identical and constant capacity. As simulated in an Erlang C model, a queue of 10 calls/hour at 600 second call duration needs five agents staffed in order to reach a 20s average speed of answer. Handling times that volume (50 calls/hour) in five identical queues requires 25 agents, while pooling the same volume into one single queue would require only 13 agents. The capacity savings of 12 agents can be redeployed to improve service levels or increase staffing in other queues. Source: Erlang C simulator, accessed June 5, 2015.

The exhibit above illustrates staffing benefits, controlling for service levels, achieved from pooling call volumes using the Erlang C model. Calls can be received at the same physical location or can be pooled virtually. For instance, a queue of 10 calls per hour at a 600 second average call duration needs five agents staffed in order to reach a 20-second average speed-of-answer. Therefore, handling five times that volume (fifty calls per hour) in five identical queues requires 25 agents. In contrast, pooling that same volume into one single queue would require only 13 agents. The reason for this is that at an increased scale, the real-time matching of calls to call agents is much more efficient, given the random nature of call arrival patterns (Chromy, 2011). This explains why Cleveland Clinic requires fewer schedulers now that it has created a

centralized call center (Rodak, 2013). In the example above, the organization could also choose to pool calls into one queue but still maintain all 25 of its agents. Service metrics would improve significantly (approaching 0 seconds ASA) because only 13 agents would be needed to meet the previous service levels (Chromy, 2011).

VHA is not currently leveraging potential economies of scale in scheduling. Many scheduling phone calls are handled in decentralized clinics manned by one to five schedulers (Assessment E data call, 2015), who are also performing multiple other functions, and therefore possibly away from the phone. This means that VHA is not performing at the service level it could achieve by increasing centralization. Alternatively, this finding shows that with the same service levels as today, VHA could reduce the number of schedulers needed. Implications for the number of required schedulers are particularly relevant because 23 percent of approved scheduler positions are currently vacant as mentioned in Scheduling Process Section 6, Figure 6-7.

Increasing call center scale could also improve the customer experience by creating a single location for patients to call into. Today, patients calling to schedule appointments often have to call different phone numbers, potentially navigate different parts of the phone tree, and talk to different individuals to schedule appointments across various clinics. In fact, of the site visit locations participating in the pre-site questionnaire, only 21 percent have a single, centralized phone number for patients to call for appointment scheduling (Choice Act Pre-site visit questionnaire, 2015). Further, as noted in Scheduling Process Section 6, process vary significantly across clinics in the same facility, which can complicate the scheduling process further. This is particularly challenging when a patient is trying to schedule multiple appointments on the same day because each scheduler may not be able to book, let alone, see appointments in another clinic. In contrast, call centers enable the patient to call one phone number and talk with one scheduler. That scheduler can book and coordinate multiple appointments.

VHA high-performance example: Detroit VAMC
Detroit VAMC shared that they strive to be a "one stop shop" where patients can make almost all of their appointments through calling a single phone number and phone tree branch into the call center. VA New York Harbor Healthcare system, which has 25 schedulers serving three areas of New York City, is one of the highest performing VHA scheduling locations in terms of ASA and abandonment rate (SAIL, 2014). The scheduling call center for the VA New York Harbor Healthcare System has one central, toll free scheduling phone number, but also provides "warm transfers" to nurse triage and pharmacy offices so that the patient does not need to place another call (Detroit Scheduling Call Center, interviews, 2015; New York Harbor Healthcare System, interviews, 2015).

Many administrative leaders at VAMCs believe that shifting some scheduling workload to call centers relieves the burden on in-clinic schedulers and allows them to focus on the patient experience. Select quotes from site visits detailing the relationship between call center scheduling and clinic scheduling include:

- "In-clinic MSAs focus on patient interaction as well as scheduling ... [The call center] has minimized missed opportunities and abandoned calls."
- "All schedulers appreciate the presence of the Call Center because it removes a substantial set of tasks from their responsibilities"
- "[The call center] lightens [the] call workload of clinic-based MSA"

Not only do call centers improve the patient experience of calling in to schedule an appointment with VHA, they also may improve the in-clinic experience of Veterans by reducing unnecessary phone traffic that disrupts care. As mentioned in Scheduling Process Section 6, VHA schedulers must juggle many tasks in the clinic. These tasks include things that are unique to VHA, such as wait time capture and waitlist management. This can result in challenges balancing various tasks such as checking patients in, answering phones, and booking appointments. "There are so many distractions it is easy to make a mistake," according to one manager interviewed on a site visit. By allowing some scheduling tasks to be completed outside of the clinic, clinic schedulers may have more time to focus on the patients that are physically present in the clinic.

Finally, creating large call centers across the country and queuing calls across them could provide longer hours of operations. By routing calls across regions, an Eastern time zone VHA could provide phone coverage three hours after the end of its business day by routing calls to the west coast. Routing of calls across time zones could also support 24-hour coverage.

9.2.6.2 Centralized Scheduling Call Centers Have Lower per-Unit Resource Costs and put Less Stress on Space-Constrained Facilities

Today, most schedulers operate out of the facilities they serve (for example, VAMCs, CBOCs), either sitting in the clinic they schedule for or in an on-site space designated as the call center. As mentioned in Assessment K's report, VHA facilities are particularly space constrained with a projected $11 billion on construction projects attributed to space needs over the next ten years (total capital need is $52 billion). However, relocation of a portion of schedulers across VHA to space outside the main clinical facilities could create a material amount of space.

Placing staff outside of facilities could also present an opportunity to hire in locations where there is a greater availability of qualified schedulers. Differences in location can have large staffing implications. For instance, discussions with the Palo Alto VAMC highlighted that the high cost of living in Palo Alto was a major issue. One administrator shared "It is hard to hire a GS5 person at that salary in Palo Alto, but could in Reno." This issue has led leaders in Palo Alto and Reno to explore the creation of a region-wide call center spanning a portion of VISN 21. This effort aims to leverage locations where there is a lower cost of living, and thus lower turnover, in order to better service phone calls.

Additional central scheduling call centers could also lead to improvements in procurement of hardware, software, and telephony costs (Paulding, 2013). For instance, Xerox estimates that consolidating operations can achieve five to ten percent technology savings, driven by platform and network savings, shared customer relationship management applications, consolidated customer self-service applications, improved call routing efficiencies, and optimized agent

desktop tools ("Contact," 2013). Technology cost efficiencies are achieved in larger call centers "because more agents are taking advantage of the same core set of materials. The use of one software platform can spread a single software license to all agents in a center" (Houser, 2015).

9.2.6.3 Larger Scale Call Centers can Provide More Coaching, Training, and Career Options Than Clinics

Across industries, larger scale call centers generally provide in-depth coaching for their frontline staff. This is because managers are co-located with staff and can spend significant time with them (Houser, 2015). At VHA, schedulers working in a call center were almost three times as likely as peers located in clinics to report receiving more than five hours of one-on-one or group coaching and feedback each week by their managers. Further, schedulers in call centers also reported receiving more on-the-job training than in-clinic schedulers (49 percent to 35 percent respectively). As current VHA scheduling call centers are small, these coaching benefits might be even greater in a larger scale call center. This finding is especially relevant as training is a crucial element of ensuring appropriate scheduling practices, as detailed in the Scheduling Process and Training Sections.

Below are site visit quotes from clinic administrators who do not operate in a call center responding to the question, "How much time do you spend with schedulers discussing how to improve the scheduling process, mentoring or training, or discussing new or changed policies?" As the quotes demonstrate, not all administrators are spending significant time coaching.

- "[We have] weekly MSA meetings [and] daily one-on-one training when needed"
- "…No regular discussions because [schedulers are] doing well"
- "There is weekly, open communication about performance metrics, daily audits of scheduler performance and work plans for improving individual MSA performance"
- "Monthly for one-on-ones to review performance, solicit improvement ideas, review any audit findings"
- "[I spend] 10-15 minutes per day supervising and giving performance feedback. I spend most of my time in meetings"
- "Not a lot of time to do this; [it's] 'feast or famine' based on availability" (Choice Act site visits, interviews, 2015)

Increases in scale also allow larger call centers to offer resources that a 10 or 15 person call center could not, in order to optimize operations. For instance, across industries, larger call centers typically have team leaders, quality analysts, reporting analysts, network analysts, workforce managers, telecom analysts, recruiters, and trainers (Bergevin et al., 2010). Individuals in these roles can ensure the call center runs as efficiently as possible and enable supervisors to focus on coaching.

Paired with additional management layers (such as supervisors and managers), non-frontline call center roles mentioned above provide career options that may not exist today for VHA schedulers. Twenty-three percent of approved and funded scheduler positions are vacant and 13 percent of MSAs turnover each year (VHA Healthcare Talent Management Office Data,

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2015). New promotion options in call centers could provide much needed relief to managers who share that "[schedulers] leave the second they get another opportunity here at the VA or anywhere else" (Choice Act site visits, interviews, 2015).

Providing career advancement options for schedulers is one reason Geisinger Health System uses centralized call centers. It is also a major focus of their organizational structure. Their scheduling call center offers a career ladder with four levels of scheduler positions. New schedulers are at "level 1" for about six months until they are fully trained. "Level 4" schedulers are those that Geisinger Health System is grooming for management positions. They "get involved in policy development, training process, process improvement, and are required to pass a National Association of Healthcare Access Management (NAHAM) certification" (Geisinger interview, 2015). Additionally, schedulers at the scheduling call centers are typically recruited into other roles in the call center including quality assurance, training, provider template creation, workforce management, and analysis.

9.2.7 Implementation Difficulties Raised by Facility-Level Staff Highlight Prerequisites for Larger Scale Call Centers

Issues raised about the small scheduling call centers that exist today can inform the design of future, larger call centers. During site visit interviews, 76 percent of call center schedulers and supervisors interviewed[73] shared barriers specific to call centers. Of those barriers shared, 32 percent[74] cited challenges learning the different rules and preferences of various clinics. For instance, one call center employee said "different rules for each clinics makes it so hard to book, [it] even varies by provider." This challenge highlights the needs to standardize processes across clinics or introduce an improved system that can automatically incorporate various clinic practices, like Geisinger Health System and Cleveland Clinic did, before instituting a larger scheduling call center. Challenges with clinic variation also might explain why larger call centers have not been pursued in the past, because high variation exists today.

If VHA were to adopt a standardized approach, this could address concerns that were raised by senior administrative leaders including:

- "[Call center schedulers don't] understand the nuances of facilities and specialties."
- "Call center personnel need to have knowledge of the patients, clinics, providers (nurses, doctors, pharmacists, etc.), facility, etc., so they have an understanding of context and circumstances and can provide a personal touch."
- "The major barrier is that you need schedulers who know the facility, the clinics, the providers, and the patients." (Choice Act site visits, interviews, 2015).

Twenty percent of call center supervisors and schedulers[75] identified the phone system, particularly the inability to pull detailed data about patient calls from the phone system, as a

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[73] Site visit call center scheduler and supervisor interviews, N=19 of 25 respondents
[74] Site visit call center scheduler and supervisor interviews, N=8 of 25 respondents
[75] Site visit call center scheduler and supervisor interviews, N=5 of 25 respondents

major challenge. One scheduler shared "through the system there is no way to determine the reason for each call and other important information." It might be possible to sustain a small call center with minimal phone technology, however larger VA call centers tend to need more sophisticated tracking (HRC, interview, 2015).

Forty-four percent of call center supervisors and schedulers[76] mentioned not having adequate staffing to handle the high call volume. This may be because scheduling management did not adequately staff the call center or because of overall staff shortages. As discussed, larger call centers could more efficiently leverage existing staff and minimize some of this challenge.

Twelve percent of those interviewed[77] cited the lack of physical space. As mentioned above, if scheduling call centers are created outside of the current medical facilities, call centers can use greater space, and facilities can reclaim much needed clinical and office space. Other barriers mentioned above, including the poor phone system, inadequate staffing, and the lack of physical space could likely be addressed by increasing the scale of the call center and by following other recommendations throughout this report.

Facility-level staff also see benefits from the current, small-scale scheduling call centers, even though they are sub-scale. Quotes from scheduling staff across site visits and the survey include:

- "[Call centers] provide coverage when schedulers may be on leave or when clinics are very busy…and help with breaks and lunches. Schedulers get a better understanding of various clinics and their processes. Decentralizing will not provide adequate coverage in clinics."

- "[The] call center has reduced some of the administrative/call burden off of certain primary care and specialty care schedulers."

- "[The call center has] helped tremendously -- clerk at front desk can now focus on patients in front of them".

9.2.8 Outside of Scheduling, VA has Proven it has the Capabilities to Sustain Call Centers at Scale

In place since 2002, the VA National Call Center—Health Resource Center (HRC) provides an example of what a large-scale VA scheduling call center could look like. HRC is a call center that "provides customer service and support…regarding VA health benefits, eligibility, billing and pharmacy-related inquiries" (HRC, interview, 2015).

HRC sits within VHA's Chief Business Office (CBO) and employs over 1,000 people. It responds to over six million Veteran inquiries by way of phone, email, and web chat each year. Despite agents working across multiple locations (Topeka, Kansas, Waco, Texas, and Canandaigua, New York), it has developed standard operating procedures (SOPs) and job aids to optimize processes. HRC has existed since 2002 and utilizes a sophisticated tracking and workforce

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[76] Site visit call center scheduler and supervisor interviews, N=11 of 25 respondents

[77] Site visit call center scheduler and supervisor interviews, N=3 of 25 respondents

management tool that allows managers to plan agent staffing needs based on projected call volume.

The HRC has a separate training center and offers between four to five weeks of training for all new employees, including two weeks of on-the-job training. Once agents are fully trained, their supervisors audit ten calls per month to ensure no additional training is needed.

HRC managers have mentored other VA call centers that are trying to build scale, including the Veterans' Crisis Line and the National Call Center for Homeless Veterans. According to a Choice Act interview, HRC was the first federal governmental call center accredited by the International Customer Management Institute and therefore provides an example for what VA scheduling call centers could eventually achieve.

9.3   Recommendations

As these findings suggest, VHA could benefit from enhanced use of call centers for scheduling, consistent with recent findings of other reports. For example, the NVTC recommended that VHA "should centralize the call and scheduling functions into facility-based call centers with extended hours of operations", and "invest in more current and usable telephone systems" ("Opportunities," 2014). A 2012 GAO report recommended that VAMCs implement best practices to improve telephone access for clinical care (this included but was not limited to scheduling). An internal 2014 report on PACT call centers recommended the establishment of additional call center metrics, the creation of a metric to measure Veteran satisfaction with call centers, and the need for appropriate staffing to handle patient phone calls. Previous reports have not made specific recommendations on how these efforts would be implemented generally nor how they would apply more specifically to the scheduling context. See Appendix G.2 for additional detail on past reports related to call centers.

According to interviews with VHA leadership, a number of initiatives have been launched to address some of the challenges presented above. These initiatives address a broad range of call centers (though none of the following efforts are exclusive to scheduling), and include:

- Efforts to study how VA call centers should optimize their operations and pilot new solutions, including:
  - o **Leveraging learnings from the MVAT project**: The Managing Veterans Access via the Telephone (MVAT) working group was launched in September 2013 out of the Telephone Access and Contact Management (TACM) office to capture best practices related to people, process and technology components found throughout VA call centers. The project lasted for one year and documented where many of the call centers operate, as well as their staffing composition and services (MyVA, Meeting Minutes, 2015). The three stated learnings regarding existing VA call centers include:
    - – There is no standard best practice for how to handle calls from Veterans
    - – There are pockets of excellence throughout the VISNs and VAMCs, but these successes are not often shared outside of the individual VISN or VAMC

- Each VISN and/or VAMC has adapted their call management model to meet their local Veteran population needs, using the resources they have available to them (MyVA, Meeting Minutes, 2015).

  o **Piloting of solutions via IVAT:** Improving Veterans Access via the Telephone (IVAT) was launched in September 2014 and will run until September 2015. It intends to build on learnings from MVAT. As part of this effort, VISN 19 is piloting new concepts with support from the IVAT team, which will help inform planned revisions to the Telephone Improvement Guide (VHA Telephone Access White Paper, 2014).

- Efforts to convene VA call centers in order to create a centralized understanding of the VA call center footprint and share best practices, including:

  o **Establishment of a VA-wide call center task force:** For the first time in VA history, owners of major call centers are coming together to create a common understanding of the current state of call centers at VA and share information on best practices. The kickoff meeting was in April of 2015 at the HRC call center in Topeka, Kansas. Many call centers sent representatives, including Caregiver Support, Women's Health, Coaching into Care, and the Combat Call Center. Leaders from the Office of Veteran Experience and OI&T also attended. The stated goal of the first meeting was threefold: allow call centers in attendance to network with one another, create a sense of unity surrounding contact management, and understand the missions of each call center in attendance (MyVA, Meeting Minutes, 2015).

- **Efforts to directly improve the Veteran experience of navigating call centers, including:**

  o **Exploration of a single phone number for Veterans:** Since October 2014, The Veterans Experience Office, under guidance from Secretary Robert McDonald, is examining the more than 900 Veteran-facing, toll-free phone numbers that exist today and what would be needed to provide a single 1-800 number for Veterans or a "311" style service to direct Veterans to the appropriate level of service (MyVA, Meeting Minutes, 2015).

  o **Simplification of medical center phone trees:** In 2012, the VHA National Leadership Council approved the implementation of a standardized telephone tree at all VAMCs. The goal was to improve telephone access and the service experience of Veterans calling into medical centers. This new tree includes a 15 second introduction and simplified menu options designed to easily channel the patient to the appropriate area. The first set of menu options are standardized across VAMCs, however the second and third levels can vary by facility. Implementation was expected at all locations as of October, 2013 (VHA Telephone Access White Paper, 2014).

If successful, the above initiatives would result in a better understanding of how call centers operate at VA and what best practices exist. However, further changes would also be required to improve call center performance based on potential gaps, including:

Implementation gaps: While efforts to simplify the navigation of the phone system at VA/VHA are a necessary step for improving a Veteran's experience with the system, it is not clear how the assessment of the current state as part of MyVA will translate into action. Given that VA is

early in the process of its MyVA effort, which would affect these initiatives, we were not able to ascertain how they will be addressed or how the implementation would occur.

Scope gaps: Due to the early stage nature of the VA call center taskforce, it was not possible to assess the degree to which this effort will encompass facility-based scheduling call centers. We were also unable to assess the timeline against which the taskforce will be assessing call center operations, making recommendations and setting up for implementation.

To address these gaps, as noted below, VHA should consider consolidating its leadership structure for call centers, building a plan for more call center capacity, and establish stronger performance management systems at large call centers and across all locations that engage in scheduling. Specifically, VHA should consider the following recommendations:

9.3.1   Designate a Central Owner for Scheduling Call Centers

Today, VHA scheduling call centers usually report to facilities and there is no central owner of scheduling phone operations across VISNs (though the VHA Telephone Access and Contact Management Office supports the field through a matrix role). In contrast, call centers in other parts of VA and in leading private sector institutions report to one organization. A central owner of call centers should:

- **Coordinate with the ACAP office:** Close coordination between ACAP and a central owner will be required to create standard operating procedures for the call center that reflect the VHA's scheduling best practices as well as national policy.

- **Leverage learnings from existing call centers:** VHA scheduling call centers need to operate at the high level of performance established by other VA call centers (like HRC). A central owner should therefore coordinate with existing VA call centers as well as the VA Call Center Task force to implement proven practices where relevant.

- **Partner with the larger VHA scheduling call centers that exist today**: Larger scheduling call centers, such as the one supporting the New York City VAMCs, can serve as a model and thought partner for implementing successful operations at a VHA scheduling call center. Thought partnership should explore topics such as staffing ratios, division of specialties amongst schedulers (for example, pods), investment costs, and phone tree simplification.

- **Consider partnerships with private sector scheduling call centers**: Institutions with large scheduling call centers, such as Geisinger Health System and the Cleveland Clinic, can provide necessary guidance on how to achieve more standardization while also allowing clinic-specific practices. They can also share advice for building organization support for call centers.

9.3.2   Design Scheduling Call Centers that Can Provide Expanded Services for Veterans Relative to Current State

As discussed, today's VHA scheduling call performance is below benchmark, but could likely improve by the use of larger scale call centers, through either co-location of schedulers or

through virtual centralization. VA should therefore launch an effort to establish larger regional scheduling call centers. This effort should:

- **Evaluate which responsibilities lend themselves to centralization:** Some responsibilities, including those requiring in-person interactions with a patient or provider (for example, patient check-in, follow-up appointments booked while in office), should remain in the clinic. Other responsibilities (like cancelling appointments after hours, patient reminder calls, and new patient appointment scheduling) do not require face-to-face interactions and are or could be more standardized across locations, making it easier to support from a call center environment. ACAP should further analyze the complete set of scheduler responsibilities and assess which can be shifted to a larger scale call center based on the ability to standardize level of complexity, and need for in-person interaction with a provider or patient.

- **Assess which specialties should be placed in the call center first:** All specialties could likely be scheduled centrally as they are across some private sector health systems. However, some specialties (for example, primary care) may have fewer types of appointments and therefore are easier to initially support with an at scale call center. Further, some specialties (like optometry) have much higher volume of appointments than others, so there may be greater benefits of moving these to call centers first. ACAP should further analyze all VHA specialties and determine which ones could most easily be supported by large-scale call centers, and which may require more time to transition.

- **Analyze the appropriate degree of centralization:** ACAP should project the total volume of calls that could be handled by national, large-scale call centers. This projection should be based on the number of responsibilities and specialties that ACAP determines can be supported centrally and how much VHA decides to increase the standardization of scheduling processes. ACAP can then project the number of necessary call center schedulers based on this call volume. Leveraging learnings from the VA Call Center Task Force, ACAP can then determine the number of call centers needed and the degree of required centralization (such as large regional call centers tied to MyVA regions).

- **Research possible call center locations and costs:** VHA should undertake a study to consider which locations may be optimal for the newer regionalized call centers (for example, new call centers in low cost-of-living areas, additions to existing VA call centers such as Waco, Dayton), with the overall goal of improving knowledge/talent sharing and decreasing costs.

Appendix A   Choice Act Legislation

Figure A-1. Choice Act Language for Assessment E

E) The workflow process at each medical facility of the Department for scheduling appointments for Veterans to receive hospital care, medical services, or other health care from the Department.
(2) PARTICULAR ELEMENTS OF CERTAIN ASSESSMENTS.—

▪ SCHEDULING ASSESSMENT.—In carrying out the assessment required by paragraph (1)(E), the private sector entity or entities shall do the following:
 	
  ○ Review all training materials pertaining to scheduling of appointments at each medical facility of the Department.
 	
  ○ Assess whether all employees of the Department conducting tasks related to scheduling are properly trained for conducting such tasks.
 	
  ○ Assess whether changes in the technology or system used in scheduling appointments are necessary to limit access to the system to only those employees that have been properly trained in conducting such tasks.
 	
  ○ Assess whether health care providers of the Department are making changes to their schedules that hinder the ability of employees conducting such tasks to perform such tasks.
 	
  ○ Assess whether the establishment of a centralized call center throughout the Department for scheduling appointments at medical facilities of the Department would improve the process of scheduling such appointments.
 	
  ○ Assess whether booking templates for each medical facility or clinic of the Department would improve the process of scheduling such appointments.
 	
  ○ Assess any interim technology changes or attempts by Department to internally develop a long-term scheduling solutions with respect to the feasibility and cost effectiveness of such internally developed solutions compared to commercially available solutions.
 	
  ○ Recommend actions, if any, to be taken by the Department to improve the process for scheduling such appointments, including the following:
 	
    – Changes in training materials provided to employees of the Department with respect to conducting tasks related to scheduling such appointments.
 	
    – Changes in monitoring and assessment conducted by the Department of wait times of Veterans for such appointments.
 	
    – Changes in the system used to schedule such appointments, including changes to improve how the Department—
 	
      - Measures wait times of Veterans for such appointments;
 	
      - Monitors the availability of health care providers of the Department; and
 	
      - Provides Veterans the ability to schedule such appointments.
 	
      - Such other actions as the private sector entity or entities considers appropriate.

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Table A-1. Legislation Language Mapping

Choice Act language	Corresponding report section	Finding/recommendation
E) The workflow process at each medical facility of the Department for scheduling appointments for Veterans to receive hospital care, medical services, or other health care from the Department.	Section 5 - Provider availability; Section 6 - Scheduling Process	All finding and recommendations in these sections
(2) PARTICULAR ELEMENTS OF CERTAIN ASSESSMENTS — ▪ SCHEDULING ASSESSMENT—In carrying out the assessment required by paragraph (1)(E), the private sector entity or entities shall do the following:		
o Review all training materials pertaining to scheduling of appointments at each medical facility of the Department.	Section 8 - Scheduler Training	Findings: 8.2.1; 8.2.3 Recommendations: 8.3.2; 8.3.3
o Assess whether all employees of the Department conducting tasks related to scheduling are properly trained for conducting such tasks.	Section 8 - Scheduler Training	Findings: 8.2.1 Recommendations: 8.3.1
o Assess whether changes in the technology or system used in scheduling appointments are necessary to limit access to the system to only those employees that have been properly trained in conducting such tasks.	Section 8 - Scheduler Training	Findings: 8.2.2 Recommendations: 8.3.1
o Assess whether health care providers of the Department are making changes to their schedules that hinder the ability of employees conducting such tasks to perform such tasks.	Section 5 - Provider Availability	Findings: 5.2.4; 5.2.5; 5.2.6 Recommendations: 5.3.4

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Choice Act language	Corresponding report section	Finding/recommendation
o Assess whether the establishment of a centralized call center throughout the Department for scheduling appointments at medical facilities of the Department would improve the process of scheduling such appointments.	Section 9 - Scheduling Call Centers	All finding and recommendations in the section
o Assess whether booking templates for each medical facility or clinic of the Department would improve the process of scheduling such appointments.	Section 5 - Provider Availability	Findings: 5.2.2, 5.2.3 Recommendations: 5.3.4
o Assess any interim technology changes or attempts by Department to internally develop a long-term scheduling solutions with respect to the feasibility and cost effectiveness of such internally developed solutions compared to commercially available solutions.	Section 7 - Scheduling System	Findings: 7.2.1; 7.2.2; 7.2.3; 7.2.4; 7.2.5 Recommendations: 7.3.1; 7.3.2 ; 7.3.3
o Recommend actions, if any, to be taken by the Department to improve the process for scheduling such appointments, including the following:		
– Changes in training materials provided to employees of the Department with respect to conducting tasks related to scheduling such appointments.	Section 8 - Scheduler Training	Findings: 8.2.1 Recommendations: 8.3.1, 8.3.2
– Changes in monitoring and assessment conducted by the Department of wait times of	Section 6 - Scheduling Process	Findings: 6.2.6 Recommendation: 6.3.1

Choice Act language	Corresponding report section	Finding/recommendation
Veterans for such appointments.		
– Changes in the system used to schedule such appointments, including changes to improve how the Department—		
– Measures wait times of Veterans for such appointments;	Section 7 - Scheduling System	Findings: 7.2.1 Recommendations: 7.3.3
– Monitors the availability of health care providers of the Department; and	Section 5 - Provider Availability; Section 7 - Scheduling System	Findings: 5.2.1 Recommendation: 5.3.2; 5.3.5; 7.3.3
– Provides Veterans the ability to schedule such appointments.		
– Such other actions as the private sector entity or entities considers appropriate.	Section 7 - Scheduling System	Findings: 7.2.3 Recommendation: 7.3.3

Appendix B   Methodology

B.1   Description of Data/Information Sources

Sources from VHA:

- **Policy review:** This included Central Office-driven policies related to scheduling for outpatient clinic appointments, scheduling for surgery/procedures/radiology, telephone care, and the Patient Aligned Care Team (primary care) model.

- **Central office, VISN and facility interviews:** This included interviews with over 40 individuals with cross-cutting responsibilities including subject matter experts and leaders in the Access & Clinic Administration Program (ACAP) office, including the Telephony Directive team, Clinical Operations, Connected Health, OI&T, and the VA office of Veteran Experience. A wide range of topics were covered including scheduling policies, clinical operations (surgery, primary care, mental health), scheduler training, information & analytics, telephony and provider productivity.

- **Clinic Access Index available through the Veterans Support Service Center (VSSC), Corporate Data Warehouse (CDW) schedules:** This included a scorecard of access performance, called the Clinic Access Index, which provides metrics such as "missed opportunities" rates (no shows and late cancellations), appointment reschedules and appointment lengths. Data on pending appointments was also available through this system.

- **Frontline staff survey:** A survey with specific training-focused questions for "schedulers," individuals who indicated that they schedule appointments for outpatient care (N=825), including both frontline MSAs (N=726) and non-MSAs with scheduling privileges (N=99); as well as MSA supervisors (N=70), clinic administrators (N=80), providers (N=1,054), administrative officers (N=86), and clinical leaders (N=121). The survey was intended to reach all facilities and respondents represented 137 VAMCs and 320 CBOCs overall.

- **Facility-level information collected via a centralized "data call":** A data call distributed through all 21 VISNs to 152 VAMCs requesting three types of information. A total of 102 VAMCs responded to at least some part of the data call. This included a survey regarding the creation, maintenance, and delivery of trainings (N=49 VAMCs); a survey of facilities' scheduler reporting structures and scheduler audit performance (N=73 VAMCs); and a collection of national and local training materials for MSAs on new policies (N=51 VAMCs). The materials collected were analyzed for the period in which they were delivered, the topics they covered, and the format of delivery used to discover best practices currently taking place within VAMCs.

Data and information from broader government and external sources were also gathered to understand previous reports on VHA wait times and inform comparison to best practice outside of VHA. This work included:

- **Literature review of past findings and recommendations:** This included thirty-seven past reports on VHA related to scheduling since 1999. The appendix relating to each section of

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this report includes a grid describing the recommendations from past reports that informed our findings.

- **Interviews and select site visits with four leading hospital systems:** This included interviews with representatives from four leading hospital systems, including two integrated networks, on their scheduling and access management practices to understand approaches that they had found to be successful.

- **Interviews with hospital executives with experience procuring or implementing an IT scheduling system:** The team interviewed 10 executives at private hospital systems to better understand how the current and proposed VA scheduling system compared with those used in the private sector.

- **Interviews with health systems administrators with experience in frontline scheduler training:** The team interviewed 10 private sector health system administrators to better understand how content, method, and cadence of training is performed for both new and existing schedulers.

- **Review of McKinsey research on and public sector experience with IT implementations:** The team reviewed research that McKinsey has developed drawing on findings from 5,000 IT implementations along with the Firm's direct experience with twenty U.S. public sector IT implementations since 2010.

- **Review of private sector scheduling practices:** Industry standard and best practices were catalogued through review of academic literature and published case studies. These best practices are detailed in the relevant section in this report and are referenced in the bibliography.

B.2 Description of Site Visits to VA Medical Centers (VAMCs) and Community-based Outpatient Clinics (CBOCs)

B.2.1 Site Selection Approach for VAMCs

To increase consistency and generalizability of findings, a subset of assessment teams has coordinated sampling methods to the extent possible to select a core set of VAMCs to visit that are representative of the VAMC system as a whole across critical facility demographic and performance outcome metrics.

The VAMC site selection process followed the following steps:

1. **Stratification of facilities:** Stratified random sampling, with VISN as a strata, was used to select an initial list of facilities. To reduce sample size, a subset of VISNs was randomly selected, from which one of the two initially selected sites was randomly de-selected.

2. **Review of distribution:** Chi-square testing was used on each of the key facility profile and performance variables to ensure the distribution of scores in the sample was representative of the population. Variables were chosen to reflect anticipated drivers of facility performance, and included: VISN, rurality, adjusted admissions, complexity level

(on VHA rating scale), adjusted length of stay, adjusted patient satisfaction, cumulative access score, and facility age.

3. **Refinement of facility selection:** Initial facility list was vetted with internal and external SMEs and augmented as needed, to include facilities that are considered critical for inclusion (e.g., a Polytrauma Center, facilities with innovative tools/practice) and to ensure that all selected facilities offered the range of services being assessed.

This method resulted in a sample of 23 facilities that in combination were representative across each of the criteria used in selection. Assessment E also visited two additional VAMCs not randomly selected, Indianapolis and Phoenix. Indianapolis was chosen because it is the only VHA facility in the country that uses a software system other than VistA to schedule outpatient appointments and the team wanted to understand the scheduling challenges in Indianapolis and compare them to those of other facilities. Further, the team wanted to learn about the software implementation process of a new scheduling system. Phoenix was visited due to its attention in previous reports.[78]

Results for Fisher's exact Chi-square test[79] demonstrate that the sample is not significantly different from the population of VAMCs:

Table B-1. Chi-square Testing Results for VAMC Representativeness

Numerical Complexity Level Variable (p-value for Fisher's Exact Test: 0.80)					
	Population	% pop	Selected	% Selected	Difference
-1	2	1%	0	0%	-1%
1	88	59%	16	70%	11%
2	32	21%	4	17%	-4%
3	28	19%	3	13%	-6%
Total	150	100%	23	100%	
Rurality Numerical Variable (p-value for Fisher's Exact Test: 1.0)					
	Population	% pop	Selected	% Selected	Difference
0	28	19%	4	17%	-1%
1	122	81%	19	83%	1%
Total	150	100%	23	100%	

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[78] Review of Patient Wait Times, Scheduling Practices, and Alleged Patient Deaths at the Phoenix Health Care System, 2014

[79] Fisher's exact test is a type of Chi-square test specifically for smaller sample sizes. For VAMCs, we used Fisher's exact test to be more accurate than a standard Chi-square. Figure B-5, we used a standard Chi-square test, as the sample size was large enough

Adjusted Admissions Quartile (p-value for Fisher's Exact Test: 0.74)					
	Population	% pop	Selected	% Selected	Difference
-1	22	15%	2	9%	-6%
1	32	21%	5	22%	0%
2	64	43%	9	39%	-4%
3	32	21%	7	30%	9%
Total	150	100%	23	100%	
Adjusted LOS Quartile (p-value for Fisher's Exact Test: 0.68)					
	Population	% pop	Selected	% Selected	Difference
-1	39	26%	4	17%	-9%
1	28	19%	3	13%	-6%
2	55	37%	11	48%	11%
3	28	19%	5	22%	3%
Total	150	100%	23	100%	
Adjusted Patient Satisfaction Quartile (p-value for Fisher's Exact Test: 0.83)					
	Population	% pop	Selected	% Selected	Difference
-1	39	26%	4	17%	-9%
1	28	19%	5	22%	3%
2	55	37%	9	39%	2%
3	28	19%	5	22%	3%
Total	150	100%	23	100%	
Cumulative Access Score Quartile (p-value for Fisher's Exact Test: 0.78)					
	Population	% pop	Selected	% Selected	Difference
-1	32	21%	3	13%	-8%
1	33	22%	7	30%	8%
2	27	18%	4	17%	-1%
3	33	22%	4	17%	-5%
4	25	17%	5	22%	5%
Total	150	100%	23	100%	

Operational Data Quartile (p-value for Fisher's Exact Test: 0.87)					
	Population	% pop	Selected	% Selected	Difference
1	38	25%	5	22%	-4%
2	74	49%	11	48%	-2%
3	38	25%	7	30%	5%
Total	150	100%	23	100%	

B.2.2 Site Selection Approach for CBOCs

Due to the focus on outpatient care, for every visit to a randomly selected VAMC, Assessment E also visited a nearby CBOC. These facilities were prioritized by geographic proximity due to budgeting constraints and checked for representativeness of VHA facilities nationally using chi-square testing by comparing them to the general CBOC population across the following variables: size in terms of number of monthly outpatient appointments completed, wait time performance in primary care, specialty care, and mental health, and types of services offered (e.g., primary care, mental health, specialty care).

CBOC chi-square testing results

Chi-square testing demonstrates the sample is not significantly different from the population of CBOCs:

Table B-2. Chi-square Testing Results for CBOC Representatives

Monthly appointment volume (p-value for chi-square test: 0.67)					
	Population	% pop	Selected	% Selected	Difference
-1	20	3%	0	0%	-3%
1	149	19%	4	17%	-2%
2	435	55%	12	50%	-5%
3	192	24%	8	33%	9%
Total	796	100%	24	100%	
Wait time performance (p-value for chi-square test: 0.84)					
	Population	% pop	Selected	% Selected	Difference
-1	20	3%	0	0%	-3%
0	4	1%	0	0%	-1%
1	276	35%	8	33%	-1%
2	360	45%	13	54%	9%

3	136	17%	3	13%	-5%
Total	796	100%	24	100%	
Types of services offered (p-value for chi-square test: 0.73)					
	Population	**% pop**	**Selected**	**% Selected**	**Difference**
0	470	59%	15	63%	3%
1	326	41%	9	38%	-3%
Total	796	100%	24	100%	

B.2.3   Methodology for Site Visits

The team used site visits to develop a more nuanced understanding of the current state of scheduling across VHA facilities. Each visit covered all assessment topics (scheduling process, scheduler training & reporting, scheduling operating structure, scheduling system and provider availability). On-site assessments included interactions with both clinical and administrative leadership across multiple levels of the organization, involving:

- **Individual/small group interviews:** The team conducted interviews in order to understand which policies and processes were in place at each site across multiple clinics
- **Group interviews with schedulers and clinic administrators/administrative officers:** The team conducted two large group interviews at each VAMC where each group was asked to discuss the largest challenges in scheduling patients today as well as recommendations to improve the process.
- **Observations:** The team shadowed frontline schedulers and call center staff to observe and understand the processes they use each day.

The following exhibit describes the range of roles touched on each site visit, the number of VAMCs, CBOCs and call centers (which varied in location between the VAMC and CBOC) and the number of interviews conducted over the course of the assessment. The following exhibit describes a sample visit schedule:

Table B-3. Typical Site Visit Schedule – Day 1

Time Frame (min)	Session Type	Facility	Objective	Target Audience
15	Kick-off	VAMC	Background of the Choice Act Legislature, Overview of the Assessment Teams, Discuss Site Visit Principles	Facility Leaders and Staff, Site Visit Team

Time Frame (min)	Session Type	Facility	Objective	Target Audience
60	Interview	VAMC	Get overview of how scheduling works across the site	Director/Deputy Director of HAS/C BO/MAS (most senior person/people responsible for clinic administration & scheduling (role varies)), including patient access champion (if applicable) with a maximum of 3 people
30	Interview	VAMC	Discuss patient scheduling processes, systems, and policies	2 Department Manager/Supervisors together (to compare/contrast)
30	Interview	VAMC	Discuss patient scheduling processes, systems, and policies	1 Procedure Suite Manager & 1 Operating Room manager together
30	Observation	VAMC	Appointment scheduling process	1 scheduler in Medical or Surgical Specialty Care Clinical Area A & B
30	Local material review with Scheduling Training Coordinator or Scheduling Supervisor/ manager	VAMC	Review policy, training, procedures local to the facility	Administrative Leader of scheduling
30	Policy interview	VAMC	Review provider policies in place	Senior clinical Leader (chief of staff)
30	Lunch			
60	Scheduler assessment workshop	VAMC	Understand barriers/pain points in process	Assessment workshop of ~10 schedulers/people with >50 percent of role on scheduling representing various specialties

Time Frame (min)	Session Type	Facility	Objective	Target Audience
60	Clinic admin assessment workshop	VAMC	Understand barriers/pain points in process	Assessment workshop of ~10 admin leads (distinct from above; different individuals from interview required)
30	Interview	VAMC	Varies	Non-VA care lead (person responsible for coordinating with non-VA facilities if a patient can't get in quickly enough)
60	Clinic/service observation	VAMC	In clinic interviews	Medical specialty or Mental Health; 30 min interview with 1 AO/clinic administrator responsible for service; 30 min interview with 1 lead provider (50 percent or more VA and/or clinical service chief)

Table B-4. Typical Site Visit Schedule – Day 2

Time Frame (min)	Session Type	Facility	Objective	Target Audience
75	Clinic/service observation	VAMC	In clinic interviews	Surgical specialty; 45 min interview with 1 AO/ clinic administrator responsible for service; 30 min interview with 1 lead provider (50 percent or more VA and/or clinical service chief)
30	If call center: Kick-off and tour	Call center (where relevant)	Understand structure of scheduling/call center	Management lead interview and walkthrough
60	If call center: Service observation and discussion	Call center (where relevant)	Observation & small group discussion	30 min with 1 "scheduler" direct observation; 30 min with 2-3 schedulers small group discussion

Time Frame (min)	Session Type	Facility	Objective	Target Audience
75	Clinic/service observation	VAMC	In clinic interviews	Primary care clinic; 45 min interview with 1 AO/ clinic administrator responsible for service; 30 min interview with 1 lead provider (50 percent or more VA and/or clinical service chief)
30	Observation	VAMC	Appointment scheduling process	1 scheduler in Primary Care (if no call center)
30	*Lunch*			
30	Presentation/interview	CBOC	Understand barriers/pain points in process	Site admin lead interview
75	Clinic/service observation	CBOC	In clinic interviews	Primary care Clinic ; 45 min interview with 1 AO/ clinic administrator responsible for service; 30 min interview with 1 lead provider (50 percent or more VA and/or clinical service chief)
75	Clinic/service observation	CBOC	In clinic interviews	Specialty Clinic; 45 min interview with 1 AO/ clinic administrator responsible for service; 30 min interview with 1 lead provider (50 percent or more VA and/or clinical service chief)

The following table describes the roles touched:

Table B-5. Roles Interviewed at Site Visits

Site	Audience	Interviewee	Number of individuals interviewed
VAMC	**Leadership**	Admin leadership in charge of MSAs	49
		Admin leader in charge of policy/training	51
		Chief of Staff	17
		AO or clinic admin of Primary Care	18

Site	Audience	Interviewee	Number of individuals interviewed
	A.O. or Clinic Administrator	AO or clinic admin of Medical Specialty[80]	24
		AO or clinic admin of Surgical Specialty[81]	14
		Group interview of 8-12 clinical administrators and A.O.s	174
	Scheduler	Group interview of 8-12 schedulers	187
		Scheduler observation	31
	Provider	Provider Primary Care	22
		Provider Medical Specialty/Mental Health	35
		Provider Surgical Specialty	15
	Other "deep dive" areas	OR and Procedures	11
		Lab and Radiology	13
		Non-VA Care office administrator	48
CBOC	**Provider**	Primary Care provider	21
		Specialty provider[82]	11
	Management	AO/nurse manager	26
		Admin Leader	22
Call centers	**Management**	Call center administrators	48

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[80] Cardiology, dermatology, mental health, optometry, neurology

[81] Ortho, urology, podiatry, ophthalmology

[82] Specialties at CBOCs were limited; specialties included mental health, women's health, dermatology, ophthalmology

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The views, opinions, and/or findings contained in this report are those of the assessment team and should not be construed as an official government position, policy, or decision.

Appendix C   Provider Availability

C.1   Best Practices for Provider Availability

Table C-1. Scheduling Process – Best Practices and Benchmarks

Component	Best practice/benchmark
Supply and demand	▪ Use supply and demand to forecast optimal scheduling supply (Gupta and Denton, 2007)
	▪ Use sophisticated modeling to understand patient needs across a population[83] (Brandenberg et al., 2015; Gabow and Goodman, 2015)
	▪ Use real-time dashboard to guide process improvement[84] (Brandenberg et al., 2015)
	▪ Use level loading to reduce unnecessary supply-demand variation[85] (Brandenberg et al., 2015)
	▪ Smooth the work flow by scheduling routine care in low demand times (Nolan et al., 1996)
	▪ Flex staffing to account for demand variability (e.g., flu season, allergy season)[86] (Brandenberg et al., 2015)
	▪ Use historical emergent or urgent visits to estimate appropriate number of same-day slots[87] (Nolan et al., 1996)
	▪ Track data on demand by day, week, month, and patient type (Brandenberg et al., 2015)
	▪ Monitor demand on a daily, weekly, and seasonal basis ("Measure," n.d.; "Balance," n.d.)
	▪ Set provider schedules to match expected clinical FTE ("Measure," n.d.)

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[83] Study foundh that 2-3 percent of patients constituted 30 percent of costs, suggested access may need to be prioritized for these patients

[84] Seattle Children's reduced wait times and patient flow-through from ED to inpatient bed using visual dashboard

[85] Seattle Children's used real-time communications to improve efficiency. As an example, the hospital successfully flexed provider supply to create evening appointments based on historical demand data.

[86] Kaiser uses historical demand data to flex appointment supply

[87] This strategy employed successfully by eight health systems.

Component	Best practice/benchmark
	▪ Use supply-demand analytics and prediction tools to reduce wait times ("Measure", n.d.)
	▪ Make appointment slots match expected appointment length for each sub-specialty ("Reduce," n.d.)
	▪ Eliminate non-essential rules to increase the ease and consistency with which schedulers can book appointments ("Reduce," n.d.)
	▪ Incorporate patient preferences into demand forecasting to ensure adequate appointment supply by type (Gupta and Denton, 2007)
	▪ Manage demand to reduce delays[88] (Nolan et al., 1996)
Profile/schedule creation	▪ Slots are reserved for certain types of patients each day, depending on medical urgency, type of service requested, and whether the patient is known to the provider (Gupta and Denton, 2007)
	▪ Establish a visits-per-day target as the starting point for designing a schedule ("Management," 2010)
	▪ Incorporate patient preferences (e.g., same-day, future appointment) into demand modeling to improve appointment mix (Gupta and Denton, 2007)
	▪ Use historical demand to predict optimal appointment mix type (Gupta and Denton, 2007; Nolan et al., 1996[89])
	▪ Measure historical appointment length to adjust slot length to closely match; this practice reduces down time and need for overbooking ("Management," 2010)
	▪ Use of a schedule that matches closely to actual practice (e.g., appointment length is equal to slot length) results in improved provider and patient satisfaction (Heaney et al., 1991)
Performance Management	▪ Use productivity as one of several measures rather than alone in performance management (Nolan et al., 1996)

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[88] Can be accomplished through multiple ways, including disabling automatic scheduling of follow-up appointments and alternative treatment models (e.g., group care, secure messaging).

[89] By setting aside 30-70 percent of appointments as same-day appointments based on predicted demand, canceled appointments fell and patient satisfaction/provider productivity increased.

C.2   Past Reports on Provider Availability

Figure C-1. Previous Reports Relevant to Provider Availability

The views, opinions, and/or findings contained in this report are those of the assessment team and should not be construed as an official government position, policy, or decision.

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Appendix D   Scheduling Process

D.1   Additional Detail on Scheduling Process

Appointment scheduling at VHA facilities involves a number of different interrelated processes, wait lists, and rule sets depending on whether the patient is "new" or "established" and the type of care needed. The processes and rules below are detailed in the national scheduling directive. In addition, supplementary scheduling rules may exist at the local level as well.

Managing scheduling for patients who are established with VHA and the clinical service from which they are seeking care

Established patients are defined as those who have received care from a particular specialty within the last 24 months. These patients are able to schedule a follow-up visit as long as their providers have submitted a return to clinic (RTC) order into the system, along with a clinically indicated date for this visit to happen. The process for scheduling a follow-up visit depends on whether the patient requires care within 90 days or greater than 90 days.

RTC date less than 90 days: Patients who have a RTC order for care within 90 days of the current date are able per national policy to immediately schedule a return visit for any time after the stated RTC date. If the patient is not able to be seen in a timely manner or if a particular type of service (such as a specialized procedure) is not available through this facility, he or she may be eligible to see a non-VA provider.

RTC date >90 days: If the patient's RTC date is more than 90 days away, he or she is not immediately scheduled and placed on the recall list (see Glossary of patient lists) for scheduling at a future date. This patient is then contacted by the provider's office two to three weeks before the RTC date via mail to schedule an appointment.[90]

See Figure D-1 for a simplified visual depiction of the established patient scheduling process.

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[90] While use of the recall list for patients with RTC dates >90 days is national policy, some departments have been given permission not to use the recall list and instead book appointments.

Figure D-1. Established Patient Appointment Booking Process
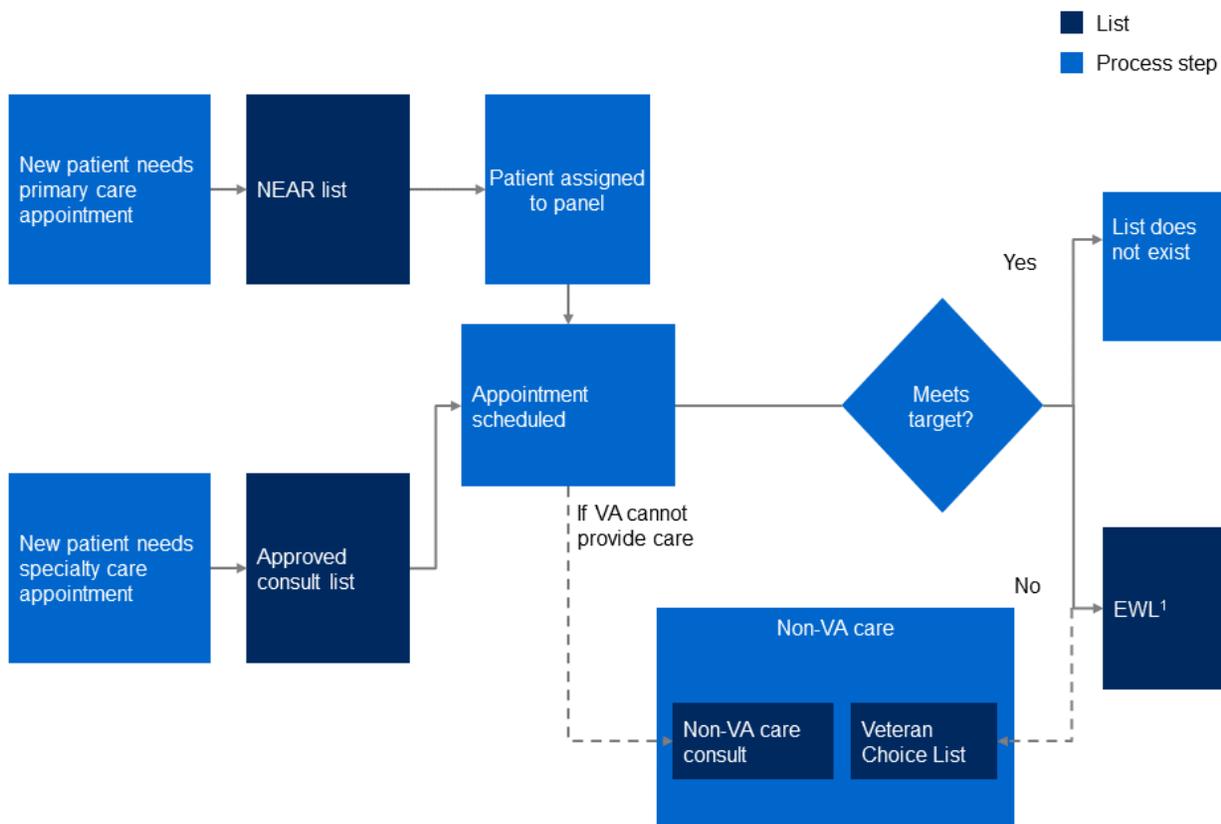
1 Serves as a form of electronic documentation of patient waiting to be scheduled

Managing waitlists of new patients (new to a clinical service) waiting for care and their appointment booking

New patients are defined as Veterans who have not received care from a particular specialty within the last 24 months. These patients could either have recently become eligible for VA care, be new to the region, require a new type of care (like cardiology), or need to be seen by a specialty for the first time in more than 24 months.

New to Primary Care: Patients who are new to Primary Care must first be deemed eligible at the national Health Eligibility Center. Once deemed eligible, patients are added to the New Enrollee Appointment Request list, from which they are assigned to a specific Patient Aligned Care Team (PACT).[91] Once a Veteran is assigned to a particular team, schedulers from the primary care clinics contact the patient to schedule an initial visit. If the visit is scheduled outside of 90 days due to a lack of available appointment slots, the patient is added to the Electronic Wait List (EWL, see Table D-1, "Glossary of Patient Wait Lists"). If there is no provider available within the VA system who can see the patient in a timely manner or within reasonable

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[91] PACTs refer to team-based primary care model, which is a VHA-customized version of the patient-centered medical home model of care

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distance, then the patient may be authorized to receive care from a non-VA provider through a Non-VA care consult (NVCC) or the Choice card program.

New to Specialty Care: Patients who require specialized care that cannot be provided by a primary care provider (PCP) are referred to a specialty care provider by the PCP. The PCP must submit a consult request to the desired specialty, and, if approved by the specialty, the patient will be eligible to schedule an appointment. Similar to new patients requiring primary care, those patients scheduled for an appointment outside the 90 day target are added to the EWL. If the specialty care required is not offered at the patient's local VHA facility or if care is not available within a timely manner, then the patient may be eligible to visit another VHA facility within the region or see a provider outside the VHA system.

The use and maintenance of a series of lists is mandated by national policy to monitor patients requiring care and track potential backlogs in the system.[92] These lists vary in terms of patient population, type of care required, and purpose. It is national policy that all lists must be kept within VistA, as these lists provide the data monitored at facility, regional, and national levels to ensure adequate access to care. See Table D-1 – Glossary of patient lists.

Table D-1. Glossary of Patient Wait Lists

List name	Patient population	Type of care	Purpose
New Enrollee Appointment Request (NEAR)	New to service	▪ Primary care	▪ NEAR list is used to document all newly eligible patients who do not yet have PCPs, assign these patients to primary care providers, and monitor potential primary care backlogs
Electronic Waiting List (EWL)	New to service	▪ Primary care ▪ Specialty care ▪ Mental health	▪ EWL keeps track of all new patients with scheduled appointments that are >90 days outside the patient's desired appointment date ▪ If an appointment becomes available sooner (e.g., due to cancellation), a patient on the EWL will be given the option to take the earlier appointment

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[92] The use of lists, both official and unofficial, has come under significant scrutiny since it was discovered in spring 2014 that the Phoenix VAMC was using "secret," or unofficial, waitlists, in part to mask delays in patient care. According to VHA national policy, all lists outlined below must be kept electronically and through the official VHA IT package to ensure proper monitoring practices and accurate data tracking. Any unofficial lists are expressly forbidden.

List name	Patient population	Type of care	Purpose
Consult	**New to service**	▪ Specialty care	▪ Consult list is made up of all patients who have been approved by the specialty service (e.g., cardiology) to be seen but have not yet been scheduled
Non-VA Care (NVCC) list, Veteran choice List (VCL)	**New to service, follow-up**	▪ Primary care ▪ Specialty care ▪ Mental health	▪ NVCC list is composed of established patients who are deemed to need care not available at VHA (e.g., service not offered) by referring service (usually specialty care) ▪ VCL was recently created by the Choice Act and is made up of new and established patients who are located >40 miles from a VHA facility or cannot be seen within 30 days by a VHA provider

See Figure D-2 for a simplified visual depiction of the new patient scheduling process.

Figure D-2. New Patient Appointment Booking Process
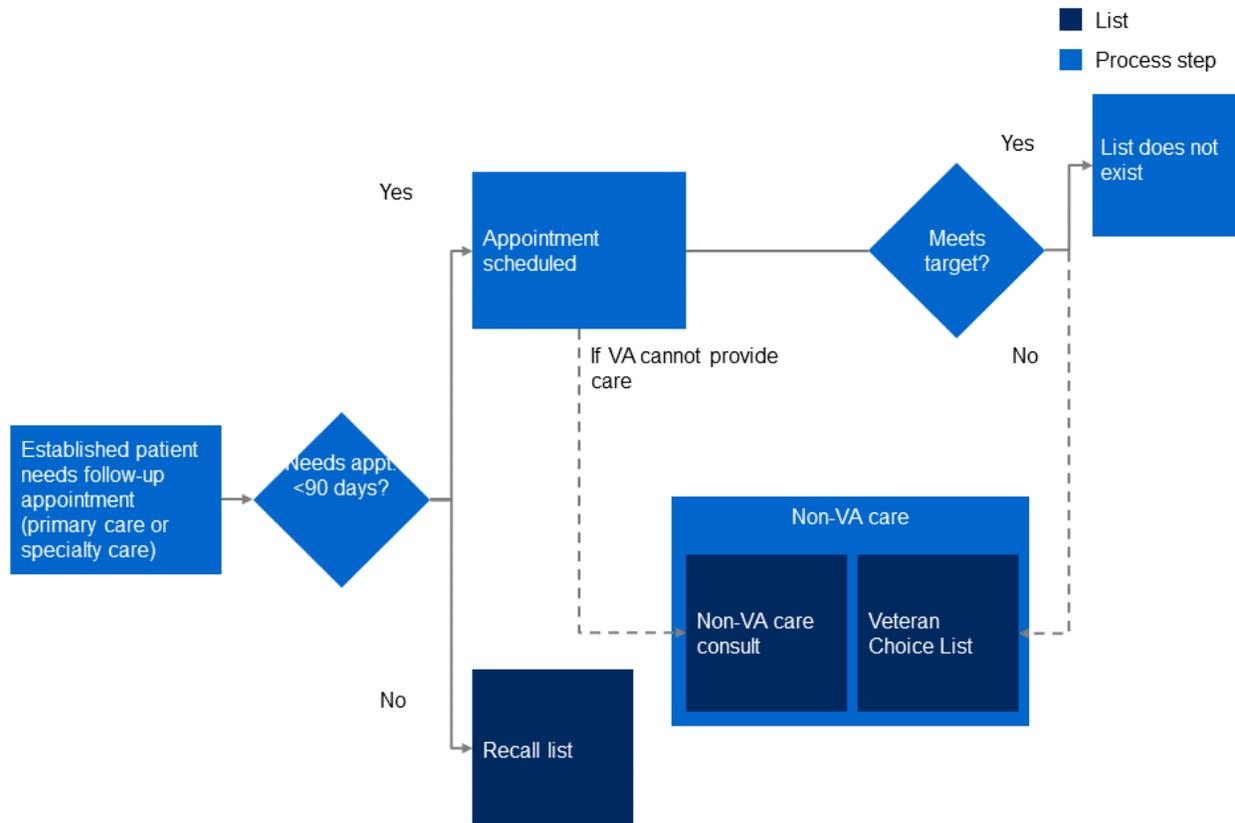
Wait times measurement & monitoring

While VHA looks at a number of supplemental access metrics, wait times at VHA are generally calculated one of two ways: 1) if the patient is new to the clinic, then the wait time is calculated as the difference in days between the creation date of the appointment in the VistA system and the day of the appointment; or 2) if the patient is established, policy states that the wait time is equal to the difference in days between the patient's "desired date" for the appointment and the date of the actual appointment. Policy states that the desired date should be determined by asking the patient when he or she would like to be seen without regard to availability of appointments. The scheduler is responsible for inquiring about and entering the patient's desired date into the system.

While the desired date form of measurement may seem straightforward, it has come under significant scrutiny due to its ability to be manipulated to decrease reported established patient

wait times, as has been reported multiple times in the previous decade.[95-99] By altering the desired date to a date the patient agrees based on appointment availability, the scheduler can artificially bring the wait for appointment times down to 0 days, even if patients may have to wait months to see their providers. Even if the scheduler is not intending to alter desired date to manipulate wait times, there still remains a subjective component to the process that may lead to variability among schedulers.

A component of the updated scheduling policy currently under VACO review is the replacement of the desired date with the "preferred date." The preferred date is defined much more narrowly for all patients to remove any subjectivity in the entering of the reference date. For example, under the proposed changes, the provider's return to clinic (RTC) date will become the desired date, regardless of patient input, with the goal of removing scheduler subjectivity from the wait time measurement process.

Patient appointment adherence management

Once patient appointments are scheduled, it is important that patients keep their appointments by arriving at the clinic on time and with all necessary pre-work (e.g., labs, imaging) so the visit can be effective. VHA facilities employ a number of different tools to manage this including live and robo reminder calls from the clinic and appointment reminder letters. As part of its patient-oriented IT development, VHA is also considering other features for reminders (e.g., text).

Another method that VHA is using to reduce no-show rates is the recall system, which was created in response to VHA patient data showing patients are more likely to no-show the further an appointment is booked into the future.[98] According to national scheduling policy, patients requiring follow-up appointments beyond 90 days into the future are not allowed booking those appointments and instead should be entered into the recall system. The recall system is a component of the VistA Scheduling package that tracks patients requiring future appointments and automatically reminds patients by letter 2-3 weeks ahead of their would-be appointment date to book their appointments. If patients do not respond to this letter, then the clinic must call the patient to schedule the appointment. The goal of this process is to reduce the time between booking date and visit date.

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[93] Audit of Alleged Manipulation of Waiting Times in Veterans Integrated Service Network 3

[94] Audit of the Veterans Health Administration's Outpatient Waiting Times

[95] Audit of the Veterans Health Administration's Outpatient Scheduling Procedures

[96] Reliability of Reported Outpatient Medical Appointment Wait Times and Scheduling Oversight Need Improvement

[97] Delays for Outpatient Specialty Procedures: VA North Texas Health Care System Dallas, Texas

[98] Access and Clinic Administration Program, interviews, 2015

Managing additional scheduling situations

Surgery and procedures: Procedures are scheduled in an analogous way to the outpatient visit appointment scheduling process above. A separate national policy exists for surgical/OR services, and relies on a different scheduling package than the one used for clinic visits and procedures.

Clinical laboratory testing and radiological imaging: The scheduling of laboratory testing (e.g., bloodwork) or imaging (e.g., x-ray, MRI) is slightly different from the visit scheduling process. Patients are not scheduled for clinical labs. Radiology scheduling can differ depending on the type of study. For instance, x-rays are usually performed on a walk-in basis, whereas other equipment (e.g., MRI, CT) typically utilizes open access scheduling,[99] in which schedulers are able to schedule patients into the appropriate modality ("Open Access Scheduling," n.d.).

Role of the front-line scheduler in the scheduling process

While scheduling may be performed by a range of roles at VHA, medical support assistants (MSAs), or "schedulers," typically perform the scheduling process. The clerks responsible for scheduling can either be located physically in the clinics for which they schedule or, alternatively, sometimes may sit in call centers located either within the facility or elsewhere. These clerks are required to have a high school education and generally one year of work experience, although no previous experience working in a clinical setting is required for certain scheduling-related roles.[100,101]

MSA duties may include, but are not limited to patient appointment scheduling, scheduling patients off of wait lists, front-desk duties (e.g., answering phone calls, checking in patients) and other clerical duties as requested by the clinic (e.g., obtaining patient records, making photocopies).

D.2 Best Practices for Scheduling Process

Table D-2. Scheduling Process – Best Practices and Benchmarks

Component	Best practice/benchmark
Overall	▪ Leverage a provider champion to drive change (Nolan et al., 1996)

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[99] https://cahps.ahrq.gov/quality-improvement/improvement-guide/browse-interventions/Access/Open-Access.html

[100] Access and Clinic Administration Program, interviews, 2015

[101] Work and education requirements vary by grade level

Component	Best practice/benchmark
	▪ Focus on patient wait times to improve patient satisfaction[102] (Brandenberg et al., 2015; HCAHPS, 2015)
	▪ Utilize same-day or open access scheduling to avoid trying to estimate patient acuity[103] (Brandenberg et al., 2015; Murray, 2003; IHI, 2015)
	▪ Overbook to the no show rate to improve utilization of available provider time (Kumar et al., 2014; Gupta and Denton, 2007)
	▪ Use team "huddles," including clinic providers, staff and administrators, at the beginning of each day ("Use Regular Huddles," n.d.)
Scheduler duties	▪ Improve slot availability to reduce time in negotiating appointments with patients (Murray, 2003)
Patient appointment adherence	▪ Consider no-shows and late cancellations (<24 hours) similarly in terms of ability to fill the previously scheduled slot (Moore et al., 2001)
	▪ Use mobile text messaging to reduce no show rates[104] (Koshy et al., 2008)
	▪ Reduce no-show rates by requiring patient to commit verbally to cancelling appointment if he/she plans on not keeping the appointment[105] ("How to Reduce," 2001)
	▪ Measure differences in no-show and walk-in rates by time of day[106] (Moore et al., 2001)

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[102] Patient satisfaction increased from 10th and 20th percentiles to 50th due to improved patient access for Kaiser

[103] Same-day or open access requires accurate demand and supply measurement, elimination of appointment types, and eradication of backlog to be successful

[104] Use of mobile-phone short message service (SMS) reminders was associated with a 38% reduction in appointment non-attendance in study of over 9,000 patients

[105] This study showed a decrease from 30 percent to 10 percent no-show rate in restaurant reservations after framing the reminder to cancel from a statement to a question

[106] This study in a family practice clinic showed higher no-show rates in the morning and higher walk-in rates in the afternoon, resulting in greater waste of provider time in morning sessions

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Component	Best practice/benchmark
	▪ Improve no-show rate with more timely access[107] (Brandenberg et al., 2015; Kehle et al., 2011; Pizer and Prentice, 2011)
	▪ Use same-day appointments to lower no-show rates[108] (Brandenberg et al., 2015)
	▪ Provide patient education about impact of no-show to reduce no-show rate ("Management," 2010)

Table D-3. Wait Times – Best Practices and Benchmarks

Component	Best practice/benchmark
Access Target	▪ Track third next available appointment as key access metric[109] (IOM 2015; IHI 2015)
	▪ Calculate third next available either automatically in system or manually, if needed[110] (IHI, 2015)
	▪ Establish goal for third next available to zero days for primary care and two days for specialty care (Brandenberg et al., 2015; IHI 2015)
	▪ Set patient expectations appropriately to achieve better patient satisfaction (Brandenberg et al., 2015; Cosgrove et al., 2013)

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[107] 8-12 percent no-show rate achieved largely through improved access; no-show rate expected to improve further with self-scheduling and increased same-day scheduling

[108] Denver Health successfully lowered no-show rates by providing same-day access

[109] The IHI defines third next available appointment as the "average length of time in days between the day a patient makes a request for an appointment with a physician and the third available appointment for a new patient physical, routine exam, or return visit exam"

[110] To calculate manually, "Count the number of days between a request for an appointment (e.g., enter dummy patient) with a physician and the third next available appointment for a new patient physical, routine exam, or return visit exam. Report the average number of days for all physicians sampled. Note: Count calendar days (e.g. include weekends) and days off. Do not count any saved appointments for urgent visits (since they are "blocked off" on the schedule.)"

D.3   Past Reports on Scheduling Process

Figure D-3. Previous Reports Relevant to Scheduling Process

Past reports relevant to Scheduling Process

Identified in study

Ind =   Independent Contractor
VA =   VA Internal Audit
OIG =   VA Office of the Inspector General
GAO =   Government Accountability Office

Category	Recommendations	2005	06	07	08	09	10	11	12	13	2014
Scheduling policy	Improve consistency of scheduling policy implementation and compliance	OIG		OIG	OIG				GAO		
	Create new scheduling policy										VA
Consults	Improve process to address unresolved consults	OIG		OIG	OIG					OIG	OIG
	Strengthen coordination of care							OIG	OIG		
	Standardize consult process across facilities				OIG				OIG		
	Minimize screening process				Ind						
Wait lists	Standardize EWL and other wait list management processes			OIG	OIG			OIG			
	Monitor more closely NEAR list and panel sizes								OIG		OIG
	Implement national review of wait lists										OIG
Patient reminders	Standardize processes to reduce missed opportunities				OIG						

Note: A 2001 GAO study recommending changes in consult processes was not included on graphic due to space constraints

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Appendix E   Scheduling System

E.1   Additional Detail on Scheduling System

Table E-1. MASS Setup Unique/High Priority Business Needs

Medical Application Scheduling System Setup		
ID	**Feature or Characteristic**	**Measure of success**
UHP1.1	▪ Current VistA reporting and DSS coding must continue to support non-scheduling business processes as it does today	▪ All scheduling data extracts continue to support other non-scheduling processes without disruption
UHP 1.2	▪ Resources, such as provider, support staff, equipment and facilities, can be configured for availability and services	▪ When scheduling appointments, those resources required to fulfill the appointment that are available and appropriate are presented. ▪ Scheduling is simplified because business rules are captured during setup and used throughout the scheduling processes ▪ Errors in scheduling are reduced because the solution prompts, warns or otherwise enforces the configured business rules
UHP 1.3	▪ Ability to create system level configurable business rules that are leveraged throughout the scheduling process	▪ Automation of business rules throughout the process
UHP 1.4	▪ Access to schedule resources must be role-based, allowing for various levels of access.	▪ Different user groups may be granted differing levels of access throughout the system, at the functional level (view appointment vs schedule appointment) and at the data level (one facility vs another, one service line vs another)
UHP 1.5	▪ Development and sharing of templates to ease implementation	▪ Templates for facility or service configurations can be created and shared, allowing for easy propagation of common configuration of business rules
UHP 1.6	▪ Configuration must mirror the multi-level construct of VHA, national, VISN, Health System, Facility, Outpatient clinics,	▪ A policy established at any level of the hierarchy is automatically enforced (soft enforcement with a warning, hard

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Medical Application Scheduling System Setup		
ID	**Feature or Characteristic**	**Measure of success**
	allowing for cascading of policy via business rule enforcement	enforcement with a prohibition of capability) downstream

SOURCE: MASS Business Blueprint, 2014

Table E-2. Manage Veteran Information Unique/High Priority Business Needs

Manage Veteran Information		
ID	**Feature or Characteristic**	**Measure of success**
UHP 2.1	▪ VistA reporting and DSS coding must continue to support non-scheduling business processes as it currently does today	▪ All scheduling data extracts continue to support other non-scheduling processes without disruption
UHP 2.2	▪ The scheduling solution shall capture special needs and preferences for each patient	▪ Schedulers can easily identify patients with special needs and preferences and use this information throughout scheduling processes
UHP 2.3	▪ Patient information must be consistent with other VA data about the patient	▪ The same patient data update does not have to occur more than once because the initial update was not propagated
UHP 2.4	▪ Patient information is shared with any facility where the patient will be seen	▪ Patients scheduled in a facility that is not their preferred facility will have the patient information at the time of service
UHP 2.5	▪ VHA eligibility and enrollment data must be integrated into scheduling process	▪ Scheduling process takes into consideration the eligibility of the patient throughout the scheduling process
UHP 2.6	▪ The scheduling solution shall allow patients to schedule appointments at any facility based upon service line permissions and patient permissions	▪ The patient can access their personal information and applicable lists of available appointments for any facility ▪ The patients can schedule an appointment at any facility
UHP 2.7	▪ New, easily accessible reporting capability allowing for broader analysis (across VHA) and deeper analysis (category of patient, condition, era, etc.) of scheduling performance	▪ Easily accessible data for trend analysis across the VA (broad analysis) as well as deep analysis for specific conditions or populations

SOURCE: MASS Business Blueprint, 2014

Table E-3. Request Management Unique/High Priority Business Needs

	Request Management	
ID	**Feature or Characteristic**	**Measure of success**
UHP 3.1	▪ VistA reporting and DSS coding must continue to support non-scheduling business processes as it currently does today	▪ All scheduling data extracts continue to support other non-scheduling processes without disruption
UHP 3.2	▪ Able to capture requests for service from multiple sources, to include NEAR, EWL, Recall, patient, providers	▪ All current list purposes are captured and maintained
UHP 3.3	▪ Patients are able to request care using different modes such as email, web access, mobile applications, etc.	▪ Patients can request appointments via different modes such as email, web access, mobile applications, etc. ▪ Routine or follow up appointments are easily scheduled without error by patients without the aid of a VHA scheduler
UHP 3.4	▪ Robust capability to manage multiple sources of requests to achieve appointment fulfillment rate standards	▪ Schedulers can create appointments directly from the list to improve efficiency rates, reduce data and scheduling errors, provide traceability and ensure accountability of all list entries
UHP 3.5	▪ Able to track all dates associated with any services from VA. Dates/times should be system-protected and not changed, reportable, auditable	▪ When VHA can track all patient interactions with VHA services from first contact to the end of provided care. Dates/times should be system-protected and not changed

SOURCE: MASS Business Blueprint, 2014

Table E-4. Appointment Management Unique/High Priority Business Needs

	Appointment Management	
ID	**Feature or Characteristic**	**Measure of success**
UHP 4.1	▪ Current VistA reporting and DSS coding must continue to support non-scheduling business processes as it currently does today	▪ All scheduling data extracts continue to support other non-scheduling processes without disruption

Appointment Management		
ID	**Feature or Characteristic**	**Measure of success**
UHP 4.2	▪ Capture preferred date in accordance with policy for each appointment created	▪ When preferred date is captured indicating the source of the preferred date (patient, provider, other) for each individual appointment
UHP 4.3	▪ Automated implementation of business rules as configured (setup) when searching for resources and creating appointments	▪ Scheduler training requirements are decreased since majority of business rules are automated ▪ Reduction in scheduling errors because of automated business rules ▪ Scheduler has immediate feedback and visibility when scheduling outside of policy, guidance or business rules
UHP 4.4	▪ Flexibility to substitute appropriate resources assigned to appointment	▪ Reduced cancellations due to short term unavailability of resource
UHP 4.5	▪ Improve notification process through capture of patient preference for notification, configurable and enforceable notification templates	▪ Patients consistently receive notifications in their preferred method (phone, email, USPS) in a timely and accurate manner
UHP 4.6	▪ Ability to coordinate multiple resource sets at multiple locations for a single appointment (telehealth)	▪ Telehealth appointments are coordinated seamlessly between the provider(s), equipment, facilities and patients with on time delivery of care, no lost time due to poorly coordinated appointments
UHP 4.7	▪ Ability to link associated and/or dependent appointments	▪ Schedulers able to view, coordinate and link multiple appointments (series or multiple same-day)
UHP 4.8	▪ Create appointment for any service at any facility and delivery type based upon role-based access as defined in setup	▪ Patients can schedule services as they desire

Appointment Management		
ID	**Feature or Characteristic**	**Measure of success**
UHP 4.9	▪ Ability to coordinate multiple appointments for a patient	▪ Patients have an itinerary of appointments that suits their needs, with appointments coordinated in an efficient manner
UHP 4.10	▪ Use scheduling preferences when scheduling appointments	▪ Patients preferences are automatically considered when creating appointments
UHP 4.11	▪ Coordinate special needs throughout scheduling process	▪ Staff are aware of and prepared for patients with special needs when they are being scheduled and when they present for care

SOURCE: MASS Business Blueprint, 2014

**Table E-5. Coordinate Associated and Occasion of Service Unique/
High Priority Business Needs**

Coordinate Associated and Occasions of Service		
ID	**Feature or Characteristic**	**Measure of success**
UHP 5.1	▪ VistA reporting and DSS coding must continue to support non-scheduling business processes as it currently does today	▪ All scheduling data extracts continue to support other non-scheduling processes without disruption
UHP 5.2	▪ Need to make travel reimbursement data available to the travel determination process	▪ Travel pay is consistent with patient schedules
UHP 5.3	▪ Request scheduling data from non-VA health care delivery	▪ Patient's pending appointments include all care delivery, to include delivery from non-VA health care delivery sources
UHP 5.4	▪ Coordinate consults and resultant appointments across service lines to reduce waiting time	▪ Wait times for consults are reduced, data is not lost, easily able to report on consults and resultant appointments ▪ Seamless integration of data from consults to scheduled appointments
UHP 5.5	▪ Schedule health care delivery modes including home based health care, telehealth & phone/email/web services	▪ Appointments can be scheduled for telehealth, home health, email, phone and other care delivery options

SOURCE: MASS Business Blueprint, 2014

Table E-6. Manage Encounter of Care Unique/High Priority Business Needs

Manage Encounter of Care		
ID	**Feature or Characteristic**	**Measure of success**
UHP 6.1	▪ Current VistA reporting and DSS coding must continue to support non-scheduling business processes as it currently does today	▪ All scheduling data extracts continue to support other non-scheduling processes without disruption
UHP 6.2	▪ Timestamps to capture Veteran cycle of care and episode of care, starting from first contact with VA	▪ Veteran contact date/wait time or care cycle can be tracked by type of services received, time to complete requested service or segment of services received
UHP 6.3	▪ Efficiently exchange scheduling data with encounter data throughout scheduling process	▪ Data is not lost and data quality is improved because of decreased manual entry of data

SOURCE: MASS Business Blueprint, 2014

Table E-7. Report Management Unique/High Priority Business Needs

Report Management		
ID	**Feature or Characteristic**	**Measure of success**
UHP 7.1	▪ VistA Scheduling data must continue to support current VistA reporting, DSS coding and other non-scheduling business processes as it currently does today	▪ All scheduling data extracts continue to support other non-scheduling processes without disruption
UHP 7.2	▪ Robust data analysis features and capability based on consistent, standard data	▪ Veteran contact date/wait time or care cycle can be tracked by type of services received, time to complete requested service or segment of services received
UHP 7.3	▪ Additional data elements captured to provide more detailed wait time and patient care measures	▪ Data is not lost and data quality is improved because of decreased manual entry of data
UHP 7.4	▪ Capture data to report resource and capacity utilization	▪ All scheduling data extracts continue to support other non-scheduling processes without disruption
UHP 7.5	▪ Visual display of data throughout scheduling process (calendar view or other)	▪ Veteran contact date/wait time or care cycle can be tracked by type of services

Report Management		
ID	**Feature or Characteristic**	**Measure of success**
		received, time to complete requested service or segment of services received
UHP 7.6	▪ Easily accessible reporting capability allowing for broader analysis (across VHA) and deeper analysis (category of patient, condition, era, etc.) of scheduling performance	▪ Data is not lost and data quality is improved because of decreased manual entry of data

SOURCE: MASS Business Blueprint, 2014

E.2 Best Practices and Benchmarks for Scheduling System

Table E-8. Scheduling Systems – Best Practices and Benchmarks

Best practice/benchmark
▪ Use IE/OR models to determine what types of data are needed to support future operational decisions (Gupta and Denton, 2007)
▪ Build automation into the scheduling system and mobile apps to "eliminate dependence on individual diligence or memory" (Brandenburg et al., 2015)
▪ Solidify the technology/business relationship via governance. Integrate technology into strategic planning. Set and shape a simple, multi-year roadmap for overall business strategy. Establish an open planning process. Teach and promote communication and relationship skills (Faeth, 2012)
▪ Stick to the schedule. Resist changes to a project's scope. Break the project into discrete modules. Assemble a team that includes IT experts, outside experts, and vendors. Prevent turnover among team members. Frame the initiative as a business endeavor, not a technical one. Focus on a single target and measure every activity against it (Flyvbjerg and Budzier, 2011).
▪ Assess if the company is strong enough to absorb the hit if the IT project goes over budget 400% and less than half the expected benefits are realized. And assess if the company can take the hit if 15% of its medium-sized tech projects exceed costs by 200% (Flyvbjerg and Budzier, 2011).
▪ Break big projects down into limited size; make contingency plans to deal with unavoidable risks; use the best possible forecasting techniques (Flyvbjerg and Budzier, 2011)

E.3   Past Reports for Scheduling System

Figure E-1. Past Reports for Scheduling Systems

Past reports relevant to Scheduling Technology

■ Identified in study

Ind = Independent Contractor
VA = VA Internal Audit
OIG = VA Office of the Inspector General
GAO = Government Accountability Office

Category	Recommendations	2005	06	07	08	09	10	11	12	13	2014
Phone system	Invest in more current and usable telephone system				Ind						Ind
	Implement best practices								GAO		
IT system	Weigh costs and benefits of IT modifications				Ind						VA
	Leverage lessons learned by the Indianapolis VAMC COTS product				Ind						
	Develop more consistent approach to management of data and dashboards				Ind						
	Accelerate steps to improve technologies for performance mgmt.										Ind
	Document review of consults in EHR and link results to compliance										VA
	Oversee accuracy of desired date entered in VistA scheduling				OIG						
	Oversee that VistA scheduling is being used to schedule appointments				OIG						
	Routinely test the accuracy of scheduling				OIG						

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Appendix F   Scheduler Training

F.1   Additional Detail on Scheduler Training

Table F-1. Scheduler Training – Initial TMS Training for Schedulers

TMS content description		
Topic	**Format**	**Time covered**
Business rules ▪ Definitions ▪ Scheduling Rules ▪ Recall List	TMS online module	Self-paced, approx. 1 hour
Make an appointment ▪ NEAR ▪ EWL ▪ Recall Reminder ▪ Pending Consults Lists ▪ Appointment Management Options ▪ Clinical Grids ▪ Unscheduled Appointments	TMS online module	Self-paced, approx. 1 hour
Recall/reminder ▪ Recall Reminder Software Functions	TMS online module	Self-paced, approx. 1 hour
Soft skills ▪ How to interact with Veterans	Classroom	4 hours

Figure F-1. Scheduler Training – Initial Training for Schedulers on Policies and Processes

How many hours of training did you receive in your initial training about scheduling policies and processes?

Percent, N=825 responses from 97 VAMCs and 128 CBOCs
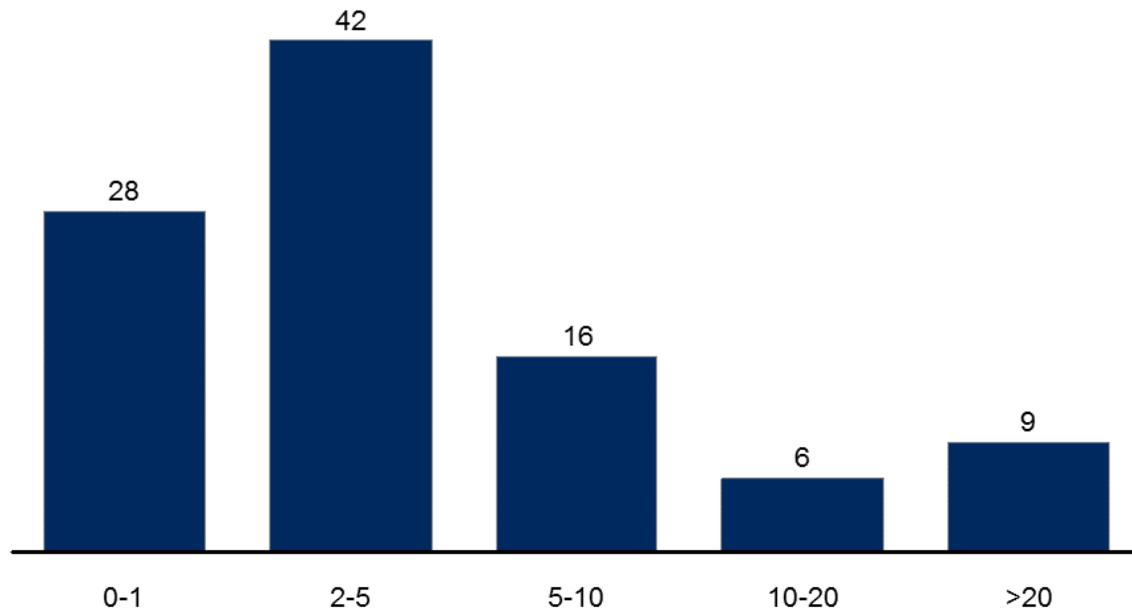
SOURCE: 2015 VHA Employee Survey

Figure F-2. Scheduler Training – Initial Training for Soft Skills

How many hours of training did you receive in your initial training about soft-skills (e.g., leadership training, customer service)?

Percent, N=825 responses from 97 VAMCs and 128 CBOCs
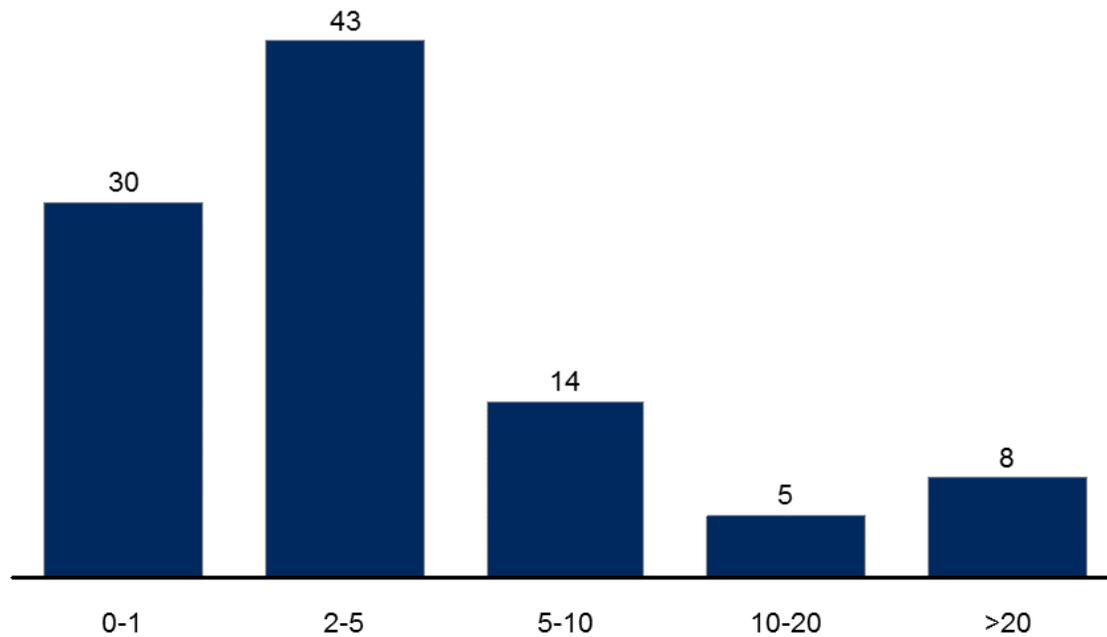
SOURCE: 2015 VHA Employee Survey

Figure F-3. Scheduler Training – Initial Training for Scheduling Systems

How many hours of training did you receive in your initial training about scheduling systems (e.g., VistA, CPRS)?

Percent, N=825 responses from 97 VAMCs and 128 CBOCs

0-1	2-5	5-10	10-20	>20
21	44	16	6	13
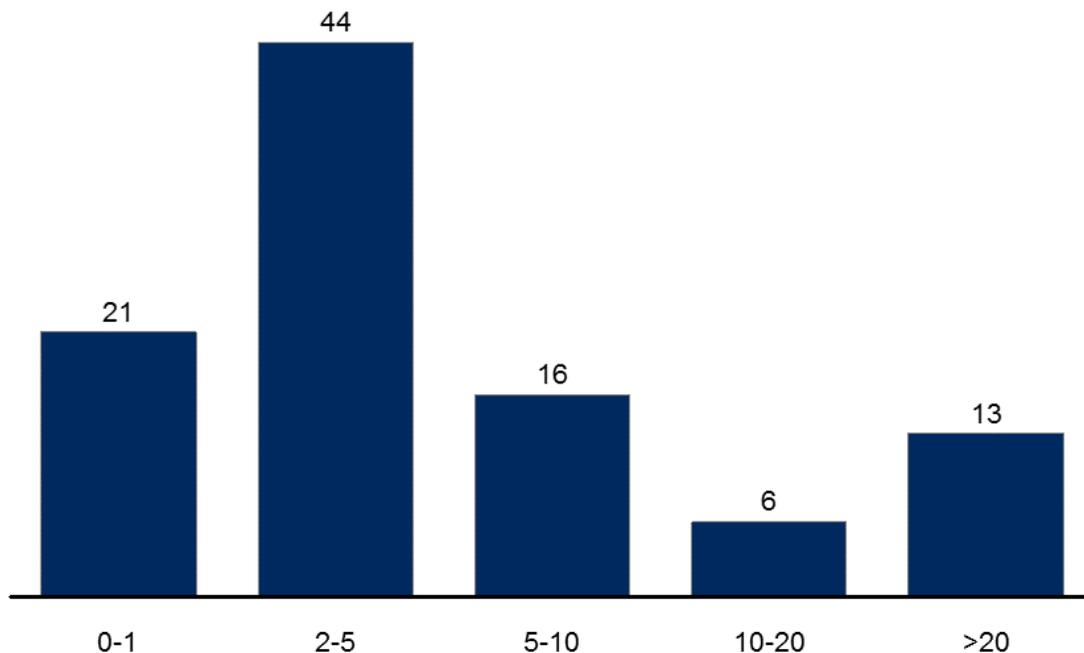
SOURCE: 2015 VHA Employee Survey

Figure F-4. Scheduler Training – Initial Training for Scheduling Systems

How many hours of on the job training (e.g., side by side coaching, receiving feedback) did you receive in your initial training?

Percent of schedulers, N = 825 responses from 97 VAMCs and 128 CBOCs
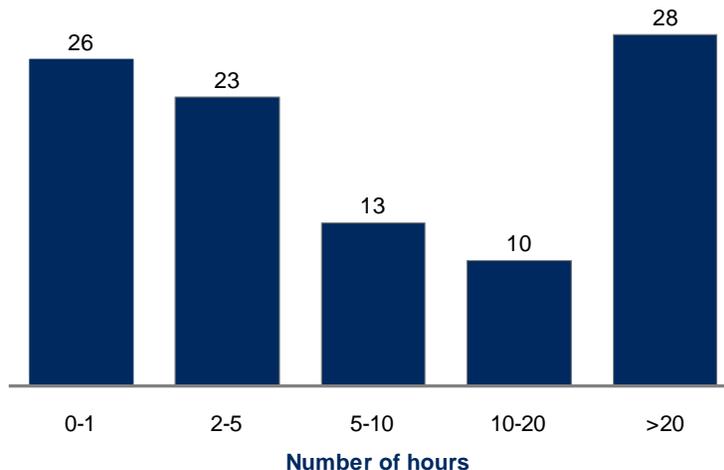
SOURCE: 2015 VHA Employee Survey

F.2   Best Practices and Benchmarks for Scheduler Training

Table F-2. Training – Best Practices and Benchmarks

Component	Best practice/Benchmark
Content	▪ Provide schedulers protocols, cheat sheets, and simplified guidance to ensure consistency in scheduling ("Management," 2010)
	▪ Link training content to performance objectives and business requirements ("A Guide to," 2015)
	▪ Embed industry-recognized skills certifications into training ("A Guide to," 2015)
Training delivery and assessment	▪ Give front-line employees structured on-the-job training including a stage of competency assessment (Jacobs, 2003)
	▪ Minimize in-classroom training and online modules in favor of experiential activities (Whitmore, 2002)
	▪ Encourage a variety of informal on-the-job learning options (e.g., feedback, networking, stretch assignments ("A Guide to," 2015)

Component	Best practice/Benchmark
Sharing of best practices	▪ Create knowledge and learning platforms that give employees access to content on demand ("A Guide to," 2015)

F.3 Past Reports for Scheduler Training

Figure F-5. Previous Reports Relevant to Scheduler Training and Operating Structure

Component	Best practice/Benchmark
Sharing of best practices	▪ Create knowledge and learning platforms that give employees access to content on demand ("A Guide to," 2015)

F.3 Past Reports for Scheduler Training

Figure F-5. Previous Reports Relevant to Scheduler Training and Operating Structure

Appendix G   Scheduling Call Centers

G.1   Best Practices and Benchmarks for Scheduling Call Centers

Table G-1. Call Center – Best practices and Benchmarks

Component	Best practice/Benchmark
Call center staffing and structure	▪ Provided booking operations through remote call centers rather than through on-site schedulers (Gupta and Denton, 2007)
	▪ Centralize call centers to decrease abandoned calls and scheduling error rate and increase physician utilization of scheduling templates and number of patient visits (Rodak, 2013).
	▪ Consolidate operations to achieve five to ten percent technology savings, driven by platform and network savings, shared CRM applications, consolidated customer self-service applications, improved call routing efficiencies, and optimized agent desktop tools ("Contact," 2013)
	▪ Provide in-depth coaching for their frontline staff and have managers co-located with staff to spend significant time with them (Houser, 2015)

G.2   Past Reports for Scheduling Call Centers

Figure G-1. Previous Reports Relevant to Scheduling Call Centers

Past reports relevant to scheduling call centers

Identified in study

Ind = Independent Contractor
VA = VA Internal Audit
OIG = VA Office of the Inspector General
GAO = Government Accountability Office

Category	Recommendations	2005	06	07	08	09	10	11	12	13	2014
Asset investment	Ensure availability of IT necessities (headphones, monitors, bandwidth)										Ind
	Invest in people, processes, hardware, and call center software										VA
	Hire, train, and maintain the necessary number of schedulers										VA
Measurement and evaluation	Establish KPIs, specifically first-call resolution and customer satisfaction										VA
	Develop a national assessment for Veterans' satisfaction with call centers										VA
	Establish a quality management system for data and driving change										Ind
	Publish a guide for call centers based on lessons from call center pilots										VA
Leadership	Convene a summit to align leadership on a shared vision for the future										VA
	Establish a steering committee to oversee changes to call centers										VA
	Develop a network of FTE to facilitate schedulers sharing best practices										VA
	Ensure VAMCs provide implement best practices for telephone access								GAO		

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Appendix H   Bibliography

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Appendix I   List of Acronyms

ACAP   Access and Clinic Administration Program

ACD   Automatic Call Distributor

AMGMA   Academic Medical Group Management Association

AOA   Analysis of Alternatives

AOs   Administrative Officers

CAMH   CMS Alliance to Modernize Healthcare

CBI   Compliance and Business Integrity

CBO   Chief Business Office

CBOC   Community-Based Outpatient Clinic

CDW   Corporate Data Warehouse

cFTE   Clinical Full-Time Equivalent

CIO   Chief Information Officer

CMS   Centers for Medicare & Medicaid Services

COTS   Commercial-Off-The-Shelf

CPM   Clinic Practice Management

CPRS   Computerized Patient Record System

CRM   Customer Relationship Management

CUSS   Clinic Utilization Statistical Summary

EES   Employee Education System

EHCPM   Enrollee Health Care Projection Model

EMR   Electronic Medical Record

EWL   Electronic Wait List

FCR   First Call Resolution

FFRDC   Federally Funded Research and Development Center

FOC   Final operating capability

FTE   Full-Time Employee

GAO   Government Accounting Office

GPM   Group Practice Manager

GUI   Graphical User Interface

HAS   Health Administration Service

HRC   Health Resource Center

ICB   Insurance Capture Buffer

IHI   Institute for Healthcare Improvement

IOC   Initial Operational Capability

IOM   Institute of Medicine

IVAT   Improving Veterans Access via the Telephone

IVR   Interactive Voice Response

MAS   Medical Administration Service

MASS   Medical Appointment Scheduling System

MGMA   Medical Group Management Association

MSA   Medical Support Assistant

MUMPS   Massachusetts General Hospital Utility Multi-Programming System

MVAT   Managing Veterans Access via the Telephone

NAHAM   National Association of Healthcare Access Management

OI&T   Office of Information & Technology

OIG   Office of the Inspector General

OPES   Office of Productivity, Efficiency, and Staffing

PACT   Patient-Aligned Care Teams

PCP   Primary Care Provider

PMAS   Program Management Accountability System

RFQ   request for quotation

RMS   Resource Management System

RSA   Replacement Scheduling Application

RVUs   Relative Value Units

SC   Service Connected

SCS   Scheduling Clinic Standards

SHEP   Survey of Healthcare Experience of Patients

SMS   Short Message Service

SOPs   Standard Operating Procedures

SPARQ   Specialty Productivity Access Report and Quadrant

TACM   Telephone Access and Contact Management

TMS   Talent Management System

TRM   Technical Reference Model

VA   Veterans Affairs

VACO   Veterans Affairs Central Office

VAMCs   VA Medical Centers

VAR   Veteran Appointment Request

VCL   Veterans Choice List

VERA   Veteran Equitable Resource Allocation

VHA   Veterans Health Administration

VHACO   Veterans Health Administration Central Office

VISN   Veterans Integrated Service Network

VistA   Veterans Health Information Systems and Technology Architecture

VSE   VistA Scheduling Enhancements

VSSC   Veterans Support Service Center

wRVU   Work Relative Value Unit

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Preface

Congress enacted and President Obama signed into law the Veterans Access, Choice, and Accountability Act of 2014 (Public Law 113-146) ("Veterans Choice Act"), as amended by the Department of Veterans Affairs (VA) Expiring Authorities Act of 2014 (Public Law 113-175), to improve access to timely, high-quality health care for Veterans. Under "Title II – Health Care Administrative Matters," Section 201 calls for an Independent Assessment of 12 areas of VA's health care delivery systems and management processes.

VA engaged the Institute of Medicine of the National Academies to prepare an assessment of access standards and engaged the Centers for Medicare & Medicaid Services (CMS) Alliance to Modernize Healthcare (CAMH)[1] to serve as the program integrator and as primary developer of the remaining 11 Veterans Choice Act independent assessments. CAMH subcontracted with Grant Thornton, McKinsey & Company, and the RAND Corporation to conduct 10 independent assessments as specified in Section 201, with MITRE conducting the 11th assessment. Drawing on the results of the 12 assessments, CAMH also produced the Integrated Report in this volume, which contains key findings and recommendations. CAMH is furnishing the complete set of reports to the Secretary of Veterans Affairs, the Committee on Veterans' Affairs of the Senate, the Committee on Veterans' Affairs of the House of Representatives, and the Commission on Care.

The research addressed in this report was conducted by McKinsey & Company under a subcontract with The MITRE Corporation

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[1] The CMS Alliance to Modernize Healthcare (CAMH), sponsored by the Centers for Medicare & Medicaid Services (CMS), is a federally funded research and development center (FFRDC) operated by The MITRE Corporation, a not-for-profit company chartered to work in the public interest. For additional information, see the CMS Alliance to Modernize Healthcare (CAMH) website (http://www.mitre.org/centers/cms-alliances-to-modernize-healthcare/who-we-are/the-camh-difference).

The views, opinions, and/or findings contained in this report are those of the assessment team and should not be construed as an official government position, policy, or decision.

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Executive Summary

Part F ("Assessment F"), Section 201 of the Veterans Access, Choice, and Accountability Act of 2014 ("The Choice Act") mandates an assessment of the "organization, workflow processes, and tools used by the Department to support clinical staffing, access to care, effective length-of-stay management and care transitions, positive patient experience, accurate documentation, and subsequent coding of inpatient services." Assessment F looked at these five sub-assessments (clinical staffing, access to care, effective length-of-stay management and care transitions, positive patient experience, accurate documentation, and subsequent coding) as both individual components as well as part of the interdependent continuum of inpatient care[2].

Inpatient care is delivered to more than 600,000 Veterans annually across more than 150 Veteran Affairs Medical Centers (VAMCs) in all 50 states and Puerto Rico (VSSC, 2014). The scale and variety of services the Veterans Health Administration (VHA) provides are extensive. VAMCs range considerably in complexity, from high-complexity, high-volume sites ("level 1a") to lower-complexity facilities more focused on outpatient care ("level 3")[3]. Approximately 80 percent of high- and medium-complexity facilities[4] have Community Living Centers (CLCs—VA nursing homes), ~50 percent have Domiciliary Residential Rehab Treatment Programs , ~25 percent provide Polytrauma services[5], ~20 percent are Regional Spinal Cord Injury Centers, and ~10 percent are Blind Rehabilitation Centers. VHA also has complex partnerships with other organizations: 100 percent of high- and medium-complexity facilities are academically affiliated and ~2 percent are joint DoD facilities. Ensuring consistently high-quality services and efficient operations across such a large and varied system is a considerable task.

Assessment F's focus was exclusively on the acute inpatient care setting[6]. To understand the strengths and challenges of VHA practices across such a varied system, we interacted with more than 750 VHA employees, including front-line staff, VAMC leadership, and VHA subject matter experts at VA Central Office (VACO), VHA Central Office (VHACO), and VAMCs. We visited a representative sample of 21 VAMCs across the country, conducting interviews with leadership and staff, interdisciplinary workshops with front-line personnel and managers, and shadowing in acute inpatient units. We supplemented site visits with analysis of national VHA data sets, a system-wide survey and data call, and interviews. We then compared VHA practices against industry benchmarks and best practices.

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[2] Table 1-1 in section 1.3.6 provides a cross map of the sub-assessments' findings and recommendations with the organization, workflow processes and tools framework

[3] VHA has five complexity levels: 1a, 1b, 1c, 2, and 3, with 1a being the most complex and 3 being the least complex

[4] Levels 1a, 1b, 1c, and 2. Our assessment is tasked with assessing inpatient care, and therefore focused on higher-complexity facilities, which have more substantial inpatient services

[5] Includes Polytrauma Rehabilitation Centers (~5 percent) and Polytrauma Network Sites (~20 percent)

[6] Choice Act 201 specifies a focus on the inpatient setting, as such our assessment does not cover outpatient, VHA-operated long-term care facilities (e.g., community living centers, domiciliary care), or VAMCs that do not provide acute medical care in the inpatient setting as their primary service (Level 3)

Our assessment identified both cross-cutting strengths and opportunities for improvement as well as findings and recommendations specific to each of the five sub-assessment areas included in this report. Cross-cutting findings and recommendations can be found in Sections 3 and 4, while sub-assessment-specific findings and recommendations can be found in Sections 5 to 9. In brief, we found:

- **Cross-cutting findings:** We observed three common themes supported by findings across sub-assessment areas.

  o **Ineffective data collection and management drives a lack of transparency into many key aspects of clinical operations, hindering VHA's ability to effectively manage inpatient care.** Despite having a well regarded electronic medical record (EMR) system and the capability of tracking extensive clinical data, poor data collection and management of operational metrics was a consistent theme heard during site visits. Furthermore, it was clearly evident from our central and local requests for specific information. Data that is standard in private sector hospitals was frequently inaccessible in a timely manner or not tracked in a usable format by VHA.

  o **VHA resources (e.g., staff, beds) do not always match Veterans' care needs.** The practical allocation and prioritization of resources across the VHA system may not be consistently aligned to meeting the broader health needs of the Veteran patient population. Mismatch of resources to patient care needs manifests itself in three ways: hiring that does not consistently match staffing needs; allocation of staff to tours ("shift") that do not consistently match Veteran demand; and limited access to appropriate outpatient and post-/sub- acute care options.

  o **While best practices exist in selected pockets, communication and support for implementation at scale appears to be a challenge.** Our site visits revealed several clear best practices in place at various VAMCs (please see Appendix A-2 for a list of best practices identified during site visits and highlighted throughout this report); however, adoption of these practices was isolated even within the facility. Case studies of particularly strong programs are included in all sub-assessments. Despite successfully adopting best practices in some units, however, facilities appeared to struggle to implement programs house-wide. Moreover, information-sharing between VAMCs appears to be limited and ad hoc. As one Assistant Director of Patient Care Services described, "I'm shameless about stealing what works at other places, the problem is, I don't know what other places are doing. We need a way to connect, to learn from each other"[7]. This sentiment was echoed by staff across all of the facilities we visited.

- **Sub-assessment finding, clinical staffing:** Siloed resource management (e.g., limited coordination across service lines on FTE requests), poor data management, and limited guidance on staffing methodology result in staffing practices that are seldom evidence-based, outside of a few best practice areas (such as nursing). This prevents VHA from knowing whether staffing allocations are appropriate. Furthermore lengthy hiring

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[7] Facility interview

timelines and inconsistent alignment of staff to patient care needs have downstream implications.

- **Sub-assessment finding, access:** Best practices exist at disparate facilities; however, their lack of systemic adoption, combined with an inaccurate understanding of patient demand and available capacity, and inconsistent admission and bed assignment practices, hinder inpatient access.

- **Sub-assessment finding, length-of-stay and care transitions:** National efforts to improve length-of-stay have been hampered by challenges meeting discharge needs of patients requiring specialized post-acute care (e.g., homeless, psychiatric diagnoses), inefficiencies in care delivery practices (e.g., limited availability of weekend consults), and inconsistent approaches to discharge planning often delay care transitions and discharge beyond private sector benchmarks.

- **Sub-assessment finding, patient experience:** Best practice innovations are evident at the national and local levels, but challenges with patient satisfaction data transparency and national implementation support limit system-wide adoption.

- **Sub-assessment finding, documentation and coding:** Limited understanding by providers and coders of the link between coding and resource allocation, coupled with limited performance management, likely contribute to sub-optimal documentation practices yielding lost revenues and misaligned resources. Despite these challenges, coding performance is an area of relative strength and comparable with industry standards.

Cross-cutting recommendations: Across sub-assessments, our recommendations also fall under three main themes:

- **Improve clinical management through establishing clear operational metrics, and streamlining data collection focused on clinical priorities, monitoring, and performance management.** Appropriately defining standards for high performance and having accurate information on how departments and facilities measure against defined targets is the foundation of managing operations. Site visits, data analysis, and comparison against best and standard practices suggest that VHA lacks such visibility into clinical operations, significantly reducing its ability to address challenges and innovate (see Section 3.1). We believe that improving transparency is critical to ensuring effective, timely, and efficient delivery of care to Veterans, across many of our sub-assessment areas. In part, transparency could be improved through enhanced data management, meaning both better data integrity and sharper focus on a targeted set of key metrics needed to assess performance. Equally important, VHA should ensure that facilities have clear operational guidelines on how to set and track appropriate performance goals (e.g., by providing comprehensive staffing methodologies for service lines with no national guidance).

- **Realign resourcing (for example, staff, facilities) to allow VHA to serve patients at the appropriate level of care (such as, increase Veteran access to sub-acute and post-acute care to reduce clinically inappropriate admissions and prolongation of acute inpatient stays).** We observed many instances in which VHA resources were not appropriately matched to patient demand. As described in Section 3.2, there is a disconnect between resources and demand in delayed hiring of staff needed to support patient care, mis-

allocation of staff to tours (i.e., shifts), and limited outpatient and post-acute care options needed to ensure treatment at the appropriate level of care. In order to provide high quality care that promotes the health and well-being of Veterans in a cost efficient manner, VHA should ensure that resourcing allows the system to serve patients at the appropriate level of care. Broadly, we see three categories of changes that could help effect this recommendation: improve hiring, allocate staff to match patient demand (e.g., align that staffing on weekend, holiday, and evening hours is sufficient to meet patient need), and increase access to outpatient and post-acute care options.

- **Scale existing best practices and support further innovation at the local and national levels.** A consistent theme during our site visits and interviews was that the opportunity to build off of existing strengths within the system was encumbered by limited sharing of best practices across VAMCs (see Section 3.3). In instances where best practices have been developed nationally, challenges appear to exist due to unclear guidance on implementation, occasional flaws in the design of programs, and lack of VAMC adoption. In instances where best practices have been developed locally, scaling seems to be inhibited by limited infrastructure for information-sharing and lack of resources. To address both sets of challenges and fully leverage and build off of institutional strengths, we suggest improving practices through a combination of targeted national guidance (e.g., streamline Veteran-centered care initiatives and mandates) and nationally-supported local best practice-sharing and innovation (e.g., build infrastructure to promote cross-facility sharing of patient flow best practices).

Our cross-cutting recommendations are supported by individual recommendations in each sub-assessment. Furthermore individual recommendations have been cross mapped to prior assessments' findings and recommendations in the appendices for each sub-assessment, highlighting the need for well-coordinated and comprehensive action. Understanding that several of recommendations will require national coordination -- while others could be implemented in the near-term at the facility level, we have provided additional tactical steps, titled near-term actions, for associated recommendations at the sub-assessment level and encourage facilities to review these and consider action quickly at the local level where appropriate.

Additionally, we believe there are several preconditions to successfully implementing our recommendations. These preconditions, described below, represent fundamental shifts in VHA operations and management, however we believe that they are necessary in order to fully and sustainably transform clinical workflows.

- **Clearly define the range of services VHA is responsible for providing, as well as its target Veteran recipients**, define the degree to which VA will fund and provide inpatient care that does not meet clinical appropriateness criteria (for example, for homeless or difficult to place patients), and ensure sufficient resourcing to provide this care, whether through VHA facilities or contracts with external organizations.

- **Substantially streamline congressional mandates and VHA directives** including reporting requests, required programs, and earmarked funding, in order to sharpen VHA's focus and allow VAMCs the flexibility they require to address local care needs.

- **Understand resource implications of new and existing congressional mandates and VACO VHACO directives** that are judged necessary to ensure adequate resources are available without negatively impacting other programs and services.

- **Increase transparency and accountability for performance** against a limited set of the most important metrics.

In summary, our assessment took an end-to-end view of inpatient clinical operations across five key sub-assessment areas and all high- and medium-complexity VAMCs. We acknowledge strengths and provide suggestions for addressing challenges in the provision of inpatient care across VHA. Implementing solutions to long-standing challenges will require collaboration among Congress and the Executive Branch, VA leadership (VACO, VHACO, VISN, and VAMC) and staff, as well as the unions, Veterans and external stakeholders. We see this assessment as an opportunity for improvement, to be achieved by all stakeholders through a combination of local, regional, and national action. Addressing these challenges will require sustained commitment as a part of an integrated transformation effort for the system as a whole.

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List of Best Practice Examples[8]

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[8] Please note that this is not intended to be a comprehensive representation of best practices across VHA or the private sector, but is instead based on those sites that we visited and were identified through interviews and academic literature

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1 Introduction

1.1 Purpose

With the goal of improving access, quality, and effectiveness of health care delivery for Veterans, the Veterans Access, Choice, and Accountability Act of 2014 ("The Choice Act"), Section 201 mandated a forward-looking, independent assessment of current practices and opportunities for improvement within VA facilities. Specifically, Assessment F is tasked with a review of the "organization, workflow processes, and tools used by the Department to support clinical staffing, access to care, effective length-of-stay management and care transitions, positive patient experience, accurate documentation, and subsequent coding of inpatient services" (Section 201, Part F).

1.2 Scope

Pursuant to the language provided in Section 201 of the Choice Act, the scope of our assessment focuses on the organization, workflow processes, and tools (i.e., structural components and approaches) in place within acute care hospitals to facilitate clinical staffing, access, effective length-of-stay management and care transitions, positive patient experience, and accurate documentation and subsequent coding, all within the acute inpatient setting. Comparison of current VHA practices to accepted best practices (drawn from literature and professional associations), as well as standard practices (drawn from public and private sector benchmarks) provided insight into alternative approaches and recommendations. While selected performance outcomes were used to prioritize areas of focus, a complete analysis of clinical, performance, operational, or other outcomes associated with the employed approaches was not in scope for this assessment. We would however, be remiss not to acknowledge that, per Assessment B, VA's performance against reviewed clinical outcomes was found to be on-par or better than industry averages in many cases.

Assessment F is closely connected to several other assessments within the Choice Act, including, but not limited to, assessments B (capabilities and resources), E (scheduling), G (staffing), H (information technology), I (business processes) and L (leadership). In order to avoid overlap and duplicative analysis, assessments were completed in close coordination. We have indicated key instances where further relevant analysis is included in related assessment reports. Examples of these adjacencies include the VISN-VAMC relationship (Assessment L), surgical scheduling processes (Assessment E), clinical outcomes (Assessment B), and provider productivity (Assessment G).

1.3 Sub-Assessments

The five identified sub-assessment areas (clinical staffing, access to care, effective length-of-stay management and care transitions, positive patient experience, and accurate documentation and coding) for inpatient workflows are closely linked, driving and affecting each other in multiple ways (see Figure 1-1).

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**Figure 1-1. Relationships and Interdependencies Between
Assessment F Sub-assessment Areas**
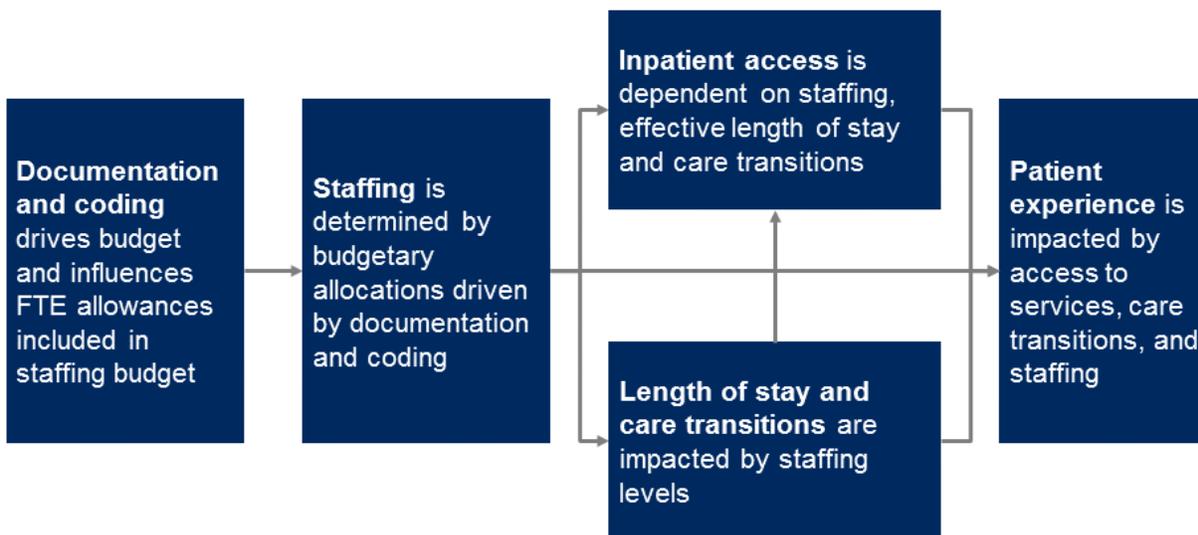
SOURCE: Veteran's Access, Choice, and Accountability Act of 2014

Documentation and coding captures patient utilization of specific services. This data can be used to identify trends and changes in care needs of the patient population, which drive the allocation of resources (VERA, 2014). These resources include budgetary allocations for staffing. Sufficient staffing in turn affects facilities' ability to provide access to safe, high-quality care that meets patient needs. Access is also affected by length-of-stay management and care transitions, insofar as delayed lengths-of-stay reduce facilities' ability to admit new patients. Documentation and coding, staffing, access, and length-of-stay management and care transitions all affect the quality of care provided and patient experience, as well as cost of care (Kleinpell, 2008). The recommendations sections within sub-assessments highlight the potential impact of our recommendations on performance outcomes and costs, as appropriate.

Please note that for the purposes of this report, we have sequenced the individual sub-assessment sections in accordance with the legislation: clinical staffing, access to care, effective length-of-stay management and care transitions, positive patient experience, accurate documentation and coding. Subsections 1.3.1-1.3.5 provide an overview how we approach each one of these sub-assessments, followed by sub-section 1.3.6, which maps Assessment F to the Choice Act legislation.

1.3.1 Clinical Staffing

Clinical staffing accounts for a large portion of a hospital's operating budget, and is the foundation for providing safe and effective patient care. Staffing levels drive access, affect patient outcomes, and influence patient and staff satisfaction. In keeping with standard industry approaches to staffing, we have examined four main aspects of staffing: (1) core staffing (i.e., resource management); (2) scheduling; (3) flexing (i.e., changes in staffing to meet variation in demand); and (4) supporting infrastructure. Given that Assessment F refers to "clinical staffing," we have included roles primarily responsible for direct patient care: physicians, nurse practitioners, physician assistants, nurses, nursing assistants, psychologists, pharmacists, pharmacy technicians, allied health professionals (e.g., physical therapists), therapy assistants and health technicians (see Appendix B for more detail on defining clinical staff). Ancillary support (e.g., environmental services) and administrative roles (e.g., bed management) are examined insofar as they affect staffing of clinical roles. Staffing levels, productivity, and allocation of clinician time are the focus of Assessment G, and are therefore not included in Assessment F.

1.3.2 Access

The ability to receive the necessary level of care in the most appropriate setting is essential to the effectiveness and efficiency of a health care system. In the inpatient setting, "access" refers to the process by which patients, in need of acute hospital care, are appropriately triaged and admitted to an inpatient bed. Patients may be admitted through a series of different channels including: through the Emergency Department (ED), as a direct admission from a physician's office, as a transfer from another facility, or as a scheduled admission following a procedure (i.e., a surgery that requires hospitalization following the procedure). Annually, approximately 75 percent of all VAMC admissions come through the ED, making ED throughput a major focus of our assessment. In particular we have examined three key processes related to inpatient access to care: (1) ED throughput and care delivery practices; (2) admission workflow from the ED and surgical suites; and (3) bed assignment following admission decision. Several factors contribute to inpatient access including, but not limited to, the availability of beds, staffing and individual provider capacity, scheduling of elective procedures relative to projected demand for beds, and the discharge of patients who no longer require acute care. While the scheduling process for elective outpatient procedures impacts inpatient access to care, it is an adjacency that falls in scope for Assessment E.

1.3.3 Effective Length-of-Stay (LOS) Management and Care Transitions

Length-of-stay (LOS) management and effective care transitions are key to VHA's ability to optimally provide cost-efficient, patient-centered, high-quality care across its approximately 600,000 annual admissions.[9] We have examined current VHA practices related to three key areas shown in the academic literature to impact effective LOS management and care transitions: (1) processes for providing timely and evidence-based care; (2) discharge planning;

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[9] 2014 VHA Support Service Center (VSSC)

and (3) post-acute placement. Based on the inpatient focus outlined in part F of the Choice Act legislation, our assessment does not cover VHA-operated or partnered post-acute nor non-acute care facilities (e.g., community living centers, domiciliary care).[10] It would however, be valuable for VHA to complete a similar assessment on these areas as well in order to fully gauge the impact on LOS and care transitioning.

1.3.4 Positive Patient Experience

Veterans receiving treatment from within the VHA system should benefit from best-in-class integrated care tailored to meet the specific needs of those who have served our country. Drawing on the academic literature on predictors of positive patient experience, we have chosen to focus on several key themes associated with patient experience: (1) engage Veterans and their families in care; (2) promote employee responsiveness and service recovery; (3) personalize patients' health care to their individual needs; and (4) encourage open communication and shared decision-making. While patient experience is shaped throughout the continuum of care including the outpatient setting and touch points outside of clinical encounters, this section focuses exclusively on patient experience in the inpatient setting.

1.3.5 Documentation and Coding

Proper documentation and coding ensure that VHA is able to appropriately distribute its Congressional budgetary allocation, effectively collect revenues from third-party insurers, accurately track patient demographics, and successfully monitor performance (e.g., by assessing provider productivity) (VERA, 2014). We have examined three key areas that are industry standard for ensuring optimal documentation and coding performance: (1) provider documentation practices; (2) medical coding procedures; and (3) quality review processes. Separate assessments within the Choice Act are devoted to VHA's information technology tools and strategies as they relate to clinical documentation (Assessment H) and the processes for billing and collection of third-party billable claims (Assessment I); the reports corresponding to these assessments should be consulted for additional details on these topics.

1.3.6 Legislation

In accordance with Part F of the Choice Act legislation, we have covered the organization, workflow processes, and tools used by VHA to support the five identified sub-assessment areas (clinical staffing, access to care, effective length-of-stay management and care transitions, positive patient experience, accurate documentation and coding) in the inpatient setting. Additionally, because organization, workflow processes, and tools are cross-cutting in nature, we have taken a broader view across the sub-assessments, as well. The specific elements of the legislation are discussed in depth in sections five through nine, as detailed in Table 1-1, with additional cross-cutting findings and recommendations detailed in sections three and four.

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[10] This is consistent with CMS's definitions of what constitutes an inpatient stay (CMS, 2014)

Table 1-1. Elements of Veterans Access, Choice and Accountability Act

Veterans Choice Act Section 201: Assessment F		Corresponding Assessment Sections
Sub-assessment	**Topic**	**Corresponding Assessment Sections**
Clinical staffing	Organization	Section 5.2.1.1, 5.2.1.3, 5.2.1.4, 5.2.2.2, 5.2.2.3, 5.2.2.4, 5.2.3.2, 5.3.1.1, 5.3.2.2, 5.3.2.3, 5.3.2.4, 5.3.3.3
	Work-flow processes	Section 5.2.1.1, 5.2.1.2, 5.2.1.3, 5.2.1.4, 5.2.2.1, 5.2.2.2, 5.2.2.3, 5.2.3.1, 5.2.3.2, 5.3.1.1, 5.3.2.1, 5.3.2.2, 5.3.2.3, 5.3.2.4, 5.3.3.1, 5.3.3.2, 5.3.3.3
	Tools	Section 5.2.1.1, 5.2.1.2, 5.2.1.4, 5.3.1.1, 5.3.1.2, 5.3.2.1, 5.3.3.1
Access to care	Organization	Section 6.2.1.1, 6.2.1.2, 6.2.2.4, 6.2.3.1, 6.2.3.2, 6.3.1.1, 6.3.1.2, 6.3.1.3, 6.3.2.1, 6.3.2.2, 6.3.2.3, 6.3.2.4, 6.3.2.5, 6.3.3.1, 6.3.3.2, 6.3.3.3, 6.3.3.4
	Work-flow processes	Section 6.2.1.1, 6.2.1.2, 6.2.2.2, 6.2.2.3, 6.2.2.4, 6.2.3.1, 6.2.1.3.2.3, 6.3.1.1, 6.3.1.3, 6.3.2.1, 6.3.2.2, 6.3.2.5, 6.3.3.1, 6.3.3.3, 6.3.3.4
	Tools	Section 6.2.1.1, 6.2.1.2, 6.2.2.2, 6.2.2.3, 6.2.2.4, 6.2.3.1, 6.2.3.2, 6.3.1.1, 6.3.1.2, 6.3.2.4, 6.3.3.1, 6.3.3.3, 6.3.3.4
Length of stay management and care transitions	Organization	Section 7.2.1.1, 7.2.1.2, 7.2.1.3, 7.2.2.1, 7.2.2.2, 7.2.3.1, 7.2.4.1, 7.3.1.1, 7.3.1.2, 7.3.2.1, 7.3.2.3, 7.3.2.4
	Work-flow processes	Section 7.2.1.1, 7.2.1.3, 7.2.2.1, 7.2.2.2, 7.2.3.1, 7.2.3.2, 7.2.4.2, 7.2.4.2, 7.3.1.1, 7.3.1.2, 7.3.2.1, 7.3.2.2, 7.3.2.3, 7.3.2.4
	Tools	Section 7.2.1.2, 7.2.3.2, 7.2.4.3, 7.3.2.1, 7.3.2.2, 7.3.2.3
Patient experience	Organization	Section 8.2.1.1, 8.2.1.2, 8.2.2.1, 8.2.2.2, 8.2.2.3, 8.2.3.1, 8.2.3.2, 8.3.1.2, 8.3.2.1, 8.3.2.2, 8.3.2.3
	Work-flow processes	Section 8.2.1.2, 8.2.2.1, 8.2.2.2, 8.2.2.3, 8.2.3.1, 8.2.3.2, 8.3.1.1, 8.3.2.1, 8.3.2.3
	Tools	Section 8.2.1.1, 8.2.1.2, 8.2.2.3, 8.2.3.1, 8.3.1.1, 8.3.1.2, 8.3.2.1, 8.3.2.3

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Veterans Choice Act Section 201: Assessment F		
Sub-assessment	**Topic**	**Corresponding Assessment Sections**
Documentation and coding	Organization	Section 9.2.1.1, 9.2.1.2, 9.2.1.3, 9.2.2.3, 9.2.3.1, 9.3.1.1, 9.3.1.2, 9.3.1.3, 9.3.2.2, 9.3.2.3
	Work-flow processes	Section 9.2.1.2, 9.2.1.3, 9.2.2.1, 9.2.2.2, 9.2.2.3, 9.2.3.2, 9.3.1.1, 9.3.1.3, 9.3.2.2, 9.3.2.3
	Tools	9.2.1.3, 9.2.2.1, 9.2.2.2, 9.2.3.1, 9.2.3.3, 9.3.1.1, 9.3.1.2, 9.3.1.3, 9.3.2.1, 9.3.2.2

2 Methodology

A range of quantitative and qualitative tools were used to assess practices at VHA inpatient facilities. System-wide analysis of organizational data (e.g., policies and procedures) and performance data (in sub-assessments where evaluation of performance is included in the Choice Act language, e.g., "effective length-of-stay management") was done to understand variation within the system and compare against benchmarks. This data analysis was supplemented by visits to 21 inpatient facilities across the nation, a survey distributed to relevant clinical staff roles at all VAMCs, a data call for local policy documents and data at all VAMCs, and interviews with subject matter experts both internal and external to VA. We also looked at previous studies and assessments of VHA's inpatient clinical workflow. It is, however, important to note that this assessment has several limitations including the fact that we did not have access to survey Veterans or collect their input at scale, we operated under an aggressive time frame, and in many instances, as noted throughout this assessment, there were limitations on data. Additionally, due to the required independence of the Choice Act, Section 201 assessments, findings and recommendations were developed independently. We therefore expect these recommendations would be refined by VHA leadership and the "Commission on Care."

2.1 VAMC Site Selection

Stratified random sampling was used to select a core set of VAMCs for on-site assessment. This set of VAMCs was representative of the VHA system as a whole across critical facility demographic and performance outcome metrics (see Appendix A for further detail). Given the focus of Assessment F on inpatient medical facilities, we chose to only visit VAMCs providing substantial inpatient medical care (complexity levels 1a, 1b, 1c, and 2), and did not include other types of facilities (e.g., community-based outpatient clinics [CBOCs], complexity level 3 facilities).

Additional information on distribution of VAMCs against specific service lines is shown in Appendix B. As figures in Appendix B indicate, 84 percent of complexity level 1 and 2 facilities have Community Living Centers (CLCs), 48 percent have Domiciliary Residential Rehab Treatment Programs, 2 percent are joint DoD facilities, 4 percent are Polytrauma Rehabilitation Centers, 20 percent are Polytrauma Network Sites, 20 percent are Regional Spinal Cord Injury Centers, 11 percent are Blind Rehabilitation Centers, and 100 percent are academically affiliated in some form.

2.2 Data Sources and Analysis

We analyzed data from several sources: (1) national VHA data sets; (2) a survey of relevant front-line clinical inpatient staff at all VAMCs; (3) a data call made to all VAMCs; (4) more than 150 interviews during visits to 21 VAMCs and with other subject matter experts; (5) 80 total assessment workshops held during site visits; and (6) more than 65 unit shadowing sessions conducted during site visits.

We believe that the interactive approach used during site visits differentiates this assessment from many others that have been conducted. We purposefully selected sites representing VHA as a whole, and not only conducted observations of their behavior and processes, but also took extra time to focus on gathering front-line employee input to better understand their actions and perspectives. Several interviewees thanked us for including them and made comments to the effect of "Most survey teams come to our facility and speak exclusively with senior leadership – it's refreshing to be included in this important work, especially since we know what's broken, what works, and what has failed in the past." During our site visits, through the interviews, assessment workshops and shadowing sessions mentioned above, we met with more than 750 employees across roles, departments, and tenure levels. We believe this has enabled us to bring a broad perspective to the conversation on VHA's strengths and challenges.

In many instances, VHA was unable to provide data typically used by private sector hospitals to manage performance. This was either because requested data did not exist (e.g., payroll data by shift), was not available at the national level (e.g., time from Post-Acute Care Unit (PACU) transfer order to admission to the floor), was reported to be so inaccurate that conclusions could not be drawn from it (e.g., number of operational beds), or required effort to compile beyond what time and resources could allow (e.g., hourly data on ED visits by facility). Lack of data impeded our ability to fully assess VHA clinical operations. Data challenges are also a finding in and of themselves: without basic information on its operations—such as the number of currently active inpatient beds—VHA has very limited ability to manage performance. This is a critical issue, which emerged in each of our sub-assessment areas.

Our approach to collecting data from various sources is included below. We primarily used descriptive statistics to analyze the data we collected (e.g., analyzing the frequency with which a particular tool was used). In some instances, we supplemented this approach with regression analysis, used to determine associations between different variables (e.g., to understand whether allied health professionals were more likely than nurses to believe that their occupation was adequately staffed).

National VHA data sets:

To develop a baseline understanding of current practices across VHA, we requested access to national VHA data sets. Key sources included: the survey of health care experiences and patients (SHEP), strategic analytics for improvement and learning (SAIL), national bed control database (NBCD), national utilization management integration (NUMI), inpatient evaluation center (IPEC), medical SAS inpatient dataset (MedSAS), emergency department integrated software (EDIS), national surgical office (NSO), human resources (HR), and payroll. It should be noted that we did not conduct a review to validate the accuracy of data that was provided.

Surveys:

To gather additional insight into front-line workers' perspectives of VHA, we conducted a survey of staff perceptions of practices related to each of the sub-assessment areas within Assessment F. To ensure a breadth of perspectives and a sufficient response rate, the survey was sent to leadership at all VAMCs to distribute to all staff within selected relevant roles (e.g., Emergency Department charge nurses). 2,684 inpatient staff members responded to one or

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more sections within the inpatient survey. Surveys were tailored to be role specific and ask for respondents' perceptions of the organization, processes, and tools used to support each of the sub-assessment areas, meaning that total respondents varied by role, question, and sub-assessment. Due to the fact that VHA does not track the setting of work (i.e., inpatient or outpatient) in available human resource data and we did not control the distribution of the survey to the end-user, we are unable to calculate the significance of the total response rate, but do not believe it to be a representative sample across any of the roles. Given this, survey data should be viewed as providing anecdotal insights as opposed to a representative data sample.

Data call:

To access data that is captured in many cases solely at the facility level (e.g., FTEs by department, overtime use by department, type of tool utilized for specific tasks), as well as policies housed at individual VAMCs (e.g., side agreements with unions), we initiated a data call to all VAMCs. Approximately 120 unique VAMCs across 100 percent of VISNs responded to one or more portions of the data call, with an average of 60 unique VAMCs responding to each sub-assessment specific questionnaire.

Interviews:

To gain insight into facility-level strengths and challenges as well as current practices, we conducted nine individual and group interviews of key facility staff at each VAMC visited (e.g., Department chiefs, case managers, patient advocates) for a total of more than 150 interviews[11] across 21 VAMCs. In addition to interviews conducted on-site at facilities, we interviewed 52 members of VA Central Office (VACO) and VHA Central Office (VHACO) leadership and subject matter experts identified by our assigned VA point-of-contact (POC).

Assessment workshops:

To understand clinical operations processes and the feasibility of potential solutions, we held four interdisciplinary assessment workshops at each of our 21 site visits, for a total of 80 workshops[12]. These workshops focused on clinical staffing, ED throughput (a major part of inpatient access), the discharge process (a key component of length-of-stay management), and documentation and coding. Workshops were held with an average of 5 to 7 interdisciplinary participants and included interactive activities such as process mapping, brainstorming of solutions, and ranking of proposed solutions.

Unit shadowing:

To identify current facility tools and processes, we gathered primarily quantitative data through shadowing front-line staff members in key departments (e.g., number of ICUs using

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[11] Individual iterviews were conducted by members of the Assessment F Team and often applied to multiple sub-assessments of F, as a result the number of interviews cited by individual sub-assessments are not additive.

[12] Four workshops were cancelled due to scheduling reasons and/or poor attendance

standardized vent-weaning protocols) across 21 VAMCs. Data was collected using standardized checklists, to ensure consistency.

2.3 Benchmarking

We used a two-pronged approach to benchmarking VHA organization, processes, and tools. First, we drew on the academic literature, recommendations made by professional associations, and case studies of high performing facilities (internal and external to VHA) to identify industry best practices. Professional associations were selected based on their influence on industry standards, indicated by the size of their membership and prevalence of use of their standards and products in clinical practice. Hospitals were identified as having best-in-class practices based on placement in hospital rankings (e.g., Hospital Consumer Assessment of Health Care Providers and Systems [HCAHPS] rating). We also selected high performing facilities based on recommendations by external experts, interviewing staff where possible and building case studies of highly effective practices, within and beyond VHA.

Second, in cases where there was no clear consensus in the literature or professional community as to the best practice, we used industry standard practices as the benchmark. We relied upon external surveys of private sector hospitals (published in academic literature or by professional associations) and interviews with median-performing facilities to develop a view of standard practices. We have noted where a practice is industry standard, rather than necessarily ideal.

VHA is unique relative to the private sector in many respects: its patient population, scale, and integrated nature are particularly clear examples. Private industry best practices as well as standard practices are therefore not always directly applicable to VHA. We have included these practices as benchmarks, however, to give a sense of how VHA clinical operations compare to those governing the health care provided to most Americans, in private facilities. As noted earlier, we have also reviewed internal best practices at high-performing VAMCs to illustrate organizational structures, processes, and tools that have been effective within VHA's context.

Finally, an independent Blue Ribbon Panel, consisting of high-level health care industry experts, Veteran advocates, and other key opinion leaders was formed to provide expert input throughout the assessment process. The panel members possessed a thorough understanding of health care industry best practices and leading edge practices. The Blue Ribbon Panel provided advice and feedback on the emerging findings and recommendations for the assessment.

3   Cross-Cutting Findings

We found three common themes across the sub-assessment areas included in this report: (1) ineffective data collection and management drives a lack of transparency on many key aspects of clinical operations, hindering VHA's ability to effectively manage inpatient care; (2) VHA resources (e.g., staff, beds) do not always match Veterans' care needs; and (3) while best practices exist in selected pockets, communication and support for implementation at scale appears to be a challenge.

3.1   Ineffective Data Collection and Management Drives a Lack of Transparency on Many Key Aspects of Clinical Operations, Hindering VHA's Ability to Effectively Manage Inpatient Care

Despite having a well regarded EMR system and the capability of tracking extensive clinical data, poor data management was a consistent theme heard during site visits, and was clearly evident from our central and local requests for specific information. Data that is standard in private sector hospitals was frequently inaccessible in a timely manner or not tracked in a usable format by VHA. For example, VHA FTE and payroll data includes information by clinical occupation but not by department, which prevented planned analysis of the appropriateness of staffing, since needed staffing levels vary considerably by department (e.g., the ICU requires more concentrated nursing attention than medical/surgical floors; see Section 2 for more detail). VHA also lacks accurate insight into inpatient bed capacity (and, thereby, inpatient access). VHA assesses inpatient bed capacity using nationally reported "operational beds." However, approximately 40 percent of facilities responding to our data call reported having to close beds temporarily due to staffing shortages; these temporary closures can actually last for extended periods, and are not reported nationally. This means that bed capacity on the ground may be substantially lower than VHACO has visibility into, affecting decision-making in areas such as construction and staffing (see Section 3 for more detail). We observed data integrity and availability issues significantly affecting VHA's visibility into clinical operations in four of our five sub-assessment areas (described below) and believe that this likely affects VHA's ability to manage operations at the local and national levels. While we were unable to conduct a root cause analysis as to the fundamental causes of poor data collection and management, we do believe that further exploration of this topic is necessary for VHA to improve clinical operations in a meaningful way.

Supporting sub-assessment findings:

- **Clinical staffing, 5.2.1:** VHA does not have the tools or data to set or monitor staffing levels appropriately. Variable VHA HR and payroll data systems give different FTE numbers for the same clinical occupations and VAMCs. While the nursing service has developed a strong staffing methodology, many other clinical occupations lack any central guidance on how to estimate FTE need. As one AHP leader said, "We'll be adding 10,000 patients [to one of our sites next year]…how many more PTs do I need? I don't know."

- **Access, 6.2.1:** Data gaps limit VHA's understanding of patient demand patterns and available VAMC capacity. Inconsistent methods for tracking physical bed counts and patient demand patterns at the unit and facility level limit VHA's ability to analyze VAMC staffing and available bed capacity based on patient demand. While VHA maintains several different systems to manage access and flow, these systems do not integrate with one another, further limiting end users' ability to aggregate information across systems.

- **Patient experience, 8.2.3:** Challenges with respect to timeliness and specificity in the SHEP survey results limit VAMCs' ability to drive performance improvement. Lack of timeliness (3-6 month delay in reports) and specificity (aggregate facility level results as opposed to unit or individual level) of SHEP survey results limit the perceived effectiveness, accuracy, and ability to execute against patient satisfaction results.

- **Documentation and coding, 9.2.1:** Inconsistent emphasis on clinical documentation impedes consistent capture of complete clinical information, hindering appropriate resource allocation and revenue collection. Varied emphasis on accurate clinical documentation and coding across the organization results in potentially incomplete data. While some VAMCs have stressed proper documentation to maximize budgetary allocations and improve quality ratings, many have not. This is evidenced by differences in local approaches to documentation training: only 57 percent of physicians participating in the Choice Act survey reported that their facility provides training regarding documentation and coding.[13]

3.2 VHA Resources (e.g., staff, beds) do not Always Match Veterans' Care Needs

The practical allocation and prioritization of resources across the VHA system may not be consistently aligned to meeting the broader health needs of the Veteran patient population. Mismatch of resources to patient care needs manifests itself in three ways: hiring that does not consistently match staffing needs; allocation of staff to tours ("shift") that do not consistently match Veteran demand; and limited access to appropriate outpatient and post-/sub- acute care options.

As an example of limited outpatient and post-acute care options, we found many instances in which Veterans were admitted to the hospital despite not meeting acute criteria to warrant admission, or remained in the hospital past the point of medical necessity, due to challenges in accessing the appropriate level or type of care (e.g., primary care, detoxification center, post-acute rehabilitation). NUMI data[14] indicates that 23 percent of inpatient admissions do not meet admission criteria (see Section 6 for more detail) and 34 percent of inpatient stays overall do not meet continued stay criteria (see Section 7 for more detail). The disconnect between resources and demand has clear implications on VHA's ability to effectively and efficiently provide the care needed to improve the health and well-being of Veterans. Non-medically-

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[13] Choice Act survey (N=434)

[14] NUMI (National Utilization Management Integration): supports national utilization management agenda by providing a common tool for tracking performance on utilization management metrics across facilities

indicated stays may be well-intentioned, but they are a suboptimal use of acute medical resources. This reduces inpatient access, delays care transitions (increasing healthy patients' exposure to hospital-acquired infections) and increases the overall cost of Veteran care. Supporting sub-assessment findings are listed below, indicating areas where we observed mismatch of resources to demand.

Supporting sub-assessment findings:

- **Clinical staffing, 5.2.2:** Hiring timeline significantly exceeds private sector benchmarks, affecting ability to fill vacancies on patient care teams. VHA HR targets 60 days from receiving a request for a job posting to making a tentative offer; this timeline exceeds private sector timelines for hiring most clinical staff, and does not count steps needed to make a final offer. Interviewees and workshop participants consistently reported that hiring exceeds the 60 day target, reaching ~6 months for most clinical occupations. The length of the hiring process was cited as a challenge in 100 percent of staffing workshops.[15]

- **Clinical staffing, 5.2.3:** Allocation of staff does not consistently match patient care need. We found that staffing levels drop considerably on evenings, nights, and weekends (e.g., by ~65-100 percent for intensivists, depending on the shift), often beyond what is recommended in the academic literature as safe minimum staffing levels, potentially affecting patient care.

- **Access, 6.2.2:** Hospital visits and admissions that are not clinically appropriate contribute to ED bottlenecks and limit bed availability. More than 120,000 admissions, approximately 20-25 percent of admissions from the ED and following surgical procedures, fail to meet McKesson InterQual admissions criteria.[16] Of those clinically inappropriate VHA admissions, we found that 30 percent or 7 percent of total admissions, are attributed to limited access to the appropriate setting of care (e.g., level of care availability, outpatient access, and social issues).

- **Length-of-stay, 7.2.2:** Existing post-acute care options (e.g., rehabilitation/skilled nursing facilities) do not always match Veteran needs, delaying discharge. Patient LOS is, on average, ~3.1 days longer for Veterans discharged to post-acute care settings compared to patients discharged to home. Participants in 55 percent of on-site workshops reported challenges with transitioning Veterans into post-acute care, including difficulty arranging transportation, securing timely placement in VHA-operated programs, and contracting with community facilities.[17]

- **Length-of-stay, 7.2.3:** Typical VAMC operating models do not promote efficient inpatient care, leading to prolonged LOS. Limited availability of important clinical services (e.g., specialty and allied health consults) on weekends contributes to ~15-45 percent increases in LOS for admissions extending through the weekend. In addition, implementation of

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[15] Site visit staffing assessment workshops (N=19)

[16] McKesson InterQual is a tool that provides evidence-based clinical decision support on the appropriateness of care (including admissions and continuing stays)

[17] Site visit discharge planning assessment workshops (N=20)

evidence-based inpatient protocols and care pathways have been left to individual facilities, resulting in variable adoption nationally.

3.3   While Best Practices Exist in Selected Pockets, Communication and Support for Implementation at Scale Appear to be a Challenge

Our site visits revealed several clear best practices in place at various VAMCs; however, adoption of these practices was isolated even within the facility. Case studies of particularly strong programs are included in all sub-assessments. Despite successfully adopting best practices in some units, however, facilities appeared to struggle to implement programs house-wide. Moreover, information-sharing between VAMCs appears to be limited and ad hoc. As one Assistant Director of Patient Care Services described, "I'm shameless about stealing what works at other places, the problem is, I don't know what other places are doing. We need a way to connect, to learn from each other"[18]. This sentiment was echoed by staff across all of the facilities we visited.

Supporting sub-assessment findings:

- **Access, 6.2.3:** Best practices related to workflow and performance management exist at some facilities, but have not been scaled across the system. Despite successful implementation of many operational best practices (e.g., fast track, clinical protocols in triage, flow management teams) in select facilities, adoption is limited system-wide. Additionally, even in top-performing facilities based on ED length-of-stay and left without being seen rates, delays in inpatient access can result from insufficient bed availability and inconsistent admission and bed assignment processes.

- **Length-of-stay, 7.2.1:** Implementation of national LOS programs and initiatives has failed to achieve organization-wide improvements despite local pockets of best practice adoption. National programs, including the Utilization Management (UM) program and several collaboratives (for example, Transitions Collaborative, Flow Collaborative), have been launched to address existing challenges with LOS and care transitions. Although several facilities have experienced improvements through participation in these programs, national LOS challenges persist: the difference between VHA LOS and average DRG-adjusted Medicare LOS has increased by 5 percent since beginning of FY2012, while restrictions on VHA programming have contributed to a ~50 percent decrease in the number of facility spots available within national collaboratives.[19]

- **Length-of-stay, 7.2.4:** Use of discharge planning best practices is inconsistent, decreasing effectiveness and coordination. Nationwide, VHA adoption of practices to appropriately manage LOS and promote effective care transitions has not matched practices of high performing hospital systems. For example, only 48 percent of VAMCs[20] have dedicated

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[18] Facility interview

[19] Facility interview

[20] VHA data call (2015) (N=60)

inpatient case managers to coordinate the overall discharge planning process (compared to private sector facilities that commonly employ a team of RN case managers, social workers, utilization management specialists, and discharge planners), which may result in avoidable discharge delays.

- **Patient experience, 8.2.2:** Adoption of facility level best practices and engagement of program office support services are varied across VAMCs. While initiatives at both the central and facility levels exemplify Veteran-centered care and industry accepted best practices, adoption across the system is limited by the level of facility leadership engagement and insufficient infrastructure to codify and share facility-driven initiatives across the system.

- **Documentation and coding, 9.2.2:** Adoption of documentation best practices is variable, resulting in inconsistent quality of clinical documentation system-wide. Interviewees and workshop participants during our site visits consistently reported challenges with clinical documentation, including 80 percent of sites reporting suboptimal template use and 55 percent reporting inappropriate use of copy-paste.[21] The persistence of these challenges despite 87 percent of VAMCs[22] reporting quarterly performance of EHR quality reviews suggests opportunities to improve the EHR review process.

- **Documentation and coding, 9.2.3:** System-wide focus on coding standards has resulted in coding performance typically meeting or exceeding private sector benchmarks. National inpatient coding accuracy is ~93 percent[23] and inpatient coding occurs ~4 days after discharge, suggesting that VHA coding metrics are closely aligned with industry benchmarks. Routine internal auditing of coding performance at the facility-level and development of a national dashboard for performance tracking appear to be contributing to strong overall performance.

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[21] Site visit documentation and coding assessment workshops (N=20)

[22] VHA data call (2015) (N=56)

[23] As mentioned in the introduction of this section, we did not independently verify this result (for example, through a coding audit).

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4 Cross-Cutting Recommendations and Implementation Considerations

4.1 Cross-Cutting Recommendations

We have identified three priority recommendations for VA to consider to address the key findings included in Section 3, above: (1) improve clinical management through clear operational metrics, streamlined data collection, monitoring, and evaluation; (2) realign resourcing (e.g., staff, facilities) to allow VHA to serve patients at the appropriate level of care; and (3) scale existing best practices and support further innovation at the local and national levels.

In order to facilitate implementation, additional detail on the supporting themes, as well as potential near-term actions can be found in the sub-assessment sections of this report (Sections 5-9). Furthermore, we have suggested owners for each of the "potential near-term actions." These owners should be viewed as suggestions based on our understanding of: (1) whether change is needed nation-wide or depends on specific facilities' need, and (2) whether VACO resources will be required to facilitate actions. Ultimately, initiatives should be driven by owners that are dedicated to making the improvement happen and well-positioned to drive the change necessary to achieve impact.

4.1.1 Improve Clinical Management Through Clear Operational Metrics, Streamlined Data Collection, Monitoring, and Performance Management

Appropriately defining standards for high performance and having accurate information on how departments and facilities measure against defined targets is the foundation of managing operations. Site visits, data analysis, and comparison against best and standard practices suggest that VHA lacks such visibility into clinical operations, significantly reducing its ability to address challenges and innovate (see Section 3.1). We believe that improving transparency is critical to ensuring effective, timely, and efficient delivery of care to Veterans, across many of our sub-assessment areas. In part, transparency could be improved through enhanced data management, meaning both better data integrity and sharper focus on a targeted set of key metrics needed to assess performance. Equally important, VHA should ensure that facilities have clear operational guidelines on how to set and track appropriate performance goals (e.g., by providing comprehensive staffing methodologies for service lines with no national guidance). The sub-assessment recommendations listed below illustrate specific changes that could help VHA increase transparency.

Supporting sub-assessment recommendations:

- **Clinical staffing, 5.3.1:** Increase transparency of staffing by providing evidence-based staffing methodologies for all clinical staff and improving data management. VHA should provide comprehensive staffing methodologies for services with no national guidance. VHA should also ensure that staffing is interdisciplinary, so that providers are staffed with the support they need to practice.

- **Access, 6.3.1:** Develop an accurate end-to-end picture of patient demand and VAMC capacity. VHA should simplify the process and required approvals by which beds are classified as operational and standardize the definition and tracking of patient diversions. Additionally, VHA should develop a prioritized set of standardized metrics to track patient flow, including current demand and capacity, at the facility, VISN, and VHACO level, to be compared to models of patient demand.

- **Patient experience, 8.3.1:** Collect more timely and relevant patient experience data to drive performance improvement at the facility, department, and individual level. VHA should ensure its patient satisfaction tool(s) delivers granular survey results (for example, at the individual department or unit level) in a timely (for example, real time or near real-time) and actionable format (for example consistent across the system).

- **Documentation and coding, 9.3.2:** Strengthen provider documentation standards (e.g., management of clinical templates, EHR review process) to promote optimal capture of patient information and improve resulting resource management. VHA should improve documentation practices through enhanced governance focused on template management, targeted guidance regarding EHR reviews, and improved performance management reinforcing query responsiveness.

4.1.2 Ensure Resourcing (e.g., staff, facilities) Allows VHA to Serve Patients at the Appropriate Level of Care

We observed many instances in which VHA resources were not appropriately matched to patient demand. As described in Section 1.4.2, the disconnect between resources and demand was seen in delayed hiring of staff needed to support patient care, misallocation of staff to tours (i.e., shifts), and limited outpatient and post-acute care options needed to ensure treatment at the appropriate level of care. In order to provide high quality care that promotes the health and well-being of Veterans in a cost efficient manner, VHA should ensure that resourcing allows the system to serve patients at the appropriate level of care. Broadly, we see three categories of changes that could help effect this recommendation: improve hiring, allocate staff to match patient demand (e.g., align that staffing on weekend, holiday, and evening hours is sufficient to meet patient need), and increase access to outpatient and post-acute care options. Specific recommendations related to our sub-assessment areas are included below.

Supporting sub-assessment recommendations:

- **Clinical staffing, 5.3.2:** Increase timeliness of hiring for patient care teams. VHA should refine HR service level agreements, streamline the hiring process, and review regulations that extend hiring timeline, for necessity.

- **Clinical staffing, 5.3.3:** Allocate staff to match patient care need. VHA should ensure that staffing on evenings, nights, and weekends matches hospital volumes, and that facilities have access to flexible resources that can help manage short-term understaffing.

- **Access, 6.3.2:** Decrease the number of clinically inappropriate admissions due to limited access to sub-acute care. VHA should assess the availability of alternative settings of care

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(e.g., detox clinics, short-term rehabilitation centers), at the regional level, and dedicate appropriate patient support resources (e.g., case managers and social workers), at the facility level, to coordinate transitions from the ED and surgical departments. Once the infrastructure is in place to support these patients outside the acute setting, VAMCs should begin to hold physicians accountable for appropriateness of admissions (e.g., include utilization management in physician performance appraisals).

- **Length-of-stay, 7.3.1:** Mitigate discharge delays related to post-acute placement (e.g., increase availability of post-acute care options). VHA should evaluate the availability of VHA-operated programs and community resources to meet the post-acute care needs of Veterans. Based on availability, VHA should create appropriate partnerships or develop VHA-operated services aligned with Veteran needs and the organization's refined strategic mission.

4.1.3 Scale Existing Best Practices and Support Further Innovation at the Local and National Levels

A consistent theme during our site visits and interviews was the inconsistent adoption of best practices across VAMCs (see Section 1.4.3). In instances where best practices had been developed nationally, this challenge stemmed from unclear guidance on implementation, occasional flaws in the design of programs, and lack of VAMC adoption. In instances where best practices had been developed locally, scaling was inhibited by limited infrastructure for information-sharing and lack of resources. To address both sets of challenges, we suggest improving practices through a combination of targeted national guidance (e.g., streamline Veteran-centered care initiatives and directives) and nationally-supported local best practice-sharing and innovation (e.g., build infrastructure to promote cross-facility sharing of patient flow best practices). Specific recommendations to effect these changes, drawn from our sub-assessment recommendations, are included below.

Supporting sub-assessment recommendations:

- **Access, 6.3.3:** Expand use of evidence-based processes for managing patient flow, including clear role assignments and individual performance management. VHA should focus on standardization in triage through the early initiation of clinical protocols, in ED diagnostics by segmenting low acuity demand through a fast track processes, and in admission and bed assignment through clearer role assignment and better utilization of available tools.

- **Length-of-stay, 7.3.2:** Build on existing best practices, both internal and external to VHA, to increase local adoption of evidence-based inpatient care and discharge planning practices. VHA should provide technical support and facilitate targeted best practice sharing to assist facilities in improving upon local practices related to efficient care delivery and effective discharge planning. In addition, VHA should engage Veterans as active stakeholders in the care transition process by providing education regarding safe and effective transitions of care to the most appropriate post-acute care venue.

- **Patient experience, 8.3.2:** Strengthen national and facility level support for patient-centered care programs to increase adoption. VHA should strengthen adoption through

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improved coordination of Veteran-centered initiatives across program offices, improved leadership turnover at the VAMCs and facilitated sharing of facility-driven best practices.

- **Documentation and coding, 9.3.1:** Increase local prioritization of clinical documentation through acceleration of national clinical documentation improvement (CDI) program and targeted provider education and training, supported by performance management at the facility and provider level. VHA should strengthen facility-level emphasis on accurate documentation and coding, building on existing programs and via new efforts. For example, VHA launched a national CDI program in 2013, but to date only 46 percent of VAMCs have implemented programs at the local level. VHA should strengthen the current CDI program by providing dedicated resourcing for CDI specialists at the facility level and by creating a national knowledge-sharing network to disseminate successful local practices.

4.2   Implementation Considerations

As previously noted and in alignment with Section 201 of the Choice Act, Section 201 assessments, findings and recommendations were developed independently. We therefore expect these recommendations will need to be refined and integrated by VHA leadership and the Commission on Care into the ongoing efforts.

Below, we have listed the changes that we believe are fundamental preconditions for successfully implementing the recommendations described in Sections 5-9, as well as suggested immediate actions to be taken at the national level.

4.2.1   Preconditions for Implementation

VHA clinical operations are driven by a complicated mix of congressional mandates, federal regulations, union agreements, VACO and VHACO policy, VISN supervision, and VAMC management. We see this assessment as an opportunity for solving long-standing challenges, to be achieved by all stakeholders through a combination of local, regional, and national action. Addressing these challenges will require sustained commitment as a part of an integrated transformation effort for the system as a whole.

The recommendations summarized earlier in this section include both fundamental shifts to the system as well as tactical changes that can be made at the local level, while more far-reaching solutions are being implemented. We believe there are four essential preconditions to implementing our recommendations in a sustainable manner and achieving excellence in inpatient clinical operations at VHA:

1. **Clearly define the range of services VHA is responsible for providing, as well as its target Veteran recipients**. Interviewees at every site we visited described the challenges of providing care for non-acute patients in the acute setting.[24] These patients ranged from same-day surgical patients being admitted due to a lack of transportation to patients ready for discharge but without space in a sub-acute facility. Admissions were a

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[24] Site visit discharge planning assessment workshops (N=20)

large part of the challenge: staff described knowing that certain patients did not meet criteria for acute inpatient admission (e.g., a homeless Veteran in the ED with a diagnosis that does not meet criteria for admission) but admitting them nonetheless, either because they believe VHA had a duty to provide social care and other venues were not available or because they were concerned about potential political or media backlash from refusing admission. Placements to post-acute settings (e.g., skilled nursing facilities) were also reported to be difficult, due to limited VHA facilities and access to community resources (e.g., limited contracts with community facilities).[25] Lack of clarity as to what care VHA is responsible for providing, and limited venues for providing appropriate inpatient alternatives, contribute to clinically inappropriate admissions, prolonged LOS, and delayed treatment for non-medical issues. VHA, Congress, and relevant stakeholders need to clearly define VHA's mission and commit to providing resources needed to meet this mission.

2. **Substantially streamline operational requirements and policy,** including reporting requests, required programs, and earmarked funding, in order to sharpen VHA's focus and allow VAMCs the flexibility they require to address local care needs. Interviewees consistently reported that their ability to deliver care and innovate was hindered by shifting priorities, ad hoc changes to policy, time-consuming reporting requirements, and heavy earmarking of funding. For example, though VHA creates infrastructure to support targeted initiatives (e.g., fall reduction), changing priorities hamper implementation: as one quality manager reported, "You don't have enough time to implement before the next one [mandate] comes…Very good initiatives fail because [of this]."[26] Some facilities reported being visited by over 50 assessment teams a year. Site visits are not tracked by a single entity at VHA, so this number could not be validated, however based on conversations with VHACO leadership, we believe that it is likely that visits between program office, VISN, and external accrediting/certifying bodies' are indeed substantial in number. One staff member lamented, "We're constantly being audited, it's a challenge," while multiple interviewees across sites expressed the challenge that assessments pose to providing efficient care and focusing on improvement efforts. VHA should work with Congress to streamline current operational requirements and policy to become more flexible, efficient, and effective.

3. **Understand resource implications of new and existing mandates and directives**. Unfunded mandates and directives were seen as a significant challenge by staff at the VAMCs we visited. For example, congressionally mandated clinical staff positions on primary care and home care teams were reported by providers during site visits, as having been filled by pulling clinical staff from the inpatient setting, potentially detracting from facilities' ability to deliver care to hospitalized patients. Similarly, national guidance recommending implementation of clinical documentation improvement (CDI) programs at the facility-level has not been accompanied by corresponding funding to hire the CDI specialists to make these programs successful.

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[25] Site visit discharge planning assessment workshops (N=20)

[26] Interview with a VAMC quality manager

While these examples are anecdotal and based on site visit interviews, it is clear that facilities are feeling challenged in their ability to execute against multiple requirements given finite resources. Streamlining mandates and directives should allow facilities to reallocate funding and staff from areas where there may be excess resources, allowing VAMCs to meet more of their current needs with existing resources. In any instances where targeted new mandates and directives are being contemplated, however, Congress and VACO should strongly consider whether additional resources are required and provide them as needed.

4. **Increase transparency and accountability for performance** against a limited set of the most important metrics. Site visit interviewees and workshop participants characterized limited accountability and performance management as a systemic barrier to high performance. For example, Associate Director of Patient Care Services (ADPCSs) and floor nurses reported that terminating nurses who were unsafe could take up to two years, during which time the nurse would be removed from patient care but remain on the payroll, occupying a spot on a patient care team and contributing to short-staffing. In addition, only ~24 percent of providers reported inclusion of documentation and coding metrics into individual performance reviews, in spite of the critical importance of clinical documentation to promote safe and effective patient care, enable appropriate allocation of VHA resources, and support optimal billing and collection from third-party payors.

4.2.2 Immediate Actions for Consideration

Some efforts should be considered for implementation right away, while others will likely require more advanced planning and resourcing before meaningful design or implementation can begin. See Table 4-1 for recommended immediate actions.

Table 4-1. Potential Immediate Actions for Preconditions of Implementation

Theme	Potential immediate actions
Define the range of services VHA is responsible for providing, as well as its target Veteran recipients	▪ Assemble a working group, including Veteran representatives and VAMC staff and leadership, to propose options for VHA's mission and model for delivering care including i. Examination of resources required to fulfill each option (e.g., provide social and medical care primarily through VHA facilities, requiring expansion of VHA post-acute care facilities or community partnerships) ii. Analysis of stakeholder preferences

Theme	Potential immediate actions
	▪ Determine an organizational mission and the path forward
Substantially streamline central mandates and directives	▪ Solicit input from VAMCs in developing a list of top priorities for clinical and operational focus ▪ Align on the top priorities across VHA, limited to foundational areas that merit long-term focus and system-wide investment ▪ Eliminate all existing mandates and directives that are not directly linked to the defined priorities, do not require national standardization, are duplicative, or are in conflict ▪ Establish a high bar for the addition of new mandates and directives
Understand resource implications of new and existing mandates and directives	▪ Conduct a full workforce assessment to understand what resources are needed and where efficiencies could be gained ▪ Institute a policy that analysis of resource requirements (staff, funding, or otherwise), developed with input from the field, be included in *all* proposals for new national mandates and directives ▪ Appoint an interdisciplinary board with cross-level representation (e.g., front-line, VISN leadership, VHACO) to determine the necessity of the mandate or directive and whether additional resourcing is needed. ▪ Establish a very high bar for the acceptance of unfunded mandates (e.g., highly limited additional staff effort needed, demonstrated not to interfere with ability to deliver care)
Increase transparency and accountability for performance	▪ Create a streamlined dashboard of critical metrics closely aligned to defined organizational priorities to truly provide visibility into performance ▪ Remove redundant or unhelpful metrics from existing dashboards to ensure only

Theme	Potential immediate actions
	usable, actionable, and relevant data is being tracked
	▪ Review existing disciplinary processes across levels, to identify opportunities to streamline steps and accelerate the process

5 Clinical Staffing

Part F ("Assessment F"), Section 201 of the Veterans Access, Choice, and Accountability Act of 2014 ("the Choice Act") mandates an assessment of the organization, processes, and tools used to support clinical staffing. Academic literature has established clear links between the caliber, mix, and number of clinical staff – directly affected by staffing practices – and quality of patient care and experience outcomes (McHugh and Swain, 2014; Ward et al., 2013; Harris and Hall, 2012; Needleman et al., 2011; Mudge et al., 2006; McMillan and Ledder, 2001). Maintaining effective staffing practices is critical to ensuring the delivery of high quality care, staff satisfaction, and cost-effective practice. While clinical staffing has a significant impact on VHA budget and operations, as Sections 6-8 describe, appropriate staffing also facilitates access, effective length-of-stay management and care transitions, and patient experience. Having the right staff in the right places at the right time to meet the clinical care needs of Veterans is essential and warrants attention for those reasons. The Blueprint for Excellence states that "serving Veterans proficiently requires improvement of VA and VHA management and business processes. Bottlenecks in meeting human resource needs must be addressed to assure operational effectiveness as both a delivery system today and an integrated healthcare services network tomorrow" (Blueprint for Excellence, 2014).

Due to the fact that there are varying definitions of "clinical staff," we have drawn on definitions from the American College of Physicians, American Medical Association, Utilization Review Committee, and Centers for Disease Control to interpret the term as providers and other licensed clinical staff able to provide care autonomously or under a clinician's supervision (see Appendix A.1). Given the scope of Assessment F, we focus specifically on clinical staff providing inpatient care [27] – physicians, advanced practitioners, nurses, nurse assistants, allied health professionals, and several types of therapy assistants and health technicians – at facilities with significant acute care inpatient capacity.[28] These staff members represent

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[27] Either fully (e.g., hospitalists) or in part (e.g., consulting physicians).

[28] VHA divides facilities into five levels of complexity – Level 1a, 1b, 1c, 2, and 3. We have focused on Levels 1a, 1b, 1c, and 2, the high- and medium-complexity facilities, because Assessment F mandates an assessment of clinical workflows in the inpatient setting, and Level 3 facilities have very limited inpatient capacity.

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approximately 124,000 FTEs[29] (nearly 45 percent of VHA staff[30,31]) and $7.6 billion in net pay annually.[32]

Throughout this report, we refer to staffing of "service lines." VHA service lines (sometimes shortened to "services") are multidisciplinary clinical care organizations, and may be organized around a patient population (e.g., Homeless Veterans Treatment Program), an occupation (e.g., Nursing), or a function (e.g., Rehabilitation Services). Consistent with VHA, the terms "service line" and "service" are used interchangeably to refer to programs, occupations, and functions. Service lines function much like departments at many private sector hospitals, though they may refer to patient populations or occupations, rather than just functions, which is typically seen in the private sector. We therefore refer at various points to "service line staffing methodologies," as well as, national and local "service line chiefs" who may lead specific programs, occupations, or functions at the VAMC or VHACO levels.

In keeping with standard industry approaches to staffing, we have examined four main aspects of staffing: (1) core staffing (i.e., resource management); (2) scheduling; (3) flexing (i.e., changes in staffing to meet variation in demand); and (4) supporting infrastructure. Figure 5.1, below, illustrates the linkages between these key areas and the main components of each. These components represent the primary focus areas, driven by findings from site visits and analyses, and are not exhaustive. See Table A-1 in Appendix A.2 for major differences in policies and practices for each of the core components by clinical occupation. Further information on staff productivity, a related concept, is included in Assessment G.

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[29] Based on VHA Healthcare Talent Management (HTM) FTE data for FY14. Includes all staff in a given occupation at Level 1a, 1b, 1c, and 2 complexity VAMCs, as information was not available on the split between inpatient and outpatient FTE or work hours for each occupation. Occupations included: physicians (occupation code 0602), physician's assistants (0603), nurse anesthetists (0605), nurses (0610), practical nurses (0620), nursing assistants (0621), psychologists (0180), social workers (0185), physical therapists (0633), occupational therapists (0631), kinesiotherapists (0635), rehabilitation therapy assistants (0636), speech pathologists and audiologists (0665), registered respiratory therapists (0601), certified respiratory therapists (0640), dietitians and nutritionists (0630), orthotists and prosthetists (0667), pharmacists (0660), and pharmacy technicians (0661). Ancillary support (e.g., environmental services) and administrative roles (e.g., bed management) are examined insofar as they affect staffing of clinical occupations.

[30] Total VHA 2014 reported medical care FTEs = 278,249 FTEs (VA, 2015, VHA-26).

[31] Other staff include Level 3 complexity VAMC staff in the categories referenced above, VAMC clinical staff working only or primarily in the outpatient setting (e.g., dentists), VAMC non-clinical staff (e.g., administrative staff), staff at non-VAMC facilities (e.g., CBOCs, distribution centers), VHA Central Office (VHACO), and VA Central Office (VACO) staff.

[32] Based on VHA Support Service Center (VSSC), Paid Accounting Integrated Data (PAID) FY14 payroll data. Does not include benefits. Net pay = gross pay – deductions.

Figure 5-1. Components of Clinical Staffing[33,34]

Clinical Staffing consists of four core components

Core staffing	Scheduling	Flexing
▪ Determining staffing need (staffing methodologies) ▪ Resource management structure and decision-making ▪ Hiring processes ▪ Talent attraction and retention	▪ Hospital operating model (i.e., primary hours of operation) ▪ Ancillary support for scheduling ▪ Scheduling tools ▪ Tracking work hours	▪ Access to external supplemental resources (e.g., agency labor) ▪ Internal flex capacity (e.g., float pools)

Supporting infrastructure

Policies	Data management
▪ Mandatory training ▪ Performance management	▪ Metrics selected ▪ Data integrity and collection

5.1 Summary

5.1.1 Assessment Approach

As described in the summary of this report (Section 1), our approach consisted of information collection and analysis.

We collected information in several ways:

- Site visits completed to 21 VAMCs, in which we:
  - Conducted approximately 60 interviews with physician department chiefs (e.g., Chiefs of Surgery), Assistant Directors of Patient Care Services (ADPCSs, the

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[33] "Float pools" refer to a group of nurses available for work on an ad hoc basis, typically used when census (the number of patients on a unit) is high or when staff nurses are unavailable (e.g., during periods of extended leave). Float pool nurses may be full- or, more commonly, part-time employees of the hospital (particularly in hospitals with high admissions) or may refer to contract nurses paid on a per diem basis.

[34] "Agency labor" refers to staff employed by a staffing agency, who are available for short-term contracts to supplement existing staffing.

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equivalent of Chief Nursing Officers at VAMCs), and Allied Health Professional (AHP) chiefs of service lines (e.g., Chief of Physical Medicine and Rehab [PM&R])

- o Facilitated 19 workshops on staffing with front-line personnel from various clinical occupations[35]

- Data call sent to leadership of clinical service lines to gather staffing data that is not consistently maintained at the national level (e.g., annual work hours by role, department, and shift), completed by 55 of the 121 Level 1 and 2 complexity VAMCs (~45 percent)[36]

- Analysis of data gathered from national systems, including national Healthcare Talent Management and payroll data[37]

- Interviews on staffing with over 10 VACO and VHACO medical, HR, contracting, and training and education subject matter experts

Having collected information to understand current VHA staffing practices, we then analyzed the effectiveness of these practices by comparing them against benchmarks. Where quantitative benchmarks are used (e.g., overtime usage), we have attempted to identify best practices (e.g., ideal overtime usage) where these are published by professional associations, have consensus in the literature, or are found in high performing VAMCs and/or private sector hospitals (both typical private sector hospitals and high-performing private sector hospitals, as identified through their performance in national lists such as NDNQI rankings). Where there is no such clarity as to the best practice, we have used survey data published by professional associations and profiles of typical private sector hospitals to establish standard practices (e.g., average overtime usage across U.S. private sector hospitals). We have noted in figures or footnotes whether figures cited are considered best practice or industry standard practice.

Our ability to effectively benchmark VHA practices was, in many instances, hampered by lack of VHA data. For example, VHACO does not have ready access to each VAMC's staffing levels by unit or shift, precluding an analysis of skill mix and reduction in staffing on evenings and weekends ("downshifting") by unit type.[38] Given that clinical staffing needs vary considerably by type of unit (e.g., ICUs require a higher concentration of RN labor than Med/Surg floors), data access was a significant impediment to our ability to assess VHA staffing practices. VHA data management is inferior to that seen in the private sector, and likely affects VHA's own ability to effectively make clinical staffing decisions and monitor staffing levels at the local, regional, and national levels.

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[35] Participants' roles varied from site to site. Typical participants included nurses, charge nurses, nurse managers, case managers and social workers, quality management and utilization management staff, medical support assistants, physical therapists, occupational therapists, pharmacists, and physicians. Two sites did not have workshops due to scheduling conflicts.

[36] Total VAMC count depends on whether campuses of the same parent station are counted as separate VAMCs or one entity. We have based the count used in our site selection (122) on data drawn from VSSC, 2014 and SAIL, 2014 (see Appendix). In some instances, we use 121 as the denominator, based on data available in the data sets most commonly used for that section.

[37] From VHA HTM and VHA VSSC

[38] VHA data stewards estimated 6 to 12 months to pull this data, using a labor mapping technique.

5.1.2 Summary of Findings

We observed several key challenges, and a few points of strength, within VHA clinical staffing. These findings apply to VHA organization, processes, and tools; a detailed mapping to the organization, processes, and tools framework is available in Appendix A.3.

5.2.1 VHA does not have the tools or data to set or monitor staffing levels appropriately. The lack of methodologies for estimating staffing needs for many services means VHA does not consistently know to what level it should be staffing, while poor data management means that VHA does not always know its staffing levels.

5.2.2 Hiring timeline significantly exceeds private sector benchmarks, affecting ability to fill vacancies. The issue of hiring timelines was a consistent complaint in interviews and staffing workshops – a challenge which is likely due to a combination of complex regulations and inefficient processing – though lack of data impeded a conclusive analysis of causes.

5.2.3 Allocation of staff does not consistently match patient care needs. Data call results and site visits indicate that staffing on weekend, holiday, evening, and night (WHEN) hours may be insufficient, and that access to flex labor is limited.

5.1.3 Summary of Recommendations

Our assessment revealed several areas where VHA can build on current strengths or address existing challenges to improve clinical staffing. We recommend that VHA consider three strategic themes, as detailed below. As with the findings, these themes apply to VHA organization, processes, and tools.

5.3.1 Increase transparency of staffing by providing evidence-based staffing methodologies for all clinical staff and improving data management. VHA should develop methodologies and tools that allow facilities to estimate how many FTEs they need and monitor staffing levels on an ongoing basis.

5.3.2 Increase timeliness of hiring to patient care teams. VHA should accelerate its hiring timeline by streamlining requirements, holding HR staff more accountable for efficiency, and giving facilities the financial flexibility they need to attract talented candidates.

5.3.3 Allocate staff to match patient care needs. Once staff are hired to the facility, VHA needs to ensure it is allocating them to match patient care needs – this means relaxing required positions and regulations that prevent VAMCs from deciding when and where to allocate staff – and shifting expectations for hospital operating models from a clinic hours model to truly 24/7 staffing.

Implementing these changes would likely have multiple positive effects, many of which cannot be easily quantified or clearly attributed to staffing changes alone (particularly given limitations with available HR data). However, we have estimated the potential effects of two aspects of our recommendations, described in Section 5.3.5:

- Potential savings from reduced overtime
- Possible reduced hiring timeline from streamlined credentialing and boarding

5.1.4 Past Findings and Recommendations

Previous reports have also assessed staffing practices at VA. Many of these reports have identified findings similar to the ones we observed, and suggested changes similar to our recommendations. For example, past reports have noted the lack of reliable staffing data (VA OIG, 2012) and the length of the hiring process (VA OIG, 2004 and 2009; GAO, 2014). See Appendix A.4 for illustrative examples of past reports' findings and recommendations. Note that these examples illustrate the type of factors identified in recent years, and are not intended to be a comprehensive listing.

These past assessments have tended to focus on specific issue areas and/or individual facilities, separately developing recommendations for improvement in discrete areas. In contrast, our assessment tries to take an end-to-end view of inpatient clinical operations across five key sub-assessment areas and all high- and medium-complexity VAMCs.

5.2 Findings

We have synthesized observations from site visits and data analysis into three primary findings, listed below. The sub-sections that follow (5.3.1, 5.3.2, and 5.3.4) describe these findings in detail, including information on what we believe to be the drivers of each finding.

5.2.1 VHA does not have the tools or data to set or monitor staffing levels appropriately

5.2.2 Hiring timeline significantly exceeds private sector benchmarks, affecting ability to fill vacancies

5.2.3 Allocation of staff does not consistently match patient care need

As noted in Section 5.1.1, data issues prevented us from conclusively assessing many areas of clinical staffing. We have used the national datasets that were available, information returned as part of the data call, and perceptions and experience reported or observed during site visits or via the staff survey. In many instances where data does not allow us to definitively comment, we have described the potential implications of the data points we do have, along with recommendations in Section 5.3 for further analysis.

5.2.1 VHA Does not Have the Tools or Data to Set or Monitor Staffing Levels Appropriately

Site visit interviewees and workshop participants often reported that their service lines were understaffed: about two-thirds of physician department chiefs, ADPCSs, and AHP leaders interviewed believed that staffing for their services was too low.[39] VHA does not have clear definitions of what appropriate staffing levels are for most service lines, however, and staffing

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[39] Physician department chief N=19, ADPCS N=19, AHP leader N=21.

data is poor. Staffing levels are likely a mix of appropriate, too low, and excessive at different facilities for different occupations, but service line leaders do not have data on whether this is the case. Better information and clear staffing methodologies are needed so that leaders and staff can use a fact-driven approach to staffing based on best practice within and beyond VHA.

In particular, we find four key drivers affecting VHA's ability to set staffing levels appropriately, described in this section:

5.2.1.1 The nursing service has developed a comprehensive, evidence-based staffing methodology, though other occupations lack clear guidance on assessing staffing need

5.2.1.2 Some facilities manage data well locally; however, VHA as a whole does not consistently capture and track data needed to assess the appropriateness of staffing

5.2.1.3 Resource management is siloed by service line, resulting in inconsistent decision-making that does not always match needs

5.2.1.4 Local resource management decision-making does not always reflect national service line staffing guidance

5.2.1.1 The Nursing Service has Developed a Comprehensive, Evidence-Based Staffing Methodology, Though Other Occupations Lack Clear Guidance on Assessing Staffing Need

In 2010, the Office of Nursing Services (ONS) released a national staffing methodology for nursing roles (VHA Directive 2010-034). This methodology draws upon academic literature and private sector industry benchmarks, and includes both an FTE calculator and guidance on the process for developing and vetting FTE requests (see case study in this section). The methodology has been well-received by local nursing services, though there have been challenges with implementation and approval processes (see Section 3.2.2).

Outside of nursing, staffing guidance is limited. Many clinical services provide no national guidance on how to set staffing levels (Table 5-1). Many other services have released national staffing directives, but these consist of minimum staffing and coverage levels, without a methodology to estimate FTEs required to deliver those levels (e.g., if the emergency department requires a particular level of on-call mental health support, what implications does that have for mental health staffing?).

Table 5-1. Staffing Guidance Issued by National Leadership for key Clinical Service Lines

National staffing guidance	Description
FTE calculator and process guidance	▪ Nursing[40] (includes assistant nurse managers,[41] charge nurses, clinical nurse leaders, RNs, graduate nurses,[42] LPNs/LVNs, NAs, and patient care health technicians)[43]
Minimum staffing and coverage levels	▪ Emergency medicine (includes ED physicians, NPs, PAs, nursing staff, health care technicians,[44] paramedics,[45] patient support assistants (PSAs),[46] pharmacists,[47] clerical staff,[48] social workers, and on-call mental health providers[49])[50] ▪ Ophthalmology[51] (includes ophthalmologists, optometrists, and other eye care professionals, as well as required availability of prosthetics, laboratory, radiology, and other diagnostics and imaging)[52] ▪ Pharmacy[53] ▪ Radiology[54] (includes radiologists and technologists)

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[40] Nursing coverage also included in other services' staffing directives, e.g., emergency medicine (VHA Directive 2010-010) and surgical services (VHA Directive 2010-018).

[41] While performing patient care

[42] Not yet licensed, who have completed unit orientation

[43] Nurse staffing directive (VHA Directive 2010-034) explicitly excludes nurse managers, assistant nurse managers while performing administrative duties, advanced practice nurses (NPs and CNSs), unit secretaries/unit clerks, monitor technicians, one-to-one (1:1) sitters, escorts, students who are fulfilling educational requirements, and therapy assistants.

[44] No specific target; mentioned as one of a group of "important supportive roles in the ED…The use of such additional staff is supported and encouraged" (VHA Directive 2010-010, 4)

[45] Ibid.

[46] Ibid.

[47] Ibid.

[48] Ibid.

[49] May be provided by psychiatrists, psychologists, social workers, physician assistants, advanced practice nurses, psychiatric residents, and psychology post-doctoral fellows

[50] Staffing levels are provided for each occupation, without guidance on recommendation ratios between occupations.

[51] VHA Handbook 1121.01

[52] Staffing levels are provided for each occupation, without guidance on recommendation ratios between occupations.

[53] Minimum coverage to support surgical services included in surgical infrastructure directive (VHA Directive 2010-018), reference also made to pharmacists as "important supportive roles in the ED" made in the emergency medicine staffing directive (VHA Directive 2010-010, 4).

[54] Minimum coverage to support surgical services also included in surgical infrastructure directive (VHA Directive 2010-018). Availability required to support ophthalmology (VHA Handbook 1121.01). Staffing levels are provided for each occupation, without guidance on recommendation ratios between occupations.

National staffing guidance	Description
	▪ Surgery (includes surgeons, CRNAs or other LIPs, surgical assistants, RNs, surgical technicians, anesthetists, and supporting services and diagnostics)[55]
No guidance	▪ Advanced practitioners (NPs, PAs, CNSs, and CRNAs) outside of emergency medicine[56] ▪ All physician specialties other than emergency medicine, radiology, ophthalmology, and surgery[57] ▪ Dietary and nutrition services ▪ Hospitalist medicine ▪ Inpatient mental health[58] ▪ Occupational therapy ▪ Physical medicine and rehabilitation[59] ▪ Respiratory therapy[60] ▪ Social work[61] ▪ Speech pathology and audiology

Lack of staffing guidance and limited staffing guidance create three challenges: (1) service lines without staffing guidance use inconsistent practices based on outpatient staffing practices; (2) service lines with guidance on minimum levels struggle to estimate need above the minimum; and (3) service lines with guidance on minimum coverage struggle to estimate FTEs needed for coverage.

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[55] Including respiratory care, pharmacy, blood bank, physical therapy, SPD (supply, processing, and distribution), and availability of EKG, basic laboratory, basic radiology, cardiac stress testing, pulmonary function test, CT scan, vascular ultrasound, radiology interpretation, interventional cardiology, vascular and non-vascular interventional radiology, pre-operative risk assessment and post-operative consultation and services, PACU care, ICU care, pathology, dialysis, biomedical engineering

[56] Minimum anesthesiology coverage by an advanced practitioner to support surgical services included in surgical infrastructure directive (VHA Directive 2010-018).

[57] Minimum coverage by specialty consultants (anesthesiology, cardiology, pulmonary, gastroenterology, hematology, infectious disease, interventional radiology, nephrology, neurology, orthopedic surgery, pathology, thoracic surgery, urology, vascular surgery) to support surgical services included in surgical infrastructure directive (VHA Directive 2010-018).

[58] Minimum coverage to support emergency medicine included in emergency medicine staffing directive (VHA Directive 2010-010).

[59] Minimum coverage to support surgical services included in surgical infrastructure directive (VHA Directive 2010-018).

[60] Ibid.

[61] Minimum coverage to support emergency medicine included in emergency medicine staffing directive (VHA Directive 2010-010).

Service lines without staffing guidance use inconsistent practices based on outpatient staffing practices. Unsurprisingly, clinical occupations without comprehensive national staffing directives show variation in the data and processes used to estimate staffing need. For example, AHP leaders interviewed reported using a wide range of different metrics, varying from site to site: productivity (used by 76 percent of AHP leaders), historical census (52 percent), community standards (10 percent),[62] and length-of-stay (5 percent), among other factors.[63] Over half of AHP leaders and physician department chiefs interviewed reported that staffing was conducted on an entirely ad hoc basis, with no regular reviews.[64] OIG has reported several times over the past decade on the need to develop staffing methodologies for clinical service lines (VA OIG 2015, 2012, 2009, 2006, 2006, 2004, and 2004b). In the absence of clear methodologies, many facilities rely primarily on productivity comparisons, largely based on encounters, to justify requests for additional staff. These metrics have two key limitations:

(a) Measuring patient care productivity primarily based on encounters tends to be a more accurate means of capturing outpatient rather than inpatient workload. Inpatient providers and licensed independent practitioners (LIPs) tend to have duties related to patient care that occur outside of the visit: e.g., a hospitalist coordinating with specialists on consults.

(b) Given issues with data integrity, comparing productivity against other VAMCs likely results in highly skewed perceptions of facilities' relative productivity. Interviewees suggested that interpretations of codes for time outside of direct patient care (e.g., administrative time) varies considerably from site-to-site, making comparisons to other sites highly unreliable.

The academic literature tends to measure adequacy of physician staffing levels through physician-to-patient ratios (Epané and Weech-Maldonado, 2015; Ward et al., 2013; Phoenix Physicians, 2011; Collins, 2009; and Pronovost et al., 2002).[65] Suggested ratios or hours targets (e.g., physical therapist hours per patient bed-day) would likely prove more helpful to VAMCs as a staffing tool than productivity targets (see Section 5.3.1, Recommendations). See Assessment G for additional detail on workload measurement.

Service lines with guidance on minimum levels struggle to estimate need above the minimum. Several service lines provide guidance on an absolute minimum number of providers needed, based on which services are provided at the facility. This makes it very difficult for large facilities to estimate whether they need

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[62] For example, comparison against staffing at other VAMCs of the same complexity level

[63] N=21. These metrics are not mutually exclusive – many AHP leaders used several of the metrics listed, among others.

[64] AHP leader N=20; physician department chief N=20.

[65] List is intended to illustrate key studies using staffing ratios to evaluate the adequacy of physician staffing. This list is not exhaustive.

additional providers above the minimum. Surgical services provides an example: under the surgical infrastructure directive, facilities must have at least two general surgeon FTEs to be designated as intermediate surgical complexity (VHA, 2010). Intermediate complexity VAMCs[66] range considerably in annual surgical admissions, however, meaning that two facilities with the same complexity but different numbers of admissions can have very different coverage levels and still meet minimum staffing level requirements. For example, both Cheyenne and Providence are intermediate complexity facilities with two general surgeon FTEs on staff, though Cheyenne has 160 surgical admissions each year and Providence has 466.[67] This results in ratios of general surgeons to surgical admissions of ~80:1 and ~238:1. Providing absolute minimums creates the potential for significantly different coverage at facilities ostensibly delivering the same services.

Service lines with guidance on minimum coverage struggle to estimate FTEs needed for coverage. Many services stipulate that a particular provider or service be available for a certain period of time or at a loosely defined level of accessibility. For example, the emergency medicine staffing directive requires that complexity Level 1a facilities have:

…mental health coverage, at a minimum…on-site (based in the ED) from 7:00 am to 11:00 pm…mental health providers covering on-site…may participate in activities throughout the medical facilities; however, they must not undertake any…activities that would prevent them from coming immediately to the ED if called (VHA, 2010)

This guidance provides facilities with considerable scope for interpretation on a daily basis. For example, how much capacity does a mental health provider need to set aside in order to be truly available to the ED during a given shift? Does this time need to be in set blocks between patient appointments, or should it be a more informal allocation? Provider coverage should reflect the patient population and provider caseload; minimum coverage targets are inflexible and not a true proxy for these factors. Additionally, coverage requirements do not easily translate into justification for an FTE request. Without a methodology to estimate FTEs required to meet coverage requirements, facilities may struggle to demonstrate a need for an additional provider.

In interviews, physician department chiefs and AHP leaders interviewed rarely perceived staffing practices for their occupations as highly effective, perhaps reflecting the lack of clear guidance for their services.[68] By contrast, over half of ADPCSs saw the nurse staffing

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[66] Assuming that facilities with intermediate surgical complexity are also Level 2 complexity overall

[67] VHA National Surgery Office data, FY15Q1-FY14Q2

[68] "Effectiveness" was defined as the ability to use the staffing methodology to develop staffing requests matching perceived staffing need – that is, whether existing processes or tools allow services to accurately estimate FTE requirements." Physician department chief N=19, AHP leader N=21.

methodology as "highly effective," perhaps reflecting strengths of the nursing methodology (see case study below).[69]

Table 5-2. VAMC Case Study: Nurse Staffing Methodology

Best practice case study – nurse staffing methodology

The nurse staffing methodology is scalable and evidence-based, and may provide a model for other services (see Section 5.3.1, Recommendations).
 	
Key points on the nurse staffing methodology
 	
▪ The methodology principally consists of an FTE calculator and guidance on the process for assessing staffing annually. *Main steps in the nurse staffing methodology*, below, illustrates the principal components of estimating FTE need at the facility level.[70]
 	
▪ The FTE calculator is data-driven and evidence-based, relying upon private sector benchmarks for nursing hours per patient day (NHPDD) by unit,[71,72] historical census data (including turbulence, i.e., the amount of patient turnover on a unit in a given amount of time), and projected leave, among other factors
 	
▪ There are a few clear opportunities to improve upon the nurse staffing methodology (e.g., include 1:1 sitters, as recommended in 40 percent of staffing workshops),[73] though the core of the methodology is grounded in best practice
 	
▪ Despite the positive perception of the staffing methodology, 63 percent of ADPCSs interviewed felt that nurses were somewhat or highly understaffed.
 	
   ○ This may reflect the fact that the nurse staffing methodology is non-binding: the **resource management committees do not have to approve** requests made using the methodology. Whether and how to enforce staffing methodologies should be addressed when developing further staffing methodologies (see Section 5.3.1), while respecting the fact that budgetary constraints do exist at the local level and affect ability to hire new staff
 	
   ○ The nurse staffing methodology **also does not include many roles that support nurses** (e.g., sitters, transporters, housekeepers/environmental services staff). Nurses reported during site visit interviews and workshops that staffing these roles separately often resulted in insufficient numbers of support staff, leading nurses to work below top-of-license. If this is the case, and nurses at many facilities are completing both nursing work and responsibilities that other roles should perform, it could result in nurses

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[69] N=19.

[70] See VHA Directive 2010-034, "Staffing Methodology for VHA personnel" (July 19, 2010) for more details

[71] Drawn from Labor Management Institute survey data.

[72] Nursing hours per patient day (NHPPD) is an industry-standard way of calculating the amount of nursing care provided to a patient. The American Nurses Association defines NHPPD as the total number of hours worked by nursing staff responsible for direct patient care on acute care units per patient day (ANA, 1996). Patients with different acuities require different NHPPD, meaning that best practice and industry-standard NHPPD varies by unit. See Appendix A.7 for data on recommended and benchmark NHPPD by unit.

[73] N=20

Best practice case study – nurse staffing methodology
feeling that staffing levels were too low, even when benchmarks are in line with the private sector. Given a lack of data, we were not able to substantiate whether staffing levels were appropriate; VHA should review nurse and support staff FTE numbers to evaluate whether there is merit to reported understaffing **Main steps in the nurse staffing methodology** 1. Unit panel (comprised of nurses across roles working in the unit) and unit nurse manager work together to develop a proposed staffing level and mix for the unit, calculating current NHPPD, comparing against NHPPD targets for comparable facilities, and incorporating factors such as turbulence and leave 2. Facility expert panel, primarily consisting of senior nurses and finance staff, reviews the unit panel's staffing proposal and approves or returns for changes 3. Resource management committee or other decision-making body, often following review by the ADPCS and Director, makes a decision on the staffing proposal

5.2.1.2 Some Facilities Manage Data Well Locally; However, VHA as a Whole Does not Consistently Capture and Track Data Needed to Assess the Appropriateness of Staffing

Lack of transparency is also a data management issue. VACO HR data does not capture key metrics needed to assess the overall staffing levels in the inpatient setting. For example, while interviewees at many sites perceived that they were understaffed on nights and weekends, available HR data does not include work hours by department or shift and therefore could not be used to compare VHA staffing across shifts against guidance in the academic literature.[74] VAMC and VISN insight into staffing levels appears to vary, driven by local and regional data management systems (e.g., some respondents to the data call where able to provide work hours by role, shift, and department, while others reported that their HR and payroll data did not include these cuts).

Poor data collection and tracking was observed in multiple sub-assessment areas of this report (see Sections 6, 7, 8, and 9). We observed two key data management challenges affecting VHA's ability to manage clinical staffing: (1) national systems lack key pieces of data needed to assess staffing levels; and (2) data can be inconsistent and unreliable. VHA may well be appropriately staffed – likely, there are sites and services where staffing is appropriate, too low, and excessive, across the system – but its data systems do not allow leaders to assess this, affecting their ability to scale best practices and resolve challenges.

> **National systems lack key metrics needed to assess the appropriateness of staffing levels.** While VHA collects a substantial amount of data, it does not appear to be well linked to key metrics nor highly usable. This approach not only drives challenges

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[74] We were able to access FTE, position, vacancy, and turnover data from VHA HTM and FTE, position, hours, and pay data from VHA VSSC. See Driver 2 in this finding for more detail on limitations in metrics.

for monitoring and evaluation, but should also be re-assessed for its impact on staff productivity. Key examples:

(a) Vacancy rates measure the distance between approved and filled positions, with no information provided on positions requested or recommended by existing staffing methodologies. This creates an inaccurate picture of the size of staffing need, as facilities may not have approved positions that are needed to deliver patient care at an optimal level, given the limitations of existing staffing methodologies for many service lines (see Section 5.2.1.1). At best, this data challenge means that vacancy rates are not useful metrics; at worst, current measurements give leaders a misleading understanding of staffing need, implying that vacancies are low for a given occupation and should therefore not be a priority, when the staffing methodology (for service lines where staffing methodologies do exist) may actually suggest significantly higher staffing levels are needed. VA should track requested positions, budgeted positions, and filled positions to increase transparency (see Section 5.3.1).

(b) FTE, hours, and payroll data is measured by occupation and VAMC, but not by department or outpatient versus inpatient setting.[75] Appropriate staffing levels vary considerably by department (e.g., ICUs typically staff a 1:1 or 1:2 ratio of RNs to patients, compared to ~1:5 on med/surg floors [Labor Management Institute, 2014]). VHA HR data does not indicate the distribution of occupations to different departments, meaning VISN and VHACO management have no way of knowing whether VAMC departments are appropriately staffed.

(c) Hours data is not available by shift, though pay data is.[76] This, coupled with the lack of data at the department level, means that VHA has no way of using HR data to evaluate whether WHEN hours staffing is adequate (as appropriate WHEN staffing varies considerably by department, e.g., outpatient clinics compared to acute inpatient units). Studies have established that sufficient staffing on WHEN shifts is critical to ensuring patients have full and speedy recoveries (Wallace et al., 2012,[77] Cavallazzi et al., 2010; Ananthakrishnan et al.,

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[75] The team was able to access FTE, position, vacancy, and turnover data from VHA HTM and FTE, position, hours, and pay data from VHA VSSC.

[76] Ibid.

[77] Wallace et al. find that night-time intensivist coverage reduces in-hospital mortality for facilities with a low-intensity day-time intensivist staffing model (defined as optional consultation with an intensivist), and see no effect of nighttime coverage for facilities with high-intensity coverage. This finding corroborates other studies demonstrating positive effects of nighttime intensivist coverage in facilities with low-intensity day-time coverage (Blunt and Burchett, 2000) and no effects in facilities with high-intensity day-time coverage (Kerlin et al., 2013; Gajic et al., 2008).

2009; Aujesky et al., 2009; Shaheen et al., 2009; Peberdy et al., 2008;[78] Brusco et al., 2007; and Kostis et al., 2007).[79]

Data can be inconsistent and unreliable. In addition to not collecting metrics needed to assess staffing, VHA also struggles to maintain data integrity. Comparing data available through national VHA data sets to responses submitted as part of our data call illustrates this challenge. For example, the VHA Paid Accounting Integrated Data [PAID] system indicates that one particular VAMC has 22 dietician and nutritionist FTEs in FY14, and the VHA Healthcare Talent Management Proclarity system provides a very similar figure of 23. Responding to our data call, however, this VAMC reported having 8.5 dietician and nutritionist FTEs, across the nutrition and food service line. The response rate to our data call on FTE information was low, and cannot be used to definitively assess discrepancies between national and local data sets. However, examples like this one do point to a significant potential challenge with respect to data integrity, which VHA should address in order to ensure transparency and visibility.

Table 5-3. VAMC Case Study: Local Data Management

Best practice case studies – local data management
Several VAMCs have invested in more **robust data management at the local level**, affording them greater insight into staffing levels and ability to manage them. This is in line with the Blueprint for Excellence which states that VHA will "advance value by measuring and supporting efficient clinical processes using industry-standard models of physician and staff productivity" (Blueprint for Excellence, 2014). These facilities provide a starting point for considering new national data management practices (see Section 5.3.1, Recommendations). **Selected examples:** The **Fort Harrison, Montana** VAMC has invested in **AcuStaf**, a scheduling and data tracking tool, and worked to integrate its functionalities with VHA information systems. Other visited facilities expressed that they had not been able to fully implement AcuStaf due to facility scheduling and payroll policies, or had found the data entry duplicative with existing VHA data collection requirements. Fort Harrison provides a model of effective implementation for other VAMCs. The **Palo Alto, California** VAMC employs a statistician who, among other responsibilities, assists with monitoring and analyzing staffing data. Similar to many other facilities, Palo Alto produces morning staffing reports including census and personnel numbers. In addition, Palo Alto runs summary reports on staffing weekly, monthly, and quarterly by unit to ensure that

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[78] Studies cited found significant association between weekend admission, when staffing levels and mix decline, and poorer outcomes.

[79] Study found decreased LOS for patients who received Monday through Saturday physical therapy, as compared to a control group receiving Monday through Friday therapy.

Best practice case studies – local data management
all leaders and staff have an accurate and current understanding of staffing levels and how they compare to targets.

5.2.1.3 Resource Management is Siloed by Service Line, Resulting in Inconsistent Decision-making That Does not Always Match Needs

VHA lacks transparency on staffing needs and levels, as described earlier in this section. Having developed staffing requests, however, decision-making on resource management can be highly inconsistent and problematic. In large part, this stems from VHA's siloed organizational structure, a theme observed in other assessments (see Assessment L). Staffing decisions typically focus on single occupations, without considering the other occupations and services that support a given professional, even within a specific service line.

Clinical occupations are highly interrelated, with professionals relying on one another to provide clinical consults, continued care, and support enabling top-of-license practice. There is no definitive consensus in the literature or private industry as to whether health care organizations should staff along functional (e.g., surgery, internal medicine) or professional (e.g., physical therapy, nursing) lines (Hearld et al., 2008; West, 2001; and Snow and Hambrick, 1980). In either case, interdisciplinary collaboration on interdependent areas is critical to ensuring an appropriate staffing model. The academic literature has clearly established that interdisciplinary skill mix, driven by interdisciplinary collaboration on staffing, is critical to ensuring comprehensive, high-quality care for patients (Nancarrow et al., 2013[80]). The Cleveland Clinic, a highly respected private sector hospital, emphasizes interdisciplinary collaboration on all key aspects of clinical operations; as the Director of its Center for Multidisciplinary Simulation, John Jelovsek, says, "When you get in the work environment, it's more and more clear that the team causes the largest change in outcomes for patients" (quoted in Wood, 2012). Interviews with VHACO leadership and VAMC administration and staff suggest that VHA resource management is highly siloed by service line, with limited coordination at the national and local levels.

Siloing creates two key challenges: (1) national staffing guidance is not created in collaboration with related service lines; and (2) local staffing requests typically focus on individual occupations or professionals, not patient care teams. See Assessment L for additional findings on service line silos and recommended organizational changes that may help alleviate the challenges described below.

National staffing guidance is not created in collaboration with related service lines. Several service line chiefs interviewed reported that the level of collaboration

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[80] Nancarrow et al. conduct a comprehensive review of the existing academic literature on interdisciplinary teamwork, finding 10 critical elements to effective collaboration: "positive leadership and management attributes; communication strategies and structures; personal rewards, training and development; appropriate resources and procedures; appropriate skill mix; supportive team climate; individual characteristics that support interdisciplinary team work; clarity of vision; quality and outcomes of care; and respecting and understanding roles" (Nancarrow et al., 2013, 11).

between their service and other related service lines on staffing was very low. As one VHACO service line chief said, "I'm not at all involved in developing other services' solutions… I have no knowledge or awareness [of what staffing guidance they are developing]." The effect of silos at the national level is that policies are developed without significant input from other services that will be affected by new practices. For example, nursing and physician assistant service lines have reportedly not been involved in developing the staffing methodologies currently being created by specialty care services. Given how closely physicians, advanced practitioners, and nurses work together in the inpatient setting, changes in the staffing of one of these occupations has implications for the others, which might be overlooked without open Communication

Local staffing requests typically focus on individual roles, not patient care teams. VAMCs typically approve staffing proposals through a resource management committee, comprised of senior hospital leaders tasked with making decisions on resource requests from all service lines. Resource management committees often require that service lines submitting requests attest to the fact that they developed their request in conjunction with related services, though several interviewees reported that this coordination rarely occurs in practice. As one Chief of PM&R described, "The goal of the resource management committee is to foster interdisciplinary communication, but it doesn't happen...as well as one might want." While there does appear to be strong interdisciplinary coordination at some facilities (see case study in this section), a significant portion of VAMCs does not achieve integrated staffing requests across service lines. In 40 percent of staffing workshops conducted, participants cited limited coordination between service lines as a major challenge.[81] Interviews conducted during site visits provide anecdotal evidence of limited coordination among service lines, with interviewees citing instances of:

(a) Transporters, environmental services, and sitters being rarely if ever staffed in conjunction with nurses, despite the interdependencies among these roles

(b) Orthopedic surgeons being hired without additional staffing of physical therapists or nurses to assist in recovery

(c) Physical therapists and occupational therapists being hired without additional staffing of ancillary staff (e.g., clerical support)

(d) Surgeons being hired without complementary staffing of OR technicians needed to support additional procedures

(e) Outpatient services being expanded, sometimes as a result of national directives, without increasing outpatient staff, resulting in inpatient and mixed staff covering outpatient services.

One impact of not staffing services together is the potential for understaffing of supporting roles. In 65 percent of staffing workshops, participants reported that limited ancillary support

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[81] N=20

coverage made it difficult for clinical staff to work at top-of-license.[82] Low ancillary support staffing is also believed to affect patient flow and LOS (see Sections 6 and 7). A sizeable minority of physician department chiefs, ADPCSs, and AHP leaders cited making resource management more interdisciplinary as one of their top two priorities for improving core staffing: 19 percent, 29 percent, and 11 percent, respectively.[83] This is line with the Blueprint for Excellence which states that "attention must be given to supporting physician practices with adequate non-physician staff for team-based and efficient care" (Blueprint for Excellence, 2014).

Table 5-4. VAMC Case Study: Interdisciplinary Staffing

Best practice case studies – interdisciplinary staffing
In contrast to the trend seen at many sites we visited, a few VAMCs have established the **expectation that staffing occur in collaboration** between services.   **As an example,**   The **San Juan, Puerto Rico** VAMC typically staffs by department, developing team-based staffing requests. As one service line chief said, "We work in conjunction with other services," developing staffing requests in tandem. For example, internal medicine identified a need for additional PTs, OTs, and nurses for the ICU, and medicine, physical medicine and rehab, and the nursing service worked together to put together a consolidated staffing request.

5.2.1.4 Local Resource Management Decision-making Does not Always Reflect National Service Line Staffing Guidance

Interviewees at many sites suggested that local resource management committee decision-making does not always match national service line staffing guidance. In many cases this may be entirely appropriate: facility leaders face budgetary constraints and must consider trade-offs between many different expenditures, one of which is staffing. If a sizeable number of resource management committees is consistently not staffing to levels suggested by staffing methodologies, however, this either implies that methodologies are suggesting overly high staffing levels or that facilities lack the budgets they need to properly staff clinical care teams. Available data cannot be used to definitely prove either point. The finding that FTEs recommended by staffing methodologies are not always approved does, however, reinforce the finding that current staffing methodologies for many services do not allow facilities to appropriately assess staffing needs and generate consensus as to the need for FTEs.

The disconnect between resource management committee decision-making and national service line staffing guidance appears to be driven by the fact that: (1) evidence-based national staffing methodologies that do exist have no enforcement mechanisms; and (2) FTE ceilings limit potential staffing.

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[82] N=20

[83] Physician department chief N=19, ADPCS N=18, AHP leader N=21

Several interviewees at the local and national levels suggested that resource management decision-making was highly relationship-driven. As one nursing leader described, "A lot [of whether staffing requests are approved] comes down to the relationship between the ADPCS and the Director." This claim cannot be substantiated; but if it is an accurate characterization of decision-making at some facilities, it would be expected to affect the resource management challenges described below.

> **Evidence-based national staffing methodologies that do exist have no enforcement mechanisms.** As noted in Section 5.2.1.1, not all service lines have staffing guidance. Several do, however. The nursing staffing methodology is the most robust, including NHPPD targets drawn from private sector benchmarks and an FTE calculator for estimating the number of FTEs needed to meet NHPPD targets. Several other services have recommended minimum coverage and staffing levels, reflecting service line leaders' research into minimum staffing needed to safely deliver care. Though these methodologies are evidence-based, however, and typically provide guidance on minimum staffing needed to deliver care, they have no minimum implementation requirements:
>
> (a) For the nursing service. The nursing staffing methodology does not recommend a single NHPPD target for each type of unit. Rather, facilities may choose to benchmark themselves against targets slightly above or below median private sector NHPPD targets, and we visited several facilities that benchmarked below private sector medians. Benchmarking below the median is highly likely to result in staffing targets that are below those seen as safe in the academic literature:
>
> > i. The academic literature has established a safe NHPPD of approximately nine for med/surg RNs, below which patient outcomes suffer (Aiken et al., 2003; Aiken et al., 2002; Needleman et al., 2002; Tourangeau et al., 2006; Kane et al., 2007a; Kane et al., 2007b). VHA takes its median NHPPD targets from the Labor Management Institute, which provides a median NHPPD for med/surg RNs of ~9.[84] Given that private sector medians and the academic literature converge, benchmarking below median level necessarily produces NHPPD targets below what evidence establishes as safe.
> > ii. Facilities are also not required to approve requests made to meet NHPPD targets below the median. That facilities are not required to staff to estimates generated using the evidence-based nursing methodology may explain why the methodology itself is well-received (53 percent of ADPCSs described the methodology as highly effective[85]), but only about

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[84] The nurse staffing calculator uses data from the Labor Management Institute (LMI), which publishes NHPPD rates based on its survey of hospitals across the U.S. The LMI reports that median direct NHPPD for med/surg RNs in surveyed private sector hospitals is ~9, and NHPPD in the second quartile ranges from 6.2-8.7.

[85] ADPCS n=19. This is in contrast to 5% of physician department chiefs and 19% of AHP leaders. Physician department head n=19; AHP head n=21.

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a third of ADPCSs believed that nurse staffing levels were adequate.[86] As one ADPCS said, "The NHPPD figure would be right if we were staffed to it."[87]

iii. Not staffing to recommended minimum levels has several potential effects: (1) Bed closures: 36 percent of respondents to our data call reported that they had previously closed beds due to insufficient staffing levels.[88] (2) Not working to top-of-license: Site visit interviewees and workshop participants reported that nurses often completed tasks typically performed by support staff, due to low support staff levels. We could not corroborate this with existing data sets, but if this is true, it would imply that nursing hours spent on patient care are even lower than NHPPD data would suggest.

(b) For services with absolute minimum staffing and coverage levels. Minimums provided by several services are not mandatory, but are required in order to achieve complexity designations (e.g., emergency department versus urgent care clinic status, or standard, intermediate, or complex surgical complexity). However, as described in Section 5.2.1.1, guidance on minimum coverage levels does not always clearly translate into FTE recommendations, creating challenges in justifying staffing requests).

FTE ceilings limit potential staffing. Fifty-two percent of VAMCs we visited reported wanting greater flexibility and local autonomy on setting staffing numbers, including by eliminating or relaxing FTE caps and reducing nationally mandated positions. VHA sets salary ceilings at the national level (per annum ceilings set by the Under Secretary for Health[89]), which are then translated into FTE caps at the local level.[90] Estimating and limiting annual spending on salary is a standard and necessary part of budgeting, and entirely appropriate for VHA to do. However, local FTE caps limit facilities' ability to manage their own budget and make decisions on how and where to allocate staffing funding (e.g., hire two additional NPs or one physician, which may represent the same total salary payment but different FTE numbers).

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[86] 37% of ADPCSs, n=19. This is similar to the rates for physician department chiefs (37%) and of AHP leaders (29%). Physician department head n=19; AHP head n=21.

[87] ADPCS interviewed during a site visit

[88] N=113

[89] See VA Handbook 5007, Part II, Chapter 2, p. II-6: "Per annum ceiling limitations shall be imposed by the Under Secretary for Health on such pay and revised from time to time as necessary in the public interest for both patient care and treatment."

[90] See VA Handbook 5007, Part VI, Appendix J, p. VI-J-1: "Ceiling: The number of FTE (full-time employment equivalents) allocated for an occupation by local management officials."

5.2.2 Hiring Timeline Significantly Exceeds Private Sector Benchmarks, Affecting Ability to Fill Vacancies

Participants in 100 percent of staffing workshops conducted during site visits cited the length of the hiring process as a critical core staffing challenge.[91] Several past VA Inspector General (OIG) and Government Accountability Office (GAO) reports and the Blueprint for Excellence have also commented on this issue (for example, VA OIG, 2004 and 2009; GAO, 2014), suggesting it is a long-standing challenge.

Most interviewees and workshop participants claimed that hiring a new employee, from initiating the posting to the employee's start date, typically lasts about six months for most clinical occupations. We were not able to access data showing the average hiring timeline, and therefore could not substantiate this claim. However, in interivews we were informed about VHA HR timeliness targets: HR aims to move from a request for a posting to a tentative offer in 60 days.[92] This target does not include time to final offer, and is nonetheless still well beyond typical timelines in the private sector for many clinical occupations,[93] as exemplified in Figure 5-2, below. Workshop participants suggest that HR is not meeting the 60-day timeliness target, but even if this target were consistently met, VHA hiring would still lag the private sector.

This delayed ability to hire has a significant effect on VHA's ability to compete for the best clinical talent in the market and ensure that its hospitals consistently have enough staff. Assessment L also focuses on HR capabilities, and includes additional detail on this topic.

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[91] N=20

[92] ADPCS interviewed during a site visit

[93] Interviews with best practice private facilities suggest that particular physician specialties that are harder to recruit for may take 6-12 months to hire for. Many other clinical staff may be hired in under two months, however (e.g., nurses, nursing assistants, many AHPs, health technicians)

Figure 5-2. VHA Hiring Timeline[94]
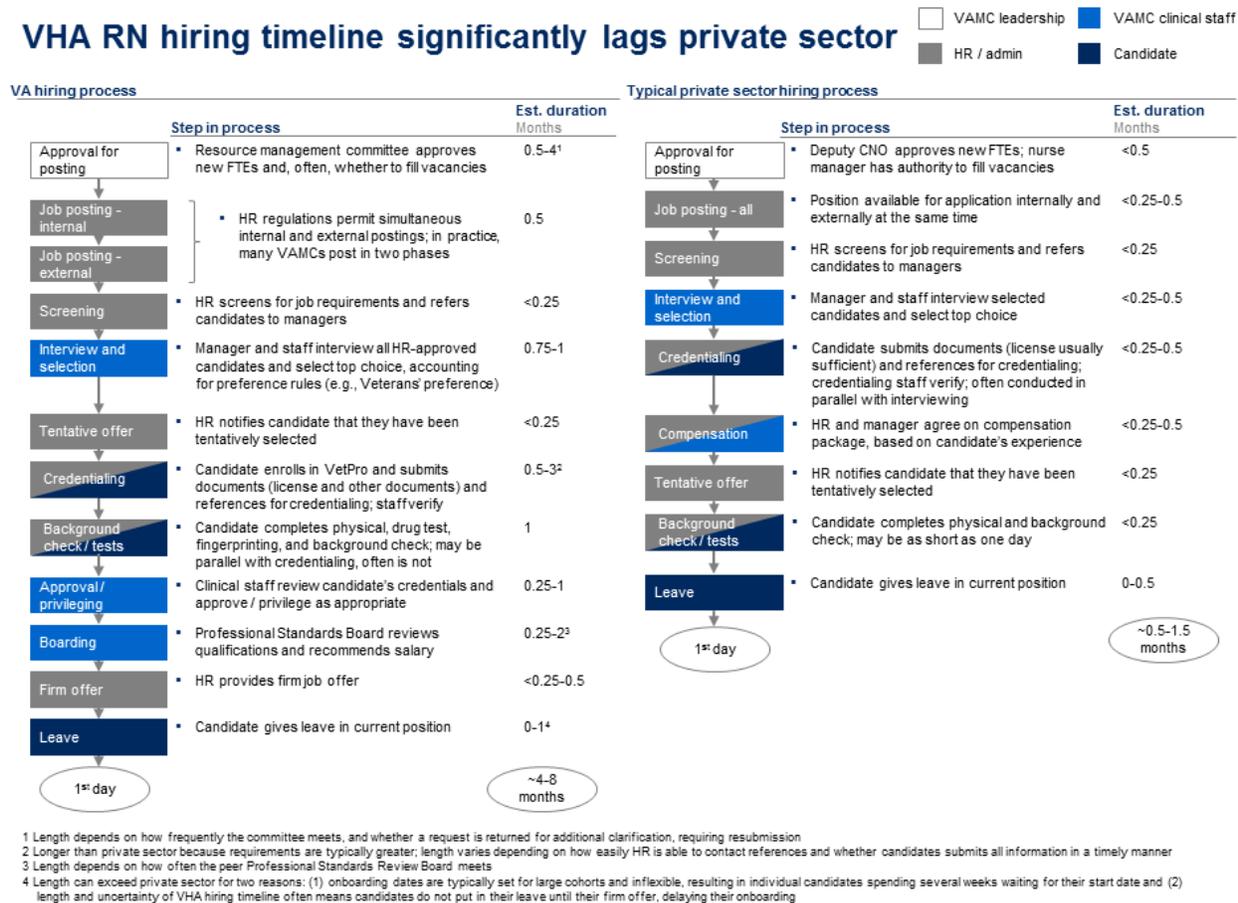
There may be systematic barriers within the public sector that result in longer hiring timelines; the disparity between VHA and private sector hiring timelines is substantial, however, and creates significant challenges. Interviewees and workshop participants claimed that delayed hiring processes contributed significantly to the length and number of vacancies. Candidates for many roles are often unwilling to wait roughly six months to be onboarded, especially when positions with other hospitals are readily available. VHA competes directly with the private sector for talent and the speed at which private sector hospitals can offer positions gives them a distinct competitive advantage in hiring. As Figure 5-3 shows, vacancy rates exceed private sector benchmarks for several clinical occupations. Even for occupations and facilities with relatively low vacancy rates, however, the impact of vacancies is likely exacerbated by delays in filling positions, which are reported as resulting in long-standing openings.

As Figure 5-4 shows, there is a considerable population of VAMCs with total vacancy rates for clinical occupations well above private sector benchmarks. Local variation exists in any system, public or private. Nearly half of VAMCs exceed benchmark vacancy rates, with nearly 30

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[94] VA hiring process flow based on interviews with VAMC clinical staff, VAMC HR staff, and VACO HR leaders. Private sector hiring flow based on interviews with leading private hospitals

percent exceeding the high end of private sector benchmarks by 30 percent or more. This suggests that a substantial share of sites may be facing acute staffing challenges.

Figure 5-3. VHA Vacancy Rates vs. Private Sector Benchmarks
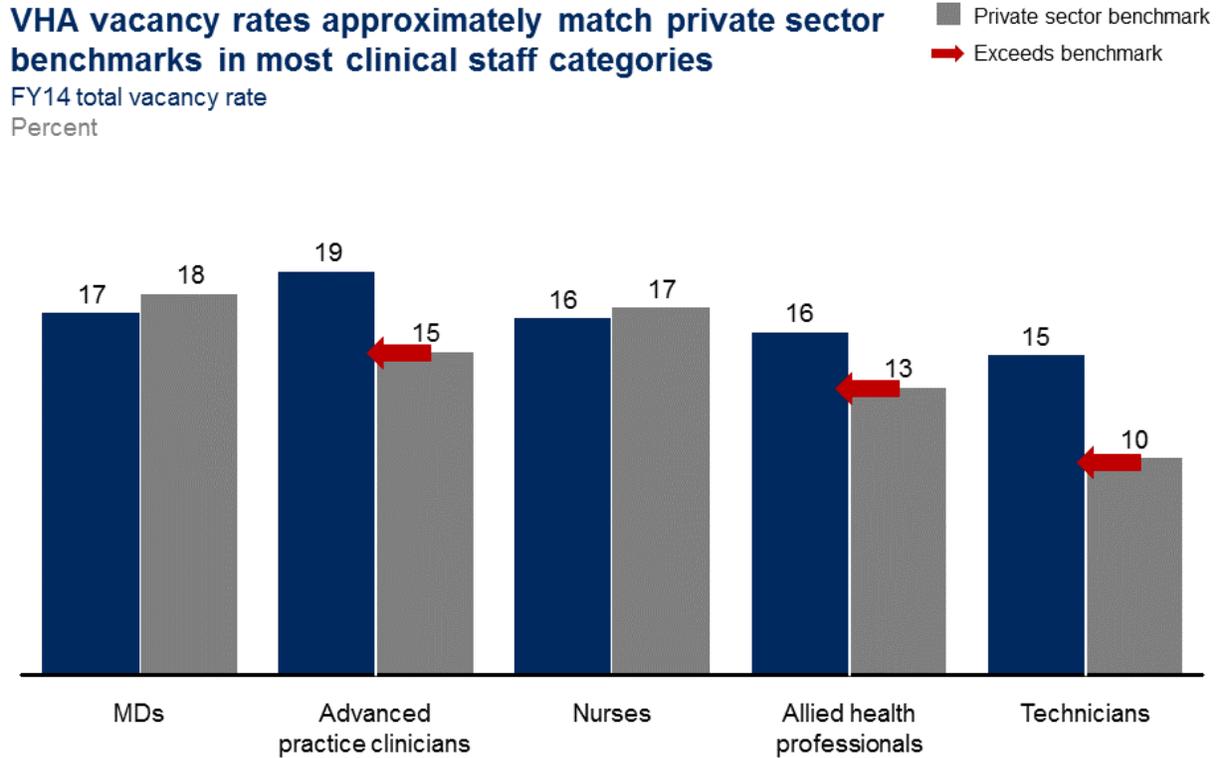
VHA vacancy rates approximately match private sector benchmarks in most clinical staff categories

FY14 total vacancy rate
Percent

Legend:
- Private sector benchmark
- Exceeds benchmark

Category	VHA	Private sector benchmark
MDs	17	18
Advanced practice clinicians	19	15
Nurses	16	17
Allied health professionals	16	13
Technicians	15	10

SOURCE: VHA Healthcare Talent Management (2015); AMN Health care, Clinical Workforce Survey, 2013; American Society of Health-System Pharmacists, ASHP Pharmacy Staffing Survey Results, 2013

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Figure 5-4. Vacancy Rates Indicate Hiring Challenges

Most sites exceed vacancy rate benchmarks, suggesting acute hiring challenges
VAMC total vacancy rates, 2014
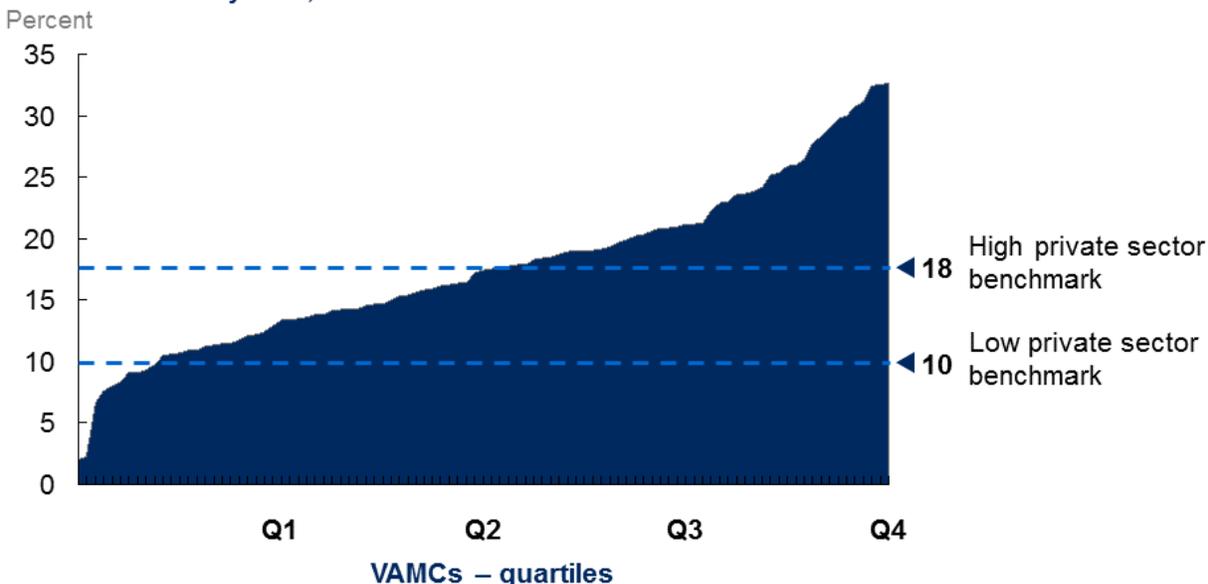
- Private sector benchmarks for most clinical occupations are ~10-18%
- Nearly all VAMCs have total vacancy rates above the low benchmark
- ~1/2 of VAMCs also exceed the high benchmark

SOURCE: VHA Talent Management, 2015; AMN Healthcare, *Clinical Workforce Survey*, 2013; American Society of Health-System Pharmacists, *ASHP Pharmacy Staffing Survey Results*, 2013; American Society of Clinical Pathologists, ASCP Wage and vacancy survey of U.S. Medical Laboratories, 2009 and 2011

Hiring delays appear to be driven by several key challenges, described in this section:

5.2.2.1 Hiring requirements (e.g., credentialing, boarding) are complex and time-consuming

5.2.2.2 Local hiring processing is reported to be inefficient

5.2.2.3 Attracting talented clinical staff can be a challenge due to low pay compared to private sector in many geographies

5.2.2.1 Hiring Requirements (e.g., credentialing, boarding) are Complex and Time-Consuming

One of the principal drivers of the length of the hiring process is the volume and complexity of VHA hiring requirements, which are driven by a combination of congressional mandates, federal regulations, union agreements, and VHA policies. The two greatest sources of delay, are that: (1) the credentialing process is particularly time-consuming; and (2) the boarding process is also lengthy.

The credentialing process is particularly time-consuming. Credentialing is the process of screening candidates' qualifications, including licenses, registrations and

certifications, education, training, experience, current competencies, and health (see VHA Directive 1200, VHA Directive 2006-067, and VHA Handbook 1100.19). All hospitals must confirm that candidates' licenses are valid and current. Where VHA credentialing differs from private hospitals' credentialing processes, and becomes significantly more time-consuming, is in the volume of material that candidates must supply and that facilities must screen. Private sector facilities typically rely primarily on licenses and a candidate's most recent reference(s) to assess their qualifications. The Joint Commission requires that organizations verify physician, LIP, and nurse licensure as part of their credentialing, but not transcripts or diplomas (Joint Commission, 2011a and 2011b). Many VAMCs require additional documentation. For example, job postings for OTs at many VAMCs[95] require written documentation of having passed the National Board for Certification in Occupational Therapy (NBCOT) entry-level certification examination for OTs, in addition to a license to practice occupational therapy. This requirement is duplicative: obtaining a license in occupational therapy requires proof of having passed the NBCOT examination (American Occupational Therapy Association, 2015). VAMC staff that we interviewed reported that VAMCs also often require that candidates submit original transcripts, in addition to licenses, as well as references for extensive prior work experience. Assembling and then checking this information can be challenging and time-consuming, typically lasting several months for most candidates. VHA must ensure that its staff are qualified. However, the amount of substantiation currently required significantly exceeds industry standards.

The boarding process is also lengthy. Boarding refers to the VAMC peer compensation panels that review a candidate's qualifications and agree on their job offer, including compensation (see VHA Handbook 5007). This process can last up to 2 months, depending on how often the board meets and how easily it is able to agree on a compensation package. In contrast, while some private sector hospitals have compensation committees as well, these are usually only for physicians and LIPs, and typically compile packages in under 2 weeks.[96] Furthermore, in many hospitals, managers and HR staff agree on compensation for clinical staff, without needing to go through a board at all.[97,98]

5.2.2.2 Local Hiring Processing is Reported to be Inefficient

Site visit interviewees and workshop participants also reported that local hiring processing was often inefficient, contributing to unnecessary delays in hiring. In particular: (1) facilities report inconsistent HR performance at the local level; (2) interviewees suggest that resource

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[95] Based on June, 2015 review of job postings for occupational therapy positions at the VAMCs in Richmond, VA; El Paso, TX; Columbia, MO; Anchorage, AK; and Loma Linda, CA, posted online at VACareers.VA.gov

[96] Based on interviews with best practice private sector hospitals

[97] Ibid.

[98] This is usually for staff other than physicians and LIPs.

management committees often do not backfill positions; and (3) VAMC staff report that hiring processes are not always completed in parallel. Delays in the receipt and incomplete nature of HR performance data, information on resource management committee decision-making, and/or information on clinical staff hiring processing inhibited our ability to corroborate these, and we have instead relied upon interviews. As a follow-on to this work, VHA should examine HR capabilities, resource management backfilling practices, and clinical staff hiring processing to ascertain whether and how these factors affect hiring timelines.

Facilities report inconsistent HR performance at the local level. Multiple leaders and front-line clinical staff interviewed during site visits cited poor local HR performance as a cause of delayed HR processing. One VAMC Chief of Mental Health characterized HR as a "black box," claiming that simply getting approval from HR to post for a position could take up to seven months. A VAMC AHP leader described how "[HR] has delegated a lot of the work to the [clinical] services, for example, even scanning documents." Only 15 percent of workshop groups cited HR performance as a core staffing strength. Inconsistent HR performance may be due to understaffing (described below). It seems likely, however, that HR underperformance is often due to low performance standards and limited alignment on service levels.

Interviewees suggest that resource management committees often do not backfill positions. Backfilling refers to the automatic approval of hiring to replace an existing position, without requiring re-justification of the position to the resource management committee. Interviewees and workshop participants at several sites claimed that their facilities had previously backfilled, but that budget concerns had led resource management committees to require justification of all positions, including ones previously approved. Ninety-five percent of sites reported that inability to backfill positions was a major core staffing challenge. Not backfilling means that the ~6-month hiring process cannot begin until staff members have vacated their positions, resulting in delayed hiring and loss of institutional knowledge, as incoming and outgoing staff do not overlap.

VAMC staff report that hiring processes are not always completed in parallel. While VHA HR leaders reported that VHA regulations allow facilities to complete credentialing, privileging, and boarding concurrently with a candidate's physical exam, drug test, and fingerprinting, several interviewees during site visits expressed their frustration that these processes were not completed in parallel, citing either national policy or union agreements as barriers. We were unable to corroborate claims that these processes are not consistently completed in parallel; however there does appear to be a misconception at the facility level as to what actions are allowable. A VACO HR leader interviewed suggested that service line leaders at many sites may simply not be aware of the fact that they can initiate several processes in tandem.

5.2.2.3 Attracting Talented Clinical Staff can be a Challenge Due to Low Pay Compared With Private Sector in Many Geographies

Hiring delays may also be driven by talent attraction challenges. Eighty-one percent of VAMCs we visited reported that compensation was a major talent attraction and retention challenge at their facility. As one Chief Hospitalist said, "[hospitalist] positions are posted but remain vacant since no one wants them."[99] Another specialist noted that he could "only afford to work at the VA because my wife is in private practice."[100]

Two key pay related challenges may limit VAMCs ability to attract top talent: (1) VHA pay may lag national benchmarks; and (2) VAMCs and VISNs lack authority to meaningfully increase pay to match local market rates for many clinical occupations (Blueprint for Excellence, 2014). While a comprehensive compensation benchmarking assessment was not in-scope of the assessment, the issue of pay disparities was raised frequently enough that we believe it could be a contributor, especially for more specialized fields.

> **VHA pay may lag national benchmarks.** As mentioned above, eighty-one percent of VAMCs we visited claimed that compensation impeded their ability to attract talented staff. This issue was anecdotally reported to be an especially acute challenge in hiring physicians. Given this, we completed a high-level analysis comparing mean physician pay in the private sector against mean VHA physician pay (Figure 5-5). As the figure below indicates, mean VHA pay is substantially lower than mean private sector pay for many physician specialties. VHA would need to conduct its own locality-based analyses with internal data to fully confirm this assessment and identify regional variations in disparity. Benchmarking benefits was also out of scope for this assessment, but should also be considered when looking at overall comparability of VHA physician compensation packages with those found in the private sector. It stands to reason, however, that pay disparities could deter some candidates, especially those expecting to earn well above national averages.

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[99] Chief Hospitalist at a rural VAMC, interviewed on a site visit

[100] Specialist at an urban VAMC, interviewed on a site visit

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The views, opinions, and/or findings contained in this report are those of the assessment team and should not be construed as an official government position, policy, or decision.

Figure 5-5. VHA Compared to National Benchmarks Reveals Disparity

VHA salary averages lag national averages for key physician specialties

Legend: ■ VHA mean ■ National mean

Pay, $ Thousands

Specialty	VHA mean	National mean
Physician[1]	192	250
ED physician[2]	220	327
Surgeon[3]	271	415
Psychiatrist[4]	205	240
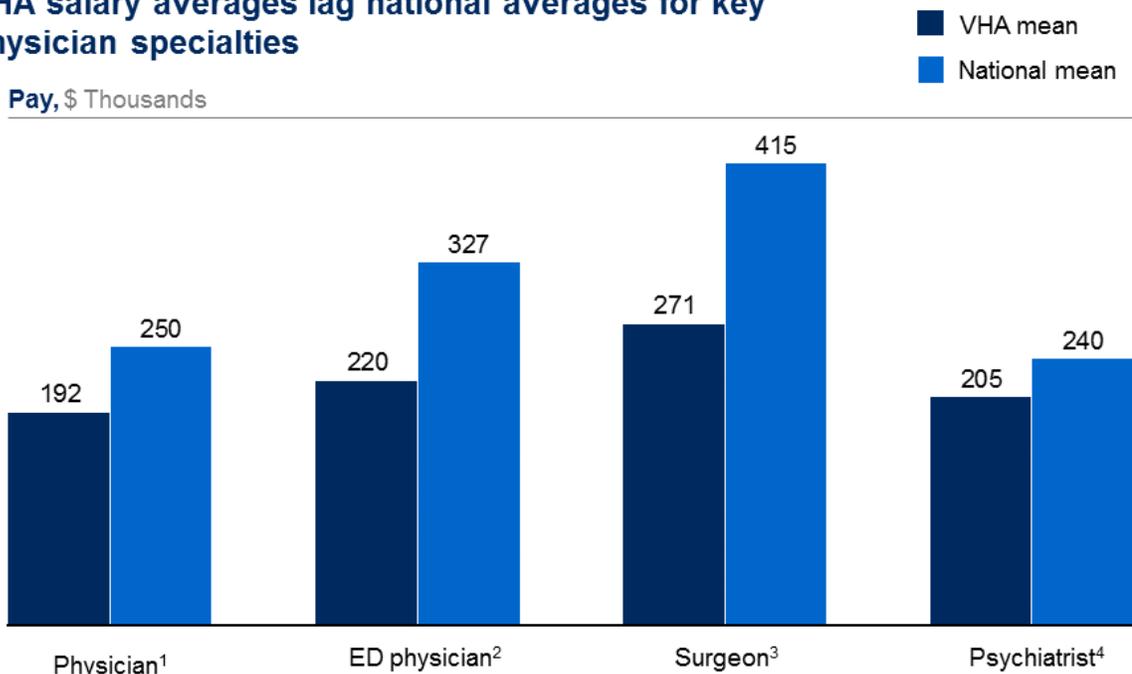
1 Based on pay rates from VHA Healthcare Talent Management Office for internal medicine physicians, benchmarked against MGMA data for general internal medicine physicians
2 Based on pay rates VHA Healthcare Talent Management Office for emergency medicine physicians, benchmarked against MGMA data for emergency medicine physicians
3 Based on pay VHA Healthcare Talent Management Office for general surgeons, benchmarked against MGMA data for general surgeons
4 Based on pay VHA Healthcare Talent Management Office for psychiatrists, benchmarked against MGMA data for general psychiatrists

SOURCE: VHA Healthcare Talent Management Office (2015); MGMA (2014)

VAMCs and VISNs lack authority to meaningfully increase pay to match local market rates for many clinical occupations. VHA has implemented several pay structures intended to make salary more competitive. These primarily include market pay for physicians,[101] locality pay for other clinical staff, incentive awards, and retention allowances. However, the effectiveness of these mechanisms is limited, by the fact that they are capped, in many cases require VISN approval, are not available for all occupations and are not well publicized amongst VAMC leadership. Across clinical occupations, incentive awards and retention allowances equal about one percent of regular pay, without substantial variation by occupation.[102] This does mean that VHA guarantees a greater share of its compensation than is the case in the private sector where RVUs are managed, however the size of the overall pay discrepancy may not make this a valuable incentive. Challenges with implementation of incentive pay have been noted previously by the VA OIG (VA OIG, 2004), and HR leaders have suggested that this may be done as a way of managing budgetary constraints at the VAMC level.

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[101] Dentists as well, though dentists are not examined in this report given our inpatient focus
[102] Ibid.

Whatever the reason for low utilization, facilities should be mindful of the potential effects on retention.

5.2.3 Allocation of Staff Does not Consistently Match Patient Care Need

Having identified the need for additional FTEs, approved the request, and hired on new staff, many VAMCs struggle to appropriately allocate staff. In part, allocation challenges manifest as persistent misallocation of staff to different tours (primarily, significant downshifting on the WHEN hours, though staffing levels may be too high in some places on the on-tour, i.e., daytime hours). Allocation challenges also emerge on a more day-to-day basis as limited access to flexible staffing options (e.g., agency staff), make it difficult for facilities to meet staffing needs when they have short-term understaffing (e.g., an unexpected vacancy).

This section covers two primary challenges related to allocation of staff:

5.2.3.1 Hospital operating models are skewed toward clinic hours

5.2.3.2 Access to flex resources is limited, inhibiting ability to meet peaks in demand or manage short-term understaffing

5.2.3.1 Hospital Operating Models are Skewed Toward Clinic Hours

Though many patients are admitted to the hospital on evenings and weekends, hospitals (public and private) tend to scale back staffing during these periods, reducing both the number and skill mix of staff on-site. The academic literature has clearly established that significant downshifting on the off-tour (i.e., weekends, holidays, evenings, and nights) worsens the quality of care; as Wong and Morra write, describing the health care system in general, "our current office-hours system of running hospitals threatens the lives of our sickest, most vulnerable patients" (Wong and Morra, 2011, p. 1050).

Admissions on weekends in particular are associated with worse patient outcomes, across hospitals (Cavallazzi et al., 2010; Ananthakrishnan et al., 2009; Aujesky et al., 2009; Shaheen et al., 2009; Kostis et al., 2007). Restricted off-tour services are also associated with delayed discharge and increased transfers (Menchine and Baraff, 2008; Conti, 2003; Varnava et al., 2002). Downshifting on nights is less clearly linked to adverse clinical outcomes (Ananthakrishnan et al., 2009; Aujesky et al., 2009; Shaheen et al., 2009; Kostis et al., 2007), though the literature on the effect of nurse understaffing implies that night tours should still meet minimum staffing and skill mix best practices to prevent increased mortality (Blegen et al., 2011; Patrician et al., 2011; Tourangeau et al., 2002; Bond et al., 1999). Moreover, the literature on risks inherent in physician hand-offs, likely to occur more often on nights and weekends, when physicians are covering for one another, may also suggest a need for more consistent physician staffing off-tour (Horwitz et al., 2008; Arora et al., 2005).

Sites responding to our data call demonstrated significant understaffing during WHEN hours compared to best practice and industry standard practice (see Figure 5-6 below). Response

rates were low, resulting in small sample sizes;[103] however, this data still provides directional information on VA downshifting patterns, and corroborates site visit interviewees and workshop participants' perceptions of WHEN hours understaffing (see Sections 6 and 7 for the perceived effect of downshifting on access and LOS).

Taken together, our quantitative and qualitative data points suggest that VAMCs may not be adequately staffed on the WHEN hours (see Appendix B.5 for full data). For example, data call results indicate that weeknight staffing declines by ~40-45 percent of daytime staffing among ED physicians, ~60-65 percent among hospitalists, and ~85-90 percent among intensivists. RN downshifting is less pronounced, decreasing by ~20-25 percent in the ED, ~10-15 percent on med/surg floors, and increasing in the ICU by ~40-45 percent, perhaps to account for reduced intensivist coverage. CNA support, by contrast, decreases by far more, ~70-75 percent in the ED, ~40-45 percent on med/surg floors, and ~55-60 percent in the ICU. This suggests that nurses may be assuming responsibilities typically performed by CNAs on the WHEN hours. This matches with interviews and workshop comments indicating that nurses in many facilities find that low levels of ancillary support impeded their ability to work at top-of-license. See Figure 5-6 below for average downshifting rates based on the data call made to Level 1 and 2 complexity VAMCs. Appendix B.5 includes citations from the academic literature and published survey data, used to assess best practice and standard practice, as well as the sample size (n-values) for each of the VHA statistics.

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[103] Low response rates were exacerbated by respondents' inability in many cases to provide requested information on annual work hours by shift and department. For example, respondents noted in response fields, "This information cannot be provided," "Do not have access to that data at this time," "Fiscal is not able to break the data down by each shift and weekday [versus] weekend," "Unknown," "Overall [x%]. We did not separate specialties," and "Do not have a way to divide out weekend, weekday, nights or days so all the time is placed together." These comments corroborate our finding, in Section 3.2.1, that VA lacks visibility into staffing levels.

Figure 5-6. VHA Downshift Rate

Data call responses suggest VHA often downshifts more than is standard practice
Decrease in staffing level compared to weekday
Percent

Legend:
- Best practice / standard practice - all WHEN hours
- VHA average - weeknights
- VHA average - weekend days
- VHA average - weekend nights

MDs, RNs, CNAs for ED, Med/surg, ICU
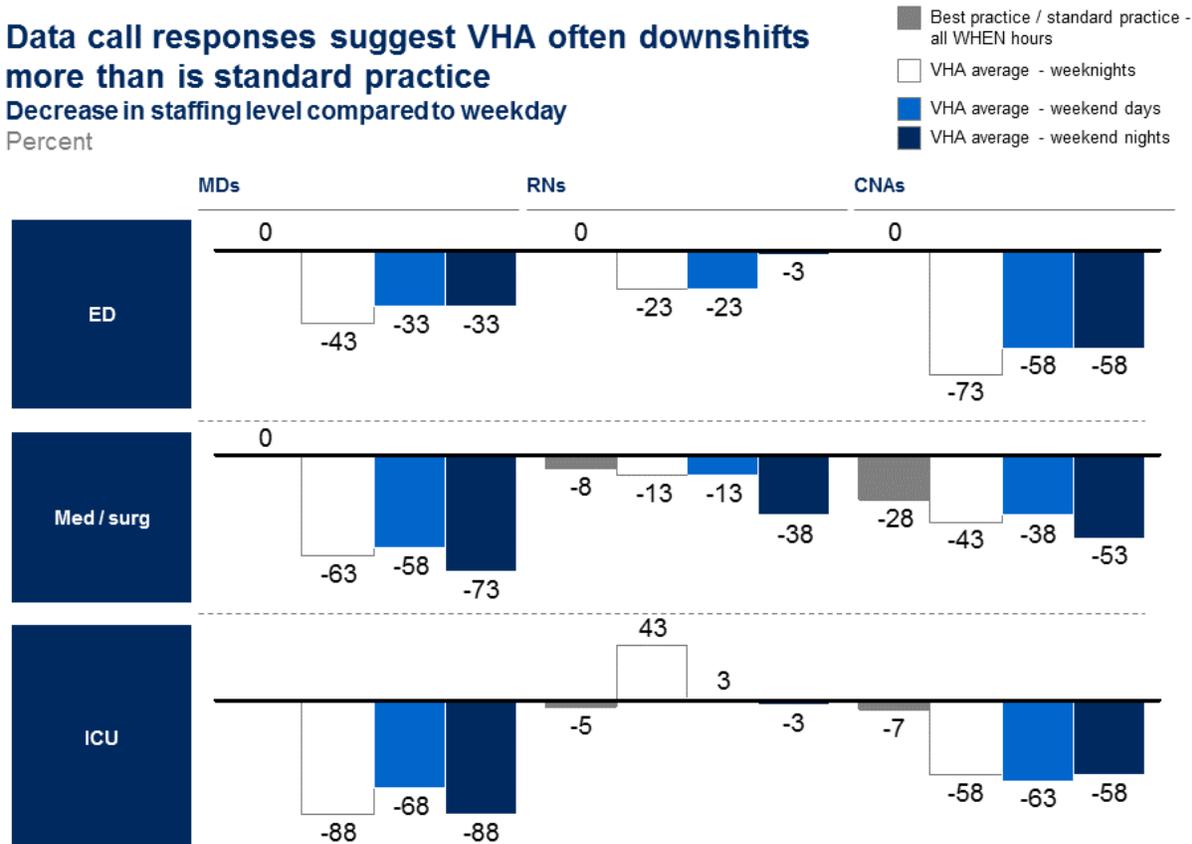
The available data does not allow us to comment definitively on whether VHA is, on average, understaffed on the off-tour, nor why this might be the case if understaffing is indeed occurring at many facilities. Based on site visits, however, we hypothesize that VAMCs' clinic-based hospital operating model may stem from two main causes: (1) other core staffing challenges reduce ability to fully staff on the WHEN hours; and (2) VHA's traditional value proposition for many staff has been sustainable lifestyle compared to the private sector.

Other core staffing challenges reduce ability to fully staff on the WHEN hours: The other core staffing challenges described earlier in this report likely make it more difficult to fully staff on the off-tour than might otherwise be the case. For example, if it is difficult to fully demonstrate need for an additional FTE in many service lines because there is no clear staffing guidance, it is likely especially difficult to demonstrate need for an additional FTE on shifts with lower demand (e.g., nocturnist). Poor data management may also mean that many facilities do not fully know the extent to which they downshift on the WHEN hours, and how this compares to patient need. We were only able to obtain data on downshifting through a data call made to all VAMCs. Many respondents to the data call were not able to report staffing data by department and shift, making comments such as, "Fiscal is not able to break the data down by each shift and weekday [versus]

weekend" and "Do not have a way to divide out weekend, weekday, nights or days so all the time is placed together." These comments corroborate our finding, in Section 5.2.1, that VHA lacks transparency on staffing levels. Furthermore, uncompetitive salary and benefits for part-time staff likely also create particular challenges for WHEN hours staffing, where need might justify a partial but not full FTE.

VHA's traditional value proposition for many staff has been sustainable lifestyle compared to the private sector: Section 5.2.2 describes the average gap between VHA and private sector pay for many clinical occupations. The disparity is most pronounced for providers, as well as some nursing and AHP roles. Several site visit interviewees shared that the historical value proposition of a career at VHA was lower pay in exchange for substantial benefits and sustainable lifestyle. As one Chief of Medicine said, "The traditional promise of working at VA was lower pay in return for easier lifestyle and not being on call." If this is the case, then we would expect low staffing on the WHEN hours, which are typically less attractive shifts. This is borne out by the downshifting rates shown in Appendix B.5. Physicians, for whom the private sector pay gap is significant, do downshift significantly, potentially reflecting a historical orientation toward clinic hours for these roles.

5.2.3.2 Access to Flex Resources is Limited, Inhibiting Ability to Meet Peaks in Demand or Manage Short-Term Understaffing

Ideally, facilities meet their staffing needs using their own employees, who are familiar with local practices, have worked together, and know the patient population. Short-term understaffing will occur from time to time, however, when facilities have unexpected vacancies or demand increases dramatically. In these instances, facilities rely upon a combination of increasing staff hours, float pools, per diem labor, agency labor, and other contract labor.

Excessive use of flex labor is a challenge at many private sector facilities, and is discouraged in the academic literature because it is expensive and often not optimal for patient care (Strzalka and Havens, 1996). Many VAMCs report having little to no ability to use flex labor, however, creating challenges meeting unexpected staffing need. As one senior VHACO nursing leader said, "You can wake up overnight with horrible shortages…and no way to fill." Figure 5-7 summarizes provider, nursing, and allied health service line chiefs' perceptions of the adequacy of flexing practices for their service. While there is some variation in perception by service line, only ~25 percent of respondents in each service line believed that flexing practices were highly effective, with ~75 percent believing that there were opportunities for improvement.

Figure 5-7. Perceived Adequacy of Flexing Practices by Occupation[104]

Perceived effectiveness of flexing practices by occupation
Percent

Legend: Physicians, Nurses, AHPs

	Physicians	Nurses	AHPs
Highly effective	21	26	24
Somewhat effective	37	26	38
Somewhat ineffective	32	26	33
Highly ineffective	11	21	5
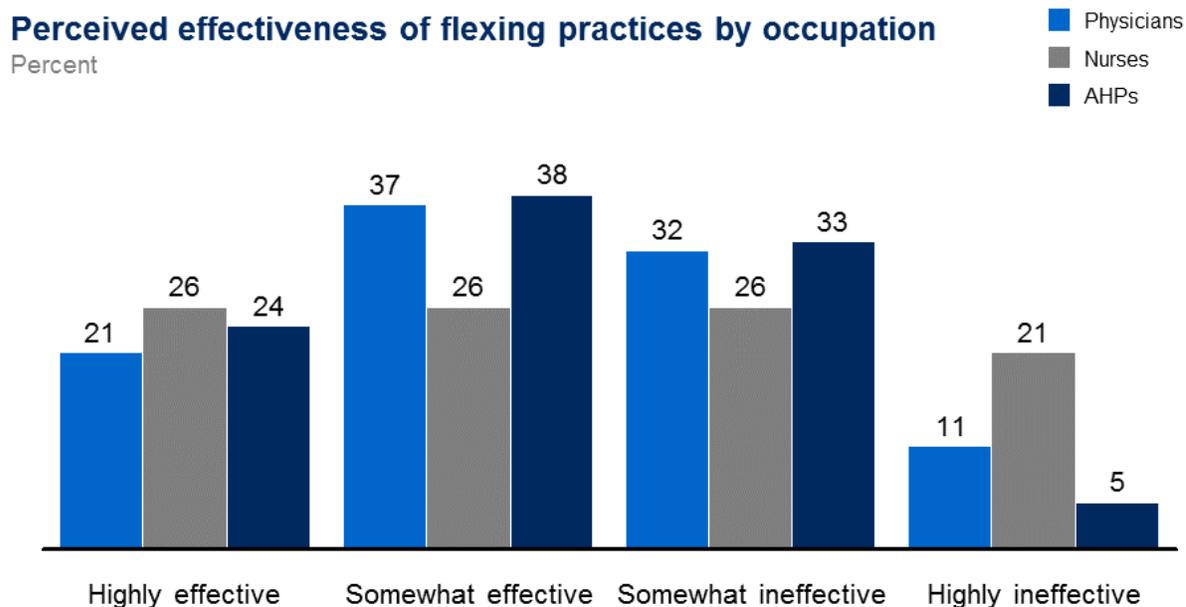
NOTE: Based on interviews with physician, nurse, and allied health service line chiefs. Physician department head n=19, Assistant Director of Patient Care Services n=19, allied health service line chief n=21

Figure 5-8 illustrates workshop participants' perceptions of flexing challenges, showing the front-line perspective on this issue.[105]

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[104] Based on interviews with physician, nurse, and allied health service line chiefs. Physician department head n=7, Assistant Director of Patient Care Services n=8, allied health service line chief n=9.

[105] Attendee roles varied, but included nurses, physicians, AHPs, and ancillary staff

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Figure 5-8. Challenges Associated With Flexing Cited in Workshops With Nurses, Physicians, AHPs, and Ancillary Staff[106]

Floating, overtime use, and access to agency labor were the primary challenges associated with flexing

Percent, N = 19

Legend:
- Use of floor resources
- Access to supplemental resources
- Supporting infrastructure

Values:
- No intermittents / per diems: 16
- Uncompetitive float pool: 26
- Limited / ineffective bed management: 32
- No agency labor: 37
- Mandated overtime: 37
- High overtime use: 37
- Small / non-existent float pool: 47
- Excessive floating between units: 79

Limited access to flex resources is particularly problematic at VHA given lengthy hiring processes: with vacancies often lasting six months, and little recourse to supplemental labor, facilities are forced to rely on overtime and compensatory time to fill staffing need. Figure 5-9 illustrates VHA overtime and compensatory time use.[107] Our interviews with high performing private sector facilities suggest a target of approximately two percent overtime use (as a portion of total clinical staff time). There is also support in the academic literature for a best practice target of approximately two to four percent (American Healthcare Solutions, 2015). As Figure 5-10 shows, the vast majority of VAMCs have total overtime and compensatory time use rates greater than two percent.

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[106] N=19

[107] Total time defined as worked hours, not including leave

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Figure 5-9. VHA Overtime Usage Comparison

VHA overtime usage exceeds best practice for many occupations, with particularly high usage for NAs

FY14 overtime and compensatory time as a portion of total time

Percent
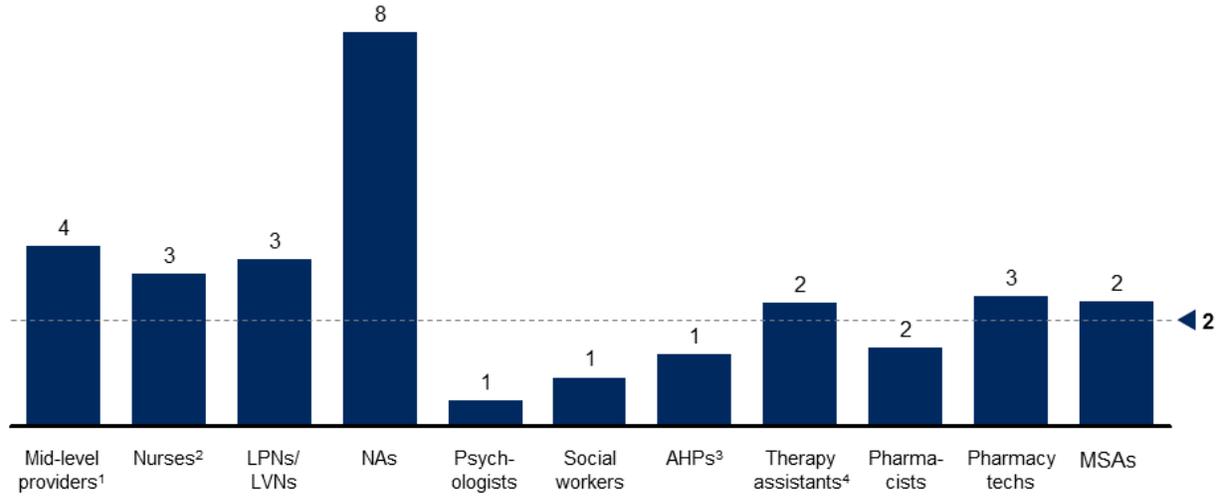
1 Includes PAs and Nurse Anesthetists; VHA categorizes NPs under the nursing service
2 Includes RNs, NPs, and CNSs
3 Includes PTs, kinesiotherapists, OTs, speech therapists and audiologists, registered RTs, dieticians and nutritionists, orthotists and prosthetists
4 Includes rehabilitation therapy assistants (PTAs and OTAs) and certified RTs

SOURCE: VHA Support Service Center (VSSC), Paid Accounting Integrated Data, 2015

8

Figure 5-10. VAMC Overtime Use Comparison

Overtime use exceeds typical private sector target at the majority of VAMCs

VAMC overtime and compensatory time hours as a portion of total hours, 2014

Percent[1]

- Private sector facilities typically target overtime use of <2% of total time

- Only ~20% of VAMCs have total overtime and compensatory time use rates <2%

- High overtime and compensatory time use may indicate understaffing or limited access to flex resources that could be used to meet short-term staffing challenges
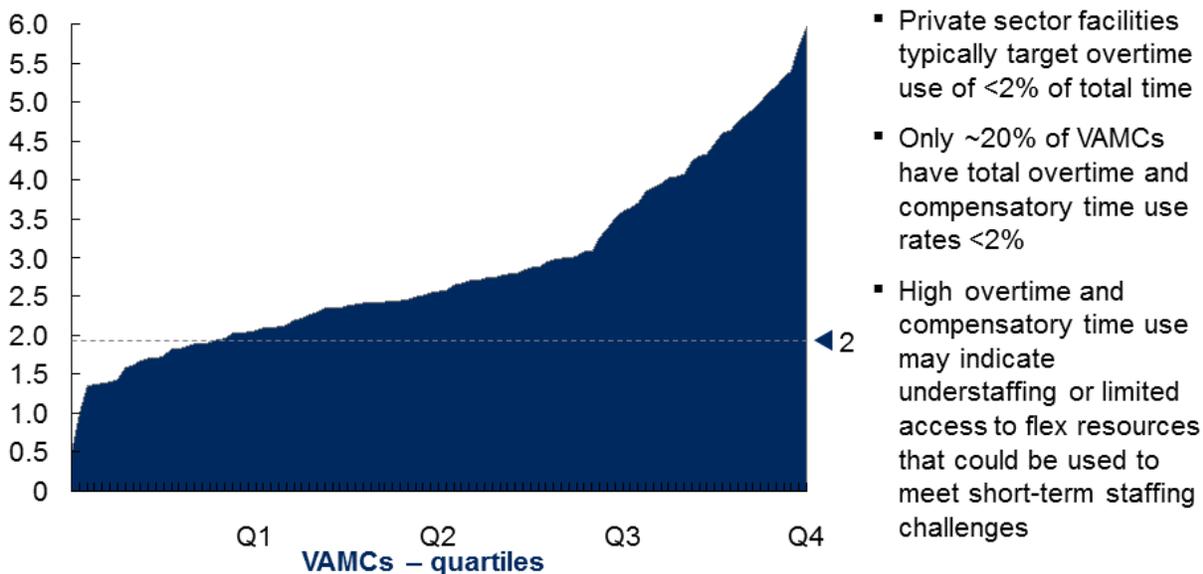
1 All T38 clinical occupations, excluding Medical Officers, who do not receive overtime

SOURCE: VHA Talent Management, 2015

Limited access to flex resources primarily stems from two challenges: (1) contracting processes reduce ability to fill temporary staffing shortages with contract labor; and (2) few facilities have the per diem and float resources that front-line staff believe are needed to effectively flex capacity.

> **Contracting processes reduce ability to fill temporary staffing shortages with contract labor:** Facilities report that contracting processes significantly delay their ability to meet short-term understaffing. Interviewees on site visits reported that contracting can take up to about four months, reducing ability to use agency labor to meet short-term staffing needs (as hiring takes approximately six months, contract labor is only helpful for the last roughly two months of understaffing). [108] Access to contract and agency labor is limited across service lines, especially so outside of the nursing service: only 30 percent of physician department chiefs and 14 percent of AHP leaders reported using locum tenens and agency therapists to supplement core

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[108] Based on site visit interviews with ADPCSs and workshops with nurses and nurse managers

staffing, respectively, compared to 55 percent of ADPCSs who reported using agency nurses during our site visits.[109]

Few facilities have the per diem and float resources that front-line staff believe are needed to effectively flex capacity: Access to flex labor sources is also due to limited per diem and float resources. We use per diem to refer to a standing roster of staff available for ad hoc shift work, and float resources to refer to standing float pools, which may consist of full-time or part-time employees. Float pool staff are intended to be allocated to different units based on changes in census or short-term staffing needs. Access to per diem and float pools is relatively limited across VHA: for example, 10 percent AHP leaders reported using per diems and/or float pools to supplement core staffing.[110] This challenge appears to stem from:

(a) Contracting and competency requirements can limit on-going access to per diems: Several facilities expressed that use of per diems was limited by VHA restrictions on maximum total spend with any given provider. We were not able to corroborate this claim with available data, and encourage VHA to conduct a more complete review to fully substantiate. The anecdotal reporting through interviews at 21 VAMCs does suggest that access to contract labor is a significant challenge, however. VHA has established a Travel Nurse Corps (TNC) of VHA nurses available for short-term engagements, intended to serve the same function as private agencies providing travel nurses. Only 10 percent of ADPCSs interviewed said that they had used the TNC to supplement staffing, however.[111] Many other ADPCSs said they had not used the service because it was too expensive or had low availability. This suggests there is either a need for a lower-cost VHA option or access to external agencies, at least in the nursing service.

(b) Float pools are challenging to maintain at VHA: Several facilities shared that they had previously established float pools but found them unsustainable, or had current float pools with many vacancies. In part, challenges maintaining float pools appear to be due to uncompetitive pay and benefits for part-time staff (float pools can be staffed by full-time employees, but are often staffed with part-time personnel). Staff at several facilities reported that staff in float pools often left for full-time positions at the VAMC or other facilities due to low compensation. In part, challenges maintaining float pools may also be due to staff preferences for working in units. Several facilities reported that staff hired into full-time float positions transferred to other units in the hospital when vacancies emerged, preferring the continuity of being on a unit. We did not have access to data on float pool turnover rates and reasons for leaving, and could not substantiate these claims. The consistency with which we heard this complaint,

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[109] Physician department chief N=20, ADPCS N=20, AHP leader N=21. ADPCS figure includes external agencies and VA Travel Nurse Corps.

[110] Physician department chief N=20, ADPCS N=20, AHP leader N=21

[111] N=20

however, suggests that VHA should examine this potential challenge and review whether compensation for float positions is sufficient to attract and retain staff.

5.3 Recommendations

VHA staffing practices have multiple stakeholders: Congress and the executive branch, VACO, VHACO, VISN leadership, and VAMC management and staff. Encouraging innovation and addressing critical challenges in clinical staffing will require collaboration between all of these groups, and a commitment to making difficult, long-term change. Different recommendations should be owned by different groups (e.g., recommendation requiring changes to VACO policy versus local policy); however, support for change from all stakeholders is critical to effective implementation.

Our recommendations, building on existing strengths and addressing existing challenges in clinical staffing, can be categorized into three main themes.

> **5.3.1 Increase transparency of staffing by providing evidence-based staffing methodologies for all clinical staff and improving data management**
>
> **5.3.2 Increase timeliness of hiring to patient care teams**
>
> **5.3.3 Allocate staff to match patient care needs**

These themes are consistent with practices suggested by the academic literature, professional associations, and high-performing hospitals within VHA and outside the system, as well as solutions proposed by front-line VHA staff – further details are included in "summary of supporting evidence" sections in each sub-recommendation (see **Appendix B.8** for additional detail on our methodology for gathering this data). To help VHA implement our recommendations, we have also suggested next steps in the "potential near-term actions" sections of the sub-recommendations. Note, because different VAMCs may have already adopted some recommended practices or experience unique barriers, these suggestions should be tailored the individual circumstances of each VAMC. Each recommendation is supported by several sub-recommendations, which map to the "organization, workflow processes, and tools" domains specified in the Choice Act. For a detailed map of how the sub-recommendations relate to these domains, see **Table B-2** in **Appendix B.3**.

Several recommendations overlap with other assessment areas. Where this occurs, we have referenced the relevant assessment area, where additional detail can be found.

5.3.1 Increase Transparency of Staffing by Providing Evidence-Based Staffing Methodologies for all Clinical Staff and Improving Data Management

As noted in Section 5.2.1, VHA lacks transparency on staffing levels, driven both by non-existent or limited staffing methodologies and poor data management. VHA may well be appropriately staffed, but it has very little information to assess whether this is the case, and therefore limited ability to manage staffing.

We suggest several changes aimed at improving the process to both develop and approve staffing requests:

5.3.1.1 Provide and support scalable, evidence-based staffing methodologies and interdisciplinary resource management processes

5.3.1.2 Improve data management

5.3.1.1 Provide and Support Scalable, Evidence-Based Staffing Methodologies and Interdisciplinary Resource Management Processes

Staffing guidance for most VHA clinical occupations is very limited, affecting services' ability to accurately estimate FTE need. Private industry leaders typically employ robust, evidence-based staffing methodologies for clinical occupations. Consistent with these practices, VHA should provide clear guidance on how to assess FTE need and work across services to coordinate FTE requests.

Summary of supporting evidence:

- See Sections 5.2.1.1, 5.2.1.3, and 5.2.1.4 for more detail on findings.

- Seventy-six percent of sites visited[112] proposed the development of a comprehensive evidence based staffing methodology, as a solution to core staffing challenges. As one VAMC Chief of PM&R said, "It would…be very helpful to the field for a staffing model to be provided by Central Office…we'll be adding ten thousand patients [to one of our sites next year]…how many more PTs do I need? I don't know."

- Professional societies like the Society of Critical Care Medicine and the American College of Emergency Physicians have published staffing principles to guide hospitals in making evidence-based staffing decisions. These guidelines include maximum suggested provider-to-patient ratios (e.g., intensivists-to-patients, recommended by the Society of Critical Care Medicine [Ward et al., 2013] and ED physicians-to-patients, recommended by the American College of Emergency Physicians [Collins, 2009]), which allow for clear benchmarking.

- High performing private sector hospital networks have also established evidence-based, standard practices for evaluating staffing need across their systems. Intermountain Healthcare, for example, uses standard 'Request for Provider' and 'Request for Clinician' forms for establishing clinical need for new physician and advanced practitioner FTE requests. These forms include analysis of group finances, patient volume, population ratios, and RVUs, among other factors identified as important in assessing staffing need.[113]

Potential near-term actions:

- *VHACO:* Task each function-based service line (e.g., surgical services), currently lacking national directives on staffing, with developing comprehensive staffing guidance in close coordination with related role-based service lines (e.g., nursing service, rehabilitative services).

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[112] N=16, out of 21 total VAMCs visited

[113] Intermountain Healthcare SME interview (April 2, 2015)

- *VHACO:* Solicit input from VAMC leadership and front-line staff in their service line and related services, to develop an interdisciplinary staffing methodology that includes:
  o Staffing guidance by team or function, including staffing mix: methodologies should include guidelines for all key roles involved in delivering a particular kind of care. For example, staffing guidance for surgical services could include a suggested staffing mix of one orthopedic surgeon to a certain number of OR techs, OR nurses, and PTs. Such guidance must be flexible, acknowledging that multiple roles can serve similar functions on teams (e.g., NPs and PAs can complete many of the same responsibilities) or provide care along a continuum (e.g., a CRNA and an Anesthesiologist).
  o Minimum staffing levels, coupled with target ratios of staff or staff time to patients or beds {would require accurate bed data – see Section 6 for more detail on issues with current bed data) above the minimum: staffing methodologies must be able to be adapted to facilities with different admissions numbers, to ensure that coverage is consistent regardless of facility size. Target ratios of staff to patients or beds (e.g., one physical therapists per a given number of patients), or of staff time to patients or beds (e.g., NHPPD, currently used by the nursing service) would allow facilities of varying sizes to estimate their FTE need. Furthermore, including minimum staffing levels up to a certain population threshold, beyond which ratios would be used, would ensure that very small facilities are still able to justify FTE needs based on the services they provide. Ratios and hours targets are evidence-based and used in the literature on clinical staffing and by professional associations (Ward et al., 2013; Epané and Weech-Maldonado, 2015; Phoenix Physicians, 2011; Collins, 2009; Schoo et al., 2006; Christie and Grimwood, 2006; Allied Health in Rehabilitation Consultative Committee, 2007; Australasian Faculty of Rehabilitation Medicine, 2005; ASHP, 2013).
  o FTE calculator: Having aligned on target ratios of staff or staff time to patients or beds, service lines should develop calculators that translate target ratios into FTEs needed:
    – The nursing FTE calculator includes many variables needed to do this (e.g., leave factor, turbulence), and can likely serve as a starting point for many services.
    – The factors most relevant to each service will vary, however and VACO should task VACO-level service line leadership with identifying the factors most relevant to their service lines and then developing an FTE calculator.
  o Guidance on process to develop staffing requests: staffing methodologies should also include guidance on how to solicit front-line input and how often to conduct comprehensive reviews of staffing levels (ideally, annually for most roles or in the case of a life-event of the hospital, e.g., opening of a new service line, closure of nearby hospital).
- *VHACO/VAMC:* Service line leaders should clearly communicate the purpose of the new staffing methodologies when they are developed and train front-line managers and staff on how to use them.

- *VACO/VHACO/VISN/VAMC:* Relax current restrictions on numbers and allocation of FTEs.

- *VACO/VHACO:* Remove FTE caps in favor of setting staffing budgets, to increase facilities' ability to manage their own staffing (e.g., allowing facilities to decide whether their needs are best met by hiring two NPs or one physician).

- *VACO/VHACO:* Reduce earmarking of the salary budget and mandated positions, to allow facilities to staff according to local needs and reallocate staff to areas where patient volumes are highest (see Section 5.2.1 for more detail).

- *VAMC:* Compare FTE levels suggested by new staffing methodologies (recommended above) to current staffing budgets at the facility. Identify areas where funding could be reallocated across the facility, and, having done so, evaluate whether and where there is a need for reductions or additional funding for salaries, and make any appropriate requests for changes in resourcing.

- *VAMC:* Enforce interdisciplinary development of staffing requests at the local level by requiring that requests for new staff members include analysis of needed support from other roles (e.g., if adding a new surgeon, review whether additional OR tech capacity would be needed to support additional surgery volumes).

5.3.1.2 Improve Data Management

We observed poor FTE and payroll data management at VHA. Ensuring reliable data that includes key metrics needed to assess the appropriateness of staffing is an obvious precondition to managing staffing. Improving VHA data collection and tracking should be a clear priority as VHA considers how to increase visibility into its operations. Improving data management is also a precondition to achieving many of the other recommendations that we make (e.g., appropriately allocating staff to match patient care needs).

Summary of supporting evidence:

- See Section 5.2.1.2 for more detail on findings.

- The academic literature has established that staffing data (data on staff time, in particular) is critical to accurately assessing staffing need in the hospital setting (Howard and Felton, 2013).

- State governments are increasingly moving to address the issue of FTE and payroll data management in private sector hospitals, requiring clear, comprehensive staffing data reports, maintained through improved data management, in order to ensure transparency (e.g., New Jersey, California, Illinois).[114,115,116]

- High performing private sector hospitals clearly identify the metrics that they need to assess staffing need, and track this data consistently. Texas Children's Hospital, for example, monitors "work hours per unit of service" (e.g., per patient visit, per procedure),

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[114] See the New Jersey Department of Health's Hospital Care Staffing Reports
[115] See the California Office for Statewide Health Planning and Development staffing database
[116] See the Illinois Department of Public Health's Health Care Report Card

supported by centralized data management provided by an external vendor, and uses this information in its staffing decision-making (HealthCatalyst, 2015).

- Several VAMCs have developed local data management practices which allow them greater visibility into staffing at their facility (see Section 5.2.1.2) and represent best practices that other VAMCs could adopt. Palo Alto provides one best practice examples. It not only monitors staffing on a daily basis (as many facilities do, at least in the nursing service) but also analyzes data on a quarterly, semi-annual, and annual basis and employs a resident statistician to assist with data interpretation.

Potential near-term actions:

- *VACO:* Update and streamline HR and payroll codes, capturing FTE, work hours, and pay data by occupation, specialty, department, outpatient versus inpatient setting, and shift.

- *VHACO:* Review available tools for tracking staffing levels by shift, to more accurately capture work hours data. Time clocks may not be allowable, but VHA should identify alternative programs to capture this data and reduce manager workload on monitoring attendance.

- *VACO:* Designate a single source for national HR data, to reduce inconsistencies between multiple sources and avoid duplication of effort.

- *VHACO/VAMC:* Track metrics needed to assess the appropriateness of staffing, focusing on:
    - Ratios of staff or staff time to patients or beds, measured by occupation, department, outpatient versus inpatient setting, and shift.
    - Percentage decline in staffing by shift, measured by occupation, department, and outpatient versus inpatient setting.
    - Requested positions, in addition to approved and filled positions, measured by occupation, department, and outpatient versus inpatient setting.

5.3.2 Increase Timeliness of Hiring to Patient Care Teams

Timely and efficient hiring is critical to ensuring consistent, high-quality medical care in the right setting with the right kinds of support. As noted in Section 5.2.2, workshop participants' primary concern with core staffing was the length of the hiring process. Accelerating hiring could considerably reduce vacancy rates, improving the quality of care, patient experience, and staff satisfaction.

In particular, we suggest that VHA:

5.3.2.1 Review and streamline hiring requirements

5.3.2.2 Increase HR service level expectations needed to facilitate streamlined requirements

5.3.2.3 Communicate an optimal hiring process to VAMCs, clarifying their responsibilities and encouraging them to complete activities in parallel

5.3.2.4 Expand ability to increase pay to match market

5.3.2.1 Review and Streamline Hiring Requirements

VHA hiring requirements appear more substantial than those typically found in private sector hospitals. VHA must ensure that staff are qualified; however, comparison to private sector suggests that current safeguards and regulations are further-reaching, driving hiring delays that affect VAMCs' ability to staff appropriately and thereby safely provide care. We recommend reviewing requirements to identify areas that could be streamlined, and setting clear timeliness targets for hiring processing.

Summary of supporting evidence:

- See Section 5.2.2.1 for more detail on findings.
- 100 percent of the sites we visited suggested accelerating the hiring timeline, in part through streamlining credentialing and boarding requirements, as one of the key improvements they would make to core staffing[117].
- Standard practice in private sector hospitals is to use Joint Commission hiring and credentialing requirements, which include verification of licensure, but not the submission of transcripts, diplomas, test scores, or various other requirements VHA typically has.

Potential near-term actions:

- *VACO/VHACO:* Review and standardize credentialing and boarding processes
  - o Identify requirements that may be eliminated or reduced without compromising quality and security.
  - o Compare current requirements with private and local standards.
  - o Obtain input from the field on perceived security requirements.
  - o Consider accepting credentials and recent references alone, for experienced providers, rather than requiring all transcripts and complete references (see Joint Commission requirements, described above).
  - o Ensure that requirements are standardized across VAMCs.
- *VACO:* Set national timeliness targets for all aspects of the hiring process, not just the steps to a tentative offer, communicating these expectations to clinical leaders and HR.

5.3.2.2 Increase HR Service Level Expectations Needed to Facilitate Streamlined Requirements

Site visit interviewees and workshop participants reported that HR processing was often delayed. We refer readers to Assessment L for a detailed review of evidence suggesting that clear service level expectations are associated with efficient HR processing. We echo Assessment L's recommendation that VHA employ clear HR service level expectations.

Summary of supporting evidence:

- See Section 5.2.2.2 for more detail on findings.

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[117] N=21

- 29 percent of VAMCs we visited saw improving HR capabilities as the most critical element of accelerating the hiring timeline[118].
- See Assessment L for more detail on best practices in service level expectations.

Potential near-term actions:

- *VACO/VHACO/VISN/VAMC:* Develop and enforce clear service level expectations for local and national HR staff, including:
  - o Clear targets for timeliness of HR processing.
  - o Performance bonus structure and/or recognition and growth opportunities.
  - o Ability to discipline in instances of underperformance.
- *VACO/VHACO:* Review current training for VHA HR staff, ensuring that HR staff receive formal training and mentorship from tenured HR specialists (e.g., shadowing period or peer buddy system) in addition to existing educational programs.

5.3.2.3 Communicate an Optimal Hiring Process to VAMCs, Clarifying Their Responsibilities and Encouraging Them to Complete Activities in Parallel

HR does not bear sole responsibility for completing the hiring process; VAMC leadership and clinical staff also have clear roles in the hiring process, which interviewees reported they do not always complete in an efficient and timely manner. Clear understanding of all parties' responsibilities and authorities is obviously critical to ensuring timely processing. We recommend clearly communicating which hiring processes are owned by VAMC leadership and clinical staff, and empowering facilities to conduct these processes in parallel.

Summary of supporting evidence:

- See Section 5.2.2.2 for more detail on findings.
- Interviews we conducted with high performing and typical private sector hospitals suggest that conducting background checks, credentialing, interviewing, and developing compensation packages in parallel is best practice. The private sector facilities we spoke with said that they were not always able to complete all activities in parallel, but strove to do so, suggesting that parallel processing wherever possible is a clear best practice.
- Completing credentialing and privileging in parallel with a candidate's physical exam, drug test, and fingerprinting could help reduce the overall HR timeline; currently, many VAMC staff believe that these processes cannot be conducted concurrently and do not launch them concurrently.
- In addition, concurrent internal and external posting of positions could approximately halve total posting time (in instances where internal and external posting periods are approximately equal), allowing facilities to interview candidates more quickly.

Potential near-term actions:

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[118] N=6, out of 21 VAMCs visited

- *VHACO:* Develop a clear list of the hiring processes for which VAMC administrators and clinical staff are responsible (e.g., interviewing candidates) and communicate this to VAMCs, including guidance on which activities may be conducted in parallel.
- *VACO:* Create timeliness targets for components of the hiring process that are managed by service lines, in addition to targets for HR.

5.3.2.4 Expand Ability to Increase Pay to Match Market

In addition to delays related to internal processing, the hiring timeline appears also to be driven in many cases by challenges attracting talent to roles, due to uncompetitive pay (on average) compared to private sector. This factor is likely highly variable by geography, and would be best addressed by increasing local ability to adjust compensation packages to be competitive with market rates. However, while existing pay levers available to VAMCs (e.g., incentive awards, retention allowances) are limited, utilization and awareness of them appears to be highly variable across the country.

Summary of supporting evidence:

- See Section 5.2.2.3 for more detail on findings.
- 81 percent of sites suggested increasing the competitiveness of compensation for VHA clinical staff as a way to fill vacancies and improve staffing.
- Competitive compensation is clearly a key component of attracting talented clinical staff to positions, though obviously not the only element (Kneeland et al., 2010; Guthrie, 1999).
- Several VAMCs have successfully petitioned for increases in pay to match local rates (e.g., Fort Harrison, which reported increased ability to recruit nurses following an increase in nurse pay). Making it easier for more sites to do this would improve VAMCs' ability to attract talented staff in their market.

Potential near-term actions:

- *VACO/VHACO:* Complete a compensation benchmarking assessment across VHA, comparing total compensation (including salary, benefits, performance pay, incentive awards, and other financial structures) to local markets. Following this assessment:
  - ○ *VACO/VHACO:* Expand financial awards to include clinical staff that are not currently eligible (e.g., AHPs, psychologists).
  - ○ *VACO/VHACO:* Increase threshold above which VISN must approve discretionary financial awards or market pay adjustments, increasing facilities' ability to adjust pay to match local market rates.
  - ○ VAMC: Match salaries (across tenure levels) to local market rates, using existing financial awards and authorities; this may entail increases and decreases depending on the geography.
- *Congress and VACO:* Explore whether legislative change is needed to allow VHA to match pay to local market rates, and if so, consider legislation reforming VHA pay caps and competitiveness.

5.3.3 Allocate Staff to Match Patient Care Needs

Sufficient staffing on the WHEN hours is a critical component of delivering safe, effective care. As noted in Section 5.2.3, VHA faces challenges allocating staff to match patient demand, driven by both sharp downshifting on the WHEN hours and limited access to flex labor sources. This affects facilities' ability to ensure they are providing safe, efficient, and timely patient care and maintaining both patient and staff satisfaction.

We suggest several changes to better match staffing to patient need:

> **5.3.3.1 Ensure that staffing on WHEN hours is sufficient to meet patient need**
>
> **5.3.3.2 Make contracting more flexible and efficient**
>
> **5.3.3.3 Increase flexibility of float position structure and compensation**

5.3.3.1 Ensure That Staffing on WHEN Hours is Sufficient to Meet Patient Need

Our data call and site visits indicate that downshifting at many facilities may not match levels recommended in the academic literature. Academic studies provide clear data on the association between WHEN staffing levels for many clinical occupations and patient care outcomes. VHA should ensure that staffing levels on the WHEN hours match with recommendations from the literature and professional associations.

Summary of supporting evidence:

- See Section 5.2.3.1 for more detail on findings.
- There is a substantial literature linking adequate staffing on WHEN hours to patient care and staff satisfaction outcomes. For example:
  - Maintaining sufficient staffing on weekends is associated with improved patient care outcomes (Cavallazzi et al., 2010; Ananthakrishnan et al., 2009; Aujesky et al., 2009; Shaheen et al., 2009; Kostis et al., 2007).
  - Maintaining off-tour staffing has been linked to improved LOS (Menchine and Baraff, 2008; Conti, 2003; Varnava et al., 2002).
  - Ensuring sufficient staffing on nights is less clearly linked to improved clinical outcomes (Ananthakrishnan et al., 2009; Aujesky et al., 2009; Shaheen et al., 2009; Kostis et al., 2007), though the literature on the effect of adequate nurse staffing implies that night tours should still meet minimum staffing and skill mix best practices to ensure effective care (Blegen et al., 2011; Patrician et al., 2011; Tourangeau et al., 2002; Bond et al., 1999).
  - Physician hand-offs, which have harmful effects on the quality of patient care, are less likely to occur when staffing levels are higher and physicians are not covering for one another (Horwitz et al., 2008; Arora et al., 2005).
  - Please see Appendix A.7 for more detail.

Potential near-term actions:

- *VAMC:* match staffing on off-tour to best practices and industry standard practices, by:

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o Improving data management to ensure that the facility has visibility into staffing levels on the off-tour (see Recommendation 5.3.1 for more detail on this).

o Evaluating whether there are instances of overstaffing on the on-tour and staff that could be reallocated to the off-tour.

o Assessing whether additional staff are needed to support proper WHEN hours staffing based on opportunities for reallocation.

5.3.3.2 Make Contracting More Flexible and Efficient

Site visits and interviews with VACO and VHACO leadership indicate that VHA contracting regulations and processing are often complicated and inefficient. Sufficient access to flexible labor sources is critical to ensuring that VAMCs are able to manage inevitable short-term understaffing from unexpected vacancies and/or increases in patient load. We recommend evaluating current regulations to identify areas that could be streamlined, and reviewing current contracting support.

Summary of supporting evidence:

• See Section 5.2.3.1 for more detail on findings.

• Fifty-two percent of sites we visited cited improving access to contract labor as a critical change that needed to be made to improve flexing.

• The academic literature has established that moderate, as-needed use of contract labor can be an effective and safe means of meeting short-term understaffing (Doty et al., 2009; Anderson et al., 1996; Griffiths et al., 2005).

• VAMC leadership also reported that support for contracting at the local level was limited, resulting in clinical leaders often driving the contracting process, despite their lack of expertise in this area.

Potential near-term actions:

• *VACO/VHACO:* Review federal contracting regulations governing VHA contracting to identify opportunities to streamline and reduce requirements.

• *VACO/VHACO:* Evaluate potential for increased use of blanket purchase agreements and other similar contracting structures to establish standing relationships with contract labor providers, allowing for faster processing of requests for locum tenens and agency staff, in order to ensure VAMCs are able to provide safe, high-quality care even while experiencing staffing shortages. In particular, VHA should explore national blanket purchase agreements, facilitated by standardized credentialing requirements, allowing facilities to quickly draw from nationally-approved flexible labor sources when the need arises.

• *VAMC:* Review accountabilities and performance management of contracting department and ensure that incentives and reporting structure promote accountability to VAMC leadership. At the same time, ensure that VAMC staff understand their responsibilities vis-à-vis contracting and are prepared and able to quickly carry out these responsibilities.

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- *VHACO:* Evaluate contracting support at VAMCs to identify any sites without sufficient support (e.g., sites with no current agency or per diem use), and increase coverage to address.

5.3.3.3 Increase Flexibility of Float Position Structure and Compensation

We observed that challenges accessing flex resources were also driven by limited internal float pool support at many facilities. High performing private sector hospitals often use float resources to manage day-to-day variations in patient load. VHA should address internal access to flex resources as a way to manage short-term understaffing (this should be a particular priority at larger facilities that likely have more consistent demand for floaters).

Summary of supporting evidence:

- See Section 5.2.3.2 for more detail on findings.
- Eighty-one percent of sites we visited suggested improving recruitment into float pools (often, via compensation increases to match local market rates) as one of the most pressing changes needed to improve flexing.
- The academic literature suggests that competitiveness of compensation is important for attracting and retaining intermittent clinical staff (Hughes and Marcantonio, 1991).
- Seventy-one percent of sites we visited reported wanting to add a float pool or increase the size of an existing float pool in order to better manage flexing. Several site visit interviewees reported significant challenges attracting and retaining float pool staff (see Section 5.2.3). While we could not access data needed to substantiate this claim, staff perceptions suggest that VHA may have a significant challenge in this area.
- The Fargo VAMC has adopted shared positions, which split time across two units and act as a resource for both. This kind of shared resourcing appears to be especially useful in smaller facilities, where census is lower and particular occupations may not need a full FTE in any one given department or setting, or for larger facilities with like units that do not require a full FTE in any one single one.

Potential near-term actions:

- *VHACO:* Establish guidelines for setting pay differentials for float staff based on local market rates to improve VAMCs ability to attract float staff.
- *VAMC:* Create unit share positions where new staff are hired with the expectation of splitting time between designated units to build an expectation of floating amongst staff.

5.3.4 Potential Opportunity

Having the right number and type of staff on site at the right times is the foundation of delivering effective, efficient care. Sections 6, 7, 8, and 9 that follow are all directly affected by staffing allocations. Many VAMCs have entirely appropriate staffing models, with innovative practices; across the board, however, VHA lacks basic insight into whether staffing is appropriate, limited ability to hire staff quickly, and inconsistent allocation of staff. This creates significant potential for variation across the system, affecting the quality and level of care that

VHA provides to America's Veterans. Congress, the federal government, the public, and VHA must work together to enhance VHA staffing practices and, thereby, care for Veterans.

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6 Access

Part F ("Assessment F"), Section 201 of the Veterans Access, Choice, and Accountability Act of 2014 ("the Choice Act") mandates an assessment of the organization, workflow processes, and tools used to support inpatient access to care. We define access as the processes by which patients, in need of acute hospital care, are appropriately triaged and admitted to an inpatient bed. Patients may be admitted through a series of different channels including: through the Emergency Department (ED), as a direct admission from a physician's office, as a transfer from another facility, or as a scheduled admission following a procedure (e.g., a surgery that requires hospitalization following the procedure). Several factors contribute to inpatient access including, but not limited to, the availability of beds, the appropriateness of admissions, staffing and individual clinician capacity, scheduling of elective procedures relative to projected demand for beds, and the discharge of patients who no longer require acute care. Access to inpatient care is critical to ensure Veterans are afforded the ability to seek medical care at the appropriate setting when they need it most.

Across VHA's 121 level 1 and 2 complexity acute-care Medical Centers (e.g., VAMCs that have an ED and provide extensive inpatient care),[119] approximately 600,000 patients[120] are admitted each year. This assessment primarily focuses on the ED, as more than 75 percent of VHA inpatients are admitted through this channel.[121] Additionally, this assessment will focus on the bed management process by which patients are assigned a bed following direct admission, transfer, or surgery. While the scheduling process for elective procedures impacts inpatient access to care, it is an adjacency that falls in the scope for Assessment E. As a result, findings and recommendations related to scheduled procedures are addressed in Assessment E. Additionally, access bottlenecks related to patients who no longer require acute care yet continue to occupy inpatient beds, are covered in Section 7, length-of-stay management and care transitions, of this report. This section focuses exclusively on the organizational structure, workflow processes, and tools related to admissions in the acute setting and inpatient bed assignment. It supplements the findings outlined in Assessment A on current and projected Veteran demographics and in Assessment D on appropriate system-wide access standards, to assess the mechanisms in place, nationally and at the VAMCs, to support current Veteran demand for inpatient access to care.

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[119] Given the focus of Assessment F on inpatient medical facilities, we chose to only visit VAMCs providing substantial inpatient medical care (complexity levels 1a, 1b, 1c, and 2), and did not include other types of facilities (e.g., community-based outpatient clinics [CBOCs], complexity level 3 facilities)

[120] VHA Med SAS encounter level data for Levels 1 and 2 VAMCs (n=121 facilities, 586,000 admissions)

[121] EDIS (FY14) patient intake data and National Surgery Office (FY14) admissions data. VHA data sources triangulated with site visit interviews and ED throughput workshop (n=21) to verify percentages.

6.1 Summary

6.1.1 Assessment Approach

As described in the methodology of this report (Section 2), we collected information in several ways, using a common approach across sub-assessment areas within Assessment F:

- Site visits completed to 21 VAMCs (complexity level 1a, 1b, 1c, and 2), in which we:
  - o Conducted over 50 interviews with administrative, ED, OR, bed management, and quality leadership, at the VAMC level, to gain their perspective on patient flow and inpatient access.
  - o Facilitated 21 ED throughput assessment workshops with 3 to 10 front-line ED and inpatient personnel representing a variety of disciplines (e.g., physicians, nurses, allied health professionals) to outline the facility's ED flow, document strengths and challenges, and discuss potential solutions/recommendations.
  - o Observed processes and tools implemented to address patient flow challenges, firsthand, through facility tours and on-unit observations with both day and night shift ED and floor nurses.

- Data call sent to leadership in ED, surgery, and bed management to gather data that is not consistently maintained at the national level (e.g., number of patients diverted from the ED due to insufficient bed availability, prevalence of best practices, current or planned performance management initiatives), completed by 55 respondents across 121 (45 percent) of VAMCs (complexity level 1a, 1b, 1c, and 2).[122]

- Survey sent to all clinical staff (e.g., ED physicians; surgeons; hospitalists; charge, floor and utilization management nurses; and allied health professionals) across VAMCs to understand their perspective on inpatient flow and access, completed by 247 respondents, 71 respondents across 121 (59 percent) of VAMCs (complexity level 1a, 1b, 1c, and 2).[123] Due to the fact that VHA does not track the setting of work (i.e., inpatient or outpatient) in available human resource data and we did not control the distribution of the survey to the end-user we are unable to calculate the significance of the total response rate, but do not believe it to be a representative sample across any of the roles. Given this, survey data should be viewed as providing anecdotal insights as opposed to a representative data sample.

- Data collection gathered from national tools (e.g., Emergency Department Integrated System, EDIS, National Bed Control Database, NBCD), including ED length of stay (LOS) for

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[122] Total VAMC count depends on whether campuses of the same parent station are counted as separate VAMCs or one entity. We have based the count used in our site selection (122) on data drawn from VSSC, 2014 and SAIL, 2014 (see Appendix). In some instances, we use 121 as the denominator, based on data available in the data sets most commonly used for that section.

[123] Total VAMC count depends on whether campuses of the same parent station are counted as separate VAMCs or one entity. We have based the count used in our site selection (122) on data drawn from VSSC, 2014 and SAIL, 2014 (see Appendix). In some instances, we use 121 as the denominator, based on data available in the data sets most commonly used for that section.

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admitted patients and the number of patients who leave the hospital without being seen (LWBS).

- Interviews with leadership from multiple VHACO offices, including the Department of Emergency Medicine and the Office of Systems Redesign and Improvement, focused on inpatient access.

Direct admits, surgery patients, and ED admissions are all funneled through the bed management process to receive bed assignments. Given the associated interdependencies across admission routes, a series of timeliness and quality metrics can be used to assess overall access to inpatient care and serve as proxy for bed availability across all admission channels (Hwang, 2011). While confounding factors influencing these metrics should be acknowledged, including number of ED visits that are not clinically appropriate, effects of inpatient bed occupancy, and discharge delays for patients without appropriate post-acute accommodations,[124] these metrics taken as a whole still provide an industry-accepted proxy for inpatient access (Welch, 2011).

Having collected information to understand VHA's practices with respect to inpatient access, we then assessed how these practices compared to best practices and industry benchmarks. Best practices and benchmarks, detailed in Appendix C-1, were identified through several sources, including:

- Interviews with leadership from high-performing hospitals (internal and external to VHA), selected based on their admitted ED LOS, as reported to CMS or in EDIS[125] (CMS Hospital Compare, 2014).
- Academic literature (e.g., research on best practices related to ED throughput) and public reporting of benchmark data to CMS.

In aggregate, a greater percentage of VHA admissions originate in the ED (75 percent of admissions) as compared to market averages (50 percent of admissions) (Pines, 2013). Additionally, VAMCs have longer-admitted ED LOS and a higher rate of LWBS patients, as compared to market averages,[126] as detailed in Section 6.2.3.[127] When comparing VHA performance statistics with private facilities, however, it is important to note the impact of different clinical services and patient populations on access. For example, if a facility offers fewer surgical services, then it will likely have fewer planned surgical admissions thus its percentage of ED admissions will likely be higher as compared to a hospital with more surgical services. Further in looking a different patient populations, the prevalence of mental health, co-morbidities, and sociodemographic challenges (e.g., low income and homelessness), which are currently being assessed by Assessment A, can lead to increased ED demand (Hastings 2013; Tsai, 2015; Doran, 2013). As a result, there are several reasons why VHA's unique patient

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[124] Site visit ED throughput workshops (N =21 sites)

[125] EDIS (FY14)

[126] EDIS (FY14) and CMS Hospital Compare (FY14)

[127] VHA admit ED LOS is 277 minutes compared with a market average of 270, additionally LWBS rates are about 3 percent at VHA and the market average is 2 percent (VHA EDIS FY14 data, CMS Hospital Compare data FY14)

population could drive an increased ED demand, thus impacting its performance metrics relative to market averages:

- Higher incidence of mental health: Patients with mental health diagnoses are less likely to seek regular medical treatment (Hoester, 2012). When they do seek medical treatment it is often in the ED following the advancement of their condition and exacerbation of symptoms (Hoester, 2012). When presenting in the ED, these patients may also require additional resources (e.g., some mental health patients in the ED require a 1:1 clinician ratio). These factors are especially relevant given that on average, 20 to 40 percent of recently returned service members and Veterans are diagnosed with a mental disorder, compared with only 4.2 percent of the general population (Behavioral Health Barometer, 2014; Report of the Department of Defense on Mental Health, 2007).

- Higher incidence of co-morbidities: Patients with co-morbidities, especially related to cardiac disease, have greater ED use (Doran, 2013). This is noteworthy given the prevalence of hypertension among VHA patients is nearly double that of the private sector, 52 percent compared with 26 percent (Klein, 2011, Unique Veteran Users Report FY12, 2014).

- Higher incidence of homelessness: Homelessness is a key predictor of ED utilization (Doran, 2013). In 2010 Veterans accounted for 10 percent of the adult population but 16 percent of the adult homeless population (Profile of Sheltered Homeless Veterans for FY9 & FY10, 2012). Despite recent efforts and reductions in Veteran homelessness, rates of homelessness are still more than 30 percent higher than those of the general public (National Alliance to End Homelessness, 2015).

Given these confounding factors, we have chosen to balance market comparisons and benchmarks from the private sector with comparisons and benchmarks internal to VHA as well. However, our ability to effectively benchmark VHA practices was, in many instances, hampered by the unavailability of VHA data. For example, VHACO does not maintain standardized, accurate data on its current inpatient capacity, including the number of operational inpatient beds per facility and staffing levels by unit or shift. Additionally, VHA does not have a clear picture of its demand (e.g., patients in need of care from a VAMC) as it does not track, at a national level, the number of patients diverted to another facility due to insufficient VAMC capacity. Given that this demand and capacity data has inpatient access implications (e.g., patients that cannot be cared for at VAMCs due to capacity issues are diverted or transferred to private facilities and cared for with non-VA care funding), data access was a significant impediment to our ability to assess VHA inpatient access. Furthermore, VHA data management is inferior to that seen in the private sector, as detailed in Section 6.2.1, which we presume affects VHA's own ability to effectively manage inpatient access.

6.1.2 Summary of Findings

We observed several key areas of strength and challenge related to inpatient access at VHA. In accordance with the legislation, these findings apply to the organization, processes, and tools, currently in place at VHA; a detailed mapping to the organization, processes, and tools framework is available in Appendix C-2.

6.2.1 Data gaps limit VHA's understanding of patient demand patterns and available VAMC capacity. VHA maintains several different tools to manage access and flow; however, a lack of integration across tools, inconsistent methods for tracking data, and gaps in key flow metrics result in highly variable, non-actionable demand and capacity data. For example, in looking at one facility, the national bed control database (NBCD) shows that 81 percent of that VAMC's inpatient beds are operational[128] (e.g., beds are available for patients); however, the facility reports that only 51 percent of their beds are available for patients[129] due to unreported staffing and construction-related bed closures. Additionally, this facility does not consistently track its missed demand (e.g., patients who leave without being seen by a provider and/or patients who are diverted/transferred to another facility because the VAMC is at capacity or lacks required services), so it does not know if its limited bed capacity is impacting inpatient access. *Refer to Section 5 for additional detail on capacity limitations due to staffing.*

6.2.2 Hospital visits and admissions that are not clinically appropriate (e.g., from the ED and surgical suite) contribute to ED bottlenecks and limit bed availability. More than 120,000 admissions, approximately 20 to 25 percent[130] of ED and post-operative admissions fail to meet McKesson InterQual admissions criteria,[131] compared with 10 to 15 percent in the private sector (Sheehy, 2013; Stranges, 2010). Of those VHA admissions that failed to meet criteria, we found that 30 percent (7 percent of total admissions)[132] are attributed to limited access to the appropriate setting of care (e.g., outpatient access, level-of-care availability, and social issues).

6.2.3 Best practices related to workflow and performance management exist at some facilities, but have not been scaled across the system. Compared with market averages, 50 percent of VAMCs report longer LOS for patients admitted from the ED and 59 percent report higher LWBS rates[133] (i.e., more patients leave VAMCs without being seen by a provider). While some facilities have successfully operationalized industry-accepted best practices (e.g., fast track, clinical protocols in triage, flow management teams) — Boston VAMC's missed opportunities[134] are under 1 percent (the VAMC goal is under 3 percent[135]), adoption is limited system-wide.

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[128] VHA National Bed Control Database, patient transfer file (FY14)

[129] Site visit ED throughput workshop (N=21 sites)

[130] NUMI (FY14) admissions appropriateness

[131] McKesson InterQual is a tool that provides evidence-based clinical decision support on the appropriateness of care (including admissions and continuing stays)

[132] NUMI (FY14) admissions appropriateness

[133] VHA ED LOS and LWBS rates pulled from EDIS FY14 data and compared with CMS's Hospital Compare data FY14

[134] Missed opportunities defined as LWBS, left against medical advice (AMA), and elopement

[135] Site visit interview (West Roxbury VAMC)

6.1.3 Summary of Recommendations

Our assessment revealed several areas where VHA can build on current strengths or address existing challenges to improve inpatient access to care. We recommend that VHA consider three strategic themes, as detailed below. As with the findings, these themes apply to VHA organization, processes, and tools.

6.3.1 **Develop an accurate end-to-end picture of patient demand and VAMC capacity.** VHA should simplify the process and required approvals by which beds are classified as operational and standardize the definition and tracking of patient demand. Additionally, VHA should develop a prioritized set of standardized metrics to track patient flow, including current demand and capacity, at the facility, VISN, and VHACO levels. Once that infrastructure is in place, VHA can consider building an analytical model to more accurately predict future patient demand.

6.3.2 **Decrease the number of clinically inappropriate admissions due to limited access to sub-acute care.** VHA should assess the availability of alternative settings of care, at the regional level or VISN level, first to understand any gaps and then to determine how best to address those gaps (e.g., through direct investment and/or community partnership). At the facility level, VAMCs should dedicate appropriate patient support resources (e.g., case managers and social workers) to coordinate transitions from the ED and surgical departments to these settings of care. Once the infrastructure is in place to support these patients outside the acute setting, VAMCs should begin to hold physicians accountable for appropriateness of admissions (e.g., include utilization management in physician performance appraisals).

6.3.3 **Expand use of evidence-based processes for managing patient flow, including clear role assignments and individual performance management.** VHA should focus on expediting care in the ED through the early initiation of clinical protocols in triage and implementation of fast track processes for low-acuity patients. Additionally admission and bed assignment processes should be streamlined through clearer role assignment and better utilization of available tools.

6.1.4 Past Findings and Recommendations

Over the last ten years, the majority of access assessments has focused on outpatient care. While outpatient access has clear impacts on inpatient access, there are different metrics for evaluating inpatient access (Perlin, 2004). Details related to these previous reports are outlined in Assessment E.

In focusing our effort on inpatient access to care, OIG assessments and academic research identified several factors that hinder ED throughput and patient flow. These assessments have focused primarily on factors related to organization and processes, as detailed in Appendix C-3 and C-4, and reflect many of the same challenges and opportunities that we found during our assessment. Previously identified challenges include:

1. Insufficient inpatient bed availability to meet ED demand

2. Ineffective triage and monitoring at some facilities

3. Inadequate specialty services in the ED, particularly mental health services

Note that these three examples illustrate the type of factors identified in recent years, and are not intended to be a comprehensive listing. These past assessments have tended to focus on specific issues and/or individual facilities, separately developing recommendations for improvement in discrete areas. In contrast, our assessment tries to take an end-to-end view of inpatient clinical operations across the five key sub-assessment areas and all high- and medium-complexity VAMCs.

6.2   Findings

Through our site visits, data analysis, interviews, and benchmarking we identified strengths and challenges to inpatient access across VHA inpatient care setting. The sub-sections that follow (6.2.1, 6.2.2, and 6.2.3) describe these findings in detail, including information on what we believe the drivers of each finding to be.

6.2.1 Data gaps limit VHA's understanding of patient demand patterns and available VAMC capacity

6.2.2 Hospital visits and admissions that are not clinically appropriate (e.g., from the ED and surgical suite) contribute to ED bottlenecks and limit bed availability

6.2.3 Best practices related to workflow and performance management exist at some facilities, but have not been scaled across the system

As noted in Section 2.2, data issues prevented us from conclusively assessing many areas of inpatient access. We have used the national data sets that were available, information returned as part of the data call, and perceptions and experience reported or observed during site visits or via the staff survey. In many instances where data does not allow us to definitively comment, we have described the potential implications of the data points we do have, along with recommendations in Section 6.3 for further analysis.

6.2.1   Data Gaps Limit VHA's Understanding of Patient Demand Patterns and Available VAMC Capacity (e.g., bed and staffing)

Inconsistent methods for tracking available physical bed counts and patient care needs at the unit and facility levels limit VHA's ability to accurately manage VAMC capacity (e.g., staffing and bed availability) to patient demand. While, VHA has several different tools to monitor demand and capacity (e.g., National Bed Control System, Bed Management System, ED tracking system), they do not integrate with one another and each tool maintains its own master data. These technical limitations restrict end-users' ability to aggregate information across tools. Given the challenges and inaccuracies we encountered in both gathering and analyzing data, it raises the hypothesis that data access and validity are also an impediment to VHA's own ability to provide effective oversight.

Two key drivers of data challenges related to patient demand and inpatient capacity are:

> **6.2.1.1   Inaccurate view of bed capacity across multiple tools limits VHA's ability to understand current capacity**
>
> **6.2.1.2   Incomplete view of patient demand, including unmet patient care needs, limits VHA's ability to understand demand relative to current capacity**

6.2.1.1 Inaccurate View of Bed Capacity Across Multiple Tools

The VA National Bed Control Database (NBCD) and the VA Bed Management System (BMS) both track bed capacity, including the number of authorized beds, operational beds, and unavailable beds. The VHA handbook on Inpatient Bed Change Programs and Procedures defines "authorized beds as the potential capacity of a medical center, operational beds as the number of beds staffed and available for a potential admission, and unavailable beds as the number of beds closed for any reason" (VHA Handbook 1000.01, 2010). Our analysis, as demonstrated in **Figure 6-1** shows that the actual number of available beds at a VAMC may be lower than the reported number of operational bed numbers, as tracked in NBCD and BMS.

Figure 6-1. VAMC Bed Capacity

Operational bed numbers, at the national level, do not reflect actual bed capacity at the facilities
VHA national inpatient acute care bed numbers

Legend:
- Data reported in National Bed Control Database
- Data reported by the VAMCs
- Data unknown

National bed data
Number of beds (med., surg., psych.)

~22,000 — Authorized beds[1]
~17,000 — Operational beds[2]
x — Actual beds[3]
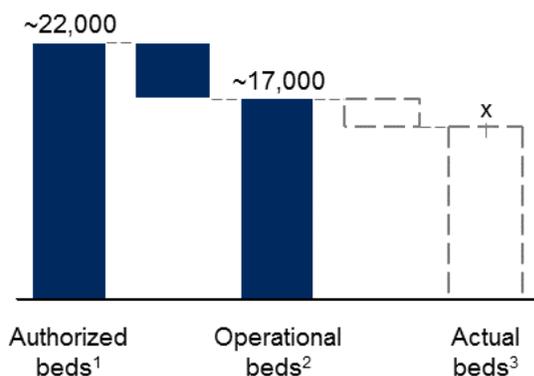
Case study of a single VAMC
Percent of authorized beds (med., surg., psych.)

100% — Authorized beds[1]
81% — Operational beds[2]
51% — Actual beds[3]
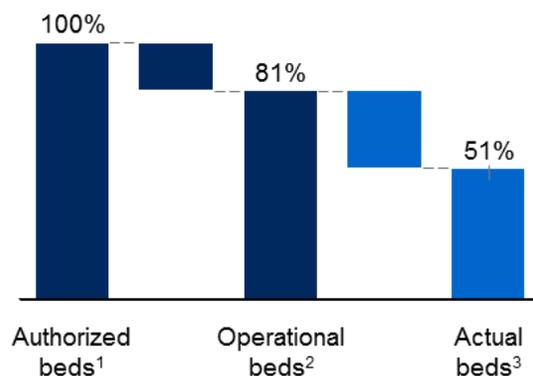
38% of VAMCs reported closing beds (e.g., due to staffing limitations and/or construction) without going through the national bed letter process; as a result it is unclear the actual number of available beds across the system

1 Total authorized acute beds (e.g., potential capacity of the system as reported to NBCD)
2 Total operating beds (e.g., staffed beds reported to NBCD)
3 Total actual operating beds (e.g., actual staffed beds as reported by the facilities)

SOURCE: National Bed Control Database; Handbook on Bed Management; Choice Act data call

The noted discrepancy in bed counts is likely a result of the heavily bureaucratic and political process required to officially adjust bed counts[136]. NBCD is used to provide Congressionally-mandated reports on VHA bed capacity and requires a formal process to make changes to a Medical Center's bed counts. Prior to submitting a bed change request, a facility must receive pre-approval and communicate its proposed changes to external stakeholders, including Veteran Service Organizations and Congressional offices. Next, the VAMC and/or VISN must submit an electronic bed change request (a "bed letter") through NBCD for approval from the VISN Director, VHACO Patient Care Services, the Deputy Under Secretary for Health for operations management and, in some instances, Congress. It is important to note that bed changes are only required for closures projected to be greater than 60 days (VHA Handbook 1000.01, 2010); which allows VAMCs the flexibility to not report bed closures they anticipate the closure will be less than 60 days.

Even once administrators have deemed a bed closure appropriate, there is often concern from the community. Some cities have held public forums to enable citizens to voice their opposition to the bed closures. Following the proposed closure of beds at a VAMC in South Dakota, one Veteran in a public forum stated, "public input needs to carry weight with any changes in the system, and there needs to be assurance that quality of service and care…is not compromised" (Wooster, 2011).

The result of this arduous bed change process and public concern is that VAMCs rarely submit formalized bed changes, resulting in inaccurate NBCD bed counts. In many cases this discrepancy incorrectly shows VAMCs working at well below capacity, because while they may have closed beds due to construction and/or insufficient staffing, those unavailable beds are not reflected in NBCD.[137] Take the following illustrative example: A facility has 100 operational beds in NBCD but they can only staff 80 beds (e.g., 20 beds are closed locally) and their average daily patient census is 75; it appears as if the facility is running at 75 percent capacity but in actuality it is at 94 percent capacity. This scenario is common across VAMCs — 44 percent of VAMC data call respondents indicated that they have closed beds due to insufficient staffing[138] and site visit interviewees stated that they regularly close beds without reporting bed closures to NBCD.[139] Section 5 provides additional context on the drivers behind staffing-related bed closures including: hiring challenges, a misallocation of staff as compared with patient demand, and limited flex resources (e.g., float pool, agency) to account for short-term vacancies (e.g., call-offs, vacations, sick-leave).

One goal of BMS is to attempt to address this discrepancy by supporting the day-to-day management of patient placement and bed flow. BMS allows users to remove beds from the "Operating Beds" roster and designate them as unavailable. The challenge is that while BMS pulls operating bed data from NBCD, local updates made in BMS are not updated in VistA or NBCD (BMS Quarterly Bed Reconciliation Report, 2015). Some facilities choose not to "close"

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[136] VHACO leadership interview

[137] VHACO SME Interview

[138] Choice Act data call, staffing question (N=62)

[139] Site visit ED throughout assessment workshops (N=21 sites)

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beds in the BMS tool so they can rotate bed assignments and expedite bed turnover.[140] This also limits the accuracy of the data.

6.2.1.2 Incomplete View of Patient Demand, Including Unmet Patient Care Needs, Limits VHA's Ability to Understand Demand Relative to Current Capacity

In addition to an inaccurate view of available bed capacity, VHA has an incomplete understanding of inpatient demand. Literature emphasizes the importance of tracking demand from both the ED (e.g., the number of ED encounters by hour and acuity, percentages of beds occupied by hour, admission rates by hour and acuity) and scheduled procedures (e.g., the number of scheduled procedures requiring inpatient admissions per day) (Welch, 2011).

While VHA tracks some of these measures consistently; including the volume of ED visits and scheduled procedures; ED, inpatient, and surgical data is siloed in tools (e.g., EDIS and NSO). For example, the Emergency Department Integrated Software (EDIS)[141] tracks ED encounters, the National Surgery Office tracks scheduled procedures, and BMS tracks inpatient bed occupancy, yet none of these tools integrates with one another.[142] Sixty-seven percent of individuals interviewed during sites visited cited this lack of tool integration as a challenge to patient flow.[143] As a result, most VAMCs lack an overall picture of demand across admission channels. Additionally, while EDIS tracks ED volume, disposition, and throughput measures for example, admitted LOS, discharged LOS, door to doctor, and LWBS rates) its accuracy is limited by inappropriate use of the tool. For example, EDIS data reliability metrics indicate that facilities are more than 90 percent accurate in documenting patient visits but only 50 percent reliable when inputting patient information required for timeliness and disposition metrics.[144] This variability in data accuracy and reliability further limits VHA's understanding of demand.

Some sites have developed sophisticated offline models, as demonstrated in **Table 6-1**, to reconcile data across the multiple tools; however, there is often a disconnect in the master data across tools challenging accuracy and reliability.

Table 6-1. VAMC Case Study: Data Management

Best practice case study – Palo Alto VAMC
Palo Alto aggregates patient flow data across VAMC tools, including: EDIS, NUMI, NBCD, and VistA, to provide front-line staff with daily reports and monthly dashboards on patient flow metrics and performance outcomes **Key reports from the data analytics team:**

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[140] Site visit ED throughout assessment workshops (N=21 sites)

[141] EDIS is an application that extends the functionality of CPRS to help health care professionals in the ED track manage flow, including: "adding ED patients to a display board, viewing patient information on the display board, editing patient information, and creating administrative reports (EDIS user guide 1.0, 2010).

[142] Site visit ED throughput workshops (N =21 sites)

[143] Site visit ED throughput workshops (N =21 sites)

[144] EDIS FY14 data reliability metrics

Best practice case study – Palo Alto VAMC
- Bed control report: Daily report for inpatient medicine and surgery teams, includes data on ED throughput, new admissions, and patient flow[145]   - Admissions dashboard: Quarterly report for leadership and front line on admissions, fee costs, readmission rates, and utilization management[146]   - Bed stewardship and inpatient flow dashboard: Quarterly report for leadership and front-line on LOS, occupancy rates, census by unit, observation rates, and transfer rates[147]   **Lessons learned:**   - Develop, track, and distribute metrics that are most important to your team: ED and inpatient teams use the bed control report during their daily medical and surgical rounds; this has enabled the front-line to hone key metrics and has driven more accurate and timely input of those metrics (e.g., because data entry errors are readily apparent during rounding)[148]   - Outline workarounds to address gaps in tool functionality: ED always conducts a MRSA swab prior to admission; the time of this swab is used as a proxy to "start the clock" in measuring time from ED decision to admit to inpatient bed placement[149]   - Create early wins to gain front-line acceptance: Limited access to prosthetics was a common complaint in the ED, so one of the department's first process improvement initiatives was to use data to show the impact of prosthetic delays on patient flow and wait times, this has considerably improved access to prosthetics in the ED[150]   **Impact from the data analytics team:**   - Time from admission order to bed order time has decreased by almost 30min[151]   - ED LOS has remained constant from February 2014 to March 2015 despite a 37 percent increase in patient demand [152]   - Admissions delays due to bed availability have decreased from 92 percent in March FY13 to 30 percent in March FY15[153]   - Observation admissions have more than doubled since Feb 2014[154]

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[145] Palo Alto bed control data (FY14-FY15)

[146] Palo Alto performance dashboard (FY13-FY15)

[147] Palo Alto bed stewardship and inpatient flow dashboard (FY13-FY15)

[148] Palo Alto interview with ED nurse manager

[149] Palo Alto interview with ED nurse manager

[150] Palo Alto interview with ED nurse manager

[151] Palo Alto bed control data (FY14-FY15)

[152] Palo Alto bed control data (FY14-FY15)

[153] Palo Alto bed stewardship and inpatient flow dashboard (FY13-FY15)

[154] Palo Alto bed stewardship and inpatient flow dashboard (FY13-FY15)

Best practice case study – Palo Alto VAMC
▪ Boarder percentages (e.g., patient who stay over 6 hours in the ED) have decreased from 79 percent in FY14 to 57 percent in FY15[155]

In addition to tracking patients cared for, literature also supports the importance of understanding missed or unmet patient demand (Welch, 2011). EDIS tracks missed opportunities (e.g., left without being seen, against medical advice); however, we did not observe a standardized process for tracking patients who are diverted or transferred to another facility because a VAMC is at capacity due to staffing or occupancy constraints. Some facilities have started to track diversions and transfers locally, but there are several challenges with this approach:

- There are not standard definitions for diversions and transfers — e.g., some VAMCs define diversion as an inability to accept ambulances while others declare diversion when all inpatient beds are full, or when the wait time for an inpatient bed will be in excess of 2 hours.[156]

- There are not standard processes for diverting or transferring patients — e.g., some VAMCs send patients in the ED to other hospitals when inpatient beds are not available, while others board those patients in the ED.[157]

- There is not a standard approach for tracking diversion and transfer data — e.g., most VAMCs track hours on diversion, but not patients diverted or transferred; without understanding the number of patients sent to another facility due to capacity constraints, VHA is unable to quantify its missed demand.[158]

At a central level, VHA tracks the spend on non-VHA care consults, but it does not segment this spend by the cause of the consults (e.g., diversions, availability of specialty, patient choice). Understanding the financial losses associated with missed demand, if they exist, would allow VHA to better understand its capacity at a basic level and provide clear support for increasing capacity (e.g., new physical beds and/or additional staffing) if necessary.

6.2.2 Hospital Visits and Admissions (e.g., from the ED and surgical suite) That are not Clinically Appropriate Contribute to ED Bottlenecks and Limit Bed Availability

As seen in the private sector, VAMC EDs often serve as a "catch-all" for patients who cannot find care in a more appropriate, lower-acuity setting. These low-acuity patients congest the ED, thus limiting access for other patients who require acute care.[159]

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[155] Palo Alto performance dashboard (FY13-FY15)

[156] Site visit assessment workshops (N=21 sites)

[157] Site visit assessment workshops (N=21 sites)

[158] Site visit assessment workshops (N=21 sites)

[159] Site visit ED throughput workshop (N=21 sites)

The admission of patients who do not require acute medical care further congests the ED and limits bed availability. In many instances, it may be imprudent to discharge these Veterans home due to a variety of concerns, including: lack of housing and/or transportation issues following a procedure requiring sedation; mental health and substance abuse challenges; and an inability to care for themselves. A chief of surgery at one VAMC explained, "We have many patients who travel a long distance for an outpatient surgical procedure but who, following the procedure and the administration of conscious sedation drugs, have no one to drive them home and care for them while the medication wears off. Since we do not have domiciliary care or inpatient rehabilitation, our only option is to admit these patients [or proactively cancel their surgery].[160]" However, admitting these patients without an acute medical need not only limits bed availability for patients who do not require acute care and has clear financial implications, as detailed in Section 6.3.5., but it also puts those patients at risk for hospital-acquired infections. The CDC reports that 1 in 25 hospital patients has at least one hospital-acquired infection. As a result, patients who do not have an acute medical need for an inpatient stay are at a greater risk of disease if admitted (Magill, 2014).

In analyzing admissions through the ED, VHA admissions are approximately 65 percent higher than the national average, as shown in **Figure 6.2.[161]** While this variation could be attributed to the complexity of the VHA patient population, as outlined in Section 6.1.1, the acuity of patients that present in the ED, as defined by the Emergency Severity Index (ESI), are on par with national averages. ESI is a five-level ED triage algorithm that stratifies patients into five groups from least to most urgent based on patient acuity and resources needs, with an ESI-1 as the most urgent score. It is important to note that while ESI is an accepted tool to stratify patients based on acuity and resource needs, it is not designed to capture the nuances and complexity of the patient beyond their most acute needs. Given the co-morbidities and social dynamics of the VHA patient population[162] (e.g., mental health issues, substance abuse, homelessness) as compared with the general population, it is reasonable to assume that some of this discrepancy in admission rates may be justified. However, even assuming that a greater proportion of VHA admissions is justified due to patient demographics and comorbidities, VHA admission percentages are still considerably higher than those in the private sector and warrants further study.

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[160] Site visit department chief interview

[161] EDIS FY14 admissions data

[162] Refer to assessment A for additional detail

The views, opinions, and/or findings contained in this report are those of the assessment team and should not be construed as an official government position, policy, or decision.

Figure 6-2. ED Acuity Analysis

Controlling for patient acuity, the VHA admits more ED patients than national benchmarks
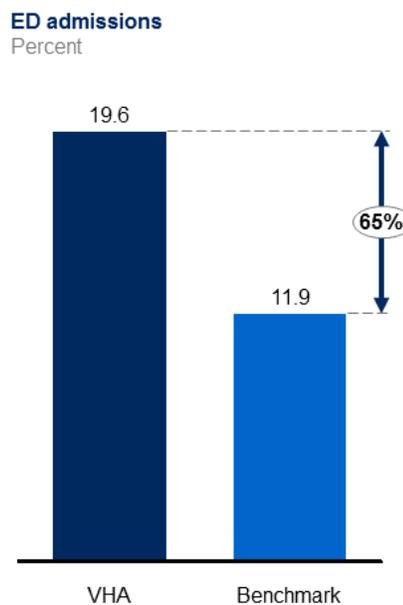
1 ESI (Emergency Severity Index) is a 5-level emergency department triage algorithm that provides clinically relevant stratification of patients into 5 groups from least to most urgent based on patient acuity and resource needs. Highest acuity patients receive an ESI of 1

SOURCE: EDIS FY14 data and CDC ED Survey FY11 (published 2015)

Despite the lack of clarity on ED data and an inability to adjust admission percentages by patient complexity, more than 120,000 admissions, approximately 20 to 25 percent [163] of ED and post-surgical admissions fail to meet McKesson InterQual admissions criteria,[164] as demonstrated in **Figure 6.3.** This is nearly double the national average, which reports that for common ED and surgical diagnoses[165] approximately 10 to 15 percent of hospital admissions may be unnecessary (Sheehy, 2013; Stranges, 2010). VHA evaluates admission appropriateness using its National Utilization Management tool (NUMI). Utilization management (UM) staff are tasked with reviewing VHA admissions in NUMI to determine whether they criteria outlined in the tool. VHA Directive 1117 (2014) mandates that UM nurses perform case reviews on 75

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[163] NUMI (FY14) admissions appropriateness

[164] McKesson InterQual is a tool that provides evidence-based clinical decision support on the appropriateness of care (including admissions and continuing stays)

[165] **Common medical diagnoses:** pneumonia, chest pain, cellulitis and abscess of leg, syncope and collapse, unspecified septicemia, abdominal pain, coronary atherosclerosis, atrial fibrillation and flutter, complication of transplanted organ, care involving other specified rehabilitation procedure; **Common surgical diagnoses:** abdominal pain, croup, diabetes with ketoacidosis, encounter for antineoplastic chemotherapy and immunotherapy, observation following other accident, hemorrhage of hematoma complicating a procedure, postoperative infection, complications of transplanted organ, osteoarthritis

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percent of admissions, observation stays, and subsequent days of care and enter results into the NUMI application. Of VHA admissions that fail to meet InterQual criteria, 30 percent (or seven percent[166] of total admissions) are attributed to limited access to appropriate care, as an alternative to the inpatient setting (e.g., level of care availability, outpatient access, and social issues). In contrast to VHA, private sector hospitals must adhere to stringent criteria for Medicare inpatient admissions (e.g., InterQual) or face CMS fines through the Recovery Audit Contractor program (RAC)[167] (Sheehy, 2013).

Figure 6-3. Inpatient Admissions for Patients With Limited Access to Sub-Acute Care Hinder Access and Patient Flow

Inpatient admissions for patients with limited access to sub-acute care hinder access and patient flow

More than 100K admissions annually fail to meet admissions criteria
Percent of reviewed admissions[1]

- Admissions that fail to meet InterQual criteria
- Admissions that met InterQual criteria

20-25[2]

70-75[3]

Of those, more than 30% are due to limited access to appropriate care[1]
Inappropriate admissions
Percent

Social issues	5
Level of care availability	9
Outpatient care	18
Clinical judgement	67

20-25% of VHA **admissions** fail to meet admissions criteria, **compared with 10-15% in the private sector**[4]

1 NUMI estimates that 93% of admissions are reviews
2 Admissions that fail to meet McKesson InterQual criteria due to provider clinical judgment, available level of care, non-medical (e.g., social) issues, and/or care better suited for the outpatient setting
3 Admissions that meet McKesson InterqQual criteria
4 Agency for Healthcare Research and Quality – Healthcare Cost and Utilization Project cited 10% of hospitalizations are potentially preventable for acute and chronic conditions based on 2008 data

SOURCE: NUMI data (FY14); Agency for Healthcare Research and Quality (2010)

Four key drivers of clinically inappropriate visits and admissions that were highlighted through our assessment, include:

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[166] NUMI (FY14) admissions appropriateness

[167] "The Recovery Audit Program's mission is to identify and correct Medicare improper payments through the efficient detection and collection of overpayments made on claims of health care services provided to Medicare beneficiaries, and the identification of underpayments to providers so that the CMS can implement actions that will prevent future improper payments in all 50 states." (CMS.gov, 2015)

6.2.2.1   Demographic characteristics of Veterans (e.g., higher incidence of mental health diagnoses, co-morbidities, and homelessness among Veterans as compared to the general population)

6.2.2.2   Limited access to immediate (e.g., same day or same week) primary and urgent care clinic appointments, contributing to ED demand

6.2.2.3   Insufficient access to sub-acute facilities (e.g., short-term rehab, detox clinics) for patients who should not be discharged home following an ED visit or surgical procedure, but do not require admission to an inpatient bed

6.2.2.4   Minimal physician acceptance of and accountability for utilization management admission standards (e.g., the evaluation of the appropriateness of health care services according to evidence based criteria)

6.2.2.5 Lack of integration across tools

6.2.2.1 Demographic Characteristics of Veterans

As discussed in Section 6.1.1, VHA serves a unique patient population with a higher prevalence of mental health, co-morbidities, and homelessness, as compared with the general public (Behavioral Health Barometer, 2014; Report of the Department of Defense on Mental Health, 2007; Klein, 2011; Unique Veteran Users Report FY12, 2014; Profile of Sheltered Homeless Veterans for FY9 and FY10, 2012). Each of these characteristics is a predictor of higher repeat ED utilization, especially for care that may be better provided in a lower-acuity setting (Hastings 2013; Tsai, 2015; Doran, 2013). Refer to Assessment A for additional detail on Veteran demographics and demand for health care services.

6.2.2.2 Limited Access to Immediate (e.g., same day or same week) Primary and Urgent Care Clinic Appointments Contributes to ED Demand

ED leadership across sites commented on the volume of ED visits that are not clinically appropriate, remarking that patients rely on the ED for prescription refills, primary and follow-up care, as well as other non-urgent needs (Doran, 2013).[168] More than 70 percent of front-line employees who attended our ED workshop attribute this clinically inappropriate volume to outpatient access challenges, including understaffing of primary care and inconvenient clinic hours (e.g., lack of night and weekend availability).[169] While we are not addressing clinic access, as clinic scheduling is detailed in Assessment E, limited access to outpatient care is a key contributor to inpatient access challenges.

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[168] Site visit ED shadowing sessions (N=21 sites)

[169] Site visit ED throughput workshops and shadowing sessions (N =21 sites)

6.2.2.3 Insufficient Access to Sub-acute Facilities (e.g., short-term rehab, detox clinics) for Patients who Should not be Discharged Home Following an ED visit or Surgical Procedure, but do not Require Admission to an Inpatient Bed

As demonstrated in **Figure 6-3,** more than 30 percent of admissions that fail to meet InterQual criteria are due to limited access to appropriate care settings.[170] Limited access may be attributed to: (1) insufficient number of sub-acute facilities; and (2) inadequate support in the hospital to help patients and physicians navigate admission alternatives.

Insufficient number of sub-acute facilities: Fifty-five percent of VAMCs visited attribute the high number of admissions that fail to meet NUMI criteria to a lack of VHA or contracted facilities for sub-acute care (e.g., detox clinics, short-term rehab).[171,172] Literature further supports this connection between availability of care alternatives and a reduction in clinically inappropriate hospital utilization, showing that offering transitional and long-term housing to homeless ED patients in conjunction with case management support led to a 29 percent reduction in admissions and a 24 percent decrease in ED visits compared with usual care (Sadowski, 2009).

Fargo VAMC recently contracted with a community detox center to care for patients who present in the ED for substance abuse issues. The detox center provides 24/7 care for those patients who do not require acute medical attention.[173] While it is too soon to assess the impact of this facility, ED staff have noticed an improvement in ED congestion. Additional detail on current health care capabilities and resources can be found in Assessment B and detail related to appropriate system-wide access to health care furnished by and through the department may be found in Assessment D.

Inadequate support in the ED and surgical suites to help patients and physicians navigate admission alternatives (e.g., more appropriate sub-acute settings of care): Fifty percent of VHA survey respondents reported staffing a case manager and/or social worker in the ED**[174]**; however, in many instances these individuals are only staffed during the day such that VAMCs lack night and weekend support; 69 percent of case managers interviewed during site visits reported that case managers and social workers are currently understaffed.[175] The result is that even when alternate facilities may be available for care – e.g., the detox center in Fargo or funding for conscious sedation patients to stay in a domiciliary unit – physicians and patients are unaware of these facilities and lack appropriate support to transition to these facilities.

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[170] NUMI admissions appropriateness data (FY14)

[171] Site visit discharge planning workshops (N =20 sites)

[172] VAMC site visit Case Manager interviews (N=21 sites with one to five case manager and/or social workers in each interview)

[173] Site visit ED throughput assessment workshop

[174] Choice Act Survey (N=101 respondents)

[175] Site visit ED throughput assessment workshop

Current literature shows a correlation between case management in the ED and decreases in ED visits, as well as "improved clinical and social outcomes among frequent ED users" (Kumar, 2013). One study shows that a targeted interdisciplinary case management program in the ED led to a 7 percent decrease in ED visits among a historically challenging patient population, similar to VHA's population (e.g., patients who presented with psychiatric disease, substance abuse, medication non-compliance, and/or unstable housing) (Pillow, 2013).

6.2.2.4 Minimal Physician Acceptance of and Accountability for Utilization Management Admission Standards (e.g., the evaluation of the appropriateness of health care services according to evidence based criteria)

While over 50 percent of department chiefs interviewed cite UM as a high or very high priority at their VAMC,[176] they also recognize that "without alternatives (e.g., sub-acute facilities) and resources (e.g., case managers/social workers to help patient navigate alternative settings of care), UM is not very helpful in driving down inappropriate admissions.[177]" The perceived effectiveness of UM programs varies across VAMCs with 30 percent of facilities stating that their UM program has considerable impact, 30 percent citing marginal impact, and 35 percent identifying little to no impact (5 percent no response).[178] Limited physician engagement and adherence to UM standards are likely attributable to: (1) insufficient collaboration between UM RNs, ED physicians, and hospitalists; and (2) lack of physician performance standards around admission appropriateness.

Insufficient collaboration between UM RNs, ED physicians, and hospitalists:
Several different conclusions may be drawn from the high percentage of admissions that fail to meet UM criteria because of clinical judgment, as was demonstrated in Figure 6-4. Namely, physicians place little value on UM criteria, and/or documentation does not accurately reflect patients' care contributing to ineffective UM reviews (addressed in Section 9). McKesson's InterQual criteria supports more than 3,700 hospitals across the country (McKesson website, 2015), so we believe it is a relevant algorithm, albeit with potential for customization to reflect VA patient characteristics. Section 9 provides additional detail on provider documentation as a potential limiter to effective UM.
Across many facilities a tension exists between UM nurses and providers. One department chief commented that this tension is eased when "UM teams work directly with the providers, such that they can make admissions decisions as a team relying on both InterQual criteria and clinical judgment."**[179]** We observed this in one facility where the UM nurse sat in the ED and conducted prospective admissions reviews with the admitting providers. While effective in driving admission

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[176] Site visit Department Chief interviews (n=21 facilities with one to three department chiefs in each interview)

[177] Site visit Department Chief interviews (n=21 facilities with one to three department chiefs in each interview)

[178] Site visit Department Chief interviews (n=21 facilities with one to three department chiefs in each interview)

[179] Site visit Department Chief interviews (n=21 facilities with one to three department chiefs in each interview)

appropriateness, this collaborative model is not the norm as we only observed it in a few facilities (less than 5 percent) who staffed UM nurses in the ED.[180]

Lack of physician performance standards around admission appropriateness: None of the facilities observed included UM's admission appropriateness metrics in physicians' performance appraisals. This is in direct contrast with best practices that promote individual ownership and accountability to drive change (Luxford, 2011) and decrease admissions that fail to meet NUMI criteria. While the infrastructure is not currently in place to support the care of all patients in alternative, non-acute settings, physicians also lack the incentives to direct patients to these settings.

6.2.2.5 Lack of Integration Across Tools

Adding to the complexity and inaccuracy of demand data, EDIS and BMS both track patient flow and throughput effectiveness, but they do not integrate with each another or with the VistA suite.[181] Sixty-seven percent of facilities visited cited tool issues (e.g., limited functionality of tool, lack of integration, insufficient training) as a challenge to patient flow.[182]

Some sites have developed sophisticated offline models, as demonstrated in **Table 6-2** to reconcile data across the multiple tools, but there is often a disconnect in the master data across these tools challenging accuracy and reliability.

6.2.3 Best Practices Related to Workflow and Performance Management Exist at Some Facilities, but Have not Been Scaled Across the System

Despite successful implementation of many operational best practices (e.g., fast track, clinical protocols in triage, flow management teams) in select facilities, as detailed in **Figure 6-4**, adoption is limited system-wide. Additionally, even in top-performing facilities based on ED LOS and LWBS rates, delays in inpatient access can result from insufficient bed availability and inconsistent admission and bed assignment processes.

On average, more than 50 percent of VAMCs have a longer-admitted ED LOS, as compared with the market average (EDIS FY14 and CMS HCAHPS FY14), also shown in **Figure 6-4.**[183] While VHA does serve a complex patient population as described in Section 6.1.1, VHA's ED acuity (as measured by ESI) is on a par with national averages, as was demonstrated in **Figure 6-2**. This suggests an opportunity to improve throughput by a more consistent, system-wide implementation of best practices with corresponding performance management.

Two key factors contribute to variability in best practice adoption across the system:

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[180] Site visit ED throughput workshop (n=21 sites)

[181] Site visit ED throughput workshop (n=21 sites)

[182] Site visit ED throughput workshop (n=21 sites)

[183] More than 70 percent of VAMCs have a longer door-to-doctor time compared with market averages and more than 55 percent of VAMCs have a higher LWBS rate (EDIS FY14 and CMS FY14).

6.2.3.1 Inconsistent adoption of proven best practices to manage patient flow within facilities (e.g., early initiation of clinical protocols in ED triage, fast-track processes for low-acuity patients, team focused on managing flow)

6.2.3.2 Limited cross-facility communication and sharing of best practices

Figure 6-4. VHA Lags Market Averages

On average VHA patients spend more time in the ED as compared to market benchmarks, and a greater percentage of VHA patients LWBS
Analysis of VHA patient flow metrics relative to national averages

Category	VHA and private facility scores		VHA facilities below national average Percent
Admitted ED LOS Minutes[1]	Market	270	50
	VHA	277	
Non-admitted ED LOS Minutes[2]	Market	140	47
	VHA	146	
Door to doctor Minutes[3]	Market	29	28
	VHA		
Left without being seen Percent[4]	Market	2	41
	VHA	3	
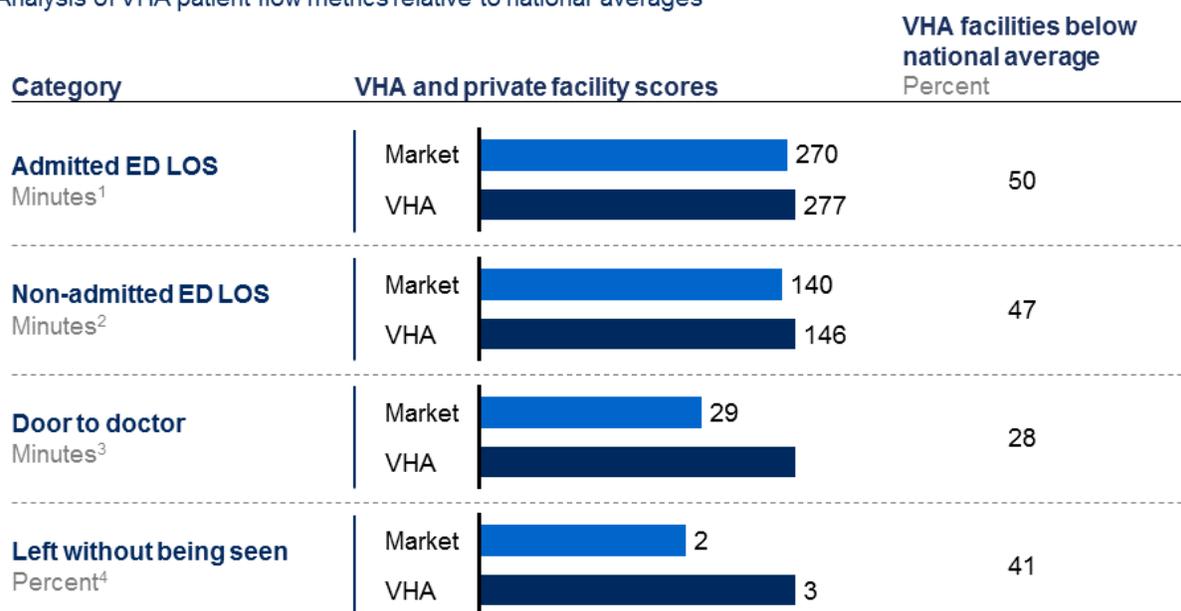
1 Average ED LOS for patients that are admitted
2 Average ED LOS for patients that are discharged home from the ED
3 Time a patient waits before seeing a health care provider
4 Percentage of ED visits that result in a patient leaving the facility without being seen by a health care provider

SOURCE: CMS, 2014; EDIS FY14

6.2.3.1 Inconsistent Adoption of Proven Best Practices to Manage Patient Flow Across Facilities

VHA's centralized Department of Emergency Medicine has taken a logical approach in driving ED performance improvement. It started by standardizing data collection and reporting through the use of the EDIS tool,[184] implemented in 2012 (EDIS Installation Guide, 2014). EDIS provides a common tool to track patient flow through the ED as well as measure throughput and effectiveness at a facility, VISN, and national level that is foundational to other improvements. While the Medical Centers use the EDIS tool to varying levels of sophistication, we observed

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[184] EDIS: Emergency Department Integrated Tracking System

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100 percent utilization across our site visits.[185] In light of Finding 6.2.1, data gaps limit VHA understanding of patient demand patterns and available VAMC capacity, this achievement is no small feat.

According to the Department of Emergency Medicine,[186] its objective in its next phase is to drive best practice adoption using data and trends from EDIS and eventually from BMS. In the current state, best practice adoption is driven at a local level and varies across the system. This is most evident in the implementation of the following: (1) clinical protocols to initiate care in triage; (2) segmented process for the care of lower-acuity ED patients; and (3) flow management processes and roles to expedite admission and bed placement.

Some facilities, like Boston VAMC as demonstrated below in **Figure 6-5**, have successfully implemented each of these practices, while others are slower to adopt or have not adopted at all. Boston attributes its success to strong clinical leadership at the facility and ED levels, particularly between the ED Director and ED unit manager.[187]

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[185] Site visit ED throughput workshops (N=21 sites)

[186] VHACO SME interview

[187] Site visit ED throughput workshop (Boston VAMC)

Figure 6-5. VAMC Case Study: ED Patient Flow

Boston VAMC has taken a systematic approach to managing patient flow

Approach

- Developed an **inpatient flow team**
- Focused on **targeted performance improvement initiatives**
- Encouraged **front line involvement**
- Supported by **strong, consistent leadership** involvement

Process improvement initiatives

- **Developed protocols for 5 major ED diagnoses** (chest pain, shortness of breath, fever, abdominal pain, mental status changes)
- **Promoted use of fast track;** more than 30% of ED patients are triaged to Fast Track
- **Reserved same-day primary care appointments** for low acuity patients who present in the ED
- Implemented organization-wide **centralized bed control and bed huddles**
- **Designated patients waiting more than 90 minutes** as highest priority patients
- **Instituted a pharmacy refill clinic** to assist patients that present in the ED strictly for prescription refills
- **Implemented a flow dashboard that links ED performance metrics with inpatient flow;** result has been to build cross-departmental awareness of ED throughput and bed turnaround times and drive front-line improvements

ED metrics – top quartile of VAMCs

- Admitted ED LOS: ~220 minutes
- Non-admitted ED LOS: 114 minutes
- Left without being seen: 0.44%

SOURCE: Institute for Health Care Improvement; Boston VAMC site visit, EDIS (FY14)

Varied implementation of clinical protocols in triage: Expediting care through the initiation of clinical protocols improves both patient safety and flow (Love, 2012). Dependent on ED volume, two approaches may be taken to expedite the initiation of clinical protocols in triage: staffing a provider (or advanced practitioner) in triage and/or establish standing order sets for RNs to initiate protocols under the supervision of a provider. Across sites surveyed, 24 percent of VAMC data call recipients reported staffing a provider in triage[188] and 24 percent of VAMC survey respondents reported using standing orders;[189] across data call and survey respondents 68 percent of facilities reported that they neither staff a provider in triage nor *utilize* standing orders.[190]

A provider in triage (e.g., a physician or advanced practitioner) has the ability to write orders, start clinical protocols, and discharge patients thereby improving both patient safety and flow. This is evident at Kaiser, which exclusively staffs providers in

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[188] Choice Act data call (N= 55 sites)

[189] Choice Act survey (N=71 sites)

[190] Choice Act data call and survey (N= 91 sites)

ED triage[191]. Additionally, St Louis VAMC saw a 17 percent decrease in its daily mean ED LOS following the addition of a provider in triage (Day, 2013).

While literature supports the staffing of a provider in triage in high-volume EDs, it may not be appropriate in smaller facilities that cannot support dedicating a full-time physician or advanced practitioner. An alternative, observed at some VAMCs and high-performing institutions, is the establishment of RN standing orders. Standing orders follow evidence-based guidelines for specific disease sets or chief complaints and allow RNs in triage to initiate diagnostic tests and or interventions before the provider sees the patients. This has been shown in the literature to decrease ED LOS by improving patient turnover and bed availability (Retezar, 2011). Boston VAMC relies on RN standing orders to manage flow and expedite care — in many cases critical diagnostics (labs, imaging) are completed by the time the physician sees the patient. Standing orders have allowed Boston to consistently maintain a favorable LOS – it scores in the top quartile of VAMCs.[192] The facility attributes its successful implementation to nurse competencies and strong relationships and trust between the ED physicians and nurses.[193]

Varied implementation of ED fast-track processes for lower-acuity patients: As was demonstrated in Section 6.2.2.2, the number of low-acuity, clinically inappropriate[194] ED visits is a major challenge to patient flow; 86 percent of VHA ED visits are classified as low to moderate acuity based on the emergency severity index (ESI 3, 4, and 5).[195,196] While this is felt most acutely in the evening when outpatient clinics are closed, as detailed in Finding 6.2.2.2, this is also cited as an issue during the day when clinics are open.[197] Evidence supports the use of a fast-track process to treat these non-urgent patients in a dedicated area by dedicated staff, so as to minimize long wait times and prevent congestion of the main ED from low-acuity patients. Staffing a provider in fast-track allows the facility to care for and discharge lower-acuity patients without taking up resources in the main ED. In one study, the prevalence of a fast-track process decreased wait times by 51 minutes, length of stay by 28 minutes, and LWBS rates by 4 percent without a change in mortality and revisit rates (Sanchez, 2006). Facility-developed fast-track processes were seen in a little more than 50 percent of VAMC sites visited[198] and, consistent with evidence,

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[191] Choice Act interview with Kaiser (2015)

[192] EDIS FY14 (admitted ED LOS)

[193] Site visit ED throughput workshop (Boston VAMC)

[194] Inappropriate visits described as patients who would be better seen in a lower setting of care (e.g., clinic or primary care)

[195] EDIS acuity analysis FY14 (109 VAMCs, 3 were excluded due to data quality)

[196] Emergency Severity Index is a five-level ED triage algorithm that provides clinically relevant stratification of patients into five groups from least to most urgent based on patient acuity and resource needs.

[197] Site visit ED throughput workshop (N=21 sites)

[198] Site visit ED shadowing sessions (N=21 sites)

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were cited as being successful in segmenting and caring for low-acuity ED visits and minimizing the disruption to inpatient access[199] (Sanchez, 2006).

Boston VAMC and Lexington VAMC have each implemented traditional fast track process in which dedicated providers see low acuity patients in a designated area of the ED.[200] Both facilities have shown considerable success from segmenting patients by acuity and discharging patients directly from the fast-track area. Boston VAMC channels more than 30 percent of its patients triaged through its fast track process (Institute for Healthcare Improvement, 2014) and scores in the top quartile of VAMCs in ED LOS, and Lexington VAMC scores in the top of quartile of facilities in door to doctor time.[201] Palo Alto has taken a different approach to treating low acuity patients. ED leadership recognized the value in segmenting patients by acuity, but understood that they did not have the space nor the resources to designate a "fast track" area in the ED and administer diagnostic testing (e.g., imaging and lab) in the ED for those patients. Instead, the ED has coordinated with on-site outpatient clinics to share diagnostic services through a "fast pass" process, as detailed in Table 6-2. As a result, Palo Alto has seen a 20 percent decrease in ED LOS for Medical admissions since 2012.[202]

Table 6-2. VAMC Case Study: Fast-Track Options

Palo Alto VAMC Alternative Fast Track
Context Palo Alto VAMC set the following patient flow goals for the ED[203] - Door to triage: 10 minutes - Door to doctor: 20 minutes - Decision to admit to patient placement in an inpatient bed: 1.5 hours **Approach** To achieve these goals, VA has instituted a "fast pass" system to expedite care for lower acuity patients; the system has the following components: - Low acuity patients are given a map and directed to the on-site outpatient clinic for diagnostic testing[204]

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[199] Site visit ED throughput workshops and shadowing sessions (N=21 sites)

[200] Site visit ED throughput workshops (N=21 sites)

[201] EDIS FY14 (N=109 facilities, 3 excluded due to data quality issues)

[202] Palo Alto Bed Control data (EDIS FY12 to FY15)

[203] Site visit ED throughput workshop

[204] Site visit ED throughput workshop (Palo Alto)

Palo Alto VAMC Alternative Fast Track
▪ Outpatient diagnostics maintain two lines, one to see the patients from the ED and one for traditional appointments; the ED patients have priority[205]
▪ Patients are tracked through EDIS such that their ED nurses know where they are and can identify any delays care[206]
Impact
▪ Since implementing this "fast process" in conjunction with other process improvement initiative the VAMC has been able to meet its throughput objectives 80 percent of the time[207]
▪ Front line ED staff commented that the fast track process not only "creates ED real estate [for higher acuity patients], but it is also popular among patients, as evident by our ED [Press Ganey] patient satisfaction scores[208]"

Varied implementation of flow management processes and roles to expedite admission and bed placement: Inpatient bed availability was cited as a challenge across visited VAMCs; 71 percent cited lack of bed availability as a primary source of ED bottlenecks.[209] While clinically inappropriate admissions and challenges with discharge contribute to bed availability issues, as detailed in Finding 6.2.1 and Section 7 respectively, inefficiencies in bed management further delay bed assignment limiting access for new ED and surgical admissions. Inefficiencies in bed management were associated with three factors: (a) inconsistent bed management organizational structure across VAMCs; (b) bed assignment order delays; (c) variable use of BMS.

(a) Inconsistent bed management organizational structure: There is considerable variability across VAMCs in their approach to bed management and flow. Sixty-one percent of VAMCs visited cited their bed coordinators as a strength in managing patient flow,[210] but stressed that most coordinators are only staffed during the day contributing to evening admission delays. A few facilities have begun to implement flow teams to support bed management and expedite admissions following bed turnover, but processes are variable. Boston VAMC, for example, has implemented an inpatient flow coordination center that manages all transfers, scheduled admissions, bed management, flow coordination, and collaborative care (for example, UM and discharge planning). Additionally, the coordination center engages a flow committee that includes an interdisciplinary

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[205] Site visit ED throughput workshop (Palo Alto)

[206] Site visit ED throughput workshop (Palo Alto)

[207] Site visit ED throughput workshop (Palo Alto)

[208] Site visit ED throughput workshop (Palo Alto)

[209] Site visit ED throughput workshops (N=21 sites)

[210] Site visit ED throughput workshop (N=21 sites)

team of nurses, bed managers, physicians, and leadership to drive performance improvement projects. Previous projects have included a review of the admission process, ED physicians are now responsible for the admit decisions, and an analysis of observation utilization.[211] Complementing its inpatient flow team, Boston also started an ED flow group, in 2006, that meets weekly to discuss open issues related to ED throughput from the week before. The ED flow group includes all ED staff (e.g., nurses, physicians, housekeepers, clerks) and each participant is responsible for leading new performance improvement pilots.[212] The VAMC highlights its flow team as one reason it has been able to maintain ED LOS under the VHA goal of 4 hours for the past 2 years.[213]

(b) Bed assignment order delays: Across VAMCs, considerable delays often result from waiting to identify and assign patient beds until after the admission orders are written. As was depicted in **Figure 6-6**, ED physicians are often responsible for the initial admit decision, but bed assignment does not begin until after the hospitalist or resident (in a teaching facility) writes the admission order. While this process should incorporate checks and balances, especially for residents, executing these processes sequentially rather than in parallel, delays bed assignment and ED LOS.[214] One academic medical center streamlined its bed assignment and flow management processes through its active bed management program. Under this program physicians are designated as "triage hospitalists" and responsible for both admission decisions as well as bed management and flow. This has enabled admission and bed assignment decisions to happen almost simultaneously, and led to a 98 minute decrease in ED LOS (Howell, 2008).

Fargo VAMC has expedited the bed assignment process through a collaboration between the ED physicians and hospitalists. Once the ED physician makes the decision to admit, the bed coordinator is paged and bed assignment is initiated. Simultaneously, the ED physician calls the hospitalist to discuss the patient and admission orders. The hospitalist writes subsequent orders while the bed management team is identifying available placement.[215] This process has helped Fargo VAMC maintain an ED LOS for admitted patients of 204 minutes, which is well under the VHA goal of 240 minutes.[216] While orders are required to physically move a patient to an inpatient bed, no VHA directive to date precludes the upfront identification and assignment of a bed.[217]

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[211] Interview with the Nurse Executive at Boston VAMC

[212] Site visit ED throughput workshop (Boston VAMC)

[213] EDIS FY13 and FY14

[214] Site visit ED throughput workshop (N=21 sites)

[215] Site visit ED throughput workshop (N=21 sites)

[216] EDIS FY14

[217] VHACO SME interview

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Figure 6-6. Ineffective Coordination Congests Flow and Limits Access
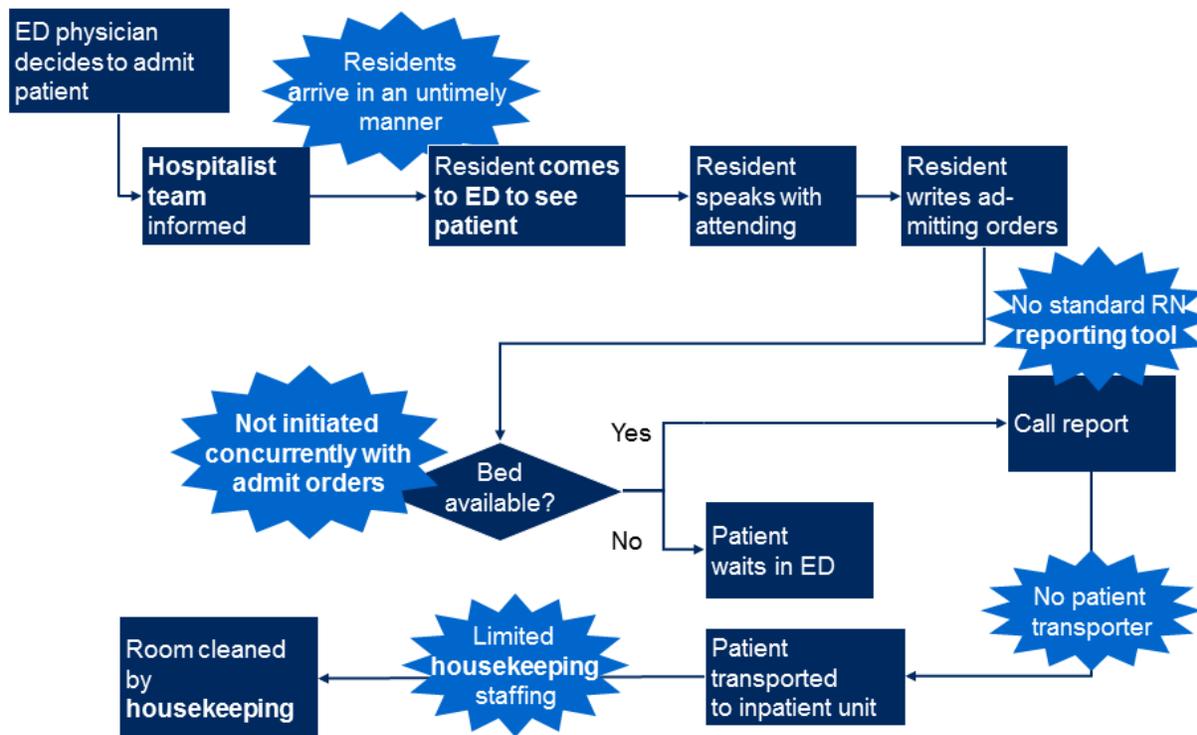
(c) **Variable use of BMS:** BMS, VHA's bed management tool, provides patient flow and tracking capabilities on par with private facilities (e.g., it offers a real-time view of patient movements within the inpatient continuum of care). However, its potential is limited by user acceptance, inadequate training, and a lack of integration with tools (e.g., EDIS). The challenge is that BMS is only effective when staff members make manual, real-time updates to reflect patient movements. Staff cite that these updates are often difficult to manage along with their patient care responsibilities.[218] One facility commented that the "[bed board] is used exclusively by visitors and paints an inaccurate view of bed assignments.[219]" The result of BMS's perceived ineffectiveness among some facilities is varied utilization of the tool across the system – 46 percent of workshop participants cited BMS as a strength in facilitating bed management and 33 percent cited the tool as a challenge.[220]

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[218] Site visit ED, ICU, Med/Surg Floor-shadowing sessions (n=21 facilities)

[219] Site visit ED shadowing session

[220] Site visit ED throughput workshop (N=21 sites)

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In contrast, a few facilities recognize the value of BMS and prioritize real-time updates stating, "We live and die by our bed board"[221] and "BMS' ability to queue beds has considerably improved our bed turnaround; the tool has also allowed us to better forecast bed needs."[222] Literature supports this view, stating that bed management tools, when implemented as part of a successful process improvement initiative, have shown to have a 55 percent improvement in overall bed turnaround time over a 3-year period, including a 29 percent improvement in housekeeping turnaround and a 42 percent improvement in patient transportation (Tortorella, 2013).

6.2.3.2 Limited Cross-facility Communication and Sharing of Best Practices

Despite the number of best practices implemented at individual facilities, there is little support at the VISN and national levels to facilitate cross-facility communication and implementation of proven best practices at scale.[223] In speaking with individual facilities, most are unaware of the initiatives employed at other EDs to manage throughput and flow.[224] This extends to triage, diagnostics, and bed management, as well as data management and performance improvement. The Department of Emergency Medicine plans to promote best practice adoption, and has initiated an emergency medicine mail group that sends daily emails with the goal of connecting individual VAMC EDs, but the department has yet to reach its full potential.[225] Some facilities, especially at the VISN level, share best practices through local contacts, but the perceived impression among more than 25 percent of the VAMC ED leaders we interviewed is that VISN and VHACO provide little tactical support in operationalizing best practices and implementing them system-wide.[226]

6.3   Recommendations

VHA inpatient access practices have multiple stakeholders: Congress and the executive branch, VACO, VHACO, VISN leadership, and VAMC management and staff. Encouraging innovation and addressing challenges in inpatient access will require collaboration between all of these groups, and a commitment to making difficult, long-term change. Different recommendations should be owned by different groups (e.g., recommendation requiring changes to VACO policy versus local policy) – however, support for change from all stakeholders is critical to effective implementation.

Our recommendations, building on existing strengths and addressing existing challenges in inpatient access to care, can be categorized into three main themes.

6.3.1 Develop an accurate end-to-end picture of patient demand and VAMC capacity

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[221] Site visit ED shadowing session (N=21 sites)

[222] Site visit ED throughput workshop (N=21 sites)

[223] Site visit ED throughput assessment workshop and ED shadowing (N=21 sites)

[224] Site visit ED throughput assessment workshop and ED shadowing (N=21 sites)

[225] Site visit ED throughput assessment workshop and ED shadowing (N=21 sites)

[226] Site visit ED throughput assessment workshop and ED shadowing (N=21 site)

6.3.2 Decrease the number of clinically inappropriate admissions due to limited access to sub-acute care

6.3.3 Expand use of evidence-based processes for managing patient flow, including clear role assignments and individual performance management

These themes are consistent with practices suggested by the academic literature, professional associations, and high-performing hospitals within VHA and outside the system, as well as solutions proposed by front-line VHA staff – further details are included in "summary of supporting evidence" sections in each sub-recommendation (see Appendix **C.4** for additional detail on our methodology for gathering this data). To help VHA implement our recommendations, we have also suggested next steps in the "potential near-term actions" sections of the sub-recommendations. Note, because different VAMCs may have already adopted some recommended practices or experience unique barriers, these suggestions should be tailored the individual circumstances of each VAMC. Each recommendation is supported by several sub-recommendations, which map to the "organization, workflow processes, and tools" domains specified in the Choice Act. For a detailed map of how the sub-recommendations relate to these domains, see **Table C-2** in **Appendix C.3**.

Several recommendations overlap with other assessment areas. Where this occurs, we have referenced the relevant assessment area, where additional detail can be found.

6.3.1 Develop an Accurate End-to-end Picture of Patient Demand and VAMC Capacity

Data gaps limit VHA's understanding of patient demand patterns and available VAMC capacity (e.g., bed and staffing). To address this gap, VHA should first simplify the process and required approvals by which beds are classified as operational and then standardize the definition and tracking of patient demand patterns. Following development of clear metrics and aggregation of accurate data, VHA should consider building an analytical model to predict future patient demand.

6.3.1.1 Simplify the Process and Required Approvals by Which Beds are Classified as Operational or Unavailable

We observed through national data analysis, site visits, and interviews with VHACO leadership that VHA has an inaccurate view of current bed capacity. VHA should promote the accurate reporting of bed closures by simplifying the process by which VAMCs report short-term closures. This in turn should provide VHA with a more accurate view of available inpatient capacity (e.g., operational beds).

Summary supporting evidence:

- See Section 6.2.1.1 for more detail on findings.

- More than 40 percent of facilities reported closing beds without submitting a formal request through the "bed letter" process.[227]
- Senior Program Office leadership described the bed closure process as an "archaic way of managing and reporting bed capacity; there are often significant discrepancies between the number of authorized beds in the National Bed Database and the actual number of beds in operation at the VAMCs."[228]

Potential near-term actions:

- *VACO/VHACO:* Reduce the approval requirements for temporary bed closures to encourage facilities to accurately report bed closures.
- *VACO/VHACO/VISN:* Support individual VAMCs' decisions to close beds due to patient safety risks from insufficient staffing.
- *VAMC:* Drive staffing and resource discussions based on an accurate picture of operating capacity.
- *VHACO:* Configure BMS so that it reports the aggregate number of operational beds at the facility, but still allows VAMCs to keep all beds "open" in the tool so they can rotate bed assignments and expedite bed turnover.
- *VHACO/VISN/VAMC:* Build awareness at the facility level on the importance of accurate bed reporting and its relevance to resource planning.

6.3.1.2 Develop a Prioritized Set of Standardized Metrics to Understand Current Demand at the VAMC, VISN, and VHACO Levels and Implement an Automated Process to Collect and Aggregate this Data Across the System

We observed considerable variability in patient demand tracking, including unmet demand, across VAMCs. Literature supports that a comprehensive understanding of demand and capacity data is key to inpatient access and providing timely care (Welch, 2011). For example, appropriate tracking of the number of diversions (e.g., patients that VHA cannot care for in-house due to capacity limitations) is critical to preventing future access issues. Standardizing the definition and automating the tracking of current demand should provide VHA with a more accurate picture of regional and national demand so that it can better forecast its capacity needs.

Supporting summary evidence findings:

- See Section 6.2.1.2 for more detail on findings.
- More than 30 percent of VAMCs visited recommended building a team to track performance metrics including demand and patient flow.[229]

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[227] Choice Act data call (N=55 sites)

[228] VHACO SME interview

[229] Site visit ED throughput workshops (N=21 sites)

- More than 40 percent of percent VAMCs visited recommend integrating patient flow tools (e.g., BMS, EDIS, VistA), in line with commercial EHR tools (e.g., Epic, Cerner, and Meditech) to allow better end-to-end reporting on patient flow[230] (as an indicator of demand and capacity).
- Less than 10 percent of VAMC data call respondents reported on the number of patients that were diverted or transferred from their facility over the past year.[231]

Potential near-term actions:

- *VACO:* Develop a standardized cross-cutting, balanced performance management scorecard with a range of domains of performance, including operational metrics related to patient demand and hospital capacity; refer to Assessment L for additional detail on this action.
- VHACO: Convene an interdisciplinary committee to identify a prioritized subset of key patient flow metrics (e.g., diversions, ED LOS, LWBS, bed turnover time) and data sources (e.g., patient intake file, EDIS, NUMI, BMS, and CPRS) to be measured across VAMCs.
- VHACO: Establish a daily report that pulls the patient flow data elements, identified by the VHACO Committee, required to understand the full picture of ED and inpatient surgical demand as well as available capacity, including daily and seasonable variations in census.
- *VHACO:* Consider integrating EDIS and BMS tools with VistA/CPRS to provide a common tool to track patient flow at the facility, VISN, and national levels; refer to Assessment H for additional details on information systems.
- *VACO/VHACO:* Develop the process and capabilities to automatically track diversion and transfer data and pull it into a standardized report that includes the number of patients diverted per day and hour as well as the spend on non-VA care for diverted patients.
- *VHACO:* Consider building or enhancing the functionality of existing tools to predict future patient demand based on historical data.
- *VAMC:* Build a team responsible for tracking performance metrics and disseminating that information to front-line staff, at least weekly, to encourage accountability for patient flow.
- *VAMC:* Outline a diversion/transfer policy in collaboration with regional public and private hospitals that details when patients may be diverted and the process to identify open beds in the community.
- *VHACO:* Develop a standardized cross-cutting, balanced performance management scorecard with a range of domains of performance, including operational metrics related to patient demand and hospital capacity; refer to Assessment L for additional detail on this action.

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[230] Site visit ED throughput workshops (N=21 sites)

[231] Choice Act data call (n=55 sites)

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6.3.2 Decrease the Number of Clinically Inappropriate Admissions Due to Limited Access to Sub-acute Care

Given that the NUMI reports that more than 30,000 VAMC admissions would be better served in an alternative setting of care,[232] decreasing these admissions that fail to meet NUMI criteria would require both an investment in sub-acute care (e.g., home health, detox clinics, short-term rehabilitation) at the national VHA level and a dedication, at the facility level, to allocate appropriate patient support resources (e.g., case managers and social workers) in the ED and surgical departments. These patient support resources are critical in helping physicians identify alternative settings of care and helping patients transition to them from an ED visit or surgical procedure. Additionally, patients should be educated on the appropriate utilization of VHA health care including the outpatient care resources available to them (e.g., patient advocate care teams, complementary and alternative medicine) as well as the safety risks associated with a clinically inappropriate hospital stay (e.g., hospital-acquired infections). Once the infrastructure is in place to support these patients outside the acute setting, VAMCs should begin to hold physicians accountable for appropriateness of admissions (e.g., include UM in physician performance appraisals). It is critical to highlight, however, that physicians cannot be held to these performance standards until appropriate community support is in place. To achieve this reduction in appropriate visits, we suggest the following changes:

6.3.2.1 Ensure appropriate access to near-team (e.g., same day, same week) primary and urgent care

6.3.2.2 Facilitate access to sub-acute resources for Veterans who are not appropriate to go home without support following a procedure or ED visit, but do not require acute hospital care

6.3.2.3 Staff case managers and social workers consistently across VAMC EDs to connect patients with appropriate sub-acute resources and help them navigate transitions following a procedure or ED visit

6.3.2.4 Build provider awareness around the importance and nuances of UM admission criteria and then hold physicians to admissions standards

6.3.2.5 Educate Veterans and their families on the resources available in the VA health care system as well as when it is appropriate to use different settings of care

6.3.2.1 Ensure Appropriate Access to Near-team (e.g., same day, same week) Primary and Urgent Care

Our assessment identified that limited access to immediate (e.g., same day or same week) primary and urgent care clinic appointments is contributing to ED demand. We recommend

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[232] NUMI admissions appropriateness FY14

promoting access to primary and urgent care to decrease low-acuity ED demand and better meet the needs of patients who require immediate non-acute care.

Summary supporting evidence:

- See Section 6.2.2.2 for more detail on findings.

- Sixty percent of VAMCs visited limited access to outpatient care as a major challenge to inpatient access.[233]

- Forty-three percent of VAMCs visited stated that increasing access to clinics and primary care (e.g., extended hours and number of short-term/same-day appointments) would improve ED throughput by decreasing the number of ED visits that are not clinically appropriate.[234]

- Boston VAMC demonstrated success by allocating a set number of same-day primary care appointments for ED patients; its one percent missed opportunity rates are well under VHA's goal of under three percent.[235,236]

Potential near-term actions:

- *VHACO/VISN:* Conduct a national assessment of current VHA resources (e.g., access to primary care and urgent care services) based on present and future low-acuity patient demand.

- *VACO/VHACO:* Develop baseline standards for regional immediate, low-acuity care options based on current and projected regional patient demographics (e.g., walk-in clinic hours to support low-acuity ED demand); refer to Assessments A and B for additional detail on Veteran demographics.

- *VHACO/VISN:* Optimize clinic scheduling and productivity to increase the number of available appointments; refer to Assessment E for additional detail on improving clinic capacity through more efficient scheduling and utilization of appointments.

- *VACO:* Evaluate the impact of creating and/or expanding VHA facilities to meet demand gaps for immediate appointments.

6.3.2.2 Facilitate Access to Sub-Acute Resources for Veterans who are not Appropriate to go Home Without Support Following a Procedure or ED Visit, but do not Require Acute Hospital Care

Our assessment revealed insufficient access to sub-acute facilities (e.g., short-term rehabilitation, observation/domiciliary departments, detox clinics, homeless housing, mental health support, home health care). Literature supports the connection between the availability of sub-acute care and a reduction in inappropriate hospital utilization (Sadowski, 2009). Access

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[233] Site visit ED throughput workshops (N=21 sites)

[234] Ibid.

[235] Missed opportunities include LWBS, left against medical advice (AMA), and elopement

[236] Site visit interview with Boston VAMC's ED nurse manager

to sub-acute facilities should be improved through increased VHA-operated facilities and/or increased contracts with private facilities.

Summary supporting evidence:

- See Section 6.2.2.3 for more detail on findings.
- Seventy percent of VAMCs visited attributed the high number of clinically inappropriate admissions to a lack of sub-acute resources, including observation and domiciliary units, homeless housing, and detox centers.[237]
- Sixty percent of VAMCs visited suggested increasing the capacity of VHA-operated sub-acute facilities.[238]
- Fifty percent of VAMCs visited suggested increasing the ability to contract with sub-acute facilities.[239]

Refer to Assessments B and D reports for more details regarding this recommendation.

Potential near-term actions:

- *VACO/VHACO/VISN/VAMC:* Conduct a national, market-by-market assessment of current sub-acute resources based on present and future patient demand; refer to Assessments B and D for additional details regarding current health care capabilities and future patient demographics.
- *VACO/VHACO:* Conduct a review of admission criteria for domiciliary and homeless housing and ensure a streamlined process is in place to facilitate direct admissions from VAMCs.
- *VHACO:* Develop baseline standards for regional sub-acute options based on current and projected regional patient demographics (e.g., review the number of detox admissions over the past year and the number of substance abuse patients within a regional VHA patient population and then determine the number of detox clinic beds necessary to support those patients).
- *VACO/VHACO/VAMC:* Evaluate the impact of creating and/or expanding VHA sub-acute facilities to meet demand gaps with private facility contracts, as available (e.g., compare the patient safety risks and regional financial cost of inpatient admissions for detox patients who do not have a medical need, with the fully loaded cost of contracting and/or building a detox clinic).

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[237] Site visit ED throughput workshops (N=21 sites)

[238] Site visit workshop on discharge planning (n=20 facilities); front-line staff proposed a variety of different solutions to decrease inpatient length of stay through better sub-acute placement; refer to Section 6; the same recommendations can be applied to improve inpatient access

[239] Site visit workshop on discharge planning (n=20 facilities); front-line staff proposed a variety of different solutions to decrease inpatient length of stay through better sub-acute placement; refer to Section 6; the same recommendations can be applied to improve inpatient access

6.3.2.3 Staff Case Managers and Social Workers Consistently Across VAMC EDs

We observed inadequate support in the ED and surgical suites to help patients and physicians navigate admission alternatives. Evidence shows a correlation between case management in the ED and decreased ED visits (Kumar, 2013). We suggest staffing case managers and/or social workers to connect patients with appropriate sub-acute resources and help them navigate transitions following a procedure or ED visit.

Summary supporting evidence:

- See Section 6.2.2.3 for more detail on findings.
- Forty-four percent of sites surveyed staff case management/social work in the ED[240], but 67 percent of case managers interviewed during site visits stated that current case managers/social workers are understaffed.[241]
- Thirty-three percent of data call respondents stated that additional case management and social work in the ED would improve access by decreasing clinically inappropriate admissions.[242]

Potential near-term actions:

- *VACO/VHACO:* Convene an interdisciplinary team to establish guidelines on staffing case managers/social workers to ED volume.
  - *VACO/VHACO:* Consider evidence-based literature, VHA patient populations, case manager/social worker salaries, costs of clinically inappropriate admissions, and availability of sub-acute resources, as outlined in Section 6.3.1.2, when developing guidelines.
  - *VAMC:* Consider assigning a social worker or case management team to manage the relationship with new sub-acute facilities.
- *VACO/VHACO:* Assess facilities need for funding to support staffing to these guidelines (e.g., private contracts or VHA facilities) as detailed in Section 6.3.2.2.
- *VHACO:* Establish a standardized process for identifying target patients (e.g., nurse checklist, criteria at registration, physician consult).
- *VAMC:* Design an escalation process for case management and social work to engage leadership on complex cases.
- *VAMC:* Outline a process (e.g., checklist) for identifying the appropriate setting of care based on physician diagnosis and available resources.
- *VAMC:* Hold brief interdisciplinary meetings on a regular cadence to promote collaboration among UM and ED and floor nurses, physicians, and case management/social work to discuss challenging cases and improvement opportunities.

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[240] Choice Act survey (N=127 respondents)

[241] Site visit ED throughput workshop (N=21 sites)

[242] Site visit ED throughput workshop (N=21 sites)

6.3.2.4 Build Provider Awareness Around the Importance and Nuances of UM Admission Criteria and Then Hold Physicians to Admissions Standards, Once Appropriate Sub-acute Resources are in Place

Our assessment revealed that there is minimal acceptance of and accountability for UM admission standards. Evidence supports that physician adherence to performance improvement initiatives (e.g., UM) is best achieved when the system promotes individual ownership and accountability (Patel, 2014). As a result, we recommend engaging physicians to establish UM performance standards and then holding physicians to those standards (e.g., include UM's admission appropriateness metrics in physicians' performance appraisals), once appropriate sub-acute resources are in place.

Summary supporting evidence:

- See Section 6.2.2.4 for more detail on findings.
- Twenty to twenty five percent of admissions fail to meet InterQual criteria indicating an opportunity for better physician adherence to admission criteria (NUMI, 2014).
- None of the VAMCs visited included UM admission appropriateness metrics in physician's performance appraisals.[243]

Potential near-term actions:

- *VHACO:* Review McKesson InterQual criteria with an interdisciplinary team of ED physicians, hospitalists, and UM to understand the strengths of the NUMI tool and to establish accepted workarounds to address tool limitations.
- *VHACO/VAMC:* Gain buy-in by engaging physicians in the development of any performance management standards related to NUMI admission criteria.
- *VAMC:* Staff UM nurses in the ED to collaborate with physicians on admission appropriateness.
- *VHACO/VAMC:* Hold physicians accountable to those agreed-upon performance standards (e.g., through performance pay, promotions), but create a system of checks and balances so that physicians are not penalized for admitting a patient when there is not a safe, alternate location of care, as outlined in Section 6.3.1.2. The objective of this recommendation is to promote Veteran care in the most appropriate location, not to limit care when it fails to adhere to predefined guidelines that do not encompass the specifics of a complex case.
- *VAMC:* Design an escalation process for case management and social work to engage leadership on complex cases.

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[243] Site visit ED throughput workshops (N = 21 sites)

6.3.2.5 Educate Veterans and Their Families on the Resources Available at the VA Health Care System as well as When it is Appropriate to use Different Settings of Care

While we observed training focused on complementary alternative medicine and wellness (e.g., myHealthy vet), we did not observe education for patients on appropriate utilization, as supported by literature. As a result, VHA should use patient education to drive more appropriate utilization of acute and sub-acute care.

Summary supporting evidence:

- See Section 8.2.1 for more detail on findings.

- In one study, patient education led to a considerable decrease in hospital utilization (40 percent reduction in ED visits and 33 percent reduction in admissions) for an inner city Medicaid population; patients were taught in their home and over the telephone how to control their illness and when to seek attention from primary care versus the ED (Fedder, 2003).

- Many patient education campaigns have effectively promoted appropriate use of healthcare services (e.g., they have decreased inappropriate utilization of antibiotics) through a targeted, long-term patient education campaign (Huttner, 2010).

Potential near-term actions:

- *VACO/VHACO:* Develop a national campaign about health care utilization (e.g., when to go to primary care, urgent care, the risks associated with a hospitalization).

- *VHACO/VAMC:* Staff VHA educators (e.g., clinicians, social workers) to provide training to Veterans through a variety of different channels (e.g., VA orientation following enrollment, VAMC lunch and learns, during discharge planning).

- *VACO/VHACO/VISN:* Engage Veteran Service Organizations to support the training (e.g., answer Veteran questions) and distribute educational materials.

6.3.3 Expand use of Evidence-based Processes for Managing Patient Flow, Including Clear Role Assignments and Individual Performance Management

We observed variability across VAMCs in the utilization of evidence-based best practices, as detailed in Section 6.2.3, indicating an opportunity to improve system-wide adoption. We suggest four evidence-based changes to improve system-wide patient care and flow:

6.3.3.1 Expedite the initiation of clinical protocols in triage

6.3.3.2 Segment ED diagnostics and care through fast track processes to treat non-urgent patients in a dedicated area by dedicated staff

6.3.3.3 Standardize the inpatient flow process (e.g., admission through bed placement) including clear role assignments and individual accountability for patient flow

6.3.3.4 Build the infrastructure at the VHACO level to promote cross-facility sharing of patient flow best practices

6.3.3.1 Expedite the Initiation of Clinical Protocols in Triage

Our assessment identified inconsistent utilization of clinical protocols in triage. Evidence supports expediting care in triage by staffing a provider in triage or utilizing RN standing to initiate clinical protocols (Day, 2013; Retezar, 2011).

Summary supporting evidence:

- See Section 6.2.3.1 for more detail on findings.
- One study demonstrated that diagnostic testing in triage was associated with a 14 percent reduction in mean treatment time, regardless of chief complaint (Retezar, 2011).
- St. Louis VAMC saw a 17 percent decrease in its mean ED LOS after staffing a provider in triage (Day, 2013).
- Boston VAMC attributes its patient flow performance[244] to its standing RN orders.[245]
- VAMC site visit participants (80 percent of sites visited) staff or recommend staffing a provider in triage or instituting RN standing orders.[246]

Potential near-term actions (following implementation of Section 6.3.2):

- *VHACO:* Convene a national interdisciplinary team or leverage an existing group (e.g., a flow collaborative, emergency medicine group) including physicians, advanced practitioners, and nurses to establish evidence-based clinical protocols.
- *VHACO/VAMC:* Utilize RN standing order sets in low-volume facilities and staff a provider (or advanced practitioner) in triage for large volume facilities.
- *VHACO/VAMC:* Train ED clinicians on all clinical protocols and hold individuals accountable for consistent implementation of protocols (e.g., enforce the use of clinical protocols by including as an element of ED clinicians performance appraisals).

6.3.3.2 Segment ED Diagnostics and Care Through Fast-track Processes to Treat Non-Urgent Patients in a Dedicated Area by Dedicated Staff

We observed varied implementation of ED fast-track processes for lower-acuity patients. Evidence supports the use of a fast-track process to treat non-urgent patients, in a dedicated area to prevent congestion of the main ED for low-acuity patients.

Summary supporting evidence:

- See Section 6.2.3.1 for more detail on findings.

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[244] Boston VAMC scores in the top quartile of VAMCs for ED LOS (e.g., Boston VAMC's ED LOS is shorter than 75 percent of VAMCs) EDIS FY14.

[245] Site visit interview with Boston VAMC ED nurse manager

[246] Site visit ED throughput workshops (N=21 sites)

- Palo Alto has seen a 20 percent decrease in its ED LOS for medical admissions since 2012 when it initiated its "fast-pass," fast-track process.[247]
- Literature shows that the presence of a fast-track process in the ED decreases ED wait times, ED LOS, and LWBS rates without changes in mortality or revisit rates (Sanchez, 2006).

Potential near-term actions (following implementation of Section 6.3.2):

- *VAMC:* Review ED layout, provider staffing, and demand picture to determine whether there are the resources, space, and demand to support sectioning off part of the ED for fast-track, low-acuity patients.
- *VAMC:* Explore alternative fast-track solutions, if constrained by space and/or resources, including a conveyance model where patients rotate through diagnostic stations so that only a few ED rooms are required.

6.3.3.3 Standardize the Inpatient Flow Process (e.g., admission through bed placement) Including Clear Role Assignments and Individual Accountability for Patient Flow

Our assessment revealed inconsistency in the implementation of flow management processes and roles to expedite admission and bed placement. In line with the evidence, we recommend assigning individuals to manage patient flow (e.g., bed manager and charge nurses), standardizing the admission process including hand-offs between ED and inpatient clinicians (e.g., physicians and nurses), and enforcing the use of BMS and other patient flow tools.

Summary supporting evidence:

- See Section 6.2.3.1 for more detail on findings.
- More than 50 percent of VAMCS visited[248] attributed patient flow challenges to delays in physician orders, availability of floor nurses to take reports, and limited capacity for charge nurses to manage flow in addition to their direct patient care responsibilities.
- More than 40 percent of VAMCs visited[249] recommended staffing a charge nurse who is responsible for managing flow (e.g., they do not take a full patient load) (Thomas, 2005); recommended by 43 percent of VAMCs visited.
- More than 55 percent of VAMCs visited[250] recommended standardizing and streamlining the patient handoff process between ED and inpatient nurses.

Potential near-term actions:

- *VHACO/VAMC:* Update ED and IP charge nurse's responsibilities so that they do not take a patient load, but rather support the staff nurses and manage patient flow.

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[247] Palo Alto data bed control data (FY12, FY13, FY14)

[248] Site visit ED throughput workshops (N=21 sites)

[249] Site visit ED throughput workshops (N=21 sites)

[250] Site visit ED throughput workshops (N=21 sites)

- *VAMC:* Establish a bed management flow team including nurse leadership from each department as well as bed management, and hold daily meetings on bed availability, potential discharges, and upcoming admissions.

- *VAMC:* Convene an interdisciplinary team of ED physicians, hospitalists, charge nurses, and flow coordinators to map out the admission process.

- *VAMC:* Engage ED and floor nurses to establish a standardized process for reporting on admitted patients.

- *VHACO/VAMC:* Increase awareness across departments about BMS, so that individuals understand the its capabilities and their ability to portray an accurate view of inpatient capacity, as detailed in the recommendations in Section 6.3.1; once user acceptance has been achieved, distribute responsibility for updating the tool and enforce accuracy by incorporating BMS and EDIS reports in daily flow meetings.

6.3.3.4 Build the Infrastructure at the VHACO Level to Promote Cross-facility Sharing of Patient Flow Best Practices

While the Department of Emergency Medicine has built the capabilities to measure ED throughput through EDIS, we observed little cross-facility communication and sharing of best practices. Building the infrastructure at the national level to support better collaboration across VAMCs should improve performance variability across the system (Welch, 2011).

Summary supporting evidence:

- See Section 6.2.3.2 for more detail on findings.

- Considerable variability across VAMCs in performance metrics (e.g., 72 percent of VAMCs have longer door-to-doctor times as compared to market averages[251]) indicates a clear opportunity to establish a system-wide approach to scaling-up of successfully implemented, facility-led patient flow initiatives.

- The Cleveland Clinic, e.g., holds an innovation summit each year to discuss best practices from academic literature as well as practical, front-line-submitted solutions so that lower-performing facilities may learn from higher-performing facilities (Cleveland Clinic, 2010).

Potential near-term actions:

- *VHACO:* Establish community of practice calls and workshops, at the national level, for ED and patient flow leadership at the facilities to discuss challenges and share solutions.

- *VHACO:* Convene an interdisciplinary team, or leverage existing teams, to review and evaluate patient flow best practices, submitted by VAMCs and identified in the literature, to establish a system-wide database of proven best practice models.

- *VHACO:* Provide field implementation teams to support VAMCs with the implementation of proven best practices.

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[251] EDIS FY14 and CMS Hospital Compare (ED) FY14

6.3.4 Potential Opportunity

One of the key opportunities to be captured by improving inpatient access, through the recommendations described above, is driving additional capacity for patients who are diverted to other facilities or leave the ED without being seen. Not only do diversions limit patient access and contribute to patient safety risks and decreased satisfaction, but they also have significant financial impact. In most instances, VHA is responsible for care delivered at private facilities for diverted, service-connected Veterans. Given that 20 to 25 percent of admissions fail to meet VHA's UM admission criteria, compared with 10 percent to 15 percent in the private sector, there is an opportunity to free capacity by better adhering to criteria (Sheehy, 2013; Stranges, 2010). Furthermore, improved staffing allocations and optimized patient flow practices should also improve efficiency and potentially free capacity.

In addition to freeing capacity, admissions that are not clinically appropriate have broader financial impact. On average, the costs of an inpatient stay far exceeds the cost of sub-acute care. As a result, it is much more cost-effective to treat Veterans at the correct level of care rather than admit them to an inpatient bed. Most importantly, however, clinically inappropriate admissions increase a patient's risk for hospital-acquired infections and other safety risks (Magill, 2014). As one nurse stated, "Hospitals are not a safe place, but keeping patients in the hospital has been our culture for a long time"[252] (Magill, 2014). Treating patients in the correct setting of care is not only fiscally sensible, but it is also in Veterans' best interest.

As detailed in findings, we do not have comprehensive and accurate data on current capacity (e.g., number of operational beds) and diversions (both number and financial impact) to appropriately size the opportunity of freeing capacity through better adherence to admissions criteria. Our assumption is that improving capacity will decrease the number of diversions and spend on non-VA care as well as increase patient satisfaction by driving down wait times for beds and LWBS rates. However, a larger and more accurate data source is required to confirm our hypothesis and appropriately size the opportunity at each facility and across the system.

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[252] Site visit interview (nurse manager)

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7 Effective Length-of-Stay Management and Care Transitions

Part F ("Assessment F"), Section 201 of the Veterans Access, Choice, and Accountability Act of 2014 ("the Choice Act") mandates an assessment of the organization, processes, and tools used to support length-of-stay (LOS) management and effective care transitions. There is significant evidence in academic literature suggesting that improvements in LOS management and care transition processes are associated with a number of positive outcomes, including improved health care quality, decreased hospital complications, reduced readmissions, decreased hospital costs, and improved patient satisfaction (Parry, 2009; Kleinpell, 2008; Coleman, 2006; Bull, 1994). Thus, LOS management and effective care transitions are important not only to promote efficiency and drive potential cost savings, but also to prevent exposing Veterans to avoidable hospital-associated harms when inpatient stays extend longer than clinical conditions warrant (Leape, 2009; IOM, 2001). Since inpatient facilities across VHA admit, care for, and discharge approximately 600,000 Veterans annually,[253] LOS management and effective care transitions are key to VHA's ability to optimally provide care that is patient-centered, high-quality, and cost-efficient.

Based on the language of the Choice Act legislation, the scope of this assessment area includes the organization, workflow processes, and tools in place at VHA facilities that support LOS management and effective care transitions within the acute care and inpatient mental health settings. Given that the legislation specifies a focus on the inpatient setting, our assessment does not cover outpatient or VHA-operated long-term care facilities (e.g., community living centers, domiciliary care).[254] This section (Section 7) of the report does not cover emergency department (ED) operations and workflows, as the ED is not considered to be an inpatient venue of care. However, additional details regarding ED operations and practices are contained within Section 6 of this report, as the ED is a primary point of entry to the inpatient setting and therefore, critical to an assessment of access to inpatient care.

7.1 Summary

7.1.1 Assessment Approach

As described in the Methodology section of this report (Section 2), we collected information in several ways, using a common approach across sub-assessment areas within Assessment F:

- Visits to 21 VAMCs, to conduct:
  - Forty-two interviews with case managers, social workers managers, quality mangers, and utilization management coordinators

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[253] 2014 VHA Support Service Center (VSSC)

[254] This is consistent with CMS's definitions of what constitutes an inpatient stay (CMS, 2014)

- o Twenty[255] assessment workshops with front-line personnel, including physicians, nurses, social workers, case managers, and utilization management nurses (about 125 staff total)
- o Forty-two unit shadowing sessions of intensive care units (ICUs) and medical/surgical acute care units as well as 21 facility tours

- Survey[256] sent to all relevant clinical occupations across all VAMCs (e.g., physicians, case managers, nurses, social workers, allied health professionals), completed by 1,275 respondents[257] across 92 VAMCs[258]. Due to the fact that VHA does not track the setting of work (i.e., inpatient or outpatient) in available human resource data and we did not control the distribution of the survey to the end-user we are unable to calculate the significance of the total response rate, but do not believe it to be a representative sample across any of the roles. Given this, survey data should be viewed as providing anecdotal insights as opposed to a representative data sample.

- Request for local policy documents from all VAMCs ("data call"), returned by 49 (41 percent) VAMCs[259]

- Data collection from national data systems, including LOS data[260] and National Utilization Management Integration (NUMI) data

- Interviews with internal VHA subject-matter experts (SMEs) with knowledge of current national LOS management and care transition programs, policies, and practices

Having collected information to understand VHA's practices with respect to LOS management and promotion of effective care transitions, we then assessed how these practices compared to best practices and industry benchmarks. Best practices and benchmarks, detailed in **Table D-1** of **Appendix D.1,** were identified through several sources, including:

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[255] A discharge planning assessment workshop was not held at one of our sites due to scheduling and patient care conflicts.

[256] As noted in the Methodology section (Section 2), we do not believe that the survey constitutes a representative sample of VHA staff.

[257] Total indicates number of staff from complexity level 1a, 1b, 1c, or 2 VAMCs responding to any survey question related to LOS management and care transitions; number of respondents for each survey question varies due to customization of questions according to clinical occupation.

[258] Only includes VAMCs with complexity level 1a, 1b, 1c, or 2

[259] Based on total 121 VAMCs with complexity level 1a, 1b, 1c, or 2

[260] We analyzed LOS data from two sources as part of this assessment: encounter-level data from the VA Information Resource Center (VIReC) VHA Medical SAS (MedSAS) Inpatient Dataset and data from the VHA Inpatient Evaluation Center (IPEC). Because data contained within the IPEC system truncates any patient lengths-of-stay longer than 35 days, we used the VHA MedSAS Inpatient Dataset for externally benchmarking national VHA LOS outcomes. Prior to analysis of the MedSAS Dataset, we excluded records of patients whose stays included a segment within VHA long-term care and rehabilitation settings (e.g., domiciliary care, blind rehabilitation) to avoid inappropriately inflating VHA LOS performance. To assess for differences in facility-level LOS performance, we used data from VHA's Inpatient Evaluation Center (IPEC).

- Interviews with high-performing private hospital systems (e.g., hospitals with short LOS, adjusted for mix of Diagnosis-Related Group (DRG) admissions, from the 2013 AHA Survey)
- Academic literature (e.g., research supporting interdisciplinary discharge planning as a driver of decreased LOS)
- Surveys conducted by professional organizations (e.g., American Case Management Association (ACMA) survey of case management processes and tools commonly used by private hospitals)

There are several areas in which significant academic research has been conducted to rigorously examine which practices are true drivers of care transition effectiveness and/or improved LOS. Where this is the case, we have attempted to compare VHA's current practices with practices that have been demonstrated effective in the academic literature. In other areas, however, there has been little, if any, academic research to confirm effectiveness of certain organizational features, processes, and tools. Where this is the case, we have compared VHA's practices to what is common across the industry and/or what is reported by high-performing organizations as best practice.

7.1.2 Summary of Findings

Our analysis suggests that for all acute inpatient admissions across VHA, the average DRG-mix-adjusted LOS is about 2.1 days (56 percent) longer than Medicare averages.[261] This difference is based on the industry-standard methodology of comparing LOS for VHA patients with a given DRG to the average Medicare patient with the same DRG. Note that this methodology does not account for Veteran-specific mental health and sociodemographic factors, which are likely to drive an increased burden of co-morbid disease relative to civilian populations and which are not fully accounted for by DRG-mix adjustment alone (Behavioral Health Barometer, 2014; Report of the Department of Defense on Mental Health, 2007).

While patient co-morbidity factors may contribute to increased LOS relative to Medicare patients in the private sector, inter-VAMC variability on LOS outcomes suggests that other factors are also at play. VHA tracks a measure called OMELOS[262] (observed-minus-expected LOS) to adjust for the impact of Veteran co-morbidities on LOS outcomes across the organization. Note that because the "expected" LOS used in the calculation is based on internal VHA LOS averages and a Veteran-only predictive model, this methodology cannot be used for external comparisons. Despite OMELOS being an internal comparator only, the approximate 3.4-day variability (1.7 days shorter than "expected" to 1.7 days longer than "expected"[263]) in

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[261] Based on comparison of average LOS across VHA facilities versus CMS's FY2014 published geometric mean length-of-stay (GMLOS), accounting for the VHA's FY2014 DRG mix

[262] OMELOS is a VHA-specific LOS metric designed to account for inter-facility LOS differences driven by patient complexity: it is calculated by subtracting actual LOS from "expected" LOS as determined by a multivariate regression model of VHA LOS based on several patient-level predictors (e.g., age, diagnosis, co-morbid diagnoses, lab values, source of admission)

[263] VHA IPEC data (FY2014)

acuity-adjusted OMELOS across VAMCs suggests that variability in practices adopted at the facility level and varied availability of supporting resources and services may also be contributing to LOS differences compared with the private sector. This inter-VAMC variability in practices was confirmed by our site visits, as described in greater detail within this report.

Our assessment revealed four main findings with respect to VHA's strengths and challenges in LOS management and effective care transitions (see Section 7.2 for details regarding each finding):

7.2.1 Implementation of national LOS programs and initiatives has failed to achieve organization-wide improvements despite local pockets of best practice adoption. National programs, including the Utilization Management (UM) program and several collaboratives (e.g., Transitions Collaborative, Flow Collaborative), have been launched to address existing challenges with LOS and care transitions. Although several facilities have experienced improvements through participation in these programs, national LOS challenges persist: the difference between VHA LOS and average DRG-adjusted Medicare LOS has increased by five percent since the beginning of FY2012.

7.2.2 Existing post-acute care options (e.g., rehabilitation/skilled nursing facilities) do not always match Veteran needs, delaying discharge. Patient LOS is, on average, about 5.1 days longer for Veterans discharged to post-acute care settings compared with patients discharged elsewhere. Participants in 55 percent of on-site workshops reported challenges with transitioning Veterans into post-acute care, including difficulties arranging for post-acute rehabilitation, securing timely placement in VHA-operated programs, and contracting with community facilities.

7.2.3 Typical VAMC operating models do not promote efficient inpatient care, leading to prolonged LOS. Limited availability of important clinical services (e.g., specialty and allied health consults) on weekends may contribute to the approximately 18 to 32 percent increases in LOS for admissions extending through the weekend.[264] In addition, development and implementation of evidence-based inpatient care pathways have been left to individual facilities, resulting in variable adoption nationally.

7.2.4 Use of discharge planning best practices is inconsistent, decreasing effectiveness and coordination. Nationwide adoption of practices to appropriately manage LOS and promote effective care transitions has not matched practices of high-performing hospital systems. For example, only 55 percent of VAMCs have dedicated inpatient case managers to coordinate the overall discharge planning process, which may result in avoidable discharge delays.

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[264] VHA MedSAS data (FY14)

7.1.3 Summary of Recommendations

Our assessment revealed several areas where VHA can build on current strengths or address existing challenges to improve LOS and care transition management. We recommend that VHA consider two strategic themes, as detailed below. As with the findings, these themes apply to VHA organization, processes, and tools.

> **7.3.1 Mitigate discharge delays related to post-acute placement (e.g., increase availability of post-acute care options).** VAMCs experience significant LOS challenges with patients requiring facility-level post-acute care following discharge. VHA should evaluate current and projected future capacity within both VHA-operated and community-based post-acute care facilities, address mismatches to better meet post-acute care needs of Veterans, and ensure sufficient patient education regarding post-acute care options.

> **7.3.2 Build on existing best practices, both internal and external to VHA, to increase local adoption of evidence-based inpatient care and discharge planning practices.** VAMCs across the organization have shown varying degrees of dedication to adoption of practices that promote efficient and effective patient care. VHA should provide technical support and facilitate targeted best practice sharing to assist facilities in improving upon local practices related to efficient care delivery and effective discharge planning. Additionally, VHA should engage Veterans as active stakeholders in the care transition process by providing education regarding safe and effective transitions of care to the most appropriate post-acute care venue.

7.1.4 Past Findings and Recommendations

Several past assessments have commented on VHA's LOS management and care transition practices. Within academic literature, VHA challenges with increased LOS have been observed since the late 1980s (Rogers, 1989; Wolinsky, 1987), although research conducted a decade ago suggested a gradual narrowing of LOS differences (Rosenthal, 2003). While there have been no recent, comprehensive, national assessments of VHA's overall LOS management practices, OIG facility-level reviews and assessments of VHA service lines have identified challenges at individual facilities and for specific clinical services. The findings and resulting recommendations from these assessments are outlined in **Figures D-1 and D-2** of **Appendix D.2**.

These past assessments have tended to focus on specific issue areas and/or individual facilities, separately developing recommendations for improvement in discrete areas. In contrast, our assessment tries to take an end-to-end view of inpatient clinical operations across the five key sub-assessment areas and all high- and medium-complexity VAMCs.

7.2 Findings

Our assessment revealed four main findings related to VHA's current LOS management and care transitions processes:

> **7.2.1 Implementation of national LOS programs and initiatives has failed to achieve organization-wide improvements despite local pockets of best practice adoption**

7.2.2 Existing post-acute care options (e.g., rehabilitation/skilled nursing facilities) do not always match Veteran needs, delaying discharge

7.2.3 Typical VAMC operating models do not promote efficient inpatient care, leading to prolonged LOS

7.2.4 Use of discharge planning best practices is inconsistent, decreasing effectiveness and coordination

These findings are based on several key sources of insight. We have used the national datasets that were available, information returned as part of the data call, and perceptions and experience reported or observed during site visits or via the staff survey. In many instances where data does not allow us to definitively comment, we have described the potential implications of the data points we do have, along with recommendations in Section 7.3 for further analysis.

Underlying each finding are several drivers; these drivers map to the "organization, workflow processes, and tools" domains specified in the Choice Act. For a detailed map of how the drivers relate to these domains, see **Table D-2** in **Appendix D.3**.

7.2.1 Implementation of National LOS Programs and Initiatives has Failed to Achieve Organization-wide Improvements Despite Local Pockets of Best Practice Adoption

As outlined in Section 7.1.2, LOS within VHA is significantly longer than the DRG-adjusted average for Medicare patients treated within the private sector. Recognition of this and other LOS challenges has spurred the development of several initiatives aimed at improving VHA's LOS management practices, including establishment of a national utilization management (UM) program and development of several national "collaboratives" focused on effective LOS management and care transition practices. Our assessment suggests that while these efforts may have yielded pockets of improvement, overall VHA LOS has failed to improve during the past 3 years **(Figure 7-1)**, with the difference between VHA LOS and average DRG-adjusted private sector Medicare LOS increasing from 52 percent to 57 percent during FY2012-FY2014. Our assessment indicates the following three factors as barriers to national improvement:

7.2.1.1 Lack of availability of LOS performance metrics at the front-line and limited performance management inhibit the transparency and emphasis necessary to drive improvements

7.2.1.2 Limited organization-wide engagement in the national utilization management (UM) program reduces the program's potential impact

7.2.1.3 Variable participation in national LOS management-focused "collaboratives" and inconsistent adoption of best practices drive variation in recent LOS improvements

Figure 7-1. VHA LOS Trends Over Time

VHA national LOS compared to external Medicare average has grown during the last three years

LOS over time: VHA overall[1] vs. Medicare average[2]

Number of days
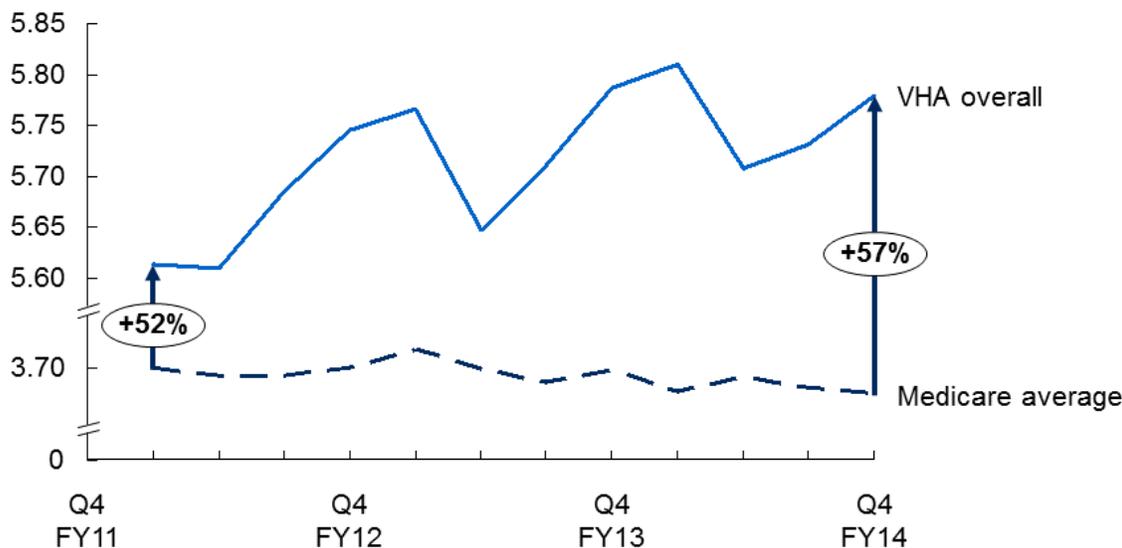
1 VHA LOS is based on encounter-level data from the Medical SAS Inpatient Dataset
2 Based on Medicare GMLOS for DRG mix treated at VHA, which does not account for prevalence co-morbidities (e.g., mental health) in the Veteran population

SOURCE: VHA Medical SAS Inpatient Dataset (2012-14); CMS Medicare Severity Weighting factors (FY2012-FY14)

7.2.1.1 Lack of Availability of LOS Performance Metrics at the Front-Line and Limited Performance Management Inhibit the Transparency and Emphasis Necessary to Drive Improvements

The use of performance management with associated incentives to promote desired outcomes (e.g., quality) has become increasingly common in health care. While managers and health services researchers often focus on the performance improvements possible through aligning of incentives with desired outcomes, research has also demonstrated that transparency alone can also be a powerful driver of performance improvement (Custers, 2008; Lindenauer, 2007). Our assessment suggests that VHA may not be fully reaping the benefits of transparency and performance management to drive LOS and care transition improvements, because: (1) LOS performance is not consistently and effectively communicated to front-line clinical staff; and (2) performance management systems rarely incorporate staff performance on LOS-related metrics.

> **LOS performance is not consistently and effectively communicated to front-line clinical staff.** Our assessment indicates gaps in VAMC communications of LOS performance to front-line clinical staff. Although one LOS performance measure is

incorporated into the SAIL report (adjusted LOS), among VHA hospitalists, only 48 percent reported receiving periodic updates regarding their performance in appropriately managing LOS.[265] Of these, only 22 percent indicated that LOS performance is communicated at the individual level, whereas 56 percent and 73 percent reported that this information is communicated at the facility- or service-line level, respectively.[266] Overall, this suggests that only about 11 percent of VHA providers have individual-level LOS metrics communicated to them. This gap in LOS performance communication applies to other clinical stakeholder groups as well: among nurse managers, charge nurses, and case managers, 20 percent reported that LOS metrics are not regularly communicated and an additional 31 percent suggested that communications regarding performance are "ineffective."[267] This data reveals gaps in common VHA practices related to promoting performance transparency, a practice that has been shown effective in the academic literature to yield LOS improvements (Zemencuk, 2006).

Performance management processes rarely incorporate staff performance on LOS-related metrics. VHA Handbook 5013/11 establishes expectations that VAMCs conduct annual performance ratings of clinical staff (2012). While these reviews provide an opportunity to discuss performance across many key dimensions, our analysis indicates that they are rarely used to discuss LOS performance. Among VHA hospitalists, only 6 percent reported that LOS metrics were a topic of discussion during regular performance reviews.[268] Our analysis of standardized VHA forms used in physician performance evaluations supports this survey data, as we found that LOS performance is not incorporated within the categories against which physicians are evaluated within VA Form 10-2623a. While our national assessment indicates limited organization-wide adoption of performance management practices focused on LOS, some facilities have seen positive results by incorporating LOS metrics into regular provider reviews (see case study below).

Table 7-1. VAMC Case Study: LOS Performance Management

Best practice case study – Bay Pines VAMC
From about 2008-2013, the **Bay Pines VAMC** incorporated provider-level data from the **National Utilization Management Integration (NUMI)[269] system into regular provider performance reviews** to promote LOS performance improvements.

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[265] Choice Act survey (N=86)

[266] Percentages sum to greater than 100 due to respondents selecting multiple levels at which LOS performance is reported.

[267] Choice Act survey (N=237); responses categorized as "ineffective" if respondent selected either "somewhat ineffective" or "very ineffective"; respondents answering "don't know" were excluded from this analysis.

[268] Choice Act survey (N=86)

[269] The National Utilization Management Integration (NUMI), explained in depth in Section 7.2.1.2, tracks appropriate use of inpatient resources by categorizing each day of an inpatient stay as appropriate or not based

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Best practice case study – Bay Pines VAMC

Context

- **Physician performance pay equaling $15,000 or 7.5 percent of annual pay can be used to incentivize high levels of physician performance (per 2014 VA Handbook 5007/47: Pay Administration)**
- **Leadership at the facility level** have the ability to **determine the metrics** upon which performance pay is based
- **Clinical leaders** established a system through which a **portion of physician performance pay** was distributed based on individual **NUMI performance**

Details

- C**linical leadership met with each physician** annually to discuss current performance levels and **goals for the coming year**
- **Facility set up a tiered incentive structure** to distribute different amounts of incentive pay **based on NUMI performance**

Impact

- Contributed to better-than-average facility-level performance on OMELOS, VHA's internal measure for acuity-adjusted LOS (lower values are better; see Section 7.1.2 for further details): FY2012 value of -0.64 (median VHA: 0.06) and FY2013 value of -0.43 (median VHA: -0.10)
- Minimized need to divert patients to external facilities, as reported by a facility leader: "While the facility had this program in place, we were never on diversion because we were efficiently managing our LOS."

7.2.1.2 Limited Organization-wide Engagement in the National Utilization Management (UM) Program Reduces the Program's Potential Impact

As outlined in VHA Directive 1117 (2014), a national UM program is in place across VHA with an objective of ensuring "the right care, in the right setting, at the right time, for the right reason utilizing evidence-based practices and continuous measurement and improvement." The directive further outlines that UM personnel be deployed across levels of the organization (e.g., national, VISN, facility) to create a coordinated national platform for promotion of appropriate use of inpatient resources. UM staff at the facility level are responsible for reviewing admissions and continued stays for appropriateness based on InterQual criteria and inputting results into the National Utilization Management Integration (NUMI) tool for performance tracking.

We find that there has been limited organization-wide emphasis on driving LOS improvements through the UM program. Evidence for this includes the following: (1) UM staff are largely

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on McKesson's InterQual criteria. This data is related to LOS because decreases in number of continued stay reviews not meeting criteria shorten overall LOS.

tasked with case reviews rather than prospective LOS and discharge management; (2) NUMI metrics are not incorporated into the facility SAIL report, limiting executive leadership emphasis; and (3) front-line clinical staff (e.g., nurses) are consistently unfamiliar with UM metrics and their interpretation.

UM staff are largely tasked with case reviews rather than prospective LOS and discharge management. VHA Directive 1117 (2014) dictates that UM nurses perform case reviews on 75 percent of admissions, observation stays, and subsequent days of care and enter results into the NUMI application. The directive also recommends that UM nurses collaborate with clinical staff (e.g., care coordinators, case managers, discharge planners, nursing staff) and "participate in daily rounds, bed huddles, or Interdisciplinary Team meetings as appropriate." Our assessment suggests that the expectations for UM nurses to perform case reviews and also collaborate with clinical staff are seen as competing priorities. As one facility-level UM program manager stated: "We'd love for our UM nurses to be able to work more with the clinical teams, but there is no way that we could do that and still make sure that all the reviews get done." This issue has undermined front-line engagement with the UM program, as front-line clinical staff often indicated that they had limited interaction with UM nurses to drive performance improvements. As one physician stated: "We repeatedly see the same causes of reviews not meeting criteria day after day, and many are issues that are out of our control. It would be better to collaborate regarding the patients where we can actually make a change." These challenges have contributed to low organization-wide confidence in the ability of the national UM program to drive significant LOS management improvements. For example, 33 percent of facility-level quality management and utilization management coordinators interviewed during site visits stated that they felt the UM program would have "relatively low to no impact" on LOS outcomes at their facility compared to only 29 percent of respondents who expected the UM program to have "high impact."[270]

NUMI metrics are not incorporated into the facility-level performance plans, limiting executive leadership emphasis. As shown in Table 7-1, utilization of the NUMI application has been strong across the organization, with UM nurses reviewing 79 percent of all inpatient days during FY2014. However, trends in performance (proportion of UM reviews meeting InterQual criteria) suggest limitations in VHA's ability to drive true performance improvements through the UM program and NUMI: data from the past 2 years indicates that the percentage of continued stay reviews meeting criteria has remained between 60 percent and 70 percent, with no consistent recent upward trend. One factor that may contribute is that NUMI metrics are currently not incorporated within the national SAIL report, which may drive limited engagement from VAMC leadership. This is illustrated by a

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[270] Site visits quality manager / utilization management coordinator interviews (N=21)

facility-level leader who commented: "If NUMI metrics are not part of my performance plan, I'm not going to worry about it."[271]

Table 7-2. Overview of NUMI Reviews and Recent Performance[272]

Review type	Description	Utilization (percent of cases reviewed)		Performance (percent of cases meeting criteria)	
		Target	FY2014	Target	FY2014
Continued stays	Assessment of whether patient's clinical status continues to warrant inpatient acute care versus care at some other level	75	**79**	80	**66**

Front-line clinical staff (e.g., nurses) are consistently unfamiliar with UM metrics and their interpretation. Observations during our site visits suggest that engagement of front-line staff in the UM program has also been limited. For example, we found that although NUMI indicators are integrated into the BMS boards on the acute care units, 95 percent of staff nurses observed during our site visits were unable to communicate the meaning of these indicators.[273] This observation may reflect insufficient training of front-line staff to date regarding this NUMI feature and suggests that additional education may be needed to ensure that front-line staff have the right information and training to fully engage in national UM efforts.

7.2.1.3 Variable Participation in National LOS Management Initiatives and Inconsistent Adoption of Best Practices Drive Variation In Recent LOS Improvements

In addition to the national UM program, VHA has implemented various other initiatives to improve patient flow and facilitate effective care transitions. Much of this work has been done through collaboratives launched by the VHA Office of Systems Redesign and Improvement.[274] Since 2006, VHA has offered a number of collaboratives with potential impact on LOS management issues, including the Fix Collaborative (focused on addressing hospital LOS), the Transitioning Levels of Care Collaborative (focused on improving efficiency of care transitions), the Bedside Care Collaborative (focused on improving care delivery patterns), and the Patient Flow Collaborative (focused on the impact of flow and optimal use of VHA's Bed Management System). These collaboratives convene staff from VAMCs across the country to learn about

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[271] Interview with VHA national leader

[272] NUMI continued stay review data (FY2014)

[273] Site visit med/surg unit shadowing sessions (N=21)

[274] Interview with VHACO leader

evidence-based best practices in inpatient clinical operations and to share learnings from successful local initiatives. While there may be similar opportunities to collaborate with external hospital organizations to share learnings and best practices, our assessment did not provide evidence that VHA has systematically pursued these opportunities for external collaboration to promote increased performance improvement.

Our analysis suggests that the impact of these initiatives may have been limited by (1) shifting support for continuously administering the collaboratives; and (2) variable participation in national collaboratives due to lack of facility-level support and inability to accommodate all willing participants.

> Shifting support for continuously administering the collaboratives. Shifting priorities at the national level have yielded inconsistent focus on LOS improvement efforts across the organization. This is illustrated by the recent experience of VHA's various collaboratives during FY2013-FY2014. After being administered successfully for 3 to 4 years, all collaboratives were halted in 2012 due to a national travel ban[275] across the organization. Only recently was this travel ban lifted, and the Transitions Collaborative resumed again during FY2015.[276] Furthermore, VHA's investment in these collaboratives may be decreasing over time. As reported during a recent interview: "The caps on the number of VAMCs that can participate in the collaboratives continue to get tighter and tighter. At the same time, the number of approved participants is getting to be less and less. We used to be able to take an entire team of six to participate in the collaboratives, but now we have to send two and the rest of the team participates virtually. It doesn't have the same effect on promoting change back at the facility when not all team members are able to fully participate in the collaboratives."[277]

> Variable participation in national collaboratives due to lack of facility-level support and inability to accommodate all willing participants. Impact from national collaboratives has varied significantly across the organization, in part driven by variable participation. One potential barrier to broader participation is inconsistent support from facility-level leadership across the organization. As stated during a recent interview: "Buy-in from facility leadership is critical for participation in collaboratives. Not only must the facility cover all travel expenses, but it also requires a willingness to grant participating team members protected time on a weekly basis to meet together, discuss progress, and continue to move initiatives forward. All of this has a cost, and some directors just aren't willing to pay it."[278]

> In addition, because participation in LOS improvement collaboratives is by application and there are limited positions available, collaboratives are not always

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[275] Additional information regarding travel restrictions can be found in Assessment L

[276] Interview with Transitions Collaborative leader

[277] Interview with collaborative participant

[278] Interview with collaborative participant

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able to accommodate all would-be participants. Our analysis suggests that a total of 53 unique VAMCs participated in the 2010-2012 round of national collaboratives.[279] While some of this may be due to lack of communication regarding the collaboratives, our interview with organizers of the recently launched Transitions Collaborative suggest that capacity constraints may also contribute: organizers received about roughly 40 VAMC applications for about 25 open positions.[280]

Our analysis revealed evidence that committed participation in these collaboratives may lead to improvements in outcomes. The example of the West Roxbury VAMC is illustrative. During a recent interview, a clinical leader from the facility remarked: "Participating in the national Flow Collaborative was extremely valuable in promoting performance improvement at our VAMC." With the support of facility-level executive leadership and as a result of efforts initiated as part of the collaborative, West Roxbury has aggressively pursued interventions to improve its LOS management and care transition practices. As a result, West Roxbury's acuity-adjusted LOS has decreased approximately 20 hours over a 6-year period. Additional details regarding West Roxbury's approach to performance improvement and recent results are shown in the case study below.

Table 7-3. VAMC Case Study: National Collaborative Impact

Best practice case study – West Roxbury VAMC
As part of the national **Flow Collaborative**, the **West Roxbury VAMC** has implemented several initiatives to improve patient flow and reduce LOS. **Context**   ▪ Selected to participate in VHA's national Flow Collaborative   ▪ Served as a pilot for a broader national initiative   ▪ Modeled several interventions to mirror concepts first applied within the Cleveland VAMC   **Initiatives implemented**   ▪ Created flow center to enable co-location of several stakeholders (e.g., transfer coordinator, scheduler, bed management coordinator) with responsibility for various aspects of patient flow   ▪ Restructured case management and utilization management departments to combine into a single role ("collaborative care nurses") under the flow center organizational structure   ▪ Organized flow center committee to meet every other week to discuss opportunities to improve flow and LOS management

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[279] FIX Collaborative Team Participation data (includes VAMCs participating in at least one of three collaboratives during 2010-2012: Bedside Care, Patient Flow Coordination, of Transitioning Levels of Care)

[280] Interview with Transitions Collaborative leader; of the 25 VAMCs accepted, only 12 are approved for in-person participation (remaining facilities participate virtually via teleconference)

Best practice case study – West Roxbury VAMC
Impact
▪ Improved OMELOS (internal measure for acuity-adjusted LOS; see Section 7.1.2 for further details) by about 20 hours (0.85 days) over a 6-year period through targeted improvement initiatives implemented through both the Flow Center and other facility-level efforts   ▪ Promoted increased awareness and emphasis on performance improvement: "We have a much better, system-level understanding of the flow. I think every VAMC should have a flow center."

7.2.2 Existing Post-acute Care Options (e.g., rehabilitation/skilled nursing facilities) do not Always Match Veteran Needs, Delaying Discharge

One critical enabler of effective discharge planning is the ability to efficiently and effectively transition patients from the inpatient setting to the next appropriate care venue. This is a key step in the discharge planning process as inadequate coordination and planning can lead not only to discharge delays but also to avoidable hospital readmissions (Fox, 2013). If discharge options are not appropriately matched to patient needs, LOS may be increased and quality of care may suffer.

Veterans can be discharged from the acute care inpatient setting to a variety of venues **(Figure 7-2)**. Effective discharge planning for patients transitioning to specialized post-acute care and social settings is critical given the prevalence of complex medical and psychosocial co-morbidities within these patient populations. Our assessment suggests challenges related to VHA's ability to efficiently transition these Veterans to post-acute care settings. These challenges contribute to extended LOS, as evidenced by about a 3.5- to 5-day LOS increase for patients requiring placement within a post-acute care facility or specialized social program compared with patients discharged to home **(Figure 7-3)**. Difficulty with Veteran placement is also indicated by data captured within VHA's NUMI system: post-acute placement and social issues (e.g., lack of caregiver support) drive roughly 26 percent of VHA's bed days of care that fail to meet InterQual criteria **(Figure 7-4)**.[281] This finding is particularly notable because these Veterans comprise only about 9 percent of overall VHA admissions.

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[281] NUMI continued stay review data (FY2014)

Figure 7-2. Overview of Discharge Locations

Veteran discharge locations from VHA acute care settings can be grouped into four different categories[1]

■ Focus of 7.2.2.1 (post-acute placement)

■ Focus of 7.2.2.2 (social issues)

VHA acute inpatient setting

Other acute care facility
- Other VHA acute care hospital
- Community acute care hospital

Post-acute care
- Community skilled nursing facility
- VHA Community Living Center (CLC)
- Special program (e.g., inpatient substance abuse rehab)

Setting for social issues
- VHA domiciliary care
- Transitional housing
- Mental health residential rehabilitation and treatment programs

Home
- Home under self care
- Home with home health

1 Does not include deceased Veterans; examples provided below each category are not intended to be comprehensive

Figure 7-3. LOS Differences, by Discharge Disposition

LOS for Veterans discharged to post-acute care or settings for social issues exceeds LOS for Veterans discharged home by 5.1 and 3.5 days, respectively

Average LOS, by discharge destination
Number of days

Focus of 7.2.2.1 (post-acute placement)
Focus of 7.2.2.2 (social issues)

	Other acute care facility	Post-acute care	Setting for social issues	Home
Average LOS	6.6	10.3	8.7	5.2
Percent of total discharges	2	8	1	89

+5.1   +3.5
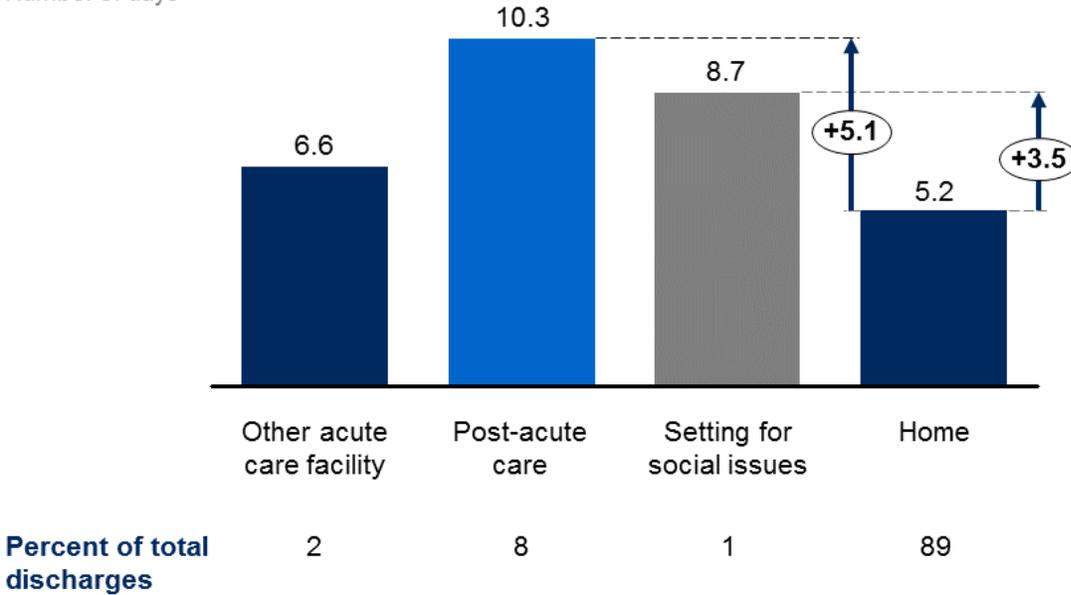
SOURCE: VHA Medical SAS Inpatient Dataset (FY2014)

Figure 7-4. Breakdown of Reasons for Continued Stay Reviews Not Meeting InterQual Criteria

Over 25% of continued stay reviews not meeting criteria relate to post-acute placement or social issues
Breakdown of reasons for continued stay reviews not meeting InterQual criteria
Percent of total reviews not meeting criteria (N=654,552)

■ Focus of 7.2.2.1 (post-acute placement)
■ Focus of 7.2.2.2 (social issues)

100
- 6
- 6
- 7
- 12
- 19
- 50

- **Other:** including regulatory, environmental, and scheduling factors
- **Outpatient care:** patient stable for discharge, remains IP awaiting services appropriate for OP setting (e.g., diagnostics, procedures, consults)
- **Social:** patient clinically stable with unresolved social issues (e.g., lack of caregiver, transportation)
- **Inpatient level of care capacity:** patient's current level of care does not meet IQ criteria (e.g., insufficient capacity in higher or lower level of care, patient awaiting transfer to VA or non-VA facility)
- **Post-acute transitions:** patient clinically stable awaiting transition to post-acute settings for continued care (e.g., placement issues, awaiting CLC acceptance)
- **Clinical:** clinical presentation and / or physician judgment are the basis for continuing care in current level of care (e.g., clinical instability, co-morbidities)

Challenges with post-acute placement are the most common non-clinical reason for reviews not meeting inpatient continued stay criteria

SOURCE: NUMI Continued Stay Review data (FY2014)

As noted in **Figure 7-4** above, VHA's NUMI data indicates several reasons for inpatient days not meeting InterQual criteria. Each of these reasons warrants further exploration to identify potential opportunities to improve LOS. Our interactions with front-line staff during site visits disproportionately highlighted issues related to post-acute placement and social resources; as such, we consider these issues in greater detail within Sections 7.2.2.1–7.2.2.2. Due to the broad nature of the "other" category and its lower frequency of mention, we chose not to analyze this category in greater detail. The "outpatient care" and "inpatient level of care capacity" categories are discussed in section 5. While each of these criteria impact the appropriateness of a patient's continued stay, as defined in NUMI, a patient's level of care has minimal impact on his or her overall length of stay. Given the frequency with which "clinical" is recorded as the reason for inpatient days not meeting criteria (49 percent of days not meeting criteria), this cohort warrants special attention. Our on-site interactions with clinicians suggest that this category likely represents a heterogeneous Veteran population for whom InterQual criteria fail to fully capture the patient complexity justifying inpatient admission. Other potential justifications for the high proportion of patients failing to meet InterQual continued stay criteria for reasons related to clinical judgment are that physicians place little value on UM criteria or that clinical documentation does not accurately reflect patients' care contributing to

ineffective UM reviews (addressed in Section 9). McKesson's InterQual criteria supports more than 3,700 hospitals across the country (McKesson website, 2015), so we believe it is a relevant algorithm, albeit with potential for customization to reflect VA patient characteristics. Section 9 provides additional detail on provider documentation as a potential limiter to effective UM.

Our assessment demonstrated the following key issues affecting VHA's ability to effectively transition patients to settings for appropriate post-acute care:

> **7.2.2.1 Veterans requiring placement within post-acute care facilities experience significant discharge delays**

> **7.2.2.2 Limited social resources (e.g., transitional housing, homeless programs) for Veterans awaiting discharge prolongs LOS**

7.2.2.1 Veterans Requiring Placement Within Post-Acute Care Facilities Experience Significant Discharge Delays

VAMCs experience significant difficulty with patients being discharged to post-acute care facilities. This is evidenced by the following: (1) VHA data indicates prolonged LOS and frequent reviews not meeting criteria due to placement issues; and (2) front-line staff report significant difficulty with post-acute placement.

> **VHA data indicates prolonged LOS and frequent reviews not meeting criteria due to placement issues.** We found that while LOS management is a challenge across VHA, it is a particular challenge for Veterans discharged to post-acute care facilities. Our analysis of national datasets indicates that LOS for these patients exceeds LOS for Veterans discharged to home by about 5.1 days (Figure 7-3). Data tracked within the NUMI tool provides further evidence of discharge delays suggested by VHA LOS data. During FY14, about 19 percent of continued stay reviews not meeting criteria were due to post-acute placement issues, making post-acute placement issues the most common non-clinical reason for reviews not meeting criteria (Figure 7-4).

> **Front-line staff report significant difficulty with post-acute placement.** Challenges with post-acute placement were commonly reported by front-line staff. Staff at 55 percent of sites reported this discharge barrier during assessment workshops,[282] and case managers/social workers cited this issue more commonly than any other discharge barrier (42 percent of interviewees).[283] Patient placement issues were reported to be particularly acute for specific Veteran subgroups, including aggressive-demented patients and patients requiring long-term ventilator care. Front-line staff at several facilities indicated that this challenge is influenced by an inability to efficiently contract with post-acute care facilities in the community (reported by 25 percent of sites).[284]

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[282] Site visit discharge planning assessment workshops (N=20)

[283] Site visit case manager / social worker interviews (N=21)

[284] Site visit discharge planning assessment workshops (N=20)

VHA has created a network of Community Living Centers (CLCs) in an attempt to address Veteran placement challenges. At present, approximately 75 percent of VAMCs have dedicated CLCs, which are VHA-operated post-acute care facilities whose offerings range from short-term rehabilitation, to long-term care for psychiatric illness, to hospice and palliative care services.[285] Access to a CLC would be expected to alleviate post-acute Veteran placement issues to some degree. However, our analysis of NUMI data suggests minimal differences between VAMCs with CLCs and those without in frequency of continued stay reviews not meeting InterQual criteria due to post-acute placement issues (19.3 percent for facilities with CLCs versus 17.9 percent for facilities without CLCs). This finding supports themes expressed by front-line staff during site visits, namely that some CLCs have capacity issues and that CLC placement requires lengthy qualification processes, leading to discharge delays.[286]

Based on the scope of our assessment outlined within the Choice Act, we did not assess capacity within VHA-operated CLCs or current and projected Veteran post-acute care demand. However, an assessment of these adjacent areas would be beneficial to developing a more comprehensive understanding of VHA's challenges related to post-acute placement.

7.2.2.2 Limited Social Resources (e.g., transitional housing/homeless programs) for Veterans Awaiting Discharge Prolongs LOS

Features of the Veteran population make VHA particularly susceptible to discharge challenges related to availability of social resources in the post-acute setting. The academic literature has documented increased prevalence of several key social factors within the Veteran population, including homelessness, PTSD, substance abuse, and limited family support (Tsai, 2015). These and other social factors can create barriers to discharge, as Veterans may be medically ready to leave the acute care inpatient setting but may be difficult to place in a more appropriate setting.

Each of the following implicates social resources as contributing to Veteran discharge delays: (1) VHA data indicates prolonged LOS and frequent reviews not meeting criteria due to social issues; (2) front-line staff report social issues as a prominent discharge barrier; and (3) staff reported consistent challenges arranging transportation for Veterans during site visits.

VHA data indicates prolonged LOS and frequent reviews not meeting criteria due to social issues. LOS for Veterans requiring discharge to settings to address social issues (e.g., transitional housing, domiciliary care for homeless Veterans) is about 3.5 days longer than for Veterans discharged to home, as indicated in Figure 7-3. Data from the NUMI tool also suggests that social issues often lead to inpatient bed-

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[285] VSSC (2014)

[286] Site visit discharge planning assessment workshops (N=20)

days that do not meet InterQual criteria for continued stay. During FY2014, 7.1 percent of inpatient continued stay reviews not meeting criteria were due to social issues (Figure 7-4). Of these reviews not meeting criteria, 65 percent were due to either homelessness or lack of caregiver support. This data indicates that limited access to social resources outside the inpatient setting drives discharge delays and prolongs LOS.

Front-line staff report social issues as a prominent discharge barrier. During our site visits, social issues were consistently cited as a source of discharge delays. To illustrate, 50 percent of sites reported challenges with holding patients in the inpatient setting for non-medical reasons due to scarce outside resources (e.g., limited availability in substance abuse treatment programs).[287] When asked to rank eight potential discharge challenges according to their impact on prolonging LOS, "social factors" was ranked as the largest challenge, rated as the number one discharge barrier by 47 percent of front-line staff.[288] Comments made by front-line staff during site visits further reinforce this point. One case manager reported: "Our VISN has developed many strong programs to address social issues like substance abuse and homelessness, but it is often very difficult to place patients in these programs, even when these programs are operated by other facilities within the VISN."[289] A comprehensive assessment of capacity within VHA's post-acute social programs was out of scope for our assessment, but it would be helpful to better understand how widespread these issues are as well as their underlying drivers and potential solutions across the organization.

Staff reported consistent challenges arranging transportation for Veterans during site visits. Timely transportation from the acute care facility to post-acute care settings is a key enabler of effective LOS management. During our on-site assessment workshops, 80 percent of sites reported limited transportation options as a common discharge barrier for Veterans otherwise ready for discharge.[290] Many factors were reported as contributing to problems with transportation, including unavailability of family members to provide rides for Veterans, limited availability of Veteran Transportation Services (VTS) at key times, inadequate contracts with community transportation partners, and overly stringent qualification standards for Veteran travel benefits. These difficulties may contribute to delayed care transitions and inefficient use of inpatient resources. We did not comprehensively assess VHA's transportation programs and policies for determining Veteran eligibility; additional analysis would be beneficial to understand the root causes of the transportation issues raised on-site.

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[287] Site visit discharge planning assessment workshops (N=20)

[288] Site visit discharge planning pre-assessment workshop polls (N=100)

[289] Site visit case manager / social worker interview

[290] Site visit discharge planning assessment workshops (N=20)

7.2.3 Typical VAMC Operating Models do not Promote Efficient Inpatient Care, Leading to Prolonged LOS

High-performing hospital organizations create opportunities for LOS improvements by employing an operating model emphasizing timely access to needed clinical services. In many cases, this means moving away from traditional patterns of inpatient care delivery in favor of practices that promote patient-centered and evidence-based care. For example, abundant evidence from the academic literature supports 7-day-per-week coverage of consultative services as an intervention to accelerate progression of inpatient care and improve LOS (Engel, 2013; Kolber, 2013; Rapoport, 1989). In addition, improvements in quality and efficiency have been achieved through implementation of inpatient clinical protocols, which are standardized processes for delivering a specific intervention (e.g., ventilator weaning) in the inpatient setting (Girard, 2008; Gao, 2005). Finally, high-performing hospital systems have improved efficiency and quality of inpatient care processes through development of inpatient clinical pathways, which are standard processes for managing the admission-to-discharge needs of specific patient sub-groups (e.g., patients undergoing knee replacement/extensive colon surgery) (Winther, 2015; Wind, 2006). These changes to the hospital operating model are key enablers of improved LOS performance because they accelerate inpatient care processes, expedite recovery, and facilitate appropriate discharge to lower levels of care.

Our assessment suggested challenges with specific elements of VHA's operating model. For example, 60 percent of participants in our on-site discharge planning workshops reported delays obtaining consults and tests as a barrier to timely progression of care.[291] Furthermore, implementation of standard, evidence-based protocols and pathways has been left to individual facilities, resulting in significant variation within and among VAMCs in patterns of care for managing similar clinical problems. Improvements to VHA's practices for diagnosing and treating patients are needed to enable efficient progression of care, which contributes to both high-quality outcomes and appropriate use of inpatient resources.

We identified two drivers of VHA's challenges in providing inpatient care through an efficient, evidence-based approach:

7.2.3.1 Reduced access to consultative services (e.g., specialist/allied health consults) over the weekend heightens discharge challenges

7.2.3.2 Inconsistent implementation of standard protocols and pathways drives variability in care patterns and may increase patient LOS

7.2.3.1 Reduced Access to Consultative Services (e.g., specialist/allied health consults) Over the Weekend Heightens Discharge Challenges

Section 2.2 of this report outlines in detail VHA's challenges with respect to staffing during off-tour hours. These challenges not only drive gaps in VHA's ability to safely and effectively respond to patient needs, but also have implications for LOS management and efficacy of care transitions. Our analysis of VHA national data has revealed that: (1) discharges are less common

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[291] Site visit discharge planning assessment workshops (N=20)

over the weekend; and (2) LOS is prolonged over the weekend, particularly for patients requiring specialty and allied health support. These observations support the hypothesis that limited weekend coverage of key clinical personnel is one key driver of prolonged LOS for VHA.

Discharges are less common over the weekend. Analysis of VHA encounter-level data suggests that only about 14 percent of VHA discharges occur on Saturday or Sunday (Figure 7-5).[292] In a true 24/7 system operating without distinction between weekdays and weekends, this expected number would be about 28 percent. Although industry-wide benchmarks for weekend discharge percentages are limited, data from Intermountain Healthcare indicates that weekend discharges within its system comprise about 25 percent of overall discharges.[293] This suggests that gaps in VHA's weekend operating model may prolong LOS. This is consistent with reports from front-line staff at several VAMCs, one of whom stated: "In terms of hours of operation, our facility is more like a clinic than a true 24/7 inpatient acute care hospital."[294]

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[292] VHA Medical SAS Inpatient Dataset (FY2014)

[293] Intermountain Healthcare SME interview (May 19, 2015)

[294] Site visit discharge planning assessment workshops (N=20)

Figure 7-5. Discharges by Day of Week

VHA discharges drop off significantly during the weekend
Percent of discharges, by day of week
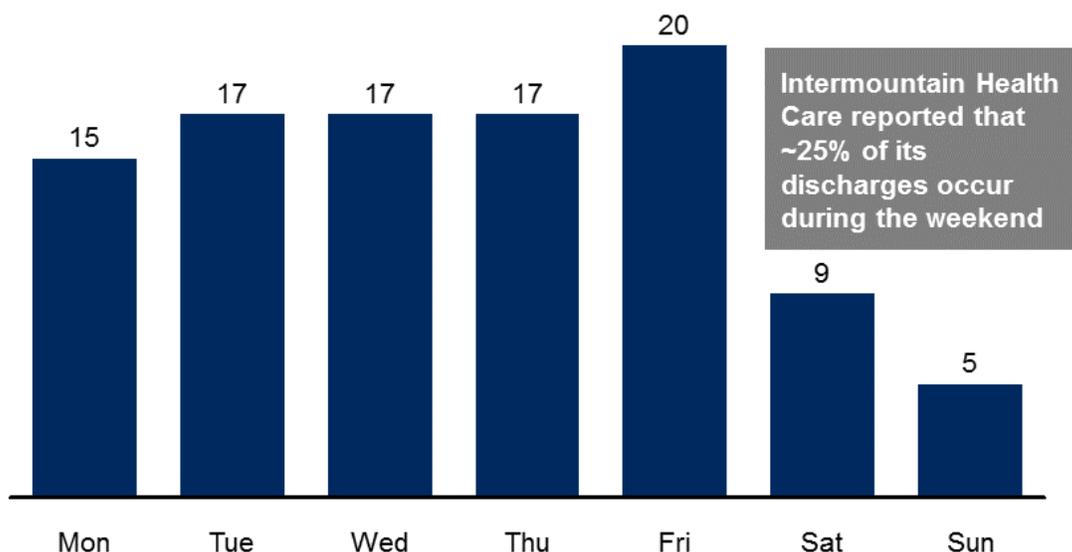
SOURCE: VHA MedSAS Data (FY2014)

LOS is prolonged over the weekend, particularly for patients requiring specialty and allied health support. Data collected within the National Utilization Management Integration (NUMI) tool provides evidence for increased LOS for patients whose stay extend into the weekend: there is a 2.7 percent increase in continued stay reviews not meeting criteria on weekends (36.3 percent) versus weekdays (33.6 percent).[295] In addition, our analysis of VHA encounter-level data suggests that patient stays for diagnoses commonly requiring consultative services are prolonged when these stays extend over the weekend. This is illustrated in Figure 7-6 by increased LOS for Veterans admitted Thursday through Sunday for stroke (about 18 percent LOS increase), joint replacement (about 32 percent LOS increase), and angina (about 18 percent LOS increase).[296,297] However, due to the unavailability of time-stamped consult data, we were unable to analyze

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[295] NUMI continued stay review data (FY2014)

[296] VHA MedSAS data (FY2014)

[297] Patients treated in the inpatient setting for these diagnoses regularly require early evaluation and, in many cases, reevaluation by specialty consultants to ensure progression of treatment and readiness for safe discharge.

The views, opinions, and/or findings contained in this report are those of the assessment team and should not be construed as an official government position, policy, or decision.

discrepancies, by day of week, between when a consult was ordered and when it was administered.

Figure 7-6. LOS by Admission Day of Week for DRGs Requiring Consultations

Prolonged LOS is common for stays extending over the weekend when allied health or specialist consults are required

■ Stays expected to extend into the weekend

DRG	Common consult	LOS — Number of days, by admission day of week							Weekend LOS increase — Percent
		Mon	Tue	Wed	Thu	Fri	Sat	Sun	
066: Stroke	Neurology	3.2	3.3	3.1	3.4	3.9	3.9	4.0	18
470: Joint replacement	Physical therapy	3.9	4.0	4.2	6.1	4.6	N/A[1]	N/A[1]	32
313: Angina pectoris	Cardiology	1.7	1.7	1.7	1.7	2.2	2.2	1.9	18
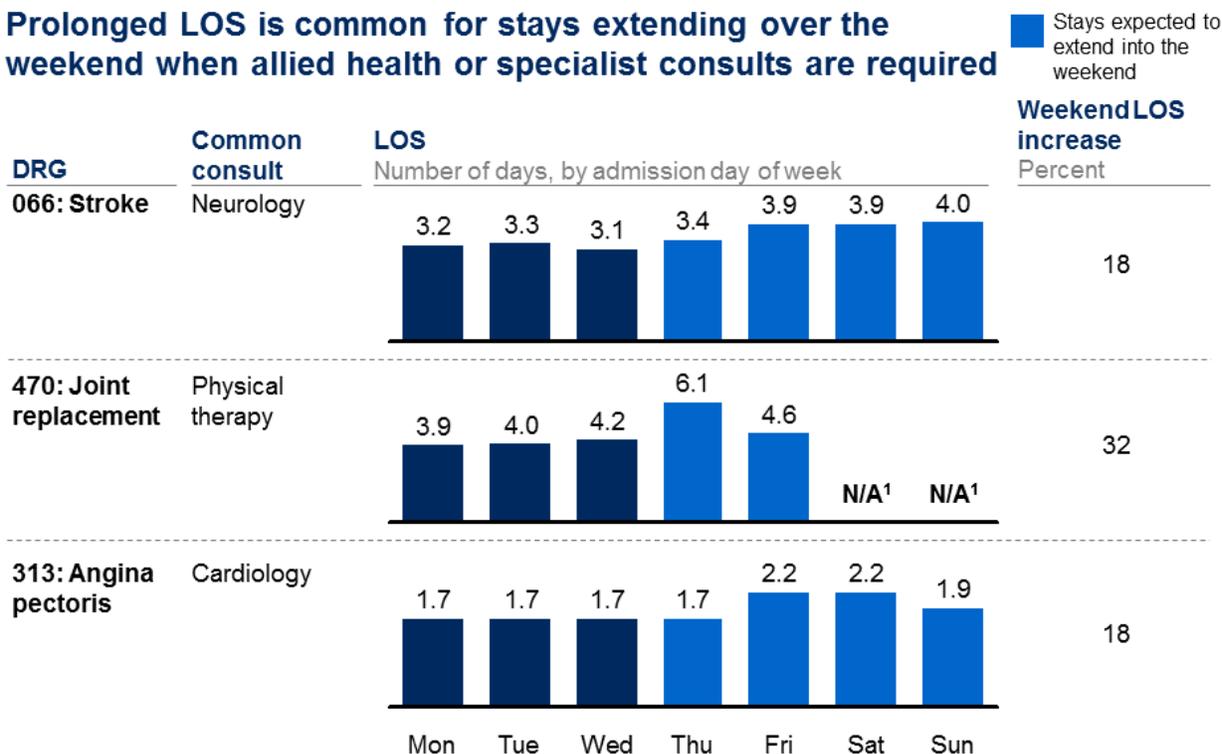
1 Only 1.2% of joint replacements occur on Saturday/Sunday, skewing LOS performance for these days because cases tend to be more acute
2 Based on Medicare GMLOS for DRG mix treated at VHA, which does not account for prevalence of mental health co-morbidities in the Veteran population

SOURCE: VHA MedSAS Data (FY2014)

7.2.3.2 Inconsistent Implementation of Standard Protocols and Pathways Drives Variability in Care Patterns and may Increase Patient LOS

Evidence from the academic literature suggests that provider organizations can achieve significant gains in quality and efficiency of inpatient care through implementation of evidence-based protocols and pathways (Silow-Carroll, 2007). While it is not possible to homogenize all care delivery processes, alignment of care patterns for common interventions (e.g., ventilator weaning in the ICU, early mobility for post-operative patients) and diagnoses (e.g., knee replacement, sepsis) through evidence-based protocols and pathways has been shown, in many instances, to reduce patient complications and decrease overall LOS (Drolet, 2013; Blackwood, 2011). Many high-performing hospital systems, including Intermountain Healthcare, have driven significant improvements in clinical quality and efficiency through implementation of standard, evidence-based practices (see case study below).

Table 7-4. External Case Study: Inpatient Clinical Pathways

Best practice external case study – Intermountain Healthcare[298]
To increase the adoption of evidence-based care, the **Intermountain Healthcare** has developed **clinical pathways** promoting a standard approach to managing common clinical conditions across the organization (Intermountain Healthcare Interview, 2015). **Intermountain's approach to care pathway development and implementation** ▪ Identify priority diagnoses with significant variability in existing patterns of care delivery as potential candidates for pathway development ▪ Review the academic literature to determine current best practices for care delivery to patients with target diagnoses ▪ Align on standard processes and patterns of care to treat the diagnosis and educate providers regarding their use ▪ Embed care pathways into existing clinical workflow through creation of standard order sets, making the standard of care the "default option" **Illustrative results** ▪ Extensive colon surgery pathway (Early Recovery After Surgery): decreased average LOS from 11 days to 4 days ▪ Sepsis identification pathway: reduced ICU mortality for patients with sepsis and decreased LOS by several days

Our assessment indicates that: (1) VHA's national evidence-based practice efforts have almost exclusively focused on development of guidelines for use in the outpatient setting; and (2) while adoption of inpatient protocols and clinical pathways is commonly reported organization-wide, consistent use appears to be limited by lack of information regarding their availability.

> VHA's national evidence-based practice efforts have almost exclusively focused on development of guidelines for use in the outpatient setting. VHA has a long history of working to implement evidence-based practice into clinical workflows (Chou, 2007; Bauer, 1999). In collaboration with the Department of Defense (DoD), VHA established the VA/DoD Evidence-Based Practice Guideline Work Group in 1998, a group heralded by the Institute of Medicine for its efforts to develop and implement evidence-based practice guidelines.[299] However, the standards developed by the work group have focused exclusively on care processes for the outpatient setting, limiting their impact on inpatient care delivery.[300] This outpatient focus was confirmed by a national leader, who stated in a recent interview: "We've focused exclusively on development of outpatient clinical *practice guidelines*, which are

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[298] Intermountain Healthcare SME interview (May 19, 2015)

[299] From VA/DoD Clinical Practice Guidelines website (http://www.healthquality.va.gov/)

[300] Interview with VHACO leader

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distinct from *clinical pathways*. Pathways tend to be a more local phenomenon to reflect local practice patterns and processes. I'm not sure that national has a role in determining how inpatient care should be delivered at the local level."[301] This leader also suggested that the VA/DoD workgroup's outpatient focus is reflective of the distribution of care provided by the organization: because VHA provides a greater volume of care in the outpatient setting, guideline development has focused preferentially on this setting.

While adoption of inpatient protocols and clinical pathways is commonly reported organization-wide, consistent use appears to be limited by lack of information regarding their availability. Our on-site observations suggest that inpatient protocols and clinical pathways are commonly available, but their use is inconsistent across VHA. ICU staff commonly acknowledged the existence of protocols and clinical pathways during site visits (81 percent of sites).[302] Our survey supports this finding, with 80 percent of participating nurses reporting existence of protocols or pathways at their facility.[303] While existence of protocols and pathways is common, nurses also frequently expressed barriers to their consistent use, including limited development of resources at the national level, unfamiliarity with the breadth of protocols and pathways in place at the local level, and difficulty in navigating the online resources where protocols and pathways are housed.[304] Survey responses further reinforce the existence of knowledge gaps regarding available protocols and pathways: 37 percent of physicians reported that they didn't know whether their facility had protocols or pathways (this is in addition to the 12 percent of physicians who stated that their facility did not have these resources at all).[305]

Due to a lack of organization-wide data reporting adherence to protocols and clinical pathways, we were unable to systematically examine utilization patterns across the organization. However, our site visit interactions do provide some insight into the types of resources that are currently in place. When referencing protocols and pathways currently in place at their facility, nurses commonly referred to protocols only (e.g., ventilator weaning protocol, central line bundle). None of the sites that we visited as part of our assessment referenced the existence of care pathways to guide care delivery from admission to discharge. While we are unable to confirm whether this is the case organization-wide, our assessment suggests that development of comprehensive care pathways has been, at best, extremely limited across VHA.

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[301] Interview with VHACO leader

[302] Site visit ICU shadowing sessions (N=21)

[303] Choice Act survey (N=294)

[304] Site visit ICU shadowing session comments (N=21)

[305] Choice Act survey (N=406)

7.2.4 Use of Discharge Planning Best Practices is Inconsistent, Decreasing Effectiveness and Coordination

Effective discharge planning practices are key to promoting efficiency as well as effectiveness of the care transition process. This has been demonstrated within the academic literature, with studies showing that well-planned discharges contribute to decreases in both LOS and readmission rate (Miani, 2014; Fox, 2013). Our assessment indicates that VHA has not systematically implemented practices to encourage timely and effective transitions of care. For example, just over half (55 percent) of VAMCs have dedicated case managers across inpatient units.[306] In addition, while interdisciplinary discharge meetings have been implemented by about 79 percent of VAMCs, variable attendance challenges effectiveness.[307] Finally, adoption of case management tools has been ad hoc and driven by individual facilities, potentially resulting in gaps in comprehensiveness of these tools. These and other challenges contribute to gaps in VHA's discharge planning practices relative to high-performing hospital organizations and may prolong LOS and challenge safe and effective transitions of care.

We discovered that three key drivers of VHA's current challenges with discharge planning are:

7.2.4.1 Suboptimal and inconsistent use of case managers results in re-allocation of critical discharge planning responsibilities to other staff

7.2.4.2 Variable deployment of key processes designed to expedite discharge results in avoidable discharge delays

7.2.4.3 Limited adoption of discharge planning tools may inhibit optimal application of case management efforts

7.2.4.1 Suboptimal and Inconsistent Use of Case Managers Results in Reallocation of Critical Discharge Planning Responsibilities to Other Staff

Private hospitals typically employ dedicated inpatient case managers[308] to manage the discharge process end-to-end and ensure completion of all tasks necessary for safe and timely care transitions (ACMA, 2013). Our assessment revealed several instances of key discharge-related tasks being performed by other staff, including physicians calling nursing homes to arrange patient placement, floor nurses performing initial social evaluations to identify potential discharge barriers, and patient advocates coordinating care among medical service lines (e.g., coordination of orthopedics with prosthetics service).[309] These practices may both

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[306] Choice Act data call (N=49)

[307] Site visit med/surg and ICU shadowing sessions (N=42)

[308] Case managers are often registered nurses by training with specialized expertise in discharge planning to ensure that the acute and chronic needs of patients are appropriately met. Case managers often work in collaboration with social workers (responsible for handling complex psychosocial issues including patient placement and insurance eligibility) and utilization management (UM) specialists (responsible for ensuring that each patient's use of intensive inpatient resources is appropriate).

[309] Site visit discharge planning assessment workshops (N=20)

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inhibit top-of-license practice and also delay care transitions as staff members without deep expertise in discharge planning perform key discharge tasks in addition to their primary duties.

Our assessment revealed several reasons for these care patterns, including: (1) less than half of VAMCs have assigned inpatient case managers across inpatient units; and (2) even where deployed, case manager roles and duties vary significantly from one VAMC to another.

> **Less than half of VAMCs have assigned inpatient case managers across inpatient units.** Private sector hospitals typically employ a robust team of case management and social work professionals to promote timely discharge. According to a recent industry survey, the average private sector hospital employs twelve RN case managers, eight social workers, two to three utilization management (UM) or utilization review (UR) specialists, and one discharge specialist (ACMA, 2013). In contrast, only 55 percent of respondents to our data call indicated deployment of dedicated inpatient case managers at their facility.[310] The lack of assigned personnel to manage the discharge planning process at many facilities likely contributes to LOS management challenges.
>
> **Case manager roles and duties vary significantly from one VAMC to another**. We observed significant variability among VAMCs in both titles and roles for case managers across adopting facilities. At facilities where the inpatient case management role had been implemented, titles for the role were varied and included care coordinators, discharge planners, collaborative care nurses, and collaborative care case managers. In addition to title differences, the duties of these staff varied from one facility to another: some shared utilization management duties while others focused exclusively on discharge planning, some had only inpatient responsibilities while others had duties that spanned both inpatient and outpatient settings. This variability resulted in some initial difficulties for facilities newly implementing the case manager role, as reflected by a case manager who commented during one site visit: "There were significant growing pains with implementation of the role less than a year ago. At first, it was unclear what duties should fall to the case manager versus the social worker. We've started to work some of the issues out, but there has definitely been some duplication of effort."
>
> In contrast, other VAMCs have experienced tremendous success with implementation of case managers (see case study below). Variable results from implementation of the case manager role across VAMCs suggests gaps in dissemination of best practices across the organization.

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[310] Choice Act data call (N=49)

Table 7-5. VAMC Case Study: Inpatient Case Managers

Best practice case study – Cleveland VAMC
As part of a comprehensive set of interventions associated with its Flow Center, the Cleveland VAMC has deployed collaborative care case managers to perform case management functions and promote timely and effective discharges. **Context** ▪ Cleveland VAMC discovered that utilization management (UM) nurses[311], initially organized under the facility's quality management department, were performing tasks that other staff were performing as well ▪ Facility leadership decided to consolidate five discharge planners with ten UM nurses under the new title of collaborative care case managers ▪ Management altered the department structure to organize the case managers under Cleveland's Flow Center to increase emphasis on efficient patient flow **Collaborative care case manager duties and responsibilities** ▪ Perform daily UM reviews and lead clinical teams in discharge planning ▪ Participate in daily rounds with clinical teams ▪ Collaborate with members of the interdisciplinary team (e.g., physicians, nurses, physical therapists, social workers) to ensure that discharge needs are met **Impact** ▪ Decreased OMELOS (internal measure for acuity-adjusted LOS; see Section 7.1.2 for further details on this metric) by about 12 hours (0.5 days) over a 3-year period (Q1 FY2012 – Q4 FY2014) ▪ Improved UM performance on percentage of case reviews meeting McKesson InterQual[312] criteria for continued stay (increased from 60 percent to 72 percent during the past 2 years)[313]

7.2.4.2 Variable Implementation of key Processes Designed to Expedite Discharge Results in Avoidable Discharge Delays

A number of practices have been successfully instituted in private hospitals to promote timely discharge and effective care transitions. Our site visits and analysis of VHA national data has

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[311] The role of UM nurses, as outlined within VHA Directive 1117: Utilization Management Program (2014), is to perform daily UM reviews to track percent of patients meeting InterQual criteria and to collaborate with interdisciplinary clinical teams, as appropriate.

[312] McKesson InterQual is a utilization management tool that provides evidence-based clinical decision support on the appropriateness of care (including admissions and continuing stays).

[313] Based on National Utilization Management Integration (NUMI) data – comparison of percent continued stay reviews meeting criteria during Q1 FY2013 versus Q4 FY2014.

revealed the following gaps within VHA compared to best practice in the industry: (1) many, but not all, VAMCs perform interdisciplinary discharge planning meetings, but with variable attendance from key stakeholders; and (2) processes to promote early morning discharges are infrequently adopted.

Many, but not all, VAMCs perform interdisciplinary discharge planning meetings, but with variable attendance from key stakeholders. Private hospitals commonly employ interdisciplinary team meetings to promote early recognition and resolution of potential discharge barriers (Wong, 2011). This interprofessional collaboration has been shown in several studies to drive improvements in patient care (Zwarenstein, 2009). One academic medical center reported an 18 percent reduction in LOS from instituting effective interdisciplinary discharge meetings (Southwick, 2014). Our assessment demonstrated that several VAMCs have also successfully deployed daily interdisciplinary discharge meetings to improve LOS management (Figure 7-7 contains an illustrative example).

Figure 7-7. VAMC Case Study: Interdisciplinary Discharge Meetings

Case study: Sacramento VAMC

Interdisciplinary discharge meeting adoption

Background	▪ Implemented **daily interdisciplinary discharge meetings** to enhance communication and address potential discharge barriers early during inpatient admissions
Details of interdisciplinary discharge meetings	▪ Held **daily** (M-F) on each inpatient unit ▪ Led by **nurse practitioners** with responsibility to oversee discharge planning ▪ Attended by **various clinical roles** ▪ Scoped to last no longer than **30 min** (30 seconds to discuss each patient) ▪ Designated as **"stand up meetings"** (participants stand to promote efficiency)
Impact	▪ Achieved OMELOS in the **top quartile** among VAMCs nationwide (see chart to the right)

FY2014 OMELOS[1]
Number of days

-0.3 VHA median
-1.0 Sacramento VAMC

Sacramento LOS performance is in the top quintile of all VAMCs with complexity level 1a, 1b, 1c, or 2
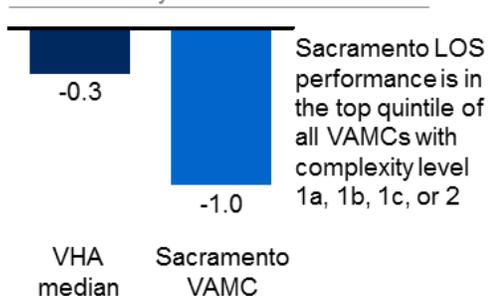
1 Observed-minus-expected LOS (OMELOS) is a LOS metric used within VHA to compare acuity-adjusted LOS performance across facilities; negative values are better, as they indicate actual LOS less than "expected"

SOURCE: Interview with Sacramento VAMC leadership; FY2014 IPEC OMELOS data

While common, the practice of holding daily interdisciplinary discharge meetings is not universal across VAMCs. Of sites visited during our assessment, 79 percent of

ICU and acute care units reported daily adoption of these meetings.[314] Our interactions with front-line clinical staff during site visits suggest that interdisciplinary meetings are typically designed to involve an appropriate mix of professionals across clinical roles, as shown in **Figure 7-8**.[315] However, participants at 65 percent of our assessment workshops reported challenges with inconsistent attendance at these meetings for key clinical roles, potentially contributing to discharge delays when not all stakeholders are involved in or aware of discharge preparations.[316] This observation and our site visit finding that not all VAMCs have adopted these meetings suggest that potential impact from optimal interdisciplinary discharge meeting adoption has not been fully realized across VHA.

Figure 7-8. Roles Included in Interdisciplinary Discharge Meetings

VAMCs involve a mix of clinical stakeholders in daily interdisciplinary discharge meetings, with potential gaps in involvement from some roles

Percent of sites reporting involvement, by role

Daily discharge meetings scheduled	Providers	Charge nurses	Case managers / social workers	Nurses	Allied health professionals
79	74	74	64	60	57

Involvement of key clinical stakeholder groups
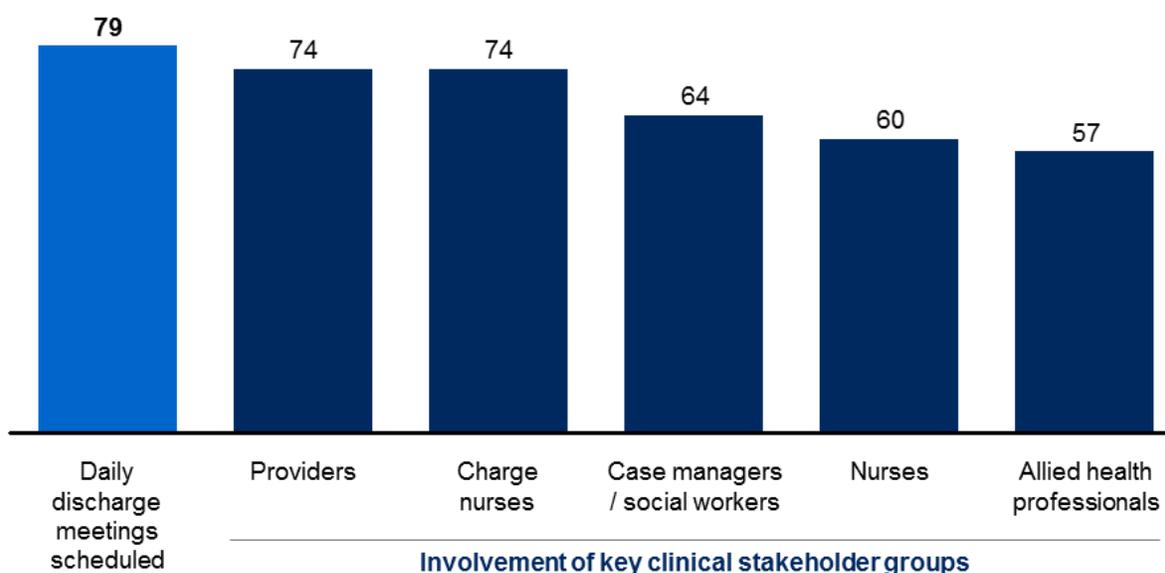
SOURCE: Site visit med / surg and ICU shadowing sessions (N=42)

Processes to promote early morning discharges are infrequently adopted. Many private hospitals have implemented processes to promote discharges earlier in the

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[314] Site visit med/surg and ICU shadowing sessions (N=42)

[315] Site visit assessment workshop participants frequently cited the lack of allied health professional involvement in interdisciplinary meetings as a barrier to effectiveness

[316] Site visit discharge planning assessment workshops (N=20)

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day as part of a comprehensive strategy for improving LOS and patient flow. For example, one private sector hospital reported improvements in its average discharge time following implementation of a simple intervention whereby physicians communicated a 1:00pm discharge time goal during patient rounds on the day prior to discharge (Kravet, 2007). Another hospital in the private sector set a goal to discharge 30 percent of its patients before noon and thereby increased its pre-noon discharges from 11 percent to 38 percent (Wertheimer, 2014). Although limited external benchmarks exist, we find that only 17 percent of VAMCs meet or exceed this sample benchmark of 30 percent of discharges before noon (Figure 7-9). The figure also shows that VAMC performance on discharge time is widely variable, suggesting a significant improvement opportunity. Note that several facilities with the highest rates of discharges before noon rank in the bottom quartile for overall LOS, suggesting the need for concurrent management of both overall LOS and discharge process management (discharges before noon) to drive desired LOS management outcomes.

Figure 7-9. VHA Discharges by Noon

VAMC performance on percent of discharges by Noon is highly variable across VHA

Percent

- Overall, VHA discharges ~20% of patients before noon

- Significant variability in VAMC performance may indicate opportunity to prioritize clinical efforts for patients awaiting discharge
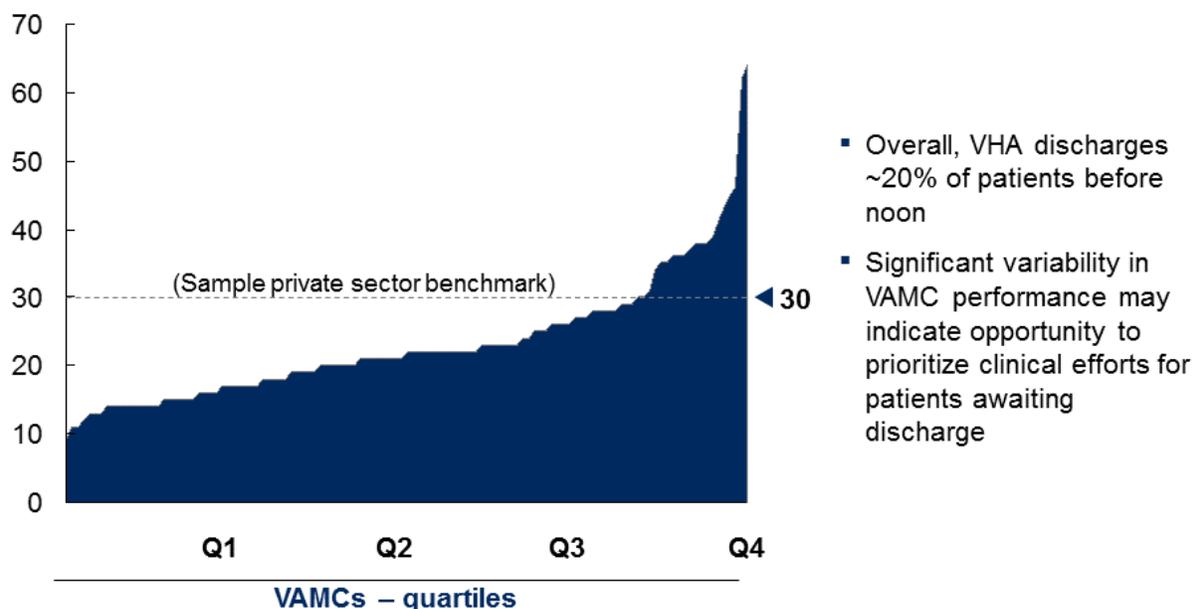
SOURCE: VHA Medical SAS Inpatient Dataset (FY2014)

7.2.4.3 Limited Adoption of Discharge Planning Tools may Inhibit Optimal Application of Case Management Efforts

Several discharge planning tools are commonly used in private hospitals to promote safe and timely discharge. Two commonly used tools are discharge checklists and case management software tools (Halasyamani, 2006; ACMA, 2013). Our site visits and data collection have revealed gaps in VHA's suite of such tools, namely: (1) discharge checklists are developed at the local level and do not always address a comprehensive set of discharge needs; and (2) VHA has not adopted case management software tools.

Discharge checklists are developed ad hoc at the local level. Across VAMCs, there is no consistent tool used to facilitate comprehensive discharge planning. This can contribute to an inconsistent and incomplete discharge planning process, poor patient preparation, and last-minute scrambles at the time of discharge. Where implemented in private hospitals, discharge checklists have minimized these negative outcomes by ensuring that a comprehensive set of patient needs is addressed in an organized manner prior to discharge (Halasyamani, 2006).

In order to address potential gaps in post-discharge care, some VAMCs have developed their own local tools to standardize the discharge process and streamline care transitions. Analysis of materials received through the data call suggests that discharge checklists have not been adopted across VHA: only 70 percent of VAMCs submitting documents as part of the data call submitted a discharge checklist, as requested.[317] Furthermore, of discharge checklists submitted, several are targeted to the needs of specific patients (e.g., patients with heart failure/behavioral health issues) rather than designed for Veterans in general. While these locally developed resources may promote effective discharges in many cases, the fact that these tools have been inconsistently adopted across facilities and are not applicable to all Veterans suggests potential gaps in the tools used by VAMCs to effectively plan discharges.

VHA has not adopted case management software tools. Case management software tools have been developed to address many of the common pain points within the discharge planning process. Some tools are designed to identify patients at high risk for readmissions and avoidable hospital days so that staff may intervene to prevent these outcomes. These software platforms risk-stratify patients based on presence of co-morbid conditions, lack of social/family support, and other important patient factors. Other tools address the labor-intensive and manual nature of the post-acute placement process by automating key steps (e.g., identifying post-acute care facilities with capacity, electronically transferring patient data). According to industry survey data, these tools have been implemented by about 30 percent to 50 percent of private sector facilities (ACMA, 2013). Though there have been no

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[317] Choice Act data call (N=67)

academic studies to definitively prove the benefits of these tools, our interviews with experienced inpatient case managers confirmed that use of these tools is becoming increasingly common within private sector hospitals.

Based on evidence gathered from our site visits, VAMCs have not implemented software tools to facilitate the discharge planning and patient placement processes. Case management staff at one facility reported that implementation of tools had been proposed at their facility but not initiated due to privacy/security concerns. This is consistent with our findings from interviews with national VHA leaders, one of whom commented: "Our efforts to implement a case management tool were essentially 'dead on arrival.' IT leadership said it was incompatible with VA IT culture because of privacy and security concerns, and the effort went nowhere."

Lack of adoption of these tools may exacerbate existing challenges with effective discharge planning. For example, in the absence of tools to trigger patients in need of intensive case management based on patient factors, VHA case managers report using traditional approaches to prioritize interventions. These approaches include comprehensive assessments of all new admissions, reliance on MD/RN consults, or informal identification of priority patients during interdisciplinary rounds, among others **(Figure 7-10)**. Reliance on these methods may result in inefficiencies, as suggested by 33 percent of case managers who indicated during interviews that there are better ways, in their view, to trigger patients for case management interventions.[318]

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[318] Site visit case manager / social worker interviews (N=21)

**Figure 7-10. Primary Triggers to Prioritize Patients for
Intensive Case Management Within VHA**

Individual VAMCs use various triggers to identify patients in need of intensive case management

Percent of case managers indicating use of prioritization trigger
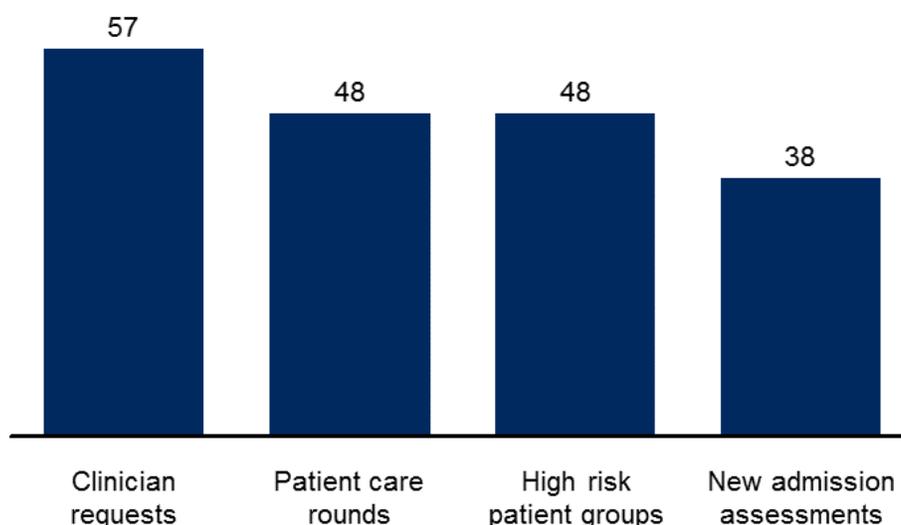
SOURCE: Site visit case manager / social worker interviews (N=21)

7.3 Recommendations

VHA LOS management and care transition practices have multiple stakeholders: Congress and the executive branch, VACO, VHACO, VISN leadership, and VAMC management and staff. Encouraging innovation and addressing critical challenges in effective LOS management and care transitions will require collaboration among all of these groups, and a commitment to making difficult, long-term change. Different recommendations should be owned by different groups (e.g., recommendation requiring changes to VACO policy versus local policy) -- however, support for change from all stakeholders is critical to effective implementation.

Our recommendations, building on existing strengths and addressing existing challenges in effective LOS management and care transitions, can be categorized into two main themes.

7.3.1 Mitigate discharge delays related to post-acute placement (e.g., increase availability of post-acute care options)

7.3.2 Build on existing best practices, both internal and external to VHA, to increase local adoption of evidence-based inpatient care and discharge planning practices

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These themes are consistent with practices suggested by the academic literature, professional associations, and high-performing hospitals within VHA and outside the system, as well as solutions proposed by front-line VHA staff – further details are included in "summary of supporting evidence" sections in each sub-recommendation (see **Appendix D.4** for additional detail on our methodology for gathering this data). To help VHA implement our recommendations, we have also suggested next steps in the "potential near-term actions" sections of the sub-recommendations. Note, because different VAMCs may have already adopted some recommended practices or experience unique barriers, these suggestions should be tailored the individual circumstances of each VAMC. Each recommendation is supported by several sub-recommendations, which map to the "organization, workflow processes, and tools" domains specified in the Choice Act. For a detailed map of how the sub-recommendations relate to these domains, see **Table D-2** in **Appendix D.3**.

Several recommendations overlap with other assessment areas. Where this occurs, we have referenced the relevant assessment area, where additional detail can be found.

7.3.1 Mitigate Discharge Delays Related to Post-acute Placement (e.g., increase availability of post-acute care options)

Improvements to VHA's care transition processes for patients requiring post-acute placement are key to addressing overall LOS challenges. Several challenges exist with respect to VHA's ability to transition Veterans from the acute inpatient setting to the next venue of care. The most pressing discharge-related challenge identified in this assessment was difficulty placing patients in post-acute care facilities. While this challenge is not unique to VHA, leading provider organizations that have aggressively addressed this discharge barrier have experienced improvements not only in efficiency, but also in important quality metrics (e.g., decreased hospital readmission rates) (Sandvik, 2013).

Priority recommendations to improve Veteran access to appropriate post-acute care are provided below:

7.3.1.1 Increase availability of post-acute care options, particularly for special needs Veteran populations

7.3.1.2 Increase resources for patient transportation and provide front-line staff with authority to approve transport when it poses a barrier to timely discharge

7.3.1.1 Increase Availability of Post-acute Care Options, Particularly for Special Needs Veteran Populations

Analysis of VHA data suggests that LOS for patients requiring placement within post-acute care facilities and social support programs is about 3.5 to 5 days longer than patients discharged to home. Although some portion of this observed increase may be due to differences in Veteran health status, frequent site visit reports of discharge barriers related to Veteran placement indicate that delays in the care transition process also contribute. Private sector hospitals facing similar challenges have improved LOS and quality outcomes by increasing access to post-acute care facilities. VHA should address discharge barriers related to Veteran post-acute placement

to improve LOS and streamline care transitions. Doing so will require additional analysis of capacity and availability of post-acute care facilities, both VHA-operated and within the community. Because a comprehensive review of these facilities was out of scope for this assessment, we recommend additional steps below to better understand and respond to post-acute care needs of Veterans.

Summary of supporting evidence:

- See Sections 7.2.2.1 and 7.2.2.2 for more detail on findings.

- Proposals from clinical staff participating in on-site workshops suggest consistent front-line recognition of Veteran post-acute placement issues, with participants recommending increased capacity within VHA-operated CLCs and other post-acute care facilities (60 percent of sites), increased ability to contract with post-acute facilities in the community (50 percent of sites), and expansion of programs and services matched to Veteran needs (50 percent of sites).[319]

- Evidence from an academic study of critical access hospitals (CAHs) suggests that acute care facilities can reduce LOS by increasing availability of post-acute care options for patients, including patients with complex clinical needs (e.g., ventilator patients) (Lindsay, 2014).

Potential near-term actions:

- *VHACO:* Conduct national review of current and projected post-acute care capacity and availability of specialized programs (e.g., substance abuse rehabilitation, medical foster homes for Veterans with limited caregiver support) in communities surrounding VAMCs, compared with current and projected Veteran needs.
  - o *VACO/VHACO:* Project Veteran need for post-acute care across geographies based on current and future trends in patients requiring facility-level care or placement in specialized programs after discharge.
  - o *VHACO:* Assess current and projected future capacity within VHA-operated post-acute care facilities (e.g., CLCs, domiciliary care); compare with projections of future inpatient acute care needs to identify potential opportunities to convert inpatient space into capacity for post-acute care.
  - o *VHACO:* Provide projections and recommendations to local VAMCs, highlighting geographies with urgent current post-acute care needs as well as those with projected needs in the near term.
- *VHACO:* Streamline nationally-outlined processes for contracting with community post-acute care facilities to enable increased formation of VAMC-community partnerships.
- *VAMC:* Address gaps in local post-acute care capacity and avoidable sources of discharge delay related to inefficient care transitions.
  - o *VAMC:* Identify community facilities with existing VHA contracts as well as potential community partners for future contracting.

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[319] Site visit discharge planning assessment workshops (N=20)

   ○ *VAMC:* Form local partnerships with high-quality community facilities (through establishment of contracts) to address gaps in current VHA post-acute and social care coverage.

   ○ *VAMC:* Map transition process for Veterans discharged to post-acute care facilities to identify and mitigate addressable barriers to timely discharge.

7.3.1.2 Increase Resources for Patient Transportation and Provide Front-line Staff With Authority to Approve Transport When it Poses a Barrier to Timely Discharge

Our site visits indicated that timely access to transportation is often a significant barrier to discharge. Recommendations from industry associations suggest efficiency gains through improved patient transportation processes and resources. VHA should act to address discharge challenges related to transportation that cause extended stays in the acute care setting.

Summary of supporting evidence:

- See Section 7.2.2.2 for more detail on findings.

- Proposals from clinical staff participating in on-site workshops suggest front-line support for transportation-focused interventions, with 75 percent of sites proposing increased transportation options or relaxed transportation eligibility standards to improve facility LOS outcomes.[320]

- Evidence from a comparable large, public sector health system suggests timely arrangement of patient transportation is a key enabler of successful discharge practices (NHS, 2008).

- Recommendation from health care improvement organizations includes a proactive focus on arranging patient transportation as part of comprehensive efforts to facilitate timely discharge (IHI, 2014).

Potential near-term actions:

- *VACO/VHACO:* Revise national transportation policies to permit local clinical staff to arrange and cover costs of transportation for a limited number of Veteran cases in which transportation barriers inappropriately extend inpatient stays.

   ○ *VACO/VHACO:* Base eligibility determinations for exceptions to national transportation policy on NUMI continued stay case reviews flagged as not meeting criteria due to transportation concerns.

   ○ *VACO/VHACO:* Set limit on annual allowable expenses for transportation exceptions based on facility-specific factors (e.g., number of Veterans served, Veteran catchment area, federal mileage guidelines).

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[320] Site visit discharge planning assessment workshops (N=20)

- *VAMC:* Review local capacity and utilization of existing VHA transportation resources to understand performance overall as well as during periods of reported capacity limitations (e.g., nights, weekends).
- *VISN/VAMC:* Expand alternative local transportation options (e.g., contracts with community-based transportation, programs for volunteer transportation services) to address gaps in facility-level patient transport coverage.

7.3.2 Build on Existing Best Practices, Both Internal and External to VHA, to Increase Local Adoption of Evidence-based Inpatient Care and Discharge Planning Practices

Adoption of evidence-based practices for efficient inpatient care delivery and effective discharge planning across VHA is key to LOS management efforts. Our assessment revealed inefficiencies in the approach that many VAMCs employ to providing efficient clinical care and managing discharges, including lack of performance management focused on LOS metrics, limited implementation of care pathways to align patterns of care with best clinical evidence, and variable discharge planning processes across the organization. As evidenced in the academic literature, acting to fill these gaps may have positive effects on patient LOS (Shepperd, 2004), avoidable readmissions (Naylor, 1999), and patient satisfaction (Hager, 2010).

As outlined in Section 7.2.1, VHA has launched several collaboratives with the potential to address these issues. However, system-wide impact from these collaboratives has been limited due to variable participation related both to limited ability of VHA to support VAMCs nationwide and to unequal facility-level desire to participate in collaboratives. As a result, care practices in place across facilities are in varying stages of maturity, particularly with respect to discharge planning (facilities that have been frequent participants in collaboratives and have spurred local performance improvement have more robust discharge planning processes than other VAMCs). In consideration of these facility-level differences, it is critical that VHA's strategy to improve LOS management is one of local empowerment and best practice promotion to enable facilities to adopt those practices that will move them from their current state to the next appropriate step in promoting effective and efficient care practices. Improvements in VHA's approach to data transparency and performance management are critical to enabling these improvement efforts by creating a shared understanding of current and targeted future performance on LOS management metrics.

Priority recommendations to enhance VHA's inpatient care practices are provided below:

7.3.2.1 Track key performance measures related to LOS management processes to increase transparency, accountability, and performance improvement

7.3.2.2 Develop evidence-based care pathways for common inpatient clinical processes, and incorporate into EHR tools and clinical workflows

7.3.2.3 Promote sharing and implementation of discharge planning best practices across VAMCs

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7.3.2.4 Increase off-hours coverage of clinical services including specialist consults, allied health evaluations, and imaging/diagnostics

As indicated above, we have included enhanced performance management as the first sub-recommendation, as implementation of performance management structures related to LOS are foundational to supporting the other sub-recommendations.

7.3.2.1 Track Key Performance Measures Related to LOS Management Processes to Increase Transparency, Accountability, and Performance Improvement

Our assessment revealed gaps in VHA's approach to consistently communicating LOS performance to facility leadership and clinical staff. Evidence from the academic literature indicates that data transparency and performance management can be powerful tools to drive operational improvements in health care. VHA should undertake efforts to increase facility and individual-level transparency into UM and LOS performance and promote accountability for improvements to alter perceptions of local stakeholders and support other performance improvement efforts.

Summary of supporting evidence:

- See Section 7.2.1.1 for more detail on findings.
- Research in the health services literature suggests that hospital management approach is an important contributor to LOS performance (Jong, 2006).
- Experience of leading hospitals demonstrates that operational improvements can be driven through increased data transparency (e.g., performance tracking dashboards) (McLaughlin, 2014).
- Recommendation from the Society of Hospital Medicine includes using LOS as one of 10 performance metrics for evaluating hospital physicians (SHM, 2006).
- Evidence from the medical literature suggests that even simple interventions such as profiling physician performance on LOS relative to peers can be effective in reducing LOS (Zemencuk, 2006).
- Experience of the Bay Pines VAMC illustrates that integration of NUMI performance metrics into the physician bonus structure yielded local operational improvements, including improved NUMI performance on continued stay reviews, improvements in patient flow, and elimination of the VAMC's need to divert patients to outside facilities (see case study in Section 7.2.1.1).

Potential near-term actions:

- *VHACO/VAMC:* Incorporate an optimal set of LOS metrics into national SAIL report and promote facility-level performance improvements through annual aspirational target setting.
  - o *VHACO:* Designate a limited set of outcomes-oriented metrics to assess facility-level improvements to LOS practices (e.g., percent of discharges by noon, percent of discharge orders entered by 9:00am, and percent of patients with pre-discharge order entered).

The views, opinions, and/or findings contained in this report are those of the assessment team and should not be construed as an official government position, policy, or decision.

- o *VHACO:* Balance current SAIL LOS metric (adjusted LOS) with the limited set of outcome-oriented metrics to create an optimized set for drawing LOS performance comparisons across facilities on key outcomes and processes.
- o *VHACO/VAMC:* Set national targets and annual aspirational facility-level goals to promote consistent performance improvement.

- *VAMC:* Profile unit-level performance on LOS management metrics (e.g., OMELOS, continued stay appropriateness from NUMI reviews, percent of discharges before noon) at the local level and regularly recognize high-performing units to accelerate adoption of best practices facility-wide.

- *VAMC:* Incorporate physician performance on LOS metrics into annual physician performance plans developed at the local level, with a portion (amount to be determined by the facility) of physician performance pay tied to achievement of LOS performance goals.

7.3.2.2 Develop Evidence-based Care Pathways for Common Inpatient Clinical Processes, and Incorporate into EHR Tools and Clinical Workflows

Our observations of clinical units and discussions with front-line staff suggest opportunity to improve VHA's approach to care delivery for common Veteran inpatient conditions through consistent adoption of evidence-based practices. This approach would more closely mirror high-performing organizations that have adopted standard processes to promote patient care that is effective, efficient, and evidence-based. To achieve this goal, we recommend that VHA collaborate with local physicians both to strengthen local adoption of standard clinical protocols across the organization and to develop evidence-based care pathways and promote their local implementation as part of a sustained VHA transformation effort.

Summary of supporting evidence:

- See Section 7.2.3.2 for more detail on findings.

- Proposals from clinical staff participating in on-site workshops suggest front-line support for increased use of standard processes to deliver inpatient care, with 35 percent of sites recommending development and implementation of protocols or care pathways as an intervention to improve LOS management practices.[321]

- Research from the academic literature supports the use of clinical protocols to improve inpatient LOS for select processes (e.g., early mobility protocols for rehabilitation) (Drolet, 2013).

- Evidence from the academic research supports the use of inpatient care pathways outlining admission-to-discharge processes to streamline inpatient stays related to several conditions and procedures, including knee replacement and colon surgery (Peterson, 2008; Bradshaw, 1998).

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[321] Site visit discharge planning assessment workshops (N=20)

- Experience of an illustrative high-performing provider organization demonstrates LOS and quality benefits through implementation of care pathways, including reductions in mortality through implementation of a sepsis pathway and sizable LOS reductions through implementation of a perioperative colon surgery pathway (see case study in Section 7.2.3.2).

Potential near-term actions:

- *VHACO:* Increase availability of data at the front line (e.g., percent of Veterans with sepsis receiving standard sepsis bundle, percent of Veterans receiving timely physical therapy as part of early mobilization protocol) to drive transparency into current patterns of care delivery organization-wide.

- *VHACO/VAMC:* Promote consistent national use of standard evidence-based protocols for common, high-impact interventions (e.g., ventilator weaning, sepsis bundles) through performance management.
  - *VHACO/VAMC:* Develop national resource that aggregates evidence-based protocols for key inpatient interventions (e.g., ventilator weaning, sepsis bundles), leveraging protocols currently in place across the organization.
  - *VHACO/VAMC:* Ensure that evidence-based protocols are embedded within clinical decision support tools (e.g., computerized physician order entry, electronic health record templates) to facilitate adoption of evidence-based practices.
  - *VHACO:* Align data collection and reporting capabilities to track the use of priority protocols and performance on related quality metrics across the organization.

- *VHACO/VAMC:* Organize a national VHA center of excellence to begin the development and implementation of clinical pathways, evidence-based processes addressing the admission-to-discharge needs for inpatient treatment of common Veteran diagnoses.
  - *VHACO:* Designate a full-time champion to lead the center of excellence as part of VHA's broader transformation efforts, selecting an individual with clinical experience and extensive knowledge of quality and performance improvement techniques.
  - *VHACO/VAMC:* Engage with clinical leaders from across VHA of various roles and specialties throughout the pathway development and refinement process.
  - *VHACO/VAMC:* Assess current state of care pathway implementation across the organization (call for existing care paths from VAMCs promoted by national recognition for facilities with existing best practices).
  - *VHACO:* Select three to five national clinical priorities for initial care pathway development work, optimizing for processes with considerable variability in practice patterns and ample evidence from the academic literature to support positive impact from inpatient pathway development.
  - *VHACO:* Collaborate with VA/DoD Evidence-Based Practice Guideline Work Group to ensure alignment and a prevent duplication of efforts.

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o *VHACO:* Develop data collection and reporting capabilities to monitor implementation of pathways and associated quality outcome improvements at the facility-level.

7.3.2.3 Promote Sharing and Implementation of Discharge Planning Best Practices Across VAMCs

Our assessment revealed that while select VAMCs have implemented best practices in discharge planning, these practices have not been consistently adopted across VHA. Key areas of significant national variability are the deployment of case managers to oversee the discharge planning process and the adoption of standardized discharge processes. Evidence from the medical literature demonstrates significant opportunity for LOS improvement through improved discharge planning. VHA should undertake a national effort to promote discharge planning best practice adoption, building upon existing pockets of strength to broaden implementation of practices that have demonstrated impact in improving LOS outcomes at select VAMCs.

Summary of supporting evidence:

- See Sections 7.2.4.1, 7.2.4.2, and 7.2.4.3 for more detail on findings.

- Proposals from clinical staff participating in on-site workshops suggest front-line support for improved discharge planning, including the following interventions:
  o Prioritization of early morning rounding/consults/diagnostics for patients awaiting discharge (70 percent of sites)
  o Deployment of dedicated inpatient case managers (50 percent of sites overall, and 91 percent of sites without dedicated case managers at present)
  o Initiation of discharge planning process earlier during admission (45 percent of sites)
  o Improvement to processes for securing needed materials (e.g., medications, durable medical equipment) prior to discharge (45 percent of sites)
  o Standardization of the overall discharge process (35 percent of sites)[322]

- Evidence from the academic literature supports improved outcomes (e.g., patient readmission rate) through implementation of hospital-based case management (Kim, 2005).

- Research in the medical literature demonstrates improvements in LOS and readmission rates through development of tailored discharge plans (Shepperd, 2004).

- Experience of the Cleveland VAMC suggests improvements in UM metrics through deployment of inpatient "collaborative care case managers" to both manage discharge planning process and perform UM reviews (see case study in Section 7.4.2.1).

- Experience of West Roxbury VAMC illustrates LOS improvements (about a 20-hour improvement in OMELOS over a 6-year period) through implementation of "collaborative

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[322] Site visit discharge planning assessment workshops (N=20)

care nurses" and adoption of targeted, daily interdisciplinary meetings (see Section 7.2.4.2).

Potential near-term actions:

- *VHACO:* Provide national technical support (e.g., informational materials based on effective facility-level strategies to inpatient case management) to assist VAMCs in crafting facility-level approach to inpatient case manager deployment.

- *VAMC:* Deploy inpatient case managers with assigned responsibility for managing the overall discharge process at VAMCs lacking personnel dedicated to this role.

- *VHACO/VAMC:* Develop national resources and guidance to assist facilities in creating a standard discharge process suited to local needs that addresses a comprehensive set of discharge planning components, including:

  - *VAMC:* Standards for timing of initial patient discharge needs assessment (e.g., 90 percent of patient assessments conducted within 48 hours of admission).

  - *VAMC:* Expectations regarding frequency, duration, facilitation, and expected participants for regularly-programmed interdisciplinary discharge meetings.

  - *VAMC:* Standard operating procedures granting priority scheduling of rounds / labs / diagnostics for patients awaiting discharge.

  - *VAMC:* Goals for timing of key discharge tasks (e.g., entry of pre-discharge order, performance of medication reconciliation, provision of patient education, entry of discharge order).

  - *VAMC:* Checklist to promote timely execution of a comprehensive set of pre-discharge tasks (see Figure D-3 in Appendix D.5 for a sample discharge checklist, adapted from the checklist in use at Salt Lake City VAMC).

- *VACO/VHACO/VAMC:* Increase national and local efforts to engage Veterans and their families in optimal use of their VA health care benefits.

  - *VACO/VHACO:* Launch national campaign to educate Veterans and their families on the optimal setting to receive care for different complaints and clinical conditions.

  - *VAMC:* Provide Veteran education regarding risks and benefits of acute inpatient hospitalization as part of regular discharge planning processes at the local level.

  - *VAMC:* Incorporate early communication with Veteran families regarding appropriate use of inpatient care into locally-developed discharge planning processes.

7.3.2.4 Increase Off-hours Coverage of Clinical Services Including Specialist Consults, Allied Health Evaluations, and Imaging/diagnostics

Our findings on-site indicate significant challenges with VHA's operating model related to the ability to provide needed care outside of normal business hours. The medical literature supports LOS improvements through optimized coverage of consultative and other key clinical services, particularly during weekends. VHA should undertake improvements in this domain to match the practices of high-performing hospital organizations, reducing unnecessary delays in care and ensuring optimal use of inpatient bed capacity and resources.

Summary of supporting evidence:

- See Section 7.2.3.1 for more detail on findings.

- Proposals from clinical staff participating in on-site workshops suggest front-line recognition of LOS challenges during off-hours, with 95 percent of facilities recommending increased access to consultative services during off-hours to reduce avoidable discharge delays.[323]

- Evidence from the academic literature supports LOS improvements through increased access to weekend services, including physical therapy (Kolber, 2013; Rapoport, 1989).

- Experience of high-performing hospitals demonstrates improved LOS outcomes resulting from 7-day-per-week coverage of consultative services (Engel, 2013).

Potential near-term actions:

- *VAMC:* Match consultative, diagnostic, and clinical support services to patient needs, particularly during weekends when limited services contribute to extended LOS; refer to Section 5.3.3.1 of this report for additional detail on this action.

7.3.3 Potential Opportunity

Improvements to LOS management and care transition practices have the potential to generate impact across a number of important dimensions. By increasing efficiency of inpatient processes, VHA has the opportunity to shorten LOS, which could reduce potential issues with access to inpatient care for VAMCs with capacity concerns.[324] Other positive, though less quantifiable, outcomes would be expected based on the reported experience of other hospitals and previously cited evidence from the academic literature. These outcomes include increased patient satisfaction, improved quality of care, reduced readmission rates, improved patient adherence to post-discharge care plans, and enhanced quality of life for Veterans (Winther, 2015; Lagoe, 2011; Kleinpell, 2008; Siggeirsdottir, 2005). These benefits, though difficult to quantify, provide sufficient justification for VHA to undertake the reforms necessary to improve LOS in order to deliver on the organization's stated mission of "honoring America's Veterans by providing exceptional health care."

Regarding the quantifiable benefits of improved LOS management, reduction in VHA national LOS could free significant capacity within the inpatient setting. As previously noted, VHA LOS exceeds DRG-adjusted Medicare average for patients treated in the private sector by 2.1 days (55 percent) (see Section 7.1.2). Despite Veteran-specific factors that likely account for some of the observed LOS difference, discrepancies in facility-level outcomes across VHA (about a 4-day range in OMELOS, see Section 7.1.2) and our observations regarding the variability of best practice adoption across the organization (see Sections 7.2.1-7.2.4) suggest that LOS outcomes could be improved by improving VHA's current capabilities and practices. Even small

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[323] Site visit discharge planning assessment workshops (N=20)

[324] As noted in Section 6, our assessment indicated a lack of robust data at the national level regarding inpatient capacity and utilization metrics, preventing a comprehensive analysis of where LOS improvements might ease access concerns across the organization.

improvements in overall LOS represent a significant opportunity across VHA's current approximately 600,000 annual admissions: for every 1 percent reduction in average LOS, VHA would free roughly 35,000 bed-days, which represents the potential to accommodate approximately ~6,000 additional admissions annually within VHA's system (about 1 percent of current overall admissions).[325]

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[325] Note that in order to realize these potential capacity gains, VHA would likely need to alter current staffing to effectively care for an increased volume of new admissions. This is based on the finding from the academic literature that patients require more time-intensive care during the early phases of admission compared to the pre-discharge period.

8 Patient Experience

Part F ("Assessment F"), Section 201 of the Veterans Access, Choice, and Accountability Act of 2014 ("the Choice Act") mandates an assessment of the organization, processes, and tools used to support positive patient experience. It is important to note that in recent years, the understanding of what patient experience means has evolved to go beyond the basic provision of high-quality medical care (Wolf, 2014). The core elements of patient experience encompass interactions with health care staff and processes across the continuum of care, involving the individualization of care and communication, and the engagement with patients as members of the care team in order to meet and exceed their expectations (Staniszewska, 2014, The Beryle Institute, 2010; Wolf, 2014). VHA has adopted a similar definition with their patient-centered care (PCC) program, which is designed for VHA to "…partner with our Veterans to be mission-ready for their lives, optimizing their health in service of what matters to them."[326]

In light of industry focus and the potential for new access choices for Veterans through the Choice Card, promoting a positive patient experience will be increasingly important for patient acquisition and retention, continuity of care, and quality (Manary, 2013).[327,328] While patient experience is shaped throughout the continuum of care including the outpatient setting and touch points outside of formal clinical encounters, in keeping with the legislation, this section will focus exclusively on patient experience in the inpatient setting.

8.1 Summary

8.1.1 Assessment Approach

As described in the methodology of this report (Section 2), we collected information in several ways, using a common approach across sub-assessment areas within Assessment F:

- Visits to 21 VAMCs (complexity level 1a, 1b, 1c, and 2)[329], to conduct over 300 interviews with leadership (e.g., VAMC Director, Assistant Director for Patient Care Services, Quality Manager) and front-line personnel (e.g., patient advocates, nurses, physicians, and allied health professionals) on Veteran-centered care and patient satisfaction.

- Data call sent to a clinical, quality, and patient advocacy staff across all VAMCs to gather objective data that is not consistently maintained at the national level (e.g., patient

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[326] VHA's definition of patient-centered care

[327] Increased patient acquisition and retention: Satisfied patients are over three times more likely to return to a provider they have been to before.

[328] Improved Patient Access and Health: Positive correlation exists nationally between CMS quality scores and HCAHPS (Hospital Consumer Assessment of Healthcare Providers and Systems) scores.

[329] Given the focus of Assessment F on inpatient medical facilities, we chose to only visit and include data call and survey results from VAMCs providing substantial inpatient medical care (complexity levels 1a, 1b, 1c, and 2), and did not include other types of facilities (e.g., community-based outpatient clinics [CBOCs], complexity level 3 facilities).

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advocacy organizational structure, prevalence of best practices), completed by 51 respondents across 121 (42 percent) VAMCs (complexity level 1a, 1b, 1c, and 2).[330]

- Data collection from the national Survey of Healthcare Experiences of Patients (SHEP) which is sent to all patients following discharge from a VAMC; data is aggregated at the VAMC, VISN, and system-level.

- Interviews with leadership from multiple VACO and VHACO offices, including the Office of Patient Centered Care and Cultural Transformation (OPCC&CT) and MyVA, focused on patient experience and Veteran-centered care.

Having collected information to understand VHA's practices and performance with respect to positive patient experience, we then assessed how these practices compared to best practices and industry benchmarks. Best practices and benchmarks were identified through several sources, including:

- Interviews with leadership from high performing hospitals (internal and external to VHA), selected from among organizations that scored in the 95th percentile in the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS),[331] a nationalized survey tool to collect data on patient experiences and perspectives.

- Academic literature (e.g., research supporting a link between employee training, leadership support, and Veteran engagement in promoting a positive patient experience).

VHA's instrument to measure inpatient satisfaction, the SHEP survey, was designed to "systematically obtain information from patients that can be used to identify problems or complaints that need attention and to improve the quality of health care services delivered to Veterans" (VA Form 10-1465-1, 2007). The survey is mailed to all patients discharged from a VAMC and includes a series of questions, as outlined in Appendix E-1, that prompt the patient to evaluate his or her experiences related to: hospital cleanliness and quietness, communication with doctors and nurses, overall responsiveness, communication about medications, discharge information, and care transitions.[332] Discharged patients are also prompted to rate their overall hospital experience and their willingness to recommend the hospital. Results are aggregated at VAMC level and used to evaluate individual facility performance, as well as system-wide and regional comparisons (VA Form 10-1465-1, 2007).

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[330] Total VAMC count depends on whether campuses of the same parent station are counted as separate VAMCs or one entity. We have based the count used in our site selection (122) on data drawn from VSSC, 2014 and SAIL, 2014 (see Appendix). In some instances, we use 121 as the denominator, based on data available in the data sets most commonly used for that section.

[331] CMS HCAHPS refers to the Center for Medicare and Medicaid's Hospital Consumer Assessment of Healthcare Providers and Systems, a survey tool that compares the "top box" or most positive responses to HCAHPS survey questions. The "top-box" response is "Always" for five HCAHPS composites (Communication with Nurses; Communication with Doctors; Responsiveness of Hospital Staff; Pain Management; and Communication about Medicines) and two individual items (Cleanliness of Hospital Environment; Quietness of Hospital Environment), "Yes" for the sixth composite, Discharge Information; "9" or "10" (High) for the Overall Hospital Rating item, and "Would definitely recommend" for the Recommend the Hospital item (VHA Facility Safety Report, 2012)

[332] VHA SHEP Scores (FY14)

SHEP closely follows the guidelines described by the Centers for Medicare and Medicaid Services' (CMS) Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) tool to assess private facilities (for example, the questions and scoring in both surveys are verbatim, as outlined in Appendix E-1).[333] We have benchmarked VAMC SHEP scores with HCAHPS scores as HCAHPS is the industry standard for measuring patient experience, however we recognize there may be other aspects of experience that HCAHPS does not measure (e.g., financial and clinical outcomes).

To enable an analogous comparison of VHA SHEP scores to private HCAHPS scores, we used VHA's methodology for calculating composite scores across the common inpatient dimensions of care[334] (detailed methodology outlined in Appendix E-1). It is relevant to note, however, that there may be some variability in SHEP and HCAHPS scores as a result of the techniques used to administer the survey. HCAHPS requires that all patients be surveyed between 48 hours and 6 weeks of discharge through one of four survey modes: mail, telephone, mail with telephone follow-up, or active interactive voice recognition (HCAHPS Fact Sheet, 2015). While VHA meets these guidelines, it administers all surveys through the mail, 2 weeks post discharge (VA701-13-R-0313-002, 2013).

Despite comparability of collection tools, there are additional factors to consider when comparing patient satisfaction at VHA with that of private facilities, including impact of both discrete patient populations and facility characteristics on satisfaction scores. For example, Veterans strong affiliation with the mission of VA and sense of connection with fellow Veterans may result in higher patient satisfaction scores as compared to a community health system. Conversely, literature shows that patient populations with high rates of mental health and socio-demographic challenges (e.g., low income and homelessness) have been shown to negatively skew patient experience scores (Westaway, 2003), while obstetric (OB) patients have been shown to report disproportionately positive experiences (Patel, 2011). As a result, there are several reasons why VHA's scores could be anticipated to be lower than the market average:

- Higher prevalence of mental illness. On average 20 to 40 percent of recently returned service members and Veterans are found to have a mental disorder, compared with only 4.2 percent of the general population (Behavioral Health Barometer, 2014; Report of the Department of Defense on Mental Health, 2007).[335]
- Higher prevalence of low-income patients. Twenty-three percent of Veterans have a household income under $30,000, while only 17 percent of private households are below $30,000. The Federal Poverty Line for a family of four is $24,250 (Office of the Assistant Secretary for Planning and Evaluation, 2015). According to VA's National Center for

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[333] SHEP FY14, HCAHPS training materials 2015 (HCAHPSonline.org)

[334] Cleanliness of the hospital environment, communication about medicine, communication with doctors, communication with nurses, discharge information, quietness of the hospital environment, overall rating of the hospital, willingness to recommend hospital, care transitions, pain management, and responsiveness of hospital staff

[335] Refer to Assessments A and B for additional information on Veteran demographics.

Veteran Analysis and Statistics, as disabled Veterans' household income increases the likelihood that they use VA health care decreases (Unique Veteran Users Report FY12, 2014).

- Higher incidence of homelessness. In 2015 the rate of homelessness amongst the general population was 18.3 homeless people per 10,000 people compared with 25.5 homeless Veterans per 10,000 Veterans (National Alliance to End Homelessness, 2015)

- No OB services. Women account for only eight percent of VA users (Unique Veteran Users Report FY12, 2014), though the number of women Veterans who use VA benefits is increasing (up 27.5 percent since 2005). While private facilities' HCAHPS scores are elevated by the inclusion of OB services, these do not exist in VHA facilities (Patel, 2011).

While it is difficult to quantify the impact, positive or negative of these factors, VHA's patient satisfaction scores are slightly lower than private facilities, as outlined in **Figure 8-1** and **8-2**. VHA's average score across the 11 dimensions, calculated using the methodology described above, is within six points of the market average, and VHA exceeds the market average in care transition by 20 percentage points.[336] While VHA does have top performing facilities in line with high performing private facilities (e.g., Cleveland Clinic's average score across all HCAHPS measures is 86.1 and Palo Alto VAMC's average is 86.2), the average VAMC score of 82.4 percent is below the Cleveland Clinic's aggregate score of 86 percent.[337] Additionally, variability does exist across the system, as detailed in **Figure 8-2**, (e.g., standard deviation of SHEP scores is 3.6 compared with market standard deviation of 4.3)[338] indicating an opportunity to leverage the best practices of high-performing facilities (both internal and external to VHA) to support the improvement of lower-performing facilities. Historically VHA patient satisfaction scores on care transitions have exceeded national averages, this is surprising given the findings in Section 7; unfortunately, the scope and approach for our assessment did not allow us to delve into the root cause behind this discrepancy. Appendix E-2 outlines patient experience best practices as related to health systems' organizational structure, workflow processes, and tools.

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[336] VHA SHEP Scores (FY14) and CMS HCAHPS scores (FY14)

[337] VHA SHEP Scores (FY14) and CMS HCAHPS scores (FY14)

[338] VHA SHEP Scores (FY14) and CMS HCAHPS scores (FY14)

Figure 8-1. Patient Satisfaction Scores (SHEP vs. HCAHPS)[339]

VHA's patient satisfaction are on par, or slightly lower than national benchmarks

Percent[1]

Legend:
- 2014 SHEP
- 2014 HCAHPS
- Exceeds benchmark

Category	2014 SHEP	2014 HCAHPS
Care transitions	74	51
Cleanliness of the hospital environment	91	92
Communication about medication	80	82
Discharge information	84	86
Communication with nurses	93	96
Communication with doctors	93	96
Responsiveness of hospital staff	87	91
Willingness to recommend hospital	66	71
Pain management	89	93
Overall rating of hospital	65	71
Quietness of the hospital environment	86	90

SOURCE: SHEP (FY14); CMS HCAHPS (FY14)

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[339] VHA SHEP Scores (FY14) and CMS HCAHPS scores (FY14)

The views, opinions, and/or findings contained in this report are those of the assessment team and should not be construed as an official government position, policy, or decision.

Figure 8-2. Patient Satisfaction Variability (HCAHPS)[340]

Variability across VAMCs indicates an opportunity to better leverage best practices from top performing facilities

Average SHEP score by facility

Percentage, FY14

- - - Market average
—— VHA average

Facilities above VHA average
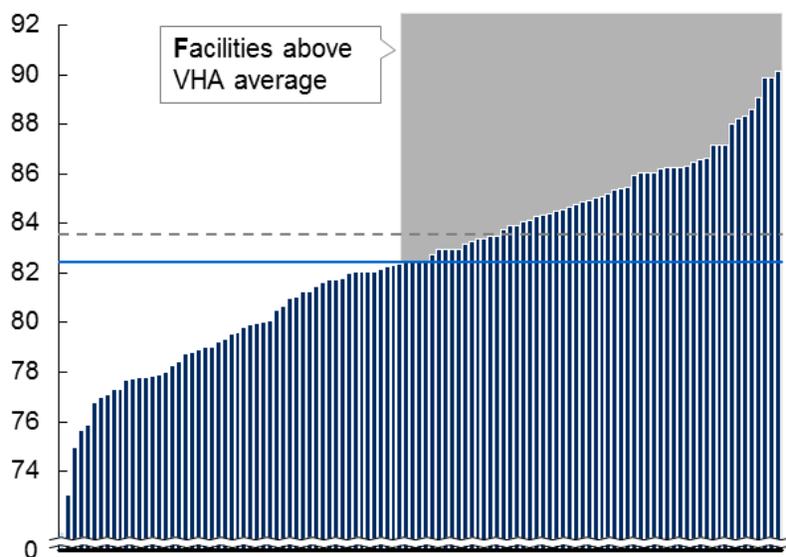
Comparison of SHEP and HCAHPS (FY14)
- Average SHEP scores across common categories trail market averages by less than 2 percentage points
  - VHA average: 82.4%
  - Market average: 83.6%
- Variance across facilities is comparable
  - VHA standard deviation: 3.6%
  - Market standard deviation: 4.3%
- High performing health systems scores are comparable
  - VHA top quartile: 81%
  - Market top quartile: 80%

1 SHEP score across all common categories evaluated by SHEP and HCAHPS
2 Average of communication with nurses, communication with doctors, communication about medication, and discharge information scores

SOURCE: CMS HCAHPS (FY 14); SHEP (FY14)

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[340] VHA SHEP Scores (FY14) and CMS HCAHPS scores (FY14)

The views, opinions, and/or findings contained in this report are those of the assessment team and should not be construed as an official government position, policy, or decision.

8.1.2 Summary of Findings

We observed several key areas of strength and challenges related to patient experience at VHA. These findings apply to VHA organization, processes, and tools as specified in the legislation; a detailed mapping is available in Appendix E-3.

8.2.1 National and facility-level focus on the prioritization and provision of Veteran-centered care has driven pockets of best practice innovation. More than 90 percent of VAMCs visited cited Veteran-focused staff as a key strength of their facility.[341] Many individuals cited Veterans as the chief reason they decided to work for VHA, even when faced with more lucrative offers.[342] This focus on the Veteran is evident across organizational levels. One example is Palo Alto's Veteran and Family Advisory Committee that was founded to engage Veterans and their families as active participants in patient care and hospital operations. To achieve this level of engagement, the VAMC includes patient advisory members on all hospital committees to ensure the Veteran voice is heard. Palo Alto has assisted several other hospitals, including the Mayo Clinic, to implement similar models.[343]

8.2.2 Adoption of best practices and engagement of Program Office support services are varied across VAMCs. While initiatives at both the Central Office and selected facilities exemplify Veteran-centered care and industry-accepted best practices, system-wide adoption is limited due to inconsistency in facility leadership, which drives a lack of prioritization on patient experience best practice implementation, and insufficient VHACO infrastructure to codify and share facility-driven initiatives across the system.

8.2.3 Challenges with respect to timeliness and specificity in the SHEP survey results limit VAMCs' ability to drive performance improvement. Lack of timeliness (e.g., reports are delayed 3 to 6 months[344]) and specificity (e.g., data is not segmented by individual department, or unit) of SHEP survey results limits the perceived effectiveness, accuracy, and actionability of patient satisfaction results.

8.1.3 Summary of Recommendations

Our assessment revealed several areas where VHA can build on current strengths or address existing challenges to improve patient experience. We recommend that VHA consider two strategic themes, as detailed below. As with the findings, these themes apply to VHA organization, processes, and tools.

8.3.1 Collect More Timely and Relevant Patient Experience Data to Drive Performance Improvement at the Facility, Department, and Individual Level. VHA should ensure

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[341] Site visits, interviews with patient advocate and quality manager, and ED throughput workshop (N=21 sites)

[342] Site visits staffing workshop (N=19 sites)

[343] Palo Alto VAMC follow up discussion: Office of Patient Experience

[344] Site visit patient advocate interviews (N=21 sites)

its patient satisfaction tool(s) delivers granular survey results (for example, at the individual department or unit level) in a timely (e.g., real-time or near real-time) and actionable format (e.g., consistent across the system).

8.3.2 **Strengthen national and facility level support for patient-centered care programs to increase adoption.** VHA should strengthen adoption of best practices by providing the infrastructure to support the evaluation, codification, and implementation of facility-driven initiatives. This level of system-wide adoption can only be achieved through improved coordination, consistency, and support from leadership at the VACO, VHACO, VISN and VAMC levels.

8.1.4 Past Findings and Recommendations

In 1995, VHA launched a "major reengineering of its health care system with aims that included better use of information technology, measurement and reporting of performance, and integration of services and realigned payment models" (Jha, 2003). While the focus of this system redesign was improved quality – and results showed dramatic improvement in quality[345] (Jha, 2003) — patient satisfaction following the redesign has been favorable. In 1999, 80 percent of users were more satisfied with their hospital experience as compared to 2 years earlier. Additionally, in 1999, VHA outscored private hospitals in overall customer satisfaction as measured by the American Customer Satisfaction Index (Edmondson, 2006). VA was recognized in 2004 for setting national benchmarks in patient satisfaction while having proportionally fewer resources, as compared to the private sector (Perlin, 2004).

While patient satisfaction at VHA is often cited as a strength, the Voice of the Veteran, the American Legion task force, and the American Customer Satisfaction Index have identified some limiting factors and recommendations for improvement, as detailed in Appendix E-4. Examples of these limitations include, but are not limited to:

1. An excessive number of quality and patient satisfaction performance measures

2. Deficiencies with patient satisfaction reporting, as evidenced by the 3- to 6-month delay in survey results

3. Challenges in staffing front-line clinical employees and patient advocates due to the lengthy hiring process.

In 2011, VHA established the Office of Patient Centered Care and Cultural Transformation (OPCC& CT) with the goal of moving VHA from a "disease-based and reactive health care system to one that concentrates on Whole Health: a personalized, proactive, and patient-

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[345] The VHA exceeded Medicare averages between 1997 and 1999 across five inpatient clinical quality metrics related to acute myocardial infarction (AMI) and congestive heart failure (CHF). AMI measures include: aspirin within 24 hours after MI, aspirin at discharge, and beta blocker at discharge. VHA exceeds the Medicare average on these measures by 8 percent, 10 percent, and 19 percent, respectively. CHF measures include: ejection fraction measured and ACE inhibitor if injection fraction is <40 percent; VHA exceeds the Medicare average by 27 percent and 25 percent respectively (Jha, 2003).

driven" approach to health care (VHA OPCC&CT Resource Guide, 2015).[346] The OPCC&CT is dedicated to providing care that is

"...personalized: tailoring a person's health care to their individual characteristics, proactive: using strategies that strengthen the person's innate capacity for health and healing, and patient-driven: health care that is based in and driven by what really matters to the person in their life" (Krejci, 2014).

In 2013, the OPPC&CT published a report on lessons learned from implementing patient-centered care (PCC) practices at its four established centers of innovation, New Jersey VAMC, Greater Los Angeles VAMC, North Texas VAMC, and Birmingham VAMC. The report outlines seven core themes that impacted the implementation of patient-centered care and span across seven themes that are core to an effective implementation (OPCC&CT Lessons from the Field, 2013):

- Recognize the role of leadership.
- Engage Veteran patients and family members.
- Enculturate staff to adopt a patient-centered perspective.
- [Foster] innovation.
- [Recognize] staff roles and priorities.
- [Recognize] challenges of VA procedures and infrastructure.
- Implement environment of care changes.

These prior assessments have tended to focus on specific issue areas and/or individual facilities, separately developing recommendations for improvement in discrete areas. In contrast, our assessment tries to take an end-to-end view of inpatient clinical operations across five key sub-assessment areas and all high- and medium-complexity VAMCs.

8.2   Findings

Through our site visits, data analysis, interviews, and benchmarking, we identified strengths and challenges in patient experience across the VHA inpatient care setting. The sub-sections that follow (8.2.1, 8.2.2, and 8.2.3) describe these findings in detail, including information on what we believe the drivers of each finding to be.

8.2.1   National and facility level focus on the prioritization and provision of Veteran centered care has driven innovations in best practice

8.2.2   Adoption of best practices and engagement of program office support services are varied across VAMCs

8.2.3   Challenges with respect to timeliness and specificity in the SHEP survey results limit VAMCs' ability to drive performance improvement

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[346] Additional detail on the OPCC&CT outlined in Section 8.2.1.

As noted in Section 2.2, data issues prevented us from conclusively assessing many areas of patient experience. We have used the national datasets that were available, information returned as part of the data call, and perceptions and experience reported or observed during site visits or via the staff survey. In many instances where data does not allow us to definitively comment, we have described the potential implications of the data points we do have, along with recommendations in Section 5.3 for further analysis.

8.2.1 National and Facility-level Focus on the Prioritization and Provision of Veteran-centered Care has Driven Innovations in Best Practices

More than 90 percent of VAMCs visited cited Veteran-focused staff as a key strength of their facility.[347] This prioritization of Veteran-centered care appears to cascade across organizational levels, as detailed in **Figure 8-3**. It is evident at the national level through organization-wide training programs and at the VAMC level through initiatives that connect staff and Veterans, as well as tailored programs that engage and empower Veterans in their own care.

At the national level, consistent with industry best practices that support compulsory system-wide patient-centered care training (Luxford, 2011), a Veteran-centered care training program has been consistently rolled out to all VAMC employees[348]. One example coming out of that training is what was termed by some in VHA as the "elevator culture" – as a sign of respect, employees consistently yield to Veterans getting on or off the elevator. We've observed this practice by employees at each of the sites visited.[349]

Additionally, national and facility-level initiatives focus on connecting staff with Veterans. Examples include the national "No Veteran Dies Alone" program and Maine VAMC's local community garden and Culinary Health on Wheels (CHOW) programs. No Veteran Dies Alone is a volunteer program that brings nurses and volunteers in on their days off to sit with dying patients. An ICU nurse describes this program as "a blessing to be able to give back to them, when they have given so much for us" (Knake, 2010). CHOW engages Veterans and employees alike, to grow fruits and vegetables in the VAMC's community garden; much of each gardener's crops are donated to Veterans in need. Additionally, the CHOW program provides education on how to prepare healthy, low-cost meals[350] (VA Maine Healthcare Facebook page, 2015).

Finally, interviewed patient advocates explained a growing trend in facility-level initiatives to engage patients in their own care and experience. Examples of these initiatives include Veteran tasting panels to improve food quality, Veteran and family advisory councils (detailed in Section 8.2.1.2), and Veteran volunteers.[351] This practice of creating a collaborative care environment empowers Veterans to become actively involved in the improvement of overall patient

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[347] Site visits interviews with patient advocates, and quality manager and ED throughput workshops (N=21 sites)

[348] Site visit interviews with patient advocates (N=21 sites)

[349] Site visit ICU shadowing session (N=21 sites)

[350] Maine VAMC interview with patient advocate

[351] Site visit interviews with patient advocates (N=21 sites)

experience and exemplifies evidence-based best practices that recommend engaging the patient as an active participant in his or her care (Wolf, 2014; Hibbard, 2013).

Figure 8-3. Veteran-Centered Care Initiatives

The prioritization of Veteran centered care appears to cascade across organizational levels

Initiatives	Example		
• National **Veteran centered care training program**	• **"Elevator culture"** in which all employees wait for the Veteran • **Employee recognition** for delivering patient centered care	"Substance abuse is the norm amongst our patients, aggression issues are common, other places don't like them, but we do. We give them something no one else will. We love them[1]"	
• National and facility level programs **focus on connecting staff with Veterans**	• **"No Veteran dies alone"** volunteer program brings nurses in on their days off to sit with dying patients	"It's a blessing to be able to sit there with them and let them know they're not forgotten[2]"	
• Facility level initiatives **involve Veterans in improving their experience**	• **"Veteran and Family advisory councils"** serve as a forum to engage Veterans in improvement efforts, clinical care delivery, and policy creation	"I wanted to focus on the little things that we can do locally to make things better when someone goes to the doctor[3]"	

1 Gainesville VAMC site visit
2 Knake, Lindasay, "Saginaw VA Hospital Program Gives Veterans Company, Support in Their Final Days." The Saginaw News, September 2010
3 Maddox, Michael, "Veteran and Family Advisory Council Launched." W.G. (Bill) Hefner VA Medical Center – Salisbury, NC. VAMC website news, December 2014

Supporting this national and facility-level focus on the prioritization and provision of Veteran-centered are two key drivers:

8.2.1.1 Program offices (e.g., OPCC&CT, myVA, National Center for Health Promotion and Disease Prevention) at the national level, support patient-centered clinical innovation, outcomes-based research, and education and implementation support

8.2.1.1 Veteran-focused initiatives, developed locally at individual VAMCs, exemplify industry best practices at the bedside

8.2.1.1 Program Offices, at the National Level, Support Patient-centered Clinical Innovation, Outcomes-based Research, and Education and Implementation Support

At the national level, several offices and initiatives (for example, OPCC&CT, myVA, National Center for Health Promotion and Disease Prevention) appear committed to promoting Veteran-

centered care across the system. While this is most evident in the programs that support patient-centered care innovation, research, and implementation support, namely the OPCC&T, there is a risk across VACO and VHACO program offices of conflicting and/or poorly coordinated national support; reference Assessment L for additional details on Program Office coordination and consolidation.

- Office of Patient-Centered Care and Cultural Transformation (OPCC&CT)

    Aligned with its three core strategies of (a) clinical innovation; (b) research and outcomes; and (c) education, the OPCC&CT, as described in **Figure 8-4** and detailed below, has implemented several practices in line with evidence and patient experience best practices. Additionally, the OPCC&CT has differentiated itself in its change management approach. The office understands that cultural change cannot be directed, so rather than compel a single model for PCC, it showcases several proven models and allows the VAMCs to select the models and level of support that best meet their needs[352] (Dunn, 2015). To date, the office reports that over 65 percent of VAMCs[353] have requested some level of engagement from either its field implementation teams, Whole Health Training Program, and/or Communities of Practice indicating that this national program is underway but has not been implemented across the system.

    These PCC best practice models and resources are evident in all three elements of the office's strategy.

    ### (a) Clinical innovation.

    OPCC&CT has partnered with five VAMCs — New Jersey, Greater Los Angeles, North Texas, and Birmingham — to create five hubs or Centers of Innovation, from which to showcase evidence-based strategies for driving improvements in patient experience. Each of these Centers pilots new PCC approaches and programs and evaluates their impact on health outcomes (Krejci, 2014). For example, Los Angeles VAMC and New Jersey VAMC have each piloted new patient experience organizational structures. New Jersey divided its Patient Care Services' Department into a Clinical Office and an Office of Patient Experience, while LA has created a single patient care and clinical transformation office that staffs patient advocates, HR specialists (focused on employee engagement) and clinicians.[354] Both approaches align with best practices, exemplified by high-performing facilities like the Cleveland Clinic, highlighting the importance of a facility-level position(s) focused on patient experience (Beryl Institute, Cleveland Clinic, 2010), supported by an interdisciplinary team (Manary, 2014).

    ### (b) Research and outcomes.

    Evidence-based practices are a cornerstone of the OPCC&CT; its team not only supports external research on industry-accepted best practices, but it also evaluates

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[352] Interview with Office of Patient Centered Care and Cultural Transformation

[353] Interview with Office of Patient Centered Care and Cultural Transformation

[354] Interview with Office of Patient Centered Care and Cultural Transformation

the health outcomes of pilot initiatives at each of the Centers of Innovation. OPCC&CT recently partnered with the Bravewell Collaborative to pilot the Patients Receiving Integrated Medicine Interventions Effecting Registry (PREMIER). The data registry is intended to "provide foundational new knowledge on how integrated medicine is being used in real-world settings…to ultimately inform future clinical trials as well as decision-making in clinical settings" (Krejci, 2014). OPCC&CT uses its findings from research to support evidence-based programs that deliver patient-centered care to VAMCs across the system (Capturing proactive patient centered care, 2014).

(c) Education.

As detailed above, OPCC&CT provides support and training to VAMCs that request assistance, but does not compel patient experience initiatives or new models of care. Field implementation teams (FIT) are deployed to sites that request additional support. Initially their strategy focused on inspiring facility leadership; however, the team is adapting its focus to the front-line. Lessons learned from patient-centered care highlighting the importance of leadership and front-line engagement came directly from the field implementation teams.[355]

Whole Health (WH) is a "custom-designed clinical education program" designed by the University of Wisconsin – Madison Integrative Medicine focused on "empowering self-healing" through complementary alternative medicine including "nutrition, stress management, movement, and mindful awareness" (Whole Health: Change the Conversation). Administrators and clinicians alike cite the effectiveness of this program stating, "Whole heath was life-changing for me; I really appreciate the meditation and the art of guiding others, truly listening, and getting patients to think about what health goals they have, even in my capacity as an administrative person[356]" and "I immediately was able to start using principles, and asking questions like: What is the most important thing to you. These questions make it more clear what the Veteran is thinking about and what is important."[357]

Community of practice calls and workshops are held regularly to enhance collaboration across facilities and connect VAMCs with experts. Current communities of practice include: integrated health, patient-centered care, patient advocacy, and the Veteran experience. One patient advocate attendee at a 2015 workshop commented, "It was good to sit in a room with other advocates and hear that they were dealing with the same challenges we had… It was clear that they [OPCC&CT moderators] cared about our perspective."[358] These calls and workshops

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[355] Interview with Office of Patient Centered Care and Cultural Transformation

[356] Whole Health: Change the Conversation (Advancing skills in the delivery of personalized, proactive, and patient-driven care) (2014)

[357] Whole Health: Change the Conversation (Advancing skills in the delivery of personalized, proactive, and patient-driven care) (2014)

[358] Site visit interview with patient advocates (N = 21 sites)

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not only facilitate collaboration, but they also empower the front-line to take ownership of performance improvement (Luxford, 2011).

Figure 8-4. Program Office Focus on Patient-Centered Care

Mission of the Office of Patient Centered Care and Cultural Transformation

"Our goal is to design a system where we partner with our Veterans to be mission ready for their lives, optimizing their health in service of what matters to them.[1]"

– Tracy Gaudet, MD (Director OPCC&CT)

Approach[2,3]	Successes[2,3]
▪ **Evidence based research** on the impact of patient-centered care initiatives and **pilot programs at VAMC Centers of Innovation** ▪ Targeted leadership and front-line **implementation support through the deployment of Field Implementation Teams** ▪ **Dissemination of best practices** through communities of practice, workshops, and video	▪ FIT conducted **engagement sessions at >50% of VAMCs** ▪ **Supported and funded the establishment of patient centered care Centers of Innovation** that piloted innovative strategies and served as demonstration sites ▪ Built a series of **communication resources and tools** including a share-point and intranet with videos ▪ Initiated **research to evaluate the most effective way in which leadership, staff, and clinicians enhance the practice and experience of care,** based on evidence and Veteran perspectives ▪ **Built a series of community of practice forums** – monthly national discussions to allow practioners and clinicians to share updates and strong practices

"Cultural transformation cannot be mandated, **our approach is to let the facilities pull the information they want** … we have built trust by showing leaders the experiences provided at our Centers of Innovation … in the future we are developing videos to help communicate these new models of care[3]"

1 "Patient Centered Care - A Transformation of Health Care," VHA website. http://www.va.gov/health/newsfeatures/20120827a.asp
2 2014 Annual OPCC&CT narrative. "Capturing personalized, proactive, patient-driven care across VA." Health for Life – www.VA.gov\health (2014)
3 OPCC&CT SME interviews (N = 4)

- Program offices with patient experience functions

  In addition to the resources available through OPCC&CT, many other program offices have similar and/or complementary initiatives. While each of these offices appears focused on Veteran-centered care, there may be some overlap and duplication across offices.

  National programs include, but are not limited to:

- Office of Patient-Centered Care and Cultural Transformation (OPCC&CT). Founded in 2011, it "creates a structure to oversee [VHA's cultural transformation to patient-centered care], employing and training staff, establishing Centers of Excellence, and guide and support the transformation of every VHA Network and health care facility." (Gaudet, 2014)

- National Center for Health Promotion and Disease Prevention "provides programs, education, resources, coordination, and oversight to field staff to prevent illness and

enhance health, well-being, and quality of life for Veterans." (VA Functional Organizational Manuel, 2014)

- Specialty Care Services "ensures the best overall preventative, clinical, spiritual, religious, and nutritional care is made available to Veteran patients." (VA Functional Organizational Manuel, 2014)

- Analytics and Business Intelligence "supports the External Peer Review (EPRP) and SHEP tool including developing measures to track clinical and other outcomes based on the philosophies of evidence-based practice." (VA Functional Organizational Manuel 2014)

- National leadership council "provides the governance structure for all policies, plans, and procedures across the entire VHA, including Veteran experience." (VA Functional Organizational Manuel, 2014)

> Among program offices there may be a risk of replicating and or complicating support functions and performance measures, related to Veteran-centered care; reference Assessment L for more detail on Program Office overlap. For example, one study reported that the number of VAMC quality and patient satisfaction measures have increased from 11 to 500 since 2000 (Wong, 2012). In reviewing program offices focused on Veteran-centered initiatives, it appears that OPCC&CT's focus on Whole Health and complementary alternative medicine overlaps with the National Center for Health Promotion and Disease Prevention's focus on wellness and prevention, and the Specialty Care Services' focus on clinical, spiritual, religious, and nutritional support. Additionally, while the Senior Leadership Council provides advisory and governance structure, it is unclear what level of leadership and oversight is provided by the National Leadership Council as compared to the other VACO and VHACO program offices. Furthermore, it is unclear whether the leadership from the above-mentioned program offices sit on the National Leadership Council for Veteran experience. A senior VHA official expressed this lack of collaboration and coordination across Program Office stating:

> "Central Office should be strategic and not driven by fear [as a result of poor publicity in the news]. We often react to the point of micromanagement where everyone is trying to manage operations. Program Office coordination to get to an enterprise solution is an area that needs to improve."[359]

> The MyVA initiative was launched in September 2014 with the objective of "empowering employees to deliver excellent customer service...improving or eliminating process that impede great customer service...and by rethinking internal structures and processes to become more Veteran-centric and productive."[360] The program aims to achieve these objectives by integrating and coordinating services across VA including VHA, Veterans Benefit Administration (VBA), and National Cemetery Association (NCA).

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[359] VHACO SME Interview (2015)

[360] VACO SME Interview (2014)

One example of such coordination, is the program's regional approach to standardizing Veteran-centered care across the system in collaboration with OPCC&CT.[361] Since this approach is still in the planning phases, it is unclear how effectively myVA will coordinate across these program offices, but myVA is working closely with OPCC&CT in an effort to improve Veteran-centered care in field by aligning on initiatives and minimizing central office redundancy.

8.2.1.2 Veteran-focused Initiatives, Developed Locally at Individual VAMCs, Exemplify Industry Best Practices at the Bedside

We have observed many examples of patient experience initiatives, across facilities, that exemplify best practices in (1) Veteran engagement; (2) communication and education; and (3) training. However, there is great variability in the types of programs implemented and their impact. Appendix E-2 outlines best practices exemplified in the literature and high-performing institutions. The following section details the prevalence of those identified best practices across VAMCs.

Veteran and family engagement (Hibbard, 2013 and Wolf, 2014).
Palo Alto VAMC implemented a Veteran and Family Advisory Committee in 2010 to ensure that Veteran and family viewpoints are heard by the Medical Center.[362] Since its founding, the committee has met with over 110 staff and discussed nearly 100 projects and initiatives.[363] With the council's feedback, the VAMC has enhanced patient education materials and implemented sources for real-time patient feedback; it is currently developing a patient safety campaign and two family lounges. In describing the council, Veteran and family members who have applied and been selected to serve on the committee have said, "I am grateful to be part of the solution that affects our loved ones" and "It feels good to make improvements for the health care of Veterans" (VFAC brochure, 2013).

In light of its success, Palo Alto VAMC has developed a workshop to assist other VAMCs in implementing similar Veteran and family engagement models. Additionally, Palo Alto VAMC has assisted the Mayo Clinic in refining its approach to patient and family activation in care.[364] Palo Alto's VAMC follows four core principles, adapted from OPCC&CT:

"Listen to and honor Veteran and family choices; share complete and unbiased information; encourage Veterans and families to participate in care and decision-making at the level they choose; and [promote collaboration such that] Veterans, families, and staff work together to improve clinical care, patient experience,

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[361] VACO SME Interview (2015)

[362] Palo Alto VAMC follow-up discussion: Office of Patient Experience

[363] Palo Alto VAMC follow-up discussion: Office of Patient Experience

[364] Palo Alto VAMC follow-up discussion: Office of Patient Experience

policies, programs, and facility design."[365]

Immediate service recovery through timely communication and patient education (Hibbard, 2013; Beryl, 2010). More than 84 percent of facilities[366] self-report engaging volunteers and front-line staff to round on patients daily to identify and resolve any complaints at the point of care. Of the facilities visited, 75 percent communicate with patients and family through updated whiteboards that indicate their provider team, plan, or discharge, approach to pain management, and other relevant information. [367]

More than 80 percent of facilities front-line staff visited cited patient education as a strength. [368] Albuquerque VAMC has developed and implemented "CHF project red," a video that provides nursing, pharmacy, and nutrition counseling for admitted patients with CHF. The video is played for the patient several times throughout his or her stay and nurses provide individual education at the bedside to reinforce the material.[369]

Empowered front-line to develop and own performance improvement (Luxford, 2011). Most facilities (more than 95 percent)[370] have implemented initiatives targeted at improving patient satisfaction, including but not limited to those detailed above. Gainesville VAMC successfully piloted its resource-neutral "Mobility Tech program" that trained nursing techs to help get patients out of bed earlier and assist them with physical therapy exercises. Results have shown a 48 percent reduction in falls on one floor and a 9.7 percent reduction in readmissions. Gainesville anticipates that the impact of this program, when appropriately scaled, will include improved patient satisfaction and pain management, and reduced lengths of stay.[371]

8.2.2 Adoption of Facility-level Best Practices and Engagement of Program Office Support Services are Varied Across VAMCs

While initiatives at both the central and facility levels exemplify Veteran-centered care and industry accepted best practices, consistent adoption across the system is limited. As detailed above, most facilities have implemented some initiatives focused on patient satisfaction, but there is little consistency in the types of initiatives and their impact. For example, in the Gainesville mobility example, the program has shown promising results, but it has only been implemented on one floor in one VAMC. Additionally, though most VAMCs cite patient training

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[365] Palo Alto VAMC follow-up discussion: Office of Patient Experience

[366] Choice Act data call (N=51 sites)

[367] Site visit shadowing sessions (N=21 medical/surgical floors)

[368] Site visit interviews with patient advocate and quality manager and discharge planning workshops (N=21 sites)

[369] Site visit discharge planning workshop (N = 20 sites)

[370] Site visit patient advocate interviews (N=21 sites)

[371] Gainesville site visit Medical floor shadow session

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as a strength, patient education programs like project red have been implemented sporadically across the system; we observed this program in less than 15 percent of sites visited.[372] Limited adoption and standardization may be attributed to three key drivers:

8.2.2.1 Central Office reach is limited by the level of facility leadership engagement

8.2.2.2 Structure to codify and share facility-driven initiatives across the system is limited

8.2.2.3 Implementation of point-of-care feedback tools (e.g., GetWell Network, Truth Point) is varied across the system

8.2.2.1 Central Office Reach is Limited by the Level of Facility Leadership Engagement

OPCC&CT followed a logical implementation approach when initially rolling out its PCC programs at individual VAMCs. It first publicized its FIT programs at the VACO, VHACO, VISN, and VAMC levels, offering its support service to all interested VAMC directors.[373] When engaged by a VAMC Director, OPCC&CT deployed a team to visit the VAMC and conduct an initial diagnostic, including informal interviews and discussion with senior leadership and listening sessions with front-line staff.[374] Following these site visits, the FIT team prepared an individualized report for the VAMC director with a basic roadmap that outlined next steps for implementing new PCC models.[375] The problem with this model was the high degree of facility leadership turnover. As one OPCC&CT leader stated, "One of the hardest things is when we start working with a facility and the leadership leaves and no one is left to continue to the program; we have left many promising facilities right in the middle of an implementation.[376]"

In light of leadership turnover, OPCC&CT has since moved to a staff engagement model, deploying specialty teams focused on topics such as nursing or patient advocacy.[377] While this approach is effective in driving some front-line change, without strong leadership its large-scale potential is limited, as supported in academic literature (Singer, 2013). Ad hoc projects with front-line staff likely lack coordination with the facility's overall strategy. Moreover, 38 percent of site visit interviewees stated that they were overwhelmed by the number of compulsory programs and initiatives.[378] Without clear leadership support to help prioritize initiatives, it is unlikely that staff will have the capacity to both meet mandated and directive obligations and engage the FIT program. Finally, staff engagement is a critical component of PCC and patient experience (Luxford, 2011). One program leader expressed concern regarding staff engagement saying, "If we don't treat our facility leaders a little differently, how are they going to empower

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[372] Site visit discharge planning workshops (N=20 sites)

[373] VHACO Subject-matter expert interview (2015)

[374] VHACO Subject-matter expert interview (2015)

[375] VHACO Subject-matter expert interview (2015)

[376] Interview with Office of Patient Centered Care and Cultural Transformation

[377] Interview with Office of Patient Centered Care and Cultural Transformation

[378] Site visit patient advocate interviews (n=21 facilities)

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their staff?"[379] Refer to Assessment L for additional detail on leadership engagement and turnover.

In April of 2014, following broad system implementation challenges, the OPCC&CT was asked to create the Integrating Health Coordinating Center (IHC) to "identify and remove barriers to providing IH across the system; and be a resource for clinical practices and education for both Veterans and clinicians (Krejci, 2014)." While the goal of this center is improved coordination, results are still preliminary.

8.2.2.2 Structure to Codify and Share Facility-driven Initiatives Across the System is Limited

Despite of the number of VAMC PCC initiatives, there is little support at the VISN and national levels to implement facility-driven best practices across the system.[380] While OPCC&CT promotes industry best practices through its research arm and pilot programs, it struggles with sharing facility-driven best practices across the system. The office is starting to promote collaboration through its workshops and communities of practices, but recognizes that there is a gap in identifying practices in the field, evaluating those practices, codifying them, and pushing them back out to the field at the appropriate time.[381]

It is clear by the prevalence of facility-driven best practices that there is an opportunity to better leverage innovation in the field to impact patient experience. For example, Gainesville VAMC's Mobility Tech program[382] was recognized at a national innovation summit. However, despite proven results and savings from length-of-stay reductions, it did not receive the necessary support to implement the program across the VAMC, let alone the VISN or system. The perceived issue is the Centers of Innovation focus primarily on the initial innovation, but with little tactical support in operationalizing facility-driven best practices and implementing them system-wide.[383]

Palo Alto's Veteran and Family Advisory Council, detailed in Section 8.2.1.2, has overcome this challenge. While the council was developed in-house, Palo Alto's Office of Patient Experience has worked with OPCC&CT to facilitate workshops and trainings at other facilities.[384] The success of this implementation compared with others is likely due to several factors:

- Demonstrated sustained success at the facility level[385] – the council was initially stood up in 2010.[386]

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[379] Interview with Office of Patient Centered Care and Cultural Transformation

[380] Interview with Office of Patient Centered Care and Cultural Transformation

[381] Interview with Office of Patient Centered Care and Cultural Transformation

[382] Mobility Tech program is a resource-neutral initiative that engages techs, trained by physical therapists, to ambulate Med/Surg patients; results show the patients are ambulated earlier and with more regularity than previously demonstrated contributing to higher patient satisfaction and earlier discharges (Gainesville, VAMC)

[383] VAMC site visit interviews (n=21 facilities)

[384] VAMC follow-up interview with Palo Alto's Office of Patient Experience

[385] Interview with Office of Patient Centered Care and Cultural Transformation

[386] VAMC follow-up interview with Palo Alto's Office of Patient Experience

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- Considerable interest from the field, as well as external organizations like the Mayo Clinic.[387]
- Dedicated facility leadership willing to manage training workshops in partnership with OPCC&CT, in addition to their daily jobs.

It is important to note; however, that Palo Alto is a large urban VAMC. This approach of dedicating VAMC resources to train other facilities is unlikely to be scalable without VHACO support, especially in smaller more resource-constrained VAMCs.

8.2.2.3 Implementation of Point-of-care Feedback Tools (e.g., GetWell Network, Truth Point) is Varied Across the System

Select VAMCs are piloting real-time feedback tools, demonstrated in **Figure 8-5.** These tools are targeted at soliciting patient feedback at the bedside, but adoption appears to be limited; 40 percent of data call respondents reported[388] that their VAMC has implemented at least one real-time or near real-time tool to supplement SHEP data. Funding for these tools comes exclusively from the VAMCs or VISNs, so there is minimal Central Office oversight and/or support.[389] The GetWell network has been piloted across several facilities but its potential is limited by security restrictions – for example, the vendor has not received approval to integrate with VistA.[390] Unlike the other feedback solicitation tools, the GetWell network software is designed to customize satisfaction questions and education to a patient's specific condition. Without VistA integration; however, the tool asks patients a standard set of questions and provides common education (e.g., nutrition). Several individuals interviewed during site visits commented that approval was imminent, but to date it is not approved.[391] One high-performing VAMC stated, "We listened to the vendor's pitch but we are not willing to invest money until Central Office has bought into the program and documented its impact."[392]

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[387] VAMC follow-up interview with Palo Alto's Office of Patient Experience

[388] Choice Act Data Call (N=51 sites)

[389] VHA SME interview

[390] VHA site visit interview (N=21 sites)

[391] Site visit patient advocate interview (N=21 sites)

[392] Site visit patient advocate interview

Figure 8-5. Supplementary Patient Satisfaction Tools

Facilities are piloting new tools to support real-time, point of care feedback

Patient Experience Company A	Patient Experience Company B	Patient Experience Company C
Industry leading data analysis and best practices	**Interactive patient whiteboard**	**Real-time data collection**
▪ Provides access to largest real-time HCAHPS and health care benchmark database in the country	▪ Facilitates real-time communication on pain management, communication, etc.	▪ Enables front line staff and volunteers to round on patients and collect actionable experience information at the bedside
▪ **Piloted at all facilities in VISN 7,** to assess impact on patient experience and evaluate return on investment	▪ Integrates directly with CPRS for documenting pain management and patient education	▪ **Long Beach, LA, and Albuquerque** VAMCs have implemented
	▪ **Gainesville, Cincinnati, and Albuquerque VAMCs,** are working with VACO to operationalize patient record integration	

Frustration with the speed and management of new initiatives by leadership at the VISN and VACO levels has led to the fragmented adoption of real-time point of care feedback tools

8.2.3 Challenges With Respect to Timeliness and Specificity in the SHEP Survey Results Limit VAMCs' Ability to Drive Performance Improvement

The VHA's patient satisfaction (SHEP) survey tool provide capabilities on a par with private facilities, but delays in survey results and level of reporting challenges significantly limit the perceived effectiveness, accuracy, and actionability of patient satisfaction results.

Two key drivers in the limited effectiveness of current patient satisfaction survey results include:

8.2.3.1 SHEP results are often delayed by 3 to 6 months and reflect aggregate VAMC patient satisfaction scores (for example, data is not segmented by individual department or unit)

8.2.3.2 Patient satisfaction metrics are not generally included in individual's performance reviews because SHEP data is aggregated at the VAMC level

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8.2.3.1 SHEP Results are Often Delayed by Three to Six Months and Reflect Aggregate VAMC Patient Satisfaction Scores (e.g., data is not segmented by individual department or unit)

Patient satisfaction survey results were cited as a challenge at more than 62 percent of VAMCs visited.[393] SHEP survey results are considerably delayed (e.g., about a 3- to 6-months lag) and provide data at the facility level, which dilutes the impact of performance outcome data at the department and unit levels. More specifically, interviews with front-line employees found a general perception that SHEP data are obsolete and irrelevant.[394] In comparison, private organizations receive HCAHPS scores from CMS at least once every 3 weeks, with many receiving data real-time through patient experience tools (CMS HCAHPS website, 2015; Patient Voice: Every Patient Matters. Every Voice Counts, 2015) at the unit or department level.

8.2.3.2 Patient Satisfaction Metrics are not Consistently Included in Manager and Team Performance Reviews

Industry best practices promote individual ownership and accountability of patient experience (Luxford, 2011). However, 60 percent of VAMC data call respondents[395] stated that patient satisfaction is a component of their department's performance assessments; this drops to 43 percent of VAMC data call respondents[396] when focused exclusively on VAMC leadership. While this variability is likely due to the accuracy and availability of patient satisfaction data across VAMCs, it contrasts with high performing health systems, like Intermountain Healthcare, which include patient satisfaction as a component of all managers' performance reviews – senior leadership through front-line managers.[397]

Academic literature shows correlations between positive patient experience and employee engagement (Manary, 2014). One study, in particular, showed that health systems with higher levels of physician engagement had, on average, HCAHPS scores that were 8.2 points higher than facilities with lower levels of physician engagement (Manary, 2014). To achieve this level of engagement across levels, academic literature recommends that all staff be empowered to prioritize and innovate change as well as be held accountable for patient experience outcomes (Robert Wood Johnson, 2012).

8.3   Recommendations

VHA patient experience practices have multiple stakeholders: Congress and the executive branch, VACO, VHACO, VISN leadership, and VAMC management and staff. Encouraging innovation and addressing challenges in patient experience will require collaboration between all of these groups, and a commitment to making difficult, long-term change. Different

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[393] Site visit patient advocate interviews, N=21 sites)

[394] Site visit patient advocate interviews (N=21 sites)

[395] Data call on patient experience (N=51 sites)

[396] Data call on patient experience (N=51 sites)

[397] Intermountain Healthcare SME interview (April 2, 2015)

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recommendations should be owned by different groups (for example, recommendation requiring changes to VACO policy versus local policy) – however, support for change from all stakeholders is critical to effective implementation.

Our recommendations, building on existing strengths and addressing existing challenges in patient experience, can be categorized into two main themes.

8.3.1 **Collect more timely and relevant patient experience data to drive transparency and performance improvement at the facility, department, and individual levels**

8.3.2 **Strengthen national and facility-level support for patient-centered care programs to increase adoption**

These themes are consistent with practices suggested by the academic literature, professional associations, and high-performing hospitals within VHA and outside the system, as well as solutions proposed by front-line VHA staff – this information is included in "summary of supporting evidence" sections in each sub-recommendation. To help VHA implement our recommendations, we have also suggested next steps in the "potential near-term actions" sections of the sub-recommendations. Note, because different VAMCs may have already adopted some recommended practices or experience unique barriers, these suggestions should be tailored the individual circumstances of each VAMC. Each recommendation is supported by several sub-recommendations, which map to the "organization, workflow processes, and tools" domains specified in the Choice Act. For a detailed map of how the sub-recommendations relate to these domains, see **Table E-3** in **Appendix E.3**.

Several recommendations overlap with other assessment areas. Where this occurs, we have referenced the relevant assessment area, which has additional detail.

8.3.1 Collect More Timely and Relevant Patient Experience Data to Drive Transparency and Performance Improvement at the Facility, Department, and Individual Levels

Delays in survey results and level of reporting challenges significantly limit the perceived effectiveness, accuracy, and actionability of patient satisfaction results. Over 60 percent of VAMCs visited[398] cited SHEP limitations as a challenge in driving patient experience performance improvement. We suggest two key changes to better drive performance improvement from patient satisfaction data:

8.3.1.1 Ensure VHA's patient satisfaction feedback tool(s) delivers survey results in a timely (real time or near real-time) and actionable format (for example, segmented at the VISN, VAMC, department and unit levels)

8.3.1.2 Include patient experience metrics in leadership and department level performance reviews

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[398] Site visits patient advocate interviews (N=21 sites)

8.3.1.1 Ensure VHA's Patient Satisfaction Tool(s) Delivers Survey Results in a Timely (e.g., real-time or near real-time) and Actionable Format (e.g., segmented at VISN, VAMC, department, and unit Levels)

Our assessment revealed challenges with the current SHEP survey process. Evidence supports that organizations, at a minimum, should collect patient satisfaction information real-time or near real-time at the individual department level. Expediting the reporting of patient satisfaction survey results and delivering data at the department or individual unit level would provide VHA with the support needed to drive more timely service recovery and performance management across the system.

Summary of supporting evidence:

- See Section 8.2.3.1 for more detail on findings.

- Forty percent of data call respondents supplement current SHEP results with a real time, or near-real time point-of-care feedback solicitation tool that provides granular real-time results.[399]

- High performing patient experience vendors administer surveys over the phone as soon as 48 hours post-discharge (HCAHPS Fast Facts, 2015) and provide individual-level reporting (Patient Voice: Every Patient Matters. Every Voice Counts, 2015; Leebov, 2001).

- Top-scoring HCAHPS facility, Cleveland Clinic, created an intelligence team responsible for the development and maintenance of an internal web-based dashboard that shows real-time survey results, benchmark comparisons, and performance indicators (Cleveland Clinic, 2010).

Potential near-term actions:

- *VACO/VHACO:* Engage an interdisciplinary group — including Veterans, OPCC&CT resources, VAMC front-line staff and leadership, and IT — to evaluate standard and supplementary patient experience feedback tools implemented across VAMCs and determine if a single tool can sufficiently meet VHA's needs in terms of actionability, granularity, and timeliness. The group should evaluate the tools':
  - Timeliness of survey administration (for example, when are patients solicited) and results turnaround
  - Level of granularity of results (for example, facility-level, department-level, unit-level)
  - Configuration capabilities to meet individual VAMC needs (for example, enable the VAMC to focus on immediate service recovery or Veteran engagement) and VHA's overall patient experience strategy
  - Potential to be leveraged in the outpatient setting
  - Ability to integrate with current tools (e.g., VistA)

- *VHACO:* Evaluate the impact of nationally funding a single point-of-care tool, rather than funding several tools at the facility level.

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[399] Choice Act data call (N=51 sites)

- *VACO/VHACO:* Negotiate contracts with the key vendor(s) as determined in the previous step.

8.3.1.2 Include Patient Experience Outcome Metrics (e.g., Point-of-Care Feedback, SHEP feedback, VAMC peer and Leadership Observations, etc.) in Leadership and Department Performance Reviews

Our data call and site visits identified considerable variability in patient experience performance management across VAMCS. Literature shows that clinician adherence to performance improvement initiatives is best achieved when the system promotes individual ownership and accountability (Patel, 2014). As a result, we recommend engaging leadership and front-line staff to outline department-level patient experience standards and then holding leadership and departments to those standards (Patel, 2014).

Summary of supporting evidence:

- See Section 8.2.3.2 for more detail on findings.
- Over 60 percent of VAMC data call respondents[400] reported that they include patient experience metrics as a component of individual performance reviews in line with industry best practices (Luxford, 2011).
- Top-scoring HCAHPS facility, Intermountain Healthcare, includes patient satisfaction in all managers' performance appraisals, senior leadership through front-line managers.[401]

Potential near-term actions:

- *VHACO:* Develop a standardized cross-cutting, balanced performance management scorecard with a range of domains of performance, including patient experience; refer to Assessment L for additional detail on this action.
- *VACO/VHACO:* Deploy a coordinated program office (for example, led by OPCC&CT or myVA) effort to provide VAMCs with the tools (e.g., training, communication frameworks) necessary to deliver a positive patient experience.
- *VAMCs:* Engage an interdisciplinary team to develop achievable and meaningful performance management standards.
- *VACO/VHACO/VISN/VAMC:* Hold managers and teams across all levels of VA accountable to those agreed-upon performance standards (e.g., through performance pay, promotions, suspensions).

8.3.2 Strengthen National and Facility-level Support for Patient-centered Care Programs to Increase Adoption

While central Program Offices (e.g., OPCC&CT) are building the infrastructure to support the system-wide implementation of best practices, several challenges (as detailed Section 8.2.1)

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[400] Choice Act data call (N=51 sites)

[401] Intermountain Healthcare SME interview (April 2, 2015)

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limit system-wide adoption. We suggest several changes aimed at improving adoption, including:

> **8.3.2.1 Coordinate Veteran-centered initiatives across Program Offices**
>
> **8.3.2.2 Promote consistent leadership at the VAMCs**
>
> **8.3.2.3 Facilitate sharing of facility-driven best practices**

8.3.2.1 Coordinate and Consolidate Veteran-Centered Initiatives and Directives Across Program Offices

We discovered, through site visits and interviews with VACO and VHACO leadership that VISNs and VAMCs receive hundreds of directives from a variety of different Program Offices.[402] While many of these appear to be focused on Veteran-centered care, there is a risk of conflicting or poorly coordinated national support. Our recommended approach would prioritize and streamline facility directives, best practices, and performance benchmarks across Program Offices, such that the VAMCs receive a limited set of prioritized requirements from VHACO, as exemplified by high-performing facilities. This approach would also provide VAMCs with additional capacity (for example, they would have fewer directives to respond to) and the autonomy to focus on programs most important to them (e.g., Veteran engagement, service-level advocates, whole health training).

Summary of supporting evidence:

- See Section 8.2.1 for more detail on findings.
- VAMC performance measures have increased exponentially over the past 15 years; VAMC employees are unable to keep up with current performance measures and directives, let alone focus on new patient-centered care initiatives (Wong, 2012).
- Program office leadership has stated, "We've seen improvement [in coordination of program offices], but it needs to improve. That's part of a very clear Central Office vision, clarity on the direction we're going, not everyone interpreting it their own way[403]" and "There's a lot of goodness in the system, but sometimes there is too much goodness coming at the facilities, and they're overwhelmed.[404]"

Potential near-term actions:

Refer to Assessment L for details related to the implementation of this recommendation.

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[402] VAMC site visit interview: patient advocates (N=21 facilities)

[403] VACO SME interview

[404] VACO SME interview

8.3.2.2 Improve VAMC Leadership Turnover to Ensure a More Consistent Patient Experience Strategy at the Facility-level and Better Utilization of Available Resources

Our assessment has shown that VHACO's effectiveness in driving system-wide adoption of patient experience best practices is limited by inconsistent VAMC leadership.
A more stable leadership structure would not only help facilities focus their efforts on a prioritized set of initiatives (for example, priorities are not constantly changing every time the leadership turns over), but it would also help the Central Office disseminate information about new programs and implementation support (for example, VAMC leadership can effectively bridge the Central Office and front-line). Improving turnover would require both filling current vacancies and establishing longer leadership tours at the VAMCs.

Summary of supporting evidence:

- See Section 8.2.2.1 for more detail on findings.
- Of the VAMC Quadrads, 39 percent have at least one current vacancy; three Medical Centers operate with only one permanent Quadrad member.[405]
- Academic literature supports that strong, consistent executive leadership is required to drive system-wide cultural change. (Singer, 2013).

Potential near-term actions:

- *VHACO:* Address current VAMC leadership vacancies; refer to Assessment L for more detail on this recommendation.
- *VHACO:* Promote longer VAMC leadership tours to encourage greater management consistency at the facilities.

8.3.2.3 Encourage Innovation at The Facility Level by Building the Program Office Infrastructure to Support the Evaluation, Codification, and Implementation of Facility-Driven Patient Experience Initiatives

We observed many examples of facility-driven best practices indicating an opportunity to better leverage innovation in the field to impact patient experience. However, appropriate Program Office-level support (e.g., OPCC&CT) is needed to facilitate best practice sharing and implementation across the system.[406]

Summary of supporting evidence:

- See Section 8.3.1.3 for more detail on findings.
- Of VAMCs visited, 100 percent have implemented patient experience initiatives (for example, quiet program, community gardens, volunteer rounding) at their local facility.[407]

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[405] VHA Office of Workforce Solutions (2015)

[406] VHA Interview with OPCC&CT

[407] Site visits interviews with Patient Advocate (n=21 facilities)

- As a leading facility in Veteran and family engagement, Palo Alto VAMC exemplifies successful facility-led innovation through the rollout of its Veteran and Family Advisory Committee workshop in collaboration with OPCC&CT.[408]

- Top-scoring HCAHPS facility, the Cleveland Clinic, holds an innovation summit each year to discuss patient experience best practices from academic literature as well as practical, front-line-submitted solutions such that lower-performing facilities may learn from higher-performing facilities (Cleveland Clinic, 2010).

Potential near-term actions:

- *VHACO:* Increase awareness of OPCC&CT through dynamic communication campaigns highlighting new initiatives (national and facility levels) and available resources.

- *VHACO:* Ensure that the OPCC&CT is sufficiently resourced to meet the implementation needs of the VAMCs.

- *OPCC&CT:* Develop a process where individual facilities can apply to pilot a PCC best practice; similar to the Centers of Innovation; this would allow VAMCs to develop, manage, and evaluate the effectiveness of their initiative, in collaboration with OPCC&CT, and eventually showcase proven, best practices to other VAMCs.

- *VAMCs:* Submit case studies of unique patient-centered care practices to OPCC&CT for syndication.

8.3.3 Potential Opportunity

Our analysis shows that mean patient satisfaction scores are slightly lower than national averages, notwithstanding significant confounding factors that make comparison difficult, as discussed in Section 8.1.1. While aggregate VHA scores are on a par with national averages, some facilities in the bottom quartile trail national averages by as much as 12 percent as demonstrated in **Figure 8-2.**[409]

If VHA is able to bring its bottom quartile to the national average, it would lead to positive impact across the following dimensions.

- Increased patient acquisition and retention. Satisfied patients are three times more likely to return to a provider they have been seen before (Manary, 2013).
  - Patient satisfaction is predictive of an individual's choice in medical care (Fan, 2005), which drives improved continuity of care (Corrigan, 2012).
  - Dual users of non-VA and VA facilities (e.g., Veterans who are presumably not experiencing the full benefits of VA continuity of care) reported lower satisfaction with their care (Fan, 2005).

- Improved health outcomes. Positive correlation exists nationally between CMS quality scores and patient satisfaction scores (Price, 2014).

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[408] VHA interview with OPCC&CT and Palo Alto Veteran and Family Advisory Committee

[409] SHEP data (FY14) and CMS HCAHPS data (FY14)

- Improved patient access and health. Positive correlation exists nationally between CMS quality scores and HCAHPS scores (which serve as a proxy for SHEP scores) (Price, 2014).

VHA has demonstrated excellent patient satisfaction across many of its facilities. For example, Long Beach VAMC has demonstrated close to a five percent increase in its scores from 2012 to 2014 related to care transition decision-making, communication about medication, and cleanliness of the hospital.[410] Additionally, the VAMC was able to increase its care transition decision-making above the VHA average in three years. This increase in scores may be attributed to the VAMC's recent hiring of a Chief of Patient Experience, its improved focus on Veteran and employee engagement (for example, training on "what it means to be a patient" and recognition pins for employees who receive compliments from patients), and recent implementation of patient-centered care initiatives (e.g., thank-you cards for Veterans on discharge, "Patient-Centered Care" celebration month").[411] Given Long Beach's success, improvement in lower-performing facilities should be plausible provided the implementation support structure is established across facilities to facilitate the sharing of best practices and lessons learned.[412]

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[410] VHA SHEP (FY12 to FY14)

[411] Site visit interview with Long Beach VAMC Chief of Patient Experience

[412] VHA SHEP scores (FY14) and CMS HCAHPS scores (FY14)

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9 Accurate Documentation and Subsequent Coding of Inpatient Services

Part F ("Assessment F"), Section 201 of the Veterans Access, Choice, and Accountability Act of 2014 ("the Choice Act") mandates an assessment of the organization, workflow processes, and tools used to support accurate documentation and subsequent coding of inpatient services. Documentation and coding in health care are considered critical in supporting appropriate billing and collection of third-party payment as well as for generating insight across a number of other purposes including abstraction of quality metrics, measurement of provider workload and productivity, and identification of demographic and epidemiologic trends within the population. Use of coded administrative data for these purposes is supported by studies suggesting that administrative data represents a viable alternative to manual chart reviews for understanding patient conditions (Humphries, 2000; Kieszak, 1999). While some concerns remain across the industry (among both public and private health care organizations) regarding coding's ability to fully capture the complexity of patients served, medical coding will likely continue to play a significant role in health care given current payment models and prevailing methodologies for assessing quality of clinical care (Lawson, 2012).

The role of documentation and coding is similarly vital within VHA because it influences the organization's ability to effectively collect payments for services provided to 23–26 percent[413] of patients with billable third-party insurance (Patient Insurance Statistics 2014), appropriately match existing services and develop new services to meet Veteran needs, and accurately allocate funding across VAMCs through the Veterans Equitable Resource Allocation (VERA) system.[414] Because most of VHA's budget is allocated through the VERA system, accurate documentation and coding is vital to appropriately match available resources to a dispersed and heterogeneous Veteran population (Wasserman, 2003).

Based on the language of the Choice Act legislation, the scope of this assessment area includes the practices employed by VAMCs to ensure that information recorded in VHA's clinical documentation and coding systems is both accurate and complete. While we did assess VHA's internal quality assurance processes, we did not conduct an independent audit of the accuracy of provider documentation or medical coding. It should also be noted that assessments of VHA's information technology tools/strategies and the processes for billing/collection of third-party billable claims are covered by assessment areas H and I respectively; the corresponding assessment reports should be consulted for additional details on these topics.

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[413] Represents range (October FY2013 through November FY2015) of monthly percent total inpatient and outpatient records capturing services provided to Veterans with billable insurance

[414] The Veterans Equitable Resource Allocation (VERA) model was instituted in April 1997 as a means of distributing VHA funding across the organization based on need rather than historical funding patterns. VERA funding is based on several factors, including "number of patients, adjustments for regional variances in labor and contract costs, high cost patients, education support, research support, equipment, and non-recurring maintenance" (VERA 2014: Equitable Funding Across 20 Health Care Networks). Given that adjustments for high cost patients and patient volume are based on information captured within documentation and coding systems, accurate capture of clinical information is critical to appropriate resource allocation.

9.1 Summary

9.1.1 Assessment Approach

As described in the summary of this report (Section 1), we collected information in several ways, using a common approach across sub-assessment areas within Assessment F:

- Visits to 21 VAMCs to conduct:
  - Forty-two interviews with health information management (HIM) leaders, medical coders, and physician service line chiefs
  - Twenty[415] assessment workshops with front-line personnel, including physicians, utilization management (UM) personnel, clinical documentation (CDI) specialists, HIM leaders, and medical coders (approximately 115 staff total)

- Survey[416] sent to relevant clinical occupations across all VAMCs, completed by 979 respondents[417] across 92 VAMCs[418]. Due to the fact that VHA does not track the setting of work (i.e., inpatient or outpatient) in available human resource data and VISN and VAMC Directors were responsible for the distribution of the survey to the end-user we are unable to calculate the significance of the total response rate, but do not believe it to be a representative sample across any of the roles. Given this, survey data should be viewed as providing anecdotal insights as opposed to a representative data sample.

- Request for local policy documents from all VAMCs ("data call"); documentation and coding section returned by 52 (43 percent) VAMCs[419]

- Data collection from national data systems, including HIM Executive Summary, HIM Inventory, and Physician Query Tracking (PQT) data

Having collected information to understand VHA's practices with respect to accurate documentation and subsequent coding, we then assessed how these practices compared to best practices and industry benchmarks. Best practices and benchmarks, detailed in **Table F-1** of **Appendix F.1** were identified through several sources, including:

- Interviews with high-performing private hospitals (e.g., including national multi-hospital systems, hospitals with an employed physician workforce, and hospitals that are part of an integrated delivery network to ensure comparability with VHA)

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[415] A documentation and coding assessment workshop was not held at one of our sites due to scheduling and patient care conflicts.

[416] As noted in the Methodology section (Section 2), we do not believe that the survey constitutes a representative sample of VHA staff.

[417] Total indicates number of staff from complexity level 1a, 1b, 1c, or 2 VAMCs responding to any survey question related to documentation and coding; number of respondents for each survey question varies due to customization of questions according to clinical occupation.

[418] Only includes VAMCs with complexity level 1a, 1b, 1c, or 2

[419] Based on total 121 VAMCs with complexity level 1a, 1b, 1c, or 2

- Academic literature (e.g., research supporting a link between coding accuracy and measurement of quality outcomes)
- Resources from medical coding professional organizations (e.g., guidance from American Health Information Management Association (AHIMA) on developing a compliant provider query process)

A number of documentation and coding practices have been shown within academic literature to promote accurate capture of information within clinical and administrative systems. We supplemented this evidence from academic literature with guidance from professional associations (e.g., AHIMA), interviews with other best practice hospital organizations, and industry surveys to comprehensively identify best practices for benchmarking current VHA processes.

9.1.2 Summary of Findings

The process of inpatient documentation and coding consists of four main steps, as outlined in **Figure 9-1**. Effective management of the overall process requires a collaborative effort from providers, medical coders, and facility leadership to ensure that clinical findings are documented optimally, codes are assigned accurately, and management is engaged consistently in promoting and enabling high performance.

Figure 9-1. Inpatient Documentation and Coding Process

The inpatient documentation and coding process consists of four key steps

	Description	Applicable category	Details
1	**Providers document findings and care plan in the EHR**	All inpatient encounters	• Enables effective **written communication** among providers • Supports accurate **medical coding** (codes must be based on provider documentation)
2	**Medical coders assign inpatient DRG codes based on documentation**	All inpatient encounters	• Relies on specialized capabilities of **trained medical coders** • Captures information related to the **inpatient hospitalization** to enable **secondary uses** (e.g., billing)
3	**Medical coders assign professional fees codes based on documentation**	Inpatient encounters for Veterans with third-party insurance	• Relies on specialized capabilities of **trained medical coders** • Captures information related to the care **provided by physicians while inpatient** to enable **secondary uses** (e.g., billing)
4	**Medical coders query providers to follow up and clarify documentation**	All inpatient encounters with unclear documentation	• Clarifies **unclear documentation** to enable optimal coding • Facilitates **tracking of documentation trends** to enable training and improvement

Our assessment revealed three main findings with respect to VHA's strengths and challenges in documentation and coding (see Section 9.2 for details regarding each finding):

9.2.1 Inconsistent emphasis on clinical documentation impedes consistent capture of complete clinical information, hindering appropriate resource allocation and revenue collection. Varied and generally low emphasis on accurate clinical documentation and coding across the organization results in potentially incomplete data. While some VAMCs have stressed proper documentation to maximize budgetary allocations and improve quality ratings, many have not. This is evidenced by differences in local approaches to documentation training: only 57 percent of physicians participating in the Choice Act survey reported that their facility provides training regarding documentation and coding.[420]

9.2.2 Adoption of documentation best practices is variable, resulting in inconsistent quality of clinical documentation system-wide. Industry professional organizations

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[420] Choice Act survey (N=406)

have established documentation standards to ensure integrity of data captured within electronic health care records (Arrowood, 2013). These standards include recommendations for appropriate use of clinical templates (e.g., designing templates to meet requirements for both billing and clinical data-sharing) and for processes to ensure appropriate use of copy-paste functionality (e.g., conducting reviews to ensure that certain clinical information, like patient vital signs, are not being inappropriately copied from one encounter to another). In spite of national efforts to address these issues through required monthly electronic health record (EHR) quality reviews, VHA clinical staff and medical coders reported that challenges persist: 80 percent of sites reported limited template utilization or use of suboptimal templates and 55 percent reported inappropriate use of copy-paste.[421]

9.2.3 **System-wide focus on coding standards has resulted in coding performance typically meeting or exceeding private sector benchmarks.** VHA inpatient coding accuracy[422] is about 93 percent nationally and inpatient coding occurs, on average, 4 days after discharge, suggesting that VHA coding performance is closely aligned with industry benchmarks. Routine internal auditing of coding performance at the facility-level and development of a national dashboard for performance tracking appear to be contributing to strong coding reliability. However, the potential existence of suboptimal documentation upon which coding is based may inhibit coders' ability to optimize coding to match clinical actualities.

9.1.3 Summary of Recommendations

Our assessment revealed several areas where VHA can build on current strengths or address existing challenges to improve documentation coding. We recommend that VHA consider two strategic themes, as detailed below. As with the findings, these themes apply to VHA organization, processes, and tools.

9.3.1 **Increase local prioritization of clinical documentation through acceleration of national CDI program and targeted provider education and training, supported by performance management at the facility and provider level.** VHA launched a national clinical documentation improvement (CDI) program in 2013, but, to date, only 46 percent of VAMCs have implemented programs at the local level.[423] VHA should strengthen the current CDI program by outlining national documentation improvement priorities, providing targeted guidance, and creating a national knowledge-sharing network to disseminate successful local practices. These efforts should be reinforced by targeted provider education, transparency tied to meaningful

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[421] Site visit documentation and coding assessment workshops (N=20)

[422] Note that accuracy in this context refers to inter-coder reliability, or the extent to which an expert coder would assign the same medical codes based on existing clinical documentation; high coding accuracy does not necessarily mean that codes represent a patient's true condition, as insufficient or inaccurate provider documentation may inhibit optimal assignment of codes

[423] 2014 HIM Inventory (N=134)

outcomes (e.g., percent of claims not billable to insurance due to incomplete documentation), and performance management for both facilities and providers to increase prioritization of clinical documentation across VHA (see Assessment I report for additional details).

9.3.2 Strengthen provider documentation standards (e.g., management of clinical templates, EHR review process) to promote optimal capture of patient information and improve resulting resource management. Challenges with clinical documentation were common across VAMCs, as evidenced by 80 percent of participants in documentation and coding assessment workshops reporting suboptimal template use and management practices.[424] VHA should improve documentation practices through enhanced governance focused on template management, targeted guidance regarding EHR reviews, and improved performance management reinforcing query responsiveness.

Our assessment did not provide evidence of organization-wide challenges with medical coding tools and processes. As such, we did not make any recommendations targeted specifically to medical coding. As VHA is able to achieve improvements in documentation patterns through the recommendations above and other targeted actions, leadership should continue to monitor coding performance to evaluate whether targeted changes are needed.

9.1.4 Past Findings and Recommendations

Several recent assessments have indirectly identified findings related to VHA documentation and coding practices, although these issues have not been the primary focus areas of past assessments. Recent findings from national assessments include clinical documentation not containing all necessary information for third-party billing (OIG, 2013; OIG, 2012), documentation not meeting requirements for patient transfer or discharge (OIG, 2010), documentation inaccuracies (OIG, 2009), and coding discrepancies for select patient subgroups (Carlson, 2010). In addition to these national level assessments, a few documentation and coding topics have been incorporated into OIG's facility-level comprehensive reviews, revealing additional challenges including lack of facility-level EHR review committees (OIG, 2010), inadequate implementation of copy-paste audits (OIG, 2012), and poorly-developed standards for resident documentation and oversight (OIG, 2007).[425] Illustrative findings and recommendations from recent assessments are outlined within **Figures F-1** and **F-2** in **Appendix F.2**.

These past assessments have tended to focus on specific issue areas and/or individual facilities, separately developing recommendations for improvement in discrete areas. In contrast, our assessment tries to take an end-to-end view of inpatient clinical operations across five key sub-assessment areas and all high- and medium-complexity VAMCs.

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[424] Site visit documentation and coding assessment workshops (N=20)

[425] Note that these are illustrative of the types of issues identified recently; they are not intended to be a comprehensive listing.

9.2   Findings

Our assessment revealed three main findings related to VHA's current documentation and coding practices.

9.2.1   **Inconsistent emphasis on clinical documentation impedes consistent capture of complete clinical information, hindering appropriate resource allocation and revenue collection**

9.2.2   **Adoption of documentation best practices is variable, resulting in inconsistent quality of clinical documentation system-wide**

9.2.3   **System-wide focus on coding standards has resulted in coding performance typically meeting or exceeding private sector benchmarks**

These findings are based on several key sources of insight. We have used the national data sets that were available, information returned as part of the data call, and perceptions and experience reported or observed during site visits or via the staff survey. In many instances where data does not allow us to definitively comment, we have described the potential implications of the data points we do have, along with recommendations in Section 9.3 for further analysis.

Underlying each finding are several drivers; these drivers map to the "organization, workflow processes, and tools" domains specified in the Choice Act. For a detailed map of how the drivers relate to these domains, see **Table F-2** in **Appendix F.3**.

9.2.1   Inconsistent Emphasis on Clinical Documentation Impedes Consistent Capture of Complete Clinical Information, Hindering Appropriate Resource Allocation and Revenue Collection

VHA's unique financial and reimbursement model contributes to misunderstandings regarding the proper role of documentation and coding within VHA relative to private sector providers. Within the private sector, the prevailing reimbursement model is a fee-for-service system wherein hospitals and providers receive payment from health insurance companies following provision of medical services and submission of coded medical documentation that justifies appropriateness of treatment. The importance of proper clinical documentation and coding is well-understood and innately reinforced within this system: encounters that are inappropriately coded or insufficiently supported by clinical documentation may be subject to review or rejection, contributing to compliance risks and lost revenues. The fee-for-service system also closely aligns the reimbursement incentives of facilities with those of providers, as the accurate and complete clinical documentation required to support facility reimbursement also ensures that providers are able to collect for the services they provide to patients.

In contrast to this system, VHA's funding for patient care comes from two sources: VAMC funding is primarily provided though the Veterans Equitable Resource Allocation (VERA) system, supplemented by third-party reimbursements for the 23-26 percent of services provided to

Veterans with billable insurance coverage.[426] Funds disbursed through the VERA system do not follow a traditional fee-for-service approach. Instead, the VERA system is designed to equitably distribute VHA's budget based on the number and characteristics (e.g., service connection, income levels, other special health care needs) of Veterans cared for at each facility (VHA, 2014; Wasserman, 2003). Although the VERA system is critically dependent on information from clinical documentation, the link between documentation patterns and VERA funding is less direct than within fee-for-service models. In addition, individual provider incentives supporting optimal documentation may be weakened within VHA's reimbursement system, specifically because providers are salaried and have few formal incentives to improve documentation patterns (e.g., performance incentives rewarding optimal documentation, penalties for sub-standard documentation practices).

Despite VHA differences relative to private sector, documentation and coding remain critical to VHA's ability to effectively and efficiently provide inpatient care. As one VHACO leader stated during an interview: "There is no difference between VHA and the private sector in the importance of documentation and coding—it is just as important here as it is there."[427] Clinical documentation and coding are essential not only to VHA's ability to properly allocate overall funding through the VERA system and appropriately bill and collect from third-party insurers, but also to:

- Efficiently measure organizational performance on key quality measures, assuring quality of care that matches or exceeds that of the private sector.
- Proactively identify trends in Veteran populations and design programs and interventions suited to changing Veteran needs.
- Accurately capture provider clinical workload to support appropriate clinical staffing.

Despite these considerations, we found that the organizational emphasis placed on accurate clinical documentation does not consistently match the private sector. Our analysis suggests that this is driven by the following:

9.2.1.1 Limited direct integration of health information management (HIM) and finance functions at the VAMC level weakens leadership prioritization of documentation

9.2.1.2 Inconsistent provider education and training practices are not aligned with VHA's view of the high importance of clinical documentation

9.2.1.3 Lack of performance management contributes to low priority on documentation

9.2.1.1 Limited Direct Integration of Health Information Management (HIM) and Finance Functions at the VAMC Level Weakens Leadership Prioritization of Documentation

Strong organizational ties between Health Information Management (HIM) and a hospital's finance department are common in the private sector given the critical influence of coding on

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[426] VHA Patient Insurance Statistics 2014

[427] Interview with VHACO leader

reimbursement, facilitate communication, frequent interactions, and enhanced collaboration between the departments. Within VHA, we find this coordination to be weaker, as evidenced by: (1) lack of national guidance on recommended HIM organizational structure; and (2) less than one-fifth of cases where HIM reports to a member of the VAMC executive leadership team.

Lack of national guidance on recommended HIM organizational structure. Limited national direction related to the positioning of the HIM function at the facility level has contributed to varied organizational designs. VHA Handbook 1907.01: Health Information Management and Health Records, which outlines basic HIM functions and responsibilities of key stakeholders, does not endorse a specific organizational structure (VHA, 2014). Other national VHA policies are similarly silent on HIM organizational structure, as suggested by a national HIM leader, who stated: "There have been several reorganizations over the years and HIM has landed at various places within the organization. Many facilities are currently organized with HIM under health administrative services (HAS), but this is not mandated by any official directives."[428]

Data from the national HIM inventory and our review of organizational charts obtained through the national data call confirm differences in organizational design. We found that the HIM function is positioned under the HAS service in 69 percent of cases, although some facilities employ an alternative organizational structure (e.g., reporting through chief of staff).[429] Organizational charts obtained through the data call reveal that even for the subset of facilities with HIM organized under HAS, reporting structure for HIM varies from one facility to another: some HIM chiefs report directly to the HAS chief while others report through an associate HAS chief at lower level of the organization. This variability in organizational design often positions HIM leaders deeper within the facility's reporting structure and is likely to generate differences in the visibility, inclusion, and prioritization of the HIM function from one facility to another, contributing to differences in facility-level emphasis on documentation and coding performance.

Less than one-fifth of cases where HIM reports to a member of the VAMC executive leadership team. Across VAMCs, only 17 percent of HIM chiefs report to a member of the hospital executive leadership team.[430] This does not mirror common practice within private hospitals, where 46 percent of HIM chiefs indicate that they report to their hospital's chief financial officer (Johns, 2013). This is important because studies in the academic literature have suggested a link between successful health information management outcomes and lines of authority and visible management support (Van der Meijden, 2003). The prevailing organizational design choices and reporting structures employed by VAMCs may dilute the focus that

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[428] Interview with VHACO leader

[429] 2014 HIM Inventory (N=134)

[430] 2014 HIM Inventory (N=134)

hospital leadership and other staff place on documentation and coding issues, resulting in weaker facility-level culture surrounding the importance of documentation and coding.

9.2.1.2 Inconsistent Provider Education and Training Practices are not Aligned With VHA's View of the High Importance of Clinical Documentation

Studies in the academic literature have provided evidence that physician education and training can be effective in improving documentation practices (Russo, 2013). Provider education sessions not only provide a vehicle to address common provider documentation challenges, but they also reinforce the critical role of documentation to support high-quality patient care and ensure appropriate resourcing at the facility-level. This is particularly critical in a VHA context because about 78 percent of VAMCs host physician trainees through affiliations with academic medical centers, which leads to frequent rotation of trainees and supervising physicians and decreases provider familiarity with VHA documentation systems and best practices (VHA, 2009). Our assessment suggests that: (1) provider education and training sessions are offered inconsistently across the organization; and (2) lack of VHA provider emphasis on complete and accurate documentation is often inconsistent with the role documentation plays to support reimbursement.

Provider education and training sessions are delivered inconsistently across the organization. According to interviews with high-performing hospital organizations, provider documentation training and education are critical to improve clinical documentation. In order to be successful, these organizations develop engaging training materials targeted to the specific documentation needs of provider sub-groups (e.g., cardiology training focused on the documentation elements necessary for heart failure encounters). Our interviews with facility HIM chiefs indicate that provider education and training is a significant barrier to optimal documentation across VHA, with 67 percent of interviewees reporting this challenge at their VAMC.[431]

Across VHA, only 53 percent of HIM departments at the VAMC-level report offering regularly-scheduled provider education trainings.[432] This is consistent with provider responses to the Choice Act survey: only 57 percent of respondents reported trainings on proper medical record documentation offered by their facility.[433] In addition, providers reported significant differences in the frequency with which trainings are offered or required across the organization (Figure 9-2). Where provider training is in place, the majority of respondents reported that trainings are "somewhat effective" (65 percent of total respondents), with only 14 percent reporting that trainings are "highly effective."[434] While provider training has not

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[431] Site visit HIM chief interviews (N=21)

[432] 2014 HIM Inventory (N=134)

[433] Choice Act survey (N=406)

[434] Choice Act Survey (N=228)

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been consistently implemented across the organization, we found that many VAMCs have developed local training programs and policies to address facility-level challenges. These efforts have contributed to improvements in documentation quality and other key metrics, as illustrated by the experience of the Durham VAMC (see case study below).

VHA's lack of consistency in provider training practices contrasts with reports of one high-performing hospital system. According to a recent interview with Intermountain Healthcare, its providers are required to participate in mandatory trainings at hiring and mandatory trainings every six months, targeting specialty-specific documentation needs. Additional training opportunities are also available as needed, based on request.[435] Gaps in VHA's approach to training relative to Intermountain suggest a missed opportunity to signal the importance of documentation and to equip providers with the guidance needed to document optimally. This deficiency was widely recognized by front-line staff during site visits: 50 percent of sites reported inadequate provider education and training as a challenge to clinical documentation.**[436]**

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[435] Intermountain Healthcare SME (May 5, 2015)

[436] Site visit documentation and coding assessment workshops (N=20)

Figure 9-2. Summary of VHA Provider Education Offerings

Only 57% of providers report that their facility provides documentation training, and training requirements vary across VAMCs

Does your facility provide training regarding proper medical record documentation and coding?
Percent of providers (N=406)[1]

Don't know	20
No	23
Yes	57
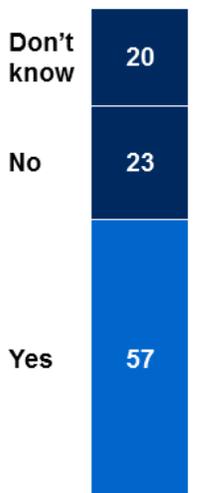
What documentation training is provided by your facility?
Percent of providers (N=233)[2]

Mandatory training at hiring	Mandatory periodic refresher training	Optional, regularly-scheduled training	Optional, ad hoc training
60	30	27	45
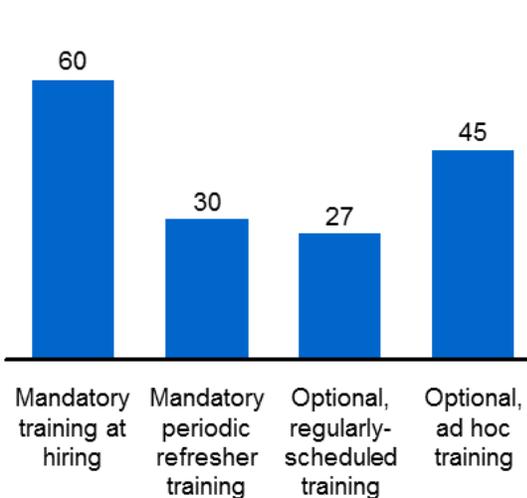
Intermountain Health care reported both mandatory training at hiring and mandatory refresher trainings every 6 months, tailored to the needs of different provider segments

1 Respondents include hospitalists (N=86) and specialists (N=320)
2 Percentages sum to greater than 100 due to respondents reporting of multiple types of training offered by the facility

SOURCE: Choice Act survey

Table 9-1. VAMC Case Study: Provider Documentation Training

Best practice case study – Durham VAMC
The **Durham VAMC** has increased its **training efforts for both attending physicians and resident trainees** to promote improved documentation. **Context** ▪ Recognized with release of the **SAIL report** that facility's clinical **quality and patient complexity measures did not appear to be reflected** in the performance data ▪ Determined to **increase emphasis on provider education and training** to address perceived inconsistencies **Efforts implemented** ▪ Perform **documentation education and training refresher session** each time a provider comes on service ▪ Incorporate **documentation educational materials into new resident orientation** for trainees beginning their rotation at the facility

Best practice case study – Durham VAMC
▪ **Include review of resident discharge summaries into regular morning report sessions with trainees to promote improvement of common documentation problems** **Impact** ▪ **More accurately reflected patient complexity, resulting in an increased facility average case mix index from ~1.0 to ~1.2 over a four-year period**

Lack of VHA provider emphasis on complete and accurate documentation is often inconsistent with the role documentation plays to support reimbursement. Inconsistent recognition of the importance of accurate clinical documentation among providers was commonly reported during our assessment. To illustrate, one VHACO leader described an experience that occurred while discussing clinical documentation with a provider. In response to a recommendation that providers be more specific in their documentation to enable accurate coding, the provider countered: "We really don't need to document that specifically in the VA. That's not how we get paid."[437] We heard similar sentiments expressed during other site visits, including from one provider who commented: "Part of the VA's value proposition is that you get to *focus on the medicine*—if they start cracking down on the paperwork, then what's the selling point? Why work here?"[438] Data from polls conducted during our documentation and coding assessment workshops suggests that these cultural views are common among providers across the system: 56 percent of providers indicated that accuracy of documentation and coding within VHA is less than private sector.[439]

9.2.1.3 Lack of Performance Management Contributes to Low Priority on Documentation

Our analysis suggests limited efforts to promote improvement in the quality of information captured within clinical and administrative systems through performance management. This performance management issue is exhibited in at least three ways: (1) physicians often lack formal incentives to document optimally; (2) documentation and coding metrics are not directly included within the facility-level Strategic Analytics for Improvement and Learning (SAIL) report; and (3) administrative staff are not evaluated on their ability to reliably capture patient demographic and insurance information.

Physicians often lack formal incentives to document optimally. Performance management is a powerful tool that many organizations use to promote desired behaviors. There is evidence that this tool can be effectively applied to physicians,

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[437] Interview with VHACO leader

[438] Site visit documentation and coding assessment workshop comment

[439] Site visit documentation and coding pre-assessment workshop polls (N=16)

with the academic literature suggesting that physicians respond predictably to incentives (Barro, 2003). High-performing hospital systems use performance management and incentives to promote optimal documentation (see case study below).

Table 9-2. External Case Study: Physician Documentation Performance Management

Best practice external case study – Intermountain Healthcare[440]
To support its goals of ensuring accurate capture of patient information, Intermountain Healthcare has implemented **provider education and performance management** related to clinical documentation (Intermountain Healthcare Interview, 2015).   **Details**   ▪ **Collaborates with providers regarding potential documentation metrics for incorporation into annual provider reviews**   ▪ **Aligns on documentation metrics with clear links to quality of care to increased provider support and engagement**   ▪ Sets one to two **annual documentation performance goals** with physicians, with performance **linked to compensation**   **Impact**   ▪ Experienced improvements in **patient case mix to match true clinical condition** of patients treated   ▪ **"Our training and performance management processes have significantly increased our organization's readiness for the upcoming ICD-10 transition."**

Observations from our site visits suggest that performance management is infrequently applied to physician documentation practices (e.g., physicians are not evaluated based on the quality of their clinical documentation). Many physicians suggested that they receive little if any feedback on their documentation within the VHA system. This contrasts with standard practice at private hospitals, as suggested by one VHA physician's comments: "When I started working at a new hospital in the private sector, a medical coder was assigned to work with me during my first few months to make sure I was documenting and coding everything appropriately. Here in the VA, it is rare for me to get any feedback regarding my documentation." HIM chiefs frequently referenced a lack of provider performance management as a barrier to effective documentation, with 38 percent of VAMC HIM chiefs citing lack

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[440] Intermountain Healthcare SME interview (May 5, 2015)

of formal physician incentives as the biggest barrier to documentation and coding accuracy for their facilities.[441]

These site visit findings are validated by provider perspectives gathered from the Choice Act survey. Though approximately two-thirds (67 percent) of providers report having received some feedback regarding the quality of their clinical documentation during the last year,[442] only 36 percent of those providers indicated that the feedback come as part of regular performance evaluations.[443] Overall, this suggests that approximately 24 percent of providers are evaluated on their documentation as part of regular performance reviews. This is consistent with our analysis of VHA-published provider review materials obtained as part of our assessment: VA Form 10-2623a, the national "Proficiency Report" used for provider evaluations, does not contain performance metrics related to provider documentation.

Documentation and coding metrics are not directly included within the facility-level SAIL report. Quality managers interviewed during site visits indicated that facility performance on measures contained within the Strategic Analytics for Improvement and Learning (SAIL) report has been a recent focus for many VAMCs.[444] The SAIL report contains 33 performance metrics across a number of important clinical and operational domains, including quality (e.g., hospital complication rates), efficiency (e.g., length-of-stay), patient experience (e.g., customer satisfaction), and access (e.g., wait times). This report has been an important VHA tool for assessing performance nationally and for directing facility-level improvement efforts.

We found that the SAIL report does not contain any metrics directly assessing documentation and coding performance. However, clinical staff at many VAMCs suggested that many of the metrics contained within the SAIL report are critically dependent upon accurate clinical documentation. For example, rates of catheter associated urinary tract infections (a metric tracked within the SAIL report) are derived from clinical data, and inaccuracies in EHR documentation can lead to erroneous conclusions regarding the quality of care provided by a facility. This observation has caused select facilities to focus on documentation improvements as a mechanism to improve performance on quality measures, as suggested by one physician leader who stated: "When we first looked at our facility's performance on the SAIL data, we were shocked because a lot of our performance data just didn't seem right. We found that many of the issues were related to how we were capturing information within the medical record. We focused on documentation improvements and were able to improve our performance on quality measures, yielding changes in our facility rating from 2-star to 5-star in a very short time." A

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[441] Site visit HIM chief interviews (N=21)

[442] Choice Act survey (N=406)

[443] Choice Act survey (N=272)

[444] Site visit quality manager / utilization manager interviews (N=21)

similar view was expressed by some, but not all, other VAMCs, prompting variable documentation improvement efforts as a means of improving SAIL performance. **Administrative staff are not evaluated on their ability to consistently capture patient demographic and insurance information.** Consistent capture of patient demographic and insurance information has implications for VHA's ability to provide high-quality clinical care as well as for facilities' ability to appropriately capture third-party reimbursement. However, 90 percent of sites suggested significant challenges in consistently capturing this information.[445] Workshop participants reported several drivers of these challenges including inconsistent use of registration scripts, insufficient training of clerks, and lack of standardized processes to verify patient information for patients admitted emergently. Based on this information, many of the challenges associated with patient registration and information verification could be addressed by aligning on processes for information verification and enhancing performance management practices for patient registration staff. Issues related to the capture of insurance information create downstream challenges with coding, as failure to accurately capture insurance information during an admission results in the generation of numerous "new insurance late check-out" (NILCO) records for delayed coding. The generation of NILCO records is part of VHA's process to ensure that third party billing occurs for all encounters for patients with third party billable insurance. VHA has a system in place to check patient encounters that are initially not flagged as being billable to third party insurance to verify insurance status and identify encounters that may be billable. Records identified through this process are assigned to medical coders for coding of the physician services rendered on behalf of these patients and submission to third party payors, potentially disrupting coder workflows. For additional information on VHA's challenges with timely insurance identification, please reference Assessment Report I.

9.2.2 Adoption of Documentation Best Practices is Variable, Resulting in Inconsistent Quality of Clinical Documentation System-wide

Accurate and complete clinical documentation is the cornerstone of effective health information management and transparency into performance. One critical enabler of effective clinical documentation is the use of electronic health records (EHRs), an area in which VHA has traditionally been viewed as an industry leader (HHS, 2015). With organization-wide implementation of the Veteran's Health Information System and Technology Architecture (VistA) dating back to 1985, VHA boasts longer experience with the use of electronic health records than nearly any other health care organization. And despite the recent development of commercial systems for medical documentation, VistA continues to be highly-regarded among clinical personnel, with recent surveys suggesting that physicians prefer VistA's CPRS to most commercial EHRs (Medscape, 2012).

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[445] Site visit documentation and coding assessment workshops (N=20)

However, an EHR is only effective so long as the data captured within it is accurate. As shown in **Figure 9-3**, provider documentation is the first of several steps in the documentation and coding process. Because of the interdependencies of further steps, it is critical that health care organizations ensure that complete and accurate clinical documentation is consistently captured within the health record. To support these purposes, industry professional organizations have established documentation standards to ensure integrity of health care records, including optimal template management and the appropriate use of copy-paste (Arrowood, 2013).

Figure 9-3. Role of Copy-Paste and Template Management in Clinical Documentation

For quality assurance, health care organizations implement processes to ensure that provider documentation practices are compliant with the high standards that ensure that clinical documentation is reliable for coding, billing, and communicating accurate information among providers. Our assessment revealed that facilities continue to report challenges with the quality of clinical documentation, in spite of the quality assurance practices currently in place. These issues may contribute to inaccurate data capture and preclude appropriate billing and decision-making based on captured data. We identified the following challenges associated with clinical documentation:

9.2.2.1 Inconsistent adoption of provider documentation best practices (e.g., template use, appropriate copy-paste) challenges effectiveness

9.2.2.2 Ineffective provider query practices and limited provider responsiveness at many facilities contribute to persistence of suboptimal documentation

9.2.2.3 Incomplete uptake of clinical documentation improvement (CDI) programs and variable best practice implementation has limited potential impact from these programs

As mentioned in section 9.2.1.3, lack of robust performance management and transparency appears to contribute to limited prioritization of accurate documentation and coding across the organization. In turn, this lack of emphasis at the facility and provider level may result in the many of the suboptimal decisions and behaviors reported in 9.2.2.1–9.2.2.3. Because of this, VHA should consider efforts to promote transparency and performance management around documentation and coding performance as foundational to any efforts to address the suboptimal practices outlined in this section.

9.2.2.1 Inconsistent Adoption of Provider Documentation Best Practices (e.g., template use, appropriate copy-paste) Challenges Effectiveness

Consistent adoption of appropriate documentation practices is critical to maintaining the integrity of information captured within EHR systems. Because of this, professional organizations have laid out expectations regarding the appropriate use of copy-paste, effective implementation of clinical templates, and robust processes for EHR quality assurance to promote optimal documentation (Arrowood, 2013). Our assessment suggests several documentation challenges for VHA, including: (1) templates are not consistently used or optimally managed; (2) copy-paste is not always used appropriately, challenging usability of clinical documentation; and (3) health record review processes have not effectively resolved all documentation challenges.

> **Templates are not consistently used or optimally managed.** Use of well-designed clinical templates helps support effective documentation and coding in the following ways:
>
> - Facilitates effective written communication among providers
> - Ensures capture of all critical information to support accurate coding
> - Enhances coder productivity by standardizing location of key information within patient records
>
> Because of these benefits, industry professional organizations have promoted template use for clinical documentation, in particular as a potential strategy to address the upcoming industry-wide transition to ICD-10 in October 2015, which will require more specific clinical documentation to support accurate medical coding (Clark, 2012).
>
> We found the appropriate use of existing clinical templates to be a challenge across VAMCs. Clinical and administrative staff at 80 percent of site visits reported issues

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with appropriate template use, making this the most commonly-reported challenge related to provider documentation patterns.[446] Specifically, sites reported challenges with consistent use of template notes instead of free text notes, completion of all necessary fields within templates, and use of the same template across similar patient encounters.

Our assessment suggests that issues raised regarding template use may originate, in many cases, from insufficient controls on template creation at certain VAMCs. VHA Handbook 1907.01 specifies that new templates must be approved prior to implementation (VHA, 2014). However, the directive does not lay out a standard approval process for use across VHA. Data from our VHA data call suggests inconsistencies in the approach taken at the VAMC level to template management.[447] For example, one facility reported a policy whereby a template proposed by an individual physician could be approved through a single review by a committee at the VAMC level. In contrast, another VAMC reported a more extensive process requiring service line alignment to develop new templates followed by approvals at both the VAMC and VISN levels before implementing a new template.

Select VAMCs have launched efforts to rationalize the number and design of available clinical templates. For example, the Palo Alto VAMC undertook a full review of its nursing templates during an 18-month period starting in 2013. The initiative commenced with compilation of a comprehensive listing of all nursing templates in use at the facility. Each of the original 1,400 templates identified was reviewed to determine whether it should be maintained or eliminated. Through the review process, Palo Alto was able to decrease the number of nursing templates by more than 50 percent. The nursing service also strengthened its review criteria for proposed new templates in order to maintain improvements.

Although we did not assess the quality of local clinical templates resulting from template management practices currently in place, the perspectives conveyed by participants during our on-site documentation and coding assessment workshops suggest the need for improvements. Many of the improvement ideas proposed during our workshops relate to the lack of alignment of template design with coding requirements. This emphasis on template design was grounded in the concern that, in some cases, existing templates may contribute to miscommunication of patient status between providers and coders due to their lack of key documentation elements necessary to support accurate and medically appropriate coding.[448]

Copy-paste is not always used appropriately, challenging usability of clinical documentation. The appropriate use of copy-paste within EHRs promotes provider efficiency in documentation by enabling consistent and timely capture of complex

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[446] Site visit documentation and coding assessment workshops (N=20)

[447] Choice Act data call template management process descriptions

[448] Site visit documentation and coding assessment workshops (N=20)

patient data that doesn't change over time (Figure 9-3). However, widespread use of copy-paste also presents a number of potential challenges, including:

- Propagation of outdated or inaccurate information
- Expansion in the quantity of potentially redundant clinical information
- Difficulty in determining authorship of documentation (AHIMA, 2014)

Our analysis suggests that use of copy-paste across VHA is a widespread challenge. During documentation and coding assessment workshops conducted during site visits, 55 percent of sites reported inappropriate use of copy-paste within clinical documentation.[449] Coders commonly expressed that unwarranted use of the copy-paste function slows down medical coding and can lead to challenges in interpreting the record for coding when information within a single note is internally inconsistent. The challenge of efficiently interpreting clinical documentation when copy-paste is used indiscriminately was reflected by the comments of a medical coder, who stated: "Sorting through the noise created by copy-paste is a huge challenge. It is almost impossible to find the information that you're looking for when you have to scroll through screen after screen of copied documentation. And even when you find what you're looking for, all the copy-paste makes you wonder how accurate it really is: when the note says that the catheter was removed three days in a row, it diminishes your confidence in the rest of the information contained in the patient record."[450]

Health record review processes have not effectively resolved all documentation challenges. Expectations regarding performance of regular facility-level EHR quality reviews are outlined within VHA Handbook 1907.01: Health Information Management and Health Records (2014). This directive dictates quarterly review of the EHR focused on a number of key dimensions, including appropriateness of copy-paste use, evaluation of proposed new templates, and presence of unsigned progress notes. A 2014 OIG Combined Assessment Summary Report indicated strong compliance with this process, suggesting that ~75 percent of facilities perform EHR quality reviews at least quarterly (OIG, 2014).

Our assessment also suggests that the majority of VAMCs are performing nationally-directed EHR quality reviews, with 88 percent of facilities reporting that they reviewed copy-paste use at least quarterly during the last year.[451] However, as previously noted, challenges persist with respect to appropriate use of templates and copy-paste functionality. Given that both of these issues are intended to be addressed through EHR quality reviews, the EHR quality review processes currently in place do not appear to be consistently yielding the desired improvements in documentation quality. Our assessment suggests that this may be, in part, due to

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[449] Site visit documentation and coding assessment workshops (N=20)

[450] Site visit documentation and coding assessment workshop participant comment

[451] Choice Act data call (N=49)

variability in locally-outlined EHR quality review processes. To illustrate, only 55 percent of facilities submitting documents through the VHA data call submitted EHR review policies as requested.[452] Even among VAMCs submitting policies, we observed significant variability in the depth with which quality review processes are outlined. These differences likely contribute to variation in VHA's ability to drive desired documentation improvements through consistent EHR reviews.

9.2.2.2 Ineffective Provider Query Practices and Limited Provider Responsiveness at Many Facilities Contribute to Persistence of Suboptimal Documentation

As part of a collaborative documentation and coding process, medical coders submit queries to providers when clinical documentation is incomplete or unclear. When providers respond to queries and appropriately addend clinical documentation, coding quality is enhanced because coders are able to appropriately code encounters based on a patient's true clinical condition and the level of care provided rather than incomplete clinical documentation initially captured in the medical record (Arrowood, 2013).

National HIM leadership has put in place the technical infrastructure to support performance of provider querying and consistent tracking of results across VHA. In 2012, VHA launched the Physician Query Tracking (PQT) tool. This tool supports provider querying by allowing HIM personnel to track the number of queries submitted to providers, provider response rates, and query outcomes. Trending query data has the potential to yield insights into problematic documentation practices and suggest whether documentation practices are improving over time. In spite of availability of the PQT tool organization-wide, it has not been fully adopted. We found that ineffective provider query practices continue to inhibit optimal documentation and coding, as evidenced by: (1) variable adoption of the provider query process and query tools across VHA; (2) low provider responsiveness to queries; (3) use of suboptimal methods for querying providers; and (4) variable use of the PQT tool's reporting and tracking capabilities.

> **Variable adoption of the provider query process and query tools across VHA.** Handbook 1907.01 outlines expectations that all VAMCs implement a provider querying process at the facility-level to ensure quality of the information captured within the EHR (VHA, 2014). Data from the PQT tool suggests that while adoption of provider querying has improved over time, the practice has not yet been embraced at all facilities, with 10 percent of VAMCs not querying providers during FY2014 (compared to 20 percent in FY2013 and 41 percent in FY2012).[453] Our site visit findings are consistent with this data and also suggest that adoption of provider querying continues to gain traction across VHA: at least two facilities that we visited reported implementation of the provider query process during Q2 of FY2015.
>
> **Low provider responsiveness to queries.** Provider responsiveness to queries within VHA does not match performance within private hospitals. Figure 9-4 compares the

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[452] Choice Act data call (N=67)

[453] Physician Query Tracking (PQT) tool (FY2012-FY2014); participation in query process defined as facilities submitting a queries on at least 0.1 percent of Quantim encounters (1 in 1,000)

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distribution of provider query response rates within VHA to private hospitals. Overall, the distribution shows that VHA has a few high-performing facilities, but 38 percent of VAMCs have provider response rates under 50 percent. The overall lack of responsiveness within VHA may contribute to coding inaccuracies, because coders are forced to code based on existing, potentially incomplete, medical documentation when providers do not respond to queries.

Figure 9-4. Comparison of Provider Query Responsiveness: VHA Versus Private Hospitals

VHA provider responsiveness to queries lags private sector

Provider query responsiveness – VHA[1] vs. private hospitals[2]
Percentage of facilities (N=100 VHA hospitals, 382 private hospitals)

Responsiveness ratings, by provider response rates
■ Low: <50%
■ Medium: 50-80%
■ High: >80%

VHA hospitals: 38 | 55 | 7

Private hospitals: 10 | 32 | 58
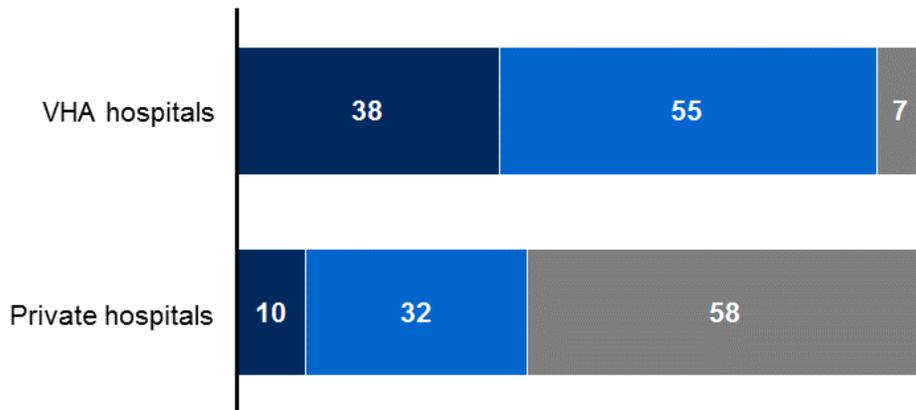
1 VHA data from the Physician Query Tracking (PQT) tool
2 Private sector benchmarks from Association for Clinical Documentation Improvement Specialists (ACDIS)

SOURCE: VHA Physician Query Tracking (PQT) tool (FY2014); ACDIS Physician Query Benchmarking Report (2010)

Use of suboptimal methods for querying providers. Most VAMCs use secure VHA email to relay queries to providers. This is in contrast to what has been found to be most effective in private hospitals, where only 3% of CDI specialists have identified email to be the most effective of a variety of physician querying techniques (Figure 9-5).

Figure 9-5. CDI Specialist Perspective on Most Effective Provider Query Technique

Private hospital CDI specialists report that leaving queries in a patient's medical record is perceived the "most effective" provider query technique[1]

Percent of respondents

Other[2]

Email

7

3

Verbal conversation 34

56 Leave query in patient's medical record
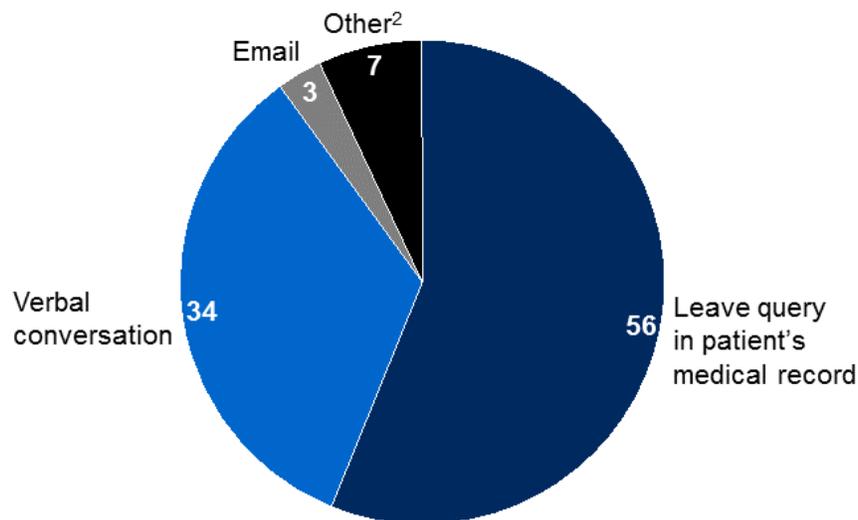
1 Leaving queries in a patient's medical record and the other tactics noted were tracked in the "2010 Physician Query Benchmarking Report", and are provided here as an illustration of query techniques used within the private sector and their perceived effectiveness by survey respondents. Our assessment and the high preforming facilities we interviewed are not endorsing any particular technique.
2 Includes hand delivery of query form, fax, and "other"

SOURCE: 2010 Physician Query Benchmarking Report (ACDIS)

VHA physicians raised several concerns about the use of email as the primary mode of provider querying. Limited off-site accessibility to secure VHA email, high number of e-mails received per day, and low overall utilization of VHA email were all sited as factors inhibiting providers' ability to respond to email-based queries in a timely fashion. This problem becomes particularly acute in the context of VAMCs affiliated with academic medical centers, where providers may spend as few as two days per month treating patients within VHA facilities, causing these providers to have even more limited access to secure VHA email systems. As on VHA physician noted: "Many providers at our facility split time between VA and an academic medical center. For those that spend one day per week or fewer at VA and rarely check VA email when they are not at the facility, is it really feasible for them to notice and then respond to a query by the time the coders need their response for coding?"

Variable use of the PQT tool's reporting and tracking capabilities. Even among facilities that have embraced provider querying and attained high levels of provider responsiveness, our assessment suggests variable use of the PQT tool's full reporting capabilities to drive documentation improvements. For instance, one VAMC reported using the tool consistently to assess patterns and issues with documentation to identify improvement opportunities. The HIM leader at the facility

stated: "We use the PQT tool to target individual providers. Sometimes the issues are with individual providers, other times with provider teams. We use the data to pull up patterns for review and then go out and train the providers that need training." In contrast, another facility has embraced the PQT tool and reports strong provider engagement and responsiveness, but leaders stated they scarcely use data from the PQT tool to design their documentation improvement efforts. Variation in the use of the PQT tool's reporting and tracking capabilities may contribute to differences in the effectiveness of local efforts to improve documentation practices.

9.2.2.3 Incomplete Uptake of Clinical Documentation Improvement (CDI) Programs and Variable Best Practice Implementation has Limited Potential Impact from These Programs

Recent industry trends toward increased tracking and reporting of clinical quality measures has caused many health care organizations to increase the scrutiny with which they examine medical documentation. This increased emphasis on proper documentation patterns has led to the development of clinical documentation improvement (CDI) programs across the industry (Towers, 2013; Danzi, 2000). These programs aim to improve provider documentation practices by providing training and education on compliant documentation to physicians, a skill that is not taught in medical school (Arrowood, 2013). There is significant heterogeneity across health care organizations in the approach to CDI program implementation, although a common model involves the hiring of dedicated CDI specialists (who can either be expert coders or nurses with a working knowledge of medical coding) to work with a physician advisor to promote documentation accuracy through performance measurement and provider education. Well-functioning CDI programs play a vital role in promoting accuracy and completeness of clinical documentation.

The national VHA HIM office provided guidance to facilities on implementing CDI programs by releasing the VHA CDI Program Guide in March 2013. This resource outlines several key objectives of CDI programs, including review of provider documentation for high-priority clinical records, promotion of provider buy-in, and provision of targeted provider education and training. Each facility was encouraged to implement a CDI program conforming to the objectives and specifications outlined in the program guide. Our assessment suggests that: (1) VAMC uptake of CDI programs has been incomplete; and (2) CDI program impact has been inconsistent across participating facilities.

> **VAMC uptake of CDI programs has been incomplete.** We found that VAMCs have not uniformly adopted CDI programs. According to the 2014 HIM Inventory, 46 percent of VAMCs reported having a CDI program (compared to 31 percent of VAMCs in 2013).[454] Lack of facility-level support for these programs appears to be one barrier to more widespread adoption.[455]

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[454] 2014 HIM Inventory (N=134)

[455] Site visit HIM chief interviews (N=21)

CDI program impact has been inconsistent across participating facilities. Our analysis suggests variability in the approach that facilities have taken to CDI program implementation. For instance, we would expect to see consistent implementation of provider querying for VAMCs with CDI programs, given that provider querying is a core activity promoted by CDI. However, we found that 3 of the 43 (7 percent) VAMCs (complexity level 1a, 1b, 1c, and 2) reporting CDI program implementation submit queries on less than 0.1 percent of encounters, suggesting limited use of the provider query process in spite of CDI program adoption.[456] In addition, we found that while 57 percent of the highest-performing VAMCs on provider query responsiveness do have CDI programs, overall query responsiveness for VAMCs with CDI programs is only slightly higher than for VAMCs without CDI programs (58 percent versus 51 percent).[457] This data suggests that while some VAMCs may have implemented particularly effective practices as part of their CDI efforts, not all facilities have been as effective with their CDI program implementations.

VAMCs implementing CDI have reported varying degrees of success with their locally-designed programs. For example, the Lexington VAMC has driven improvements in measured clinical quality and accurate patient classification through its CDI program (see case study below). However, not all VAMCs have experienced the same outcomes, as illustrated by on local HIM chief who stated, "We recently implemented a CDI program here but we haven't yet seen the results we were hoping for. We would love to know what is working at other facilities." These facility-level differences in CDI effectiveness and variability in implementation of core CDI components may indicate gaps in VHA's national approach to local CDI program implementation.

Table 9-3. VAMC Case Study: CDI Program Implementation

Best practice case study – Lexington VAMC
The **Lexington VAMC** has implemented a **CDI program** to promote documentation improvement and accurate capture of data to reflect the quality of care delivered by the facility.   **Details**   ▪ Dedicated one **CDI specialist** to manage to facility's program and to **work directly with clinicians on documentation improvement and training**   ▪ Designated a CDI physician advisor to champion CDI efforts and provide training to physicians on documentation issues   ▪ Implemented the "Madison Model" patient classification assessment tools to ensure review of patient records with high-priority clinical conditions to ensure that documentation and coding of these records accurately captures patient complexity

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[456] Physician Query Tracking (PQT) tool (FY2014); 2014 HIM Inventory (N=134)

[457] Four of the seven facilities with query response rates over 80 percent participate in the CDI program

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The views, opinions, and/or findings contained in this report are those of the assessment team and should not be construed as an official government position, policy, or decision.

Best practice case study – Lexington VAMC
Impact ▪ In one year, the facility moved from a one-star rating to a five-star rating based on improved capture of measures that contribute to clinical quality

9.2.3 System-wide Focus on Coding Standards has Resulted in Coding Performance Typically Meeting or Exceeding Private Sector Benchmarks

Coding is the process by which clinical documentation is translated into industry standard medical codes. This process is performed by medical coders who are trained to assign medical codes consistently and appropriately based on provider documentation. Maintaining coding accuracy is of critical importance because coding data is used for various secondary purposes (e.g., billing, analytics, quality reporting). Medical coding professional associations recommend that hospitals set a minimum coding accuracy target of 95 percent (AHIMA, 2008).[458] In addition to accuracy targets, hospital organizations also commonly set targets for coding timeliness to ensure that records can be closed and sent to payors for billing, facilitating prompt revenue collection. Timeliness targets vary across organizations, but are typically set between three and seven days after discharge (HCPro, 2011).

Our assessment indicates that VHA performance on coding timeliness (e.g., time from patient discharge to coding) and accuracy (e.g., reliability of coding based on existing clinical documentation) is closely aligned with private sector benchmarks. According to the most recent national VHA audit of 10 randomly-selected facilities, the overall inpatient coding accuracy rate was found to be 93 percent.[459,460] With respect to coding timeliness, recent VHA data indicates an average inpatient coding turnaround time of four days after discharge.[461] Our analysis suggests the following as key drivers of high performance:

9.2.3.1 Visibility into performance through establishment of clear coding targets and performance tracking supports transparency and improvement

9.2.3.2 Regular application of coder auditing by internal coding experts at the facility-level yields feedback loop to identify inaccuracies and improve performance

9.2.3.3 Use of coding software that incorporates best practice features (e.g., error checking, decision support) facilitates coding accuracy

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[458] Note that accuracy in this context refers to inter-coder reliability, or the extent to which an expert coder would assign the same medical codes based on existing clinical documentation; high coding accuracy means that does not necessarily mean that codes represent a patient's true condition, as insufficient or inaccurate provider documentation may inhibit optimal assignment of codes

[459] VHA Coding and Billing Audit Results (2013-2014)

[460] As mentioned in the introduction of this section, we did not independently verify this result (e.g., through a coding audit).

[461] VHA HIM Executive Summary (2014)

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9.2.3.1 Visibility Into Performance Through Establishment of Clear Coding Targets and Performance Tracking Supports Transparency and Improvement

The ability to accurately monitor performance trends over time is a key enabler of performance improvement. This has been shown across a variety of health care domains, including patient safety and operational efficiency (Donaldson, 2005). In order to ensure high performance for medical coding professionals distributed across VHA's national geographic footprint, visibility into performance is key to promoting improvement. Implementation and sound practices to promote high medical coding performance was evidenced by: (1) establishment of clear medical coding performance targets across the organization; and (2) development of an executive summary dashboard for medical coding performance tracking.

> **Establishment of clear medical coding performance targets across the organization**. VHA Handbook 1907.03: Health Information Management Clinical Coding Program Procedures establishes clear performance standards across a number of critical performance domains (VHA, 2012). For example, a consistent, national coding accuracy standard is set at 95 percent, consistent with benchmarks established in private industry. We found that establishment of this standard has created remarkable consistency in target-setting across the organization, as evidenced by 97 percent of VAMCs reporting establishment of accuracy targets aligned with national targets.[462]
>
> **Development of an executive summary dashboard for medical coding performance tracking.** In support of the organization's efforts to promote timely and accurate coding, VHA disseminates a quarterly health information management executive summary dashboard to facilitate performance comparisons and tracking of improvements over time. This dashboard, first published at the beginning of FY2013, highlights performance across a number of key coding metrics, including time from discharge to coding and presence of unsigned progress notes. This tool contributes to VHA's coding performance by providing a tool for consistent tracking of performance across the organization and identification of improvement opportunities.

9.2.3.2 Regular Application of Coder Auditing by Internal Coding Experts at the Facility-level Yields Feedback Loop to Identify Inaccuracies and Improve Performance

For high-performing hospital organizations, compliance of medical coding practices is critical to ensuring accurate capture of clinical data, identifying potential gaps in capabilities of coders, and protecting against allegations of fraud and abuse. Regular auditing of medical coding is a key process to ensure coding compliance (Prophet, 1998). Assurance of compliant coding practices across VHA are supported by: (1) clear guidance on expectations for coder auditing procedures; and (2) consistent adoption of coder auditing procedures at the facility level.

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[462] VHA 2014 HIM Inventory (N=134)

Clear guidance on expectations for coder auditing procedures. As outlined above, VHA's national HIM office has established clear expectations regarding quality assurance processes for medical coding, as outlined in VHA Handbook 1907.03 (VHA, 2012). In addition to establishment of a clear 95 percent performance target, the handbook also specifies that "coder assigned codes [be] reviewed internally by a qualified coder at the highest level of knowledge and skill, or by utilizing an external coding consultation group that has knowledge of and experience in VA coding practices and requirements." This guidance provides clear expectations to VAMC HIM leadership on the processes expected to ensure compliance of medical coding practices. In addition, we found the practice of performing regular internal audits of coding quality to be consistent with the practices in place at high-performing provider organizations.[463]

Consistent adoption of coder auditing procedures at the facility level. Our interviews during site visits and information from national datasets suggest that coder audits have been consistently implemented across VHA. Responses captured in the 2014 HIM Inventory indicate that 89 percent of facilities conduct regular or routine auditing of coding staff.[464] While 25 percent of facilities report contracting for external coding audit services, our interviews with facility-level HIM chiefs suggest that the majority of the auditing is conducted by experienced coders at the facility-level.[465] These practices have driven high rates of accuracy for medical coding, as suggested by a national accuracy rate of 93 percent from the most recent national audit and self-reported performance from the data call, wherein respondents reported an average accuracy rate of approximately 93 percent during the last 15 months.[466]

Implementation of monthly coder auditing creates a regular feedback cycle that accelerates identification of challenges and performance improvements. Among HIM staff responding to our survey, 83 percent indicated that coders receive feedback regarding the accuracy of their medical coding at least quarterly; 89 percent of these respondents reported that monthly audits were either "very effective" or "somewhat effective" at identifying errors and changing behaviors.[467] These survey responses suggest that regular coder auditing may contribute to accurate assignment of codes across the organization.

9.2.3.3 Use of Coding Software That Incorporates Best Practice Features (e.g., error checking, decision support) Facilitates Coding Accuracy

The process of medical coding has become increasingly reliant on electronic systems during the past decade, introducing the need for effective software systems to support coding functions

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[463] Interview with a large national provider organization with robust proprietary revenue cycle capabilities

[464] 2014 HIM Inventory (N=134)

[465] 2014 HIM Inventory (N=134); site visit HIM chief interviews (N=21)

[466] Choice Act data call (N=40)

[467] Choice Act survey (N=29)

(Towers, 2013). VHA currently uses the Nuance Clintegrity 360 suite of products to support its coding efforts across the organization. Our assessment found that the software tools currently in place for VHA support the efforts of coders to accurately assign codes to patient records. Specifically, our assessment suggests that: (1) VHA's medical encoder software incorporates features to support coding accuracy; and (2) users report high degree of satisfaction with existing coding software.

> **VHA's medical encoder software incorporates features to support coding accuracy.** Given the current complexities of medical code assignment, qualified medical coders rely on software platforms to support accurate code assignment to clinical encounters. The medical encoder used within the Clintegrity 360 system in place at VAMCs nationally is the Quadramed encoder. This product is a standard coding tool that is also used by 12 percent of organizations within the private sector, making it the second most common medical encoder in use throughout the industry (HCPro, 2011). Our site visit (shadowing observations of medical coders) suggested that VHA's coding software incorporates critical features to support accurate coding assignment, including decision support and error checking tools, reporting and auditing capabilities, and educational resources (e.g., online code books).[468] According to our survey, 60 percent of HIM staff reported referencing decision support tools included within the encoder at least several times per week,[469] and 90 percent reported that these resources are either "highly effective" or "somewhat effective" at identifying and preventing errors in medical coding.[470]
>
> **Users report high degree of satisfaction with existing coding software.** Our site visit shadowing sessions and on-site interviews with medical coders and HIM leadership revealed overall satisfaction with VHA's coding tools. Facility-level HIM chiefs voiced their satisfaction with VHA's current coding product, with 95 percent of site visits interviewees indicating that VHA's code editing software meets coding needs.[471] These views were corroborated by our survey, wherein 90 percent of HIM staff rated VHA's medical coding systems as "very easy to use" or "moderately easy to use."[472] Finally, satisfaction with existing capabilities of current coding tools was indicated by findings from our documentation and coding assessment workshops: of the >200 potential improvement ideas suggested to enhance VHA's documentation and coding performance, none suggested changing the organization's medical encoder or incorporating new features.[473]

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[468] Site visit medical coding shadowing observations (N=10)

[469] Choice Act survey (N=25)

[470] Choice Act survey (N=29)

[471] Site visit HIM chief interviews (N=21)

[472] Choice Act survey (N=31)

[473] Site visit documentation and coding assessment workshops (N=20)

9.3   Recommendations

VHA documentation and coding practices have multiple stakeholders: Congress and the Executive branch, VACO, VHACO, VISN leadership, and VAMC management and staff. Encouraging innovation and addressing critical challenges in documentation and coding will require collaboration among all of these groups, and a commitment to making difficult, long-term change. Different recommendations should be owned by different groups (e.g., recommendation requiring changes to VACO policy versus local policy) -- however, support for change from all stakeholders is critical to effective implementation.

Our recommendations, building on existing strengths and addressing existing challenges in documentation and coding, can be categorized into two main themes.

> **9.3.1   Increase local prioritization of clinical documentation through acceleration of national CDI program and targeted provider education and training, supported by performance management at the facility and provider level**
>
> **9.3.2   Strengthen provider documentation standards (e.g., management of clinical templates, EHR review process) to promote optimal capture of patient information and improve resulting resource management**

These themes are consistent with practices suggested by the academic literature, professional associations, and high-performing hospitals within VHA and outside the system, as well as solutions proposed by front-line VHA staff – this information is included in "summary of supporting evidence" sections in each sub-recommendation (see **Appendix F.4** for additional detail on our methodology for gathering this data). To help VHA implement our recommendations, we have also suggested next steps in the "potential near-term actions" sections of the sub-recommendations. Note, because different VAMCs may have already adopted some recommended practices or experience unique barriers, these suggestions should be tailored the individual circumstances of each VAMC. Each recommendation is supported by several sub-recommendations, which map to the "organization, workflow processes, and tools" domains specified in the Choice Act. For a detailed map of how the sub-recommendations relate to these domains, see **Table F-2** in **Appendix F.3**.

Several recommendations overlap with other assessment areas. Where this occurs, we have referenced the relevant assessment area, which has additional detail.

9.3.1   Increase Local Prioritization of Clinical Documentation Through Acceleration of National CDI Program and Targeted Provider Education and Training, Supported by Performance Management at the Facility and Provider Level

As noted in section 9.2.1, one of VHA's key challenges in promoting accurate documentation and coding is a lack of understanding across various organizational levels regarding the importance of documentation and coding practices for VHA. Changes in the culture surrounding the importance of documentation and coding could increase the integrity of data contained in

VHA's systems, increasing opportunities for revenue collection and improving VHA's internal resource allocation and quality measurement capabilities.

To facilitate the needed cultural change, we recommend the following:

9.3.1.1 Incorporate documentation metrics into regular performance reviews for both providers and facilities

9.3.1.2 Reinforce CDI program by providing targeted guidance on national documentation priority areas and by creating a national information-sharing network for CDI best practice sharing

9.3.1.3 Develop and deploy provider educational and training programs to address unique VHA documentation needs and reemphasize the importance of documentation for Veterans and the organization

9.3.1.1 Incorporate Documentation Metrics Into Regular Performance Reviews for Both Providers and Facilities

Our assessment revealed evidence of low prioritization of documentation and coding across the organization. Establishment of stronger performance management systems focused on documentation and coding performance could improve prioritization organization-wide. VHA should use enhanced data transparency and performance management systems to motivate VAMC efforts to improve clinical documentation.

Summary of supporting evidence:

- See Section 9.2.1.3 for more detail on findings.

- Proposals from staff participating in on-site workshops suggest front-line support for increased transparency and performance management, with 60 percent of sites recommending increased provider accountability for documentation performance as a solution to improve performance[474]

- Experience from a high-performing hospital organization demonstrates the effectiveness of incorporating documentation metrics (e.g., responsiveness to queries, timeliness of discharge summary completion, presence of unsigned progress notes, improvements in provider case-mix over time) into performance reviews to promote improved documentation practices (see case study in Section 9.2.1)

Potential near term actions:

- *VHACO:* Incorporate composite documentation and coding quality metric into the national SAIL report for facility-level performance tracking.
    - ○ *VHACO:* Review documentation quality metrics currently tracked within HIM reports and other national data sources (e.g., allocation resource center data, patient case mix data) to identify critical performance tracking metrics.

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[474] Site visit documentation and coding assessment workshops (N=20)

- ○ *VHACO:* Align on a single metric that reflects the quality of local clinical documentation practices for incorporation into the SAIL report.
- ○ *VHACO:* Confirm impact and determine appropriate roll-out of education and training to facilities on the impact of clinical documentation on the measurement of other metrics currently included within SAIL report (e.g., quality metrics).
- *VHACO/VAMC:* Create a national provider performance dashboard to track documentation quality metrics at the individual provider level, enabling increased performance management at the local level.
  - ○ *VHACO:* Identify and increase emphasis on new and existing outcomes-oriented documentation quality metrics (e.g., percent of discharge summaries complete within 48 hours, number of unsigned progress notes) for tracking performance of local clinical service lines and individual providers.
  - ○ *VHACO/VAMC:* Provide education and training to facility-level chiefs of staff on capabilities of performance dashboard and recommended uses with local service line chiefs and physicians.
  - ○ *VAMC:* Assign responsibility for facility-level documentation performance to local chiefs of staff to signal documentation's importance among providers.
  - ○ *VAMC:* Incorporate individualized documentation improvement goals within annual provider performance plans and reviews, reinforced by incentives for high performance on key metrics.
- *VACO/VHACO:* Improve national capabilities for tracking impact of documentation practices on opportunities for billing and reimbursement.
  - ○ Refer to Assessment I for additional details.

9.3.1.2 Reinforce CDI Program by Providing Targeted Guidance on National Documentation Priority Areas and by Creating a National Information-sharing Network for CDI Best Practice Sharing

VHA has experienced difficulty in improving organization-wide documentation performance through current CDI efforts. Recommendations from industry professional organizations support the use of CDI programs to drive improvements in documentation practices. VHA should reinforce and improve current CDI efforts to support enhancements in provider documentation patterns and increased prioritization of accurate clinical documentation across VHA.

Summary of supporting evidence:

- See Section 9.2.2.3 for more detail on findings.
- Proposals from staff participating in on-site workshops demonstrate pockets of enthusiasm for CDI implementation at the local level, with 38 percent of facilities lacking

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CDI programs recommending implementation to address documentation and coding challenges.[475]

- Evidence from the academic literature suggests improvements in key documentation outcomes (e.g., percent correct DRG assignment) through implementation of CDI programs with dedicated CDI specialists (Hicks, 2003).
- Experience of Lexington VAMC demonstrates potential to improve quality outcomes and optimize resource allocation through CDI efforts (see case study in Section 9.2.2.3).

Potential near term actions:

- *VHACO/VAMC:* Focus national CDI efforts on a subset of priority documentation areas.
  - *VHACO/VAMC:* Outline three to five priority clinical areas requiring documentation improvements (e.g., increased specificity in documenting heart failure) based on information captured nationally within the PQT tool and insights from facility-level HIM chiefs; rotate priority clinical areas periodically in response to documentation improvements and identification of new challenges.
  - *VHACO:* Develop national educational materials regarding each priority area and how to promote documentation improvements (e.g., provider groups to target for education, clinical templates to facilitate comprehensive capture of required clinical data).
  - *VHACO:* Track progress by outlining and following a set of targeted metrics expected to improve through effective CDI implementation (e.g., average case mix for patients with DRGs targeted by CDI efforts).
- *VHACO/VAMC:* Create a national information-sharing network for dissemination of CDI best practices.
  - *VHACO/VAMC:* Review key performance metrics (e.g., query responsiveness, changes in VERA allocations, changes in quality performance as measure by SAIL report) for sites that have implemented CDI programs, identifying sites that have experienced significant recent improvements.
  - *VHACO/VAMC:* Engage with high-performing CDI facilities to identify common features of high-performers.
  - *VHACO/VAMC:* Showcase practices and results of high performing facilities as part of existing HIM webcasts and in brief presentations to facility HIM chiefs and CDI specialists to promote broader program support and dissemination of best practices.

9.3.1.3 Develop and Deploy Provider Educational and Training Programs to Address Unique VHA Documentation Needs and Reemphasize the Importance of Documentation for Veterans and the Organization

Our assessment indicates that inconsistent provider training and education in documentation standards may be one driver of documentation challenges. High-performing hospital

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[475] Site visit documentation and coding assessment workshops (N=13)

organizations have improved provider documentation through consistent, targeted provider training and education programs. We recommend targeted improvements to current VHA provider documentation training and education practices to address these difficulties and ensure appropriate messaging regarding documentation's critical role for the organization.

Summary of supporting evidence:

- See Section 9.2.1.2 for more detail on findings.

- Proposals from staff participating in on-site workshops indicate nearly universal support for increased provider documentation training, with 95 percent of sites recommending increased provider education and training to improve documentation practices.[476]

- Studies within the academic literature have demonstrated positive impact on provider documentation patterns following targeted training and education (Danzi, 2000).

- Experience of Durham VAMC suggests that effective provider training supports accurate documentation and improvement in secondary metrics based on coding (e.g., accurate measurement of case mix) (see case study in Section 9.2.1.2).

Potential near term actions:

- *VHACO:* Develop national communication and training materials to reinforce the key role of documentation within VHA and to address VHA-specific documentation needs.
    - o *VHACO:* Align on coherent national messaging (e.g., accurate documentation improves quality of care for Veterans and supports increased revenue collection locally to address priority facility-level needs) to promote documentation improvement efforts from key clinical stakeholders.
    - o *VHACO:* Prepare provider training materials addressing the components of documentation that are unique within VHA context.
    - o *VHACO:* Develop national, service-line specific provider documentation "tip cards" addressing common documentation pitfalls associated with different service lines.
- *VAMC:* Develop local strategies for continuous provider education and training on documentation issues.
    - o *VAMC:* Deliver an in-person, peer-led education session establishing a common understanding regarding the proper role of documentation for VHA.
    - o *VAMC:* Establish expectations for mandatory provider attendance at occasional, service-line specific trainings addressing key facility-level and service-line specific priority documentation issues.
    - o *VAMC:* Offer additional targeted training opportunities at the request of service line chiefs (e.g., individualized training for providers with high query volumes, service line training for service line documentation challenges) to address priority issues as they arise at the facility level.

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[476] Site visit documentation and coding assessment workshops (N=20)

- *VAMC:* Create local systems to allow for provider input on desired documentation training topics and align training sessions with common provider challenges and concerns.

9.3.2 Strengthen Provider Documentation Standards (e.g., management of clinical templates, EHR review process) to Promote Optimal Capture of Patient Information and Improve Resulting Resource Management

VHA HIM and clinical staff commonly reported documentation patterns that are misaligned with industry best practice. Efforts to address these challenges has the potential to improve the quality of clinical documentation and resultant medical coding, improving care for Veterans as well as VHA's ability to optimize third party revenue collections.

To bring about desired improvements in VHA documentation patterns, we recommend the following:

> **9.3.2.1 Eliminate duplicative clinical templates and standardize requirements for new template creation**

> **9.3.2.2 Strengthen EHR reviews to ensure appropriate use of copy-paste, including implementation of CPRS tool to automate the process**

> **9.3.2.3 Implement standardized processes for following up on outstanding provider queries and improve provider accountability for query responsiveness**

9.3.2.1 Eliminate Duplicative Clinical Templates and Standardize Requirements for New Template Creation

Our interactions with providers and coders during site visits indicated that appropriate template use and management are common challenges to optimal documentation across VAMCs. Recommendations from industry professional associations emphasize the benefits of clinical templates to coding accuracy, documentation readability, and ICD-10 readiness. VHA should improve its template management and use practices to improve coder efficiency and increase the organization's readiness for the upcoming ICD-10 transition.

Summary of supporting evidence:

- See Section 9.2.2.1 for more detail on findings.
- Proposals from staff participating in on-site workshops emphasize the need for improved template management and use practices, with 75 percent of sites recommending this solution to improve current documentation practices.[477]
- Recommendations from industry professional organizations indicate potential benefits in documentation completion, documentation quality, coder productivity, and coding accuracy from clinical template usage (Clark, 2012).

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[477] Site visit documentation and coding assessment workshops (N=20)

- Experience of Palo Alto VAMC demonstrates opportunity to streamline the number and design of clinical templates to improve documentation consistency (see case study in Section 9.2.2).

Potential near term actions:

- *VHACO:* Maintain a national "template library" to allow sharing among facilities and promote broader adoption of effective clinical templates.
  - *VACO/VHACO:* Create national online resource for posting and downloading national example clinical templates and to promote inter-VAMC sharing of locally adapted templates.
  - *VHACO:* Conduct national materials request to aggregate high-performing clinical templates developed at the local level.
  - *VHACO:* Review locally-developed templates to create best practice national example clinical templates for priority clinical note types.
  - *VHACO:* Ensure that design of national example clinical templates is consistent with VHA's data interoperability and data standards goals (refer to Assessment H report for additional detail).
- *VAMC:* Conduct local review of existing provider templates to identify opportunities to streamline and improve templates across note types.
  - *VAMC:* Eliminate duplicative templates based on current frequency of use and effectiveness of design (e.g., comprehensiveness, readability).
  - *VAMC:* Create a standard listing of preferred provider templates for inpatient notes across disciplines and note types (e.g., surgery history and physical template, cardiology consultation template).
- *VHACO/VAMC:* Strengthen local criteria for creation of new templates to ensure optimal design and avoid unnecessary duplication.
  - *VHACO/VAMC:* Ensure inclusion of coders on local and national EHR review committees to ensure that their views (e.g., impact on coding efficiency, inclusion of all data necessary to code optimally) are represented when considering development of new clinical templates.
  - *VAMC:* Use standard checklists from professional associations to ensure that new templates meet industry standards for quality and necessity (see Figure F-3 in Appendix F.5).

9.3.2.2 Strengthen EHR Reviews to Ensure Appropriate use of Copy-paste, Including Implementation of CPRS Tool to Automate the Process

Our analysis indicates that EHR quality reviews undertaken at the facility level have not entirely addressed challenges with clinical documentation practices. Although the majority of facilities have processes in place to review the EHR, it appears that gaps remain in the ability of these reviews to improve documentation practices. Implementation of consistent, comprehensive EHR quality reviews are recommend by professional coding associations to ensure

documentation compliance and quality. VHA should improve its current EHR quality review process to ensure that documentation integrity is maintained across VHA.

Summary of supporting evidence:

- See Section 9.2.2.1 for more detail on findings.

- Proposals from staff participating in on-site workshops suggest consistent desire to improve documentation, with 50 percent of sites recommending targeted enhancements to CPRS to promote more consistent documentation practices; many of the proposals focused on addressing the inappropriate use of copy-paste.[478]

- Recommendations from coding professional organizations highlight the need for regular review of clinical documentation through EHR audits to ensure appropriate documentation practices (Arrowood, 2013).

- Interview findings indicate that VHA is in the process of incorporating a copy-paste identification feature within CPRS, which is expected to be released in June 2015 and will automate identification of copy-paste usage to facilitate further review.[479]

Potential near term actions:

- *VHACO/VAMC:* Enhance local processes for reviewing copy-paste use within CPRS through targeted national guidance and implementation of supporting tools.
  - o *VHACO:* Proceed with organization-wide launch of automated copy-paste identification tool and train local facility HIM leadership on the tool's functionality to drive increased efficiency and effectiveness of local chart review.
  - o *VAMC:* Develop local policies to address inappropriate use of copy-paste (e.g., provider notification standards, training requirements for providers found to be noncompliant, remedial actions for pattern of repeat inappropriate use).
  - o *VAMC:* Incorporate expectations regarding appropriate copy-paste use within national provider educational and training sessions (see recommendation 9.3.1.2).

9.3.2.3 Implement Standardized Processes for Following up on Outstanding Provider Queries and Improve Provider Accountability for Query Responsiveness

Our analysis of data from VHA's PQT tool indicates that provider query efforts have been hampered by low provider responsiveness. High-performing private sector hospital systems have developed robust query processes with clear expectations and accountability for responsiveness to promote documentation improvements. VHA should implement tactical improvements to query practices currently in place across the organization to help promote timely provider accessibility of queries and increased overall responsiveness.

Summary of supporting evidence:

- See Section 9.2.2.2 for more detail on findings.

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[478] Site visit documentation and coding assessment workshops (N=20)

[479] Interview with VHACO leadership

- Evidence from industry surveys suggests that alternative processes for submitting and answering queries may supplement email-based querying to improve responsiveness (ACDIS, 2011).
- Recommendations from professional associations indicate that providing outcomes data on key query metrics promotes increased provider responsiveness to queries (Towers, 2013).

Potential near term actions:

- *VHACO/VAMC:* Provide national training and guidance to facility-level HIM chiefs on use VHA's PQT tool to track query responsiveness at the individual provider level.
  - *VHACO:* Disseminate educational materials and best practice suggestions for using PQT tool's reporting capabilities to promote transparency and improved performance.
  - *VAMC:* Track and report individual-level outcomes on key physician query metrics (e.g., volume of queries, response rate).
- *VAMC:* Clarify local processes and expectations regarding provider responses to coder queries.
  - *VAMC:* Develop standard processes at the local level to follow up on unresolved queries, including query notification methods outside of email when providers do not initially respond (see Figure F-4 in Appendix F.5 for an illustrative provider follow-up process).
  - *VAMC:* Incorporate expectations for provider responsiveness to queries within local bylaws and general rules.
  - *VAMC:* Outline local performance management procedures to address provider query unresponsiveness (e.g., notification standards, training requirements for providers found to be noncompliant, remedial actions for continued unresponsiveness).

9.3.3 Potential Opportunity

We have outlined a series of recommendations to address VHA's current documentation and coding challenges. The expected benefits to VHA of improving documentation practices are both financial and non-financial. With respect to financial benefits, recent OIG reports indicate that VHA has the potential to increase revenue collection through improved documentation and coding practices on encounters that could be submitted to third-party insurers for reimbursement (OIG, 2012; OIG, 2011).[480] Another financial benefit from improved documentation is the ability to appropriately match budgetary allocations to VAMCs through VERA; we did not attempt to quantify the size of this opportunity. Finally, several non-financial benefits would result from improved coding, including improved data abstraction regarding

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[480] These revenue estimates capture the opportunity size from improvement to both inpatient and outpatient encounters; opportunity size is based on improvements to documentation, capture of patient insurance information, and coding (e.g., accurate indication of patient service connection status).

quality of care, increased insight into true Veteran demographic and health status trends, and improved epidemiologic tracking of disease.

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Appendix A   Detailed Methodology

To ensure a broad range of sources, our assessment draws upon national data sets, national surveys, expert interviews, and visits to select VAMCs across the country, at which we conducted interviews, focus groups, and observations. Given Assessment F's focus on inpatient care, we have chosen to only visit VAMCs providing inpatient care, and no other types of facilities.

A.1   VAMC Site Selection

To increase consistency and generalizability of findings, assessment teams have coordinated our sampling methods to the extent possible while ensuring the sampling methodology reflected assessment-specific considerations. We have selected a core set of VAMCs to visit, which are representative of the VAMC system as a whole across critical facility demographic and performance outcome metrics.

The VAMC site selection process followed the following steps:

1. **Stratification of facilities:** Stratified random sampling, with VISN as strata, was used to select an initial long-list of facilities. To reduce sample size, a subset of VISNs was randomly selected, from which one of the two initially selected sites was randomly de-selected.

2. **Review of distribution:** Chi-square testing was used on each of the key facility profile and performance variables to ensure the distribution of scores in the sample is representative of the population. Variables were chosen to reflect anticipated drivers of facility performance, and included: VISN, rurality, adjusted admissions, complexity level (on VHA rating scale), adjusted LOS, patient satisfaction, cumulative access score, and facility age.

3. **Refinement of facility selection:** Initial facility list was vetted with internal and external SMEs and augmented as needed, to include facilities that are considered critical for inclusion (e.g., a Polytrauma Center, facilities with innovative tools/practice) and ensure that all selected facilities had the range of services being assessed.

This method resulted in a sample of 23 facilities that is representative across each of the criteria used in selection. Assessment F then deselected the three complexity level 3 sites chosen as part of the initial sample, as these facilities do not provide extensive inpatient services and were therefore not of interest for our assessment. We retested the representativeness of the sample, and found that the sample of 20 level 1 and 2 facilities was still representative across our key criteria.

We also visited Miami as a case study, per the recommendation of VHA experts that Florida would be of particular interest given its growing Veteran population and unique challenges. This resulted in a total of 21 VAMC site visits (20 randomly selected VAMCs and 1 case study).

A.1.1   VAMC Site Selection Variables

Variables were selected based on criteria relevant to each assessment area and assumed impact on facility performance. Variable definitions are given below:

VISN: used VHA Support Center (VSSC) classification of VAMCs by VISN
Rurality: used VSSC 2014 categorization of facilities as rural or urban
Adjusted admissions: relied upon American Hospital Association (AHA) 2014 data. Adjusted admissions = Total admissions *(Admissions*(OP revenues/Total revenues)). VHA reports revenue data (gross billed revenue) to AHA to calculate this metric. Adjusted admissions scores were divided into quartiles, with the middle quartiles grouped, to produce low (<2881.75), medium (2881.75-6081.00), and high (>6081.00) adjusted admissions categories
Complexity level: used VSSC 2014 categorization of facility complexity. Level 1 facilities were grouped, to produce selection criteria of high complexity (levels 1a, 1b, and 1c), medium complexity (level 2), and low complexity (level 3). Given the inpatient focus of our assessment, we visited facilities with robust inpatient services, and excluded level 3 facilities from our selection
Adjusted LOS: used VA SAIL data. As only Q3 FY2014 was available to us at the time of selection, we were only able to use that quarter's results. LOS data was divided into quartiles, with the middle quartiles grouped, producing three variables: low LOS (<4.19), medium LOS (4.19-5.14), and high LOS (>5.14)
Patient satisfaction: used VA SAIL data. As noted above, as only Q3 FY2014 was available to us at the time of selection, we were only able to use that quarter's results. Patient satisfaction data was divided into quartiles, with the middle quartiles grouped, resulting in low (<249.83), medium (249.83- 264.02), and high (>264.02) satisfaction categories
Cumulative access score: used VA SAIL data. As noted above, as only Q3 FY2014 was available to us at the time of selection, we were only able to use that quarter's results. The eight access scores included in the VA Q3 FY2014 SAIL report were assigned quartiles and added together to produce a single cumulative access score, which was then divided into quartiles. This process resulted in cumulative score quartile categories of low (<17), medium-low (17-20), medium-high (20-23), and high (>23) access
Facility age: relied upon VSSC 2014 operational date data for each VAMC. Operational dates were divided into quartiles, with the middle two quartiles grouped, producing categories of early (prior to June 4, 1929), medium (June 4, 1929 – April 7, 1952), and recent (after April 7, 1952) establishment

In several instances, variable data was not available for each VAMC. To ensure that these cases were not excluded from the sample, we scored absences with -1 and included the -1 score as a category for each selection criterion where there were absences.

A.1.2   VAMC Sample Representativeness

Results for Fisher's exact test demonstrate that the randomly selected sample of 20 VAMCs is not significantly different from the population of VAMCs:

Table A-1. Fisher's Exact Test Results

numerical_complexity_level_variable (p-value for Fisher's Exact Test: 0.84)					
	Population	**% pop**	**Selected**	**% Selected**	**Difference**
-1	2	2%	0	0%	-2%
1	88	72%	16	80%	8%
2	32	26%	4	20%	-6%
Total	122	100%	20	100%	

rurality_numerical_variable (p-value for Fisher's Exact Test: 0.72)					
	Population	**% pop**	**Selected**	**% Selected**	**Difference**
0	15	12%	3	15%	3%
1	107	88%	17	85%	-3%
Total	122	100%	20	100%	

adjusted_admissions_quartile (p-value for Fisher's Exact Test: 0.88)					
	Population	**% pop**	**Selected**	**% Selected**	**Difference**
-1	18	15%	2	10%	-5%
1	16	13%	2	10%	-3%
2	56	46%	9	45%	-1%
3	32	26%	7	35%	9%
Total	122	100%	20	100%	

adjusted_los_quartile (p-value for Fisher's Exact Test: 0.81)					
	Population	**% pop**	**Selected**	**% Selected**	**Difference**
-1	28	23%	3	15%	-8%
1	18	15%	2	10%	-5%
2	49	40%	10	50%	10%
3	27	22%	5	25%	3%
Total	122	100%	20	100%	

adjusted_patient_satisfaction_quartile (p-value for Fisher's Exact Test: 0.91)					
	Population	**% pop**	**Selected**	**% Selected**	**Difference**
-1	28	23%	3	15%	-8%
1	27	22%	5	25%	3%
2	47	39%	8	40%	1%
3	20	16%	4	20%	4%
Total	122	100%	20	100%	

cumulative_access_score_quartile (p-value for Fisher's Exact Test: 0.85)					
	Population	**% pop**	**Selected**	**% Selected**	**Difference**
-1	27	22%	3	15%	-7%
1	28	23%	7	35%	12%
2	25	20%	4	20%	0%
3	23	19%	3	15%	-4%
4	19	16%	3	15%	-1%
Total	122	100%	20	100%	
operational_date_quartile (p-value for Fisher's Exact Test: 0.86)					
	Population	**% pop**	**Selected**	**% Selected**	**Difference**
1	29	24%	5	25%	1%
2	56	46%	8	40%	-6%
3	37	30%	7	35%	5%
Total	122	100%	20	100%	

Figure A-1. Distribution of VAMCs Against Key Characteristics

Distribution of complexity level 1 and 2 facilities against key characteristics (1/6)

VAMC	Complexity	Rurality	Adjusted admissions	Community Living Center (CLC)?	Domiciliary Residential Rehab Treatment Program?	Joint DoD facility?	Polytrauma Rehabilitation Center?	Polytrauma Network Site?	Regional Spinal Cord Injury center?	Blind Rehabilitation Center?	Academic affiliation?
Birmingham VA	1a-High Complexity	Urban	6504							✓	✓
Central Alabama VA-Montgomery	2 –Medium Complexity	Urban	2420								✓
Central Alabama VA-Tuskegee	2 –Medium Complexity	Rural		✓	✓						✓
Central Arkansas VA-John L. McClellan	1b-High Complexity	Urban	11440								✓
Central Arkansas VA-Eugene J. Tobin	1b-High Complexity	Urban		✓	✓						✓
Veterans of the Ozarks-Fayetteville	2 –Medium Complexity	Urban	3009								✓
Carl T. Hayden VA	1c-High Complexity	Urban	5571	✓	✓						✓
Southern Arizona VA-Tucson	1a-High Complexity	Urban	5993	✓	✓			✓		✓	✓
Northern California VA-Sacramento Valley	1c-High Complexity	Urban									✓
Palo Alto VA	1a-High Complexity	Urban	5674	✓			✓	✓	✓	✓	✓
Palo Alto VA-Menlo Park	1a-High Complexity	Urban		✓	✓						✓
San Francisco VA	1a-High Complexity	Urban	5420	✓							✓
Long Beach VA	1b-High Complexity	Urban	7300	✓					✓	✓	✓
Loma Linda VA	1b-High Complexity	Urban	8390	✓							✓
San Diego VA	1a-High Complexity	Urban	7402	✓	✓				✓		✓
Greater Los Angeles VA-West Los Angeles	1a-High Complexity	Urban		✓	✓			✓			✓
Central California VA-Fresno	2 –Medium Complexity	Urban	4048	✓							✓
Eastern Colorado VA-Denver	1a-High Complexity	Urban	4858	✓	✓			✓			✓
Grand Junction VA	2 –Medium Complexity	Urban	961	✓							✓
Connecticut VA-West Haven	1a-High Complexity	Urban	6402	✓	✓					✓	✓

SOURCE: VSSC, 2014; VHA online, 2015

Distribution of complexity level 1 and 2 facilities against key characteristics (2/6)

VAMC	Complexity	Rurality	Adjusted admissions	Community Living Center (CLC)?	Domiciliary Residential Rehab Treatment Program?	Joint DoD facility?	Polytrauma Rehabilitation Center?	Polytrauma Network Site?	Regional Spinal Cord Injury center?	Blind Rehabilitation Center?	Academic affiliation?
Washington VA	1b-High Complexity	Urban	6120	✓	✓			✓			✓
Wilmington VA	2 –Medium Complexity	Urban	3393	✓							✓
C.W. Bill Young VA	1a-High Complexity	Urban	12591	✓	✓						✓
Miami VA	1b-High Complexity	Urban	6582	✓	✓			✓			✓
West Palm Beach VA	1c-High Complexity	Urban	3761	✓						✓	✓
Malcom Randall VA	1a-High Complexity	Urban	7259	✓							✓
North Florida-South Georgia VA-Lake City	1a-High Complexity	Rural	1282	✓	✓						✓
James A. Haley VA	1a-High Complexity	Urban	12325	✓	✓		✓	✓	✓		✓
Atlanta VA	1a-High Complexity	Urban	5026	✓							✓
Charlie Norwood VA	1b-High Complexity	Urban	5964							✓	✓
Augusta VA-Uptown	1b-High Complexity	Urban	5964	✓	✓			✓	✓	✓	✓
Iowa City VA	1c-High Complexity	Urban	3352								✓
Central Iowa VA-Des Moines	2 –Medium Complexity	Urban	2895	✓	✓						✓
Boise VA	2 –Medium Complexity	Urban	3258	✓	✓						✓
Jesse Brown VA	1b-High Complexity	Urban	5047	✓	✓						✓
Edward Hines Jr. VA	1a-High Complexity	Urban	9800	✓	✓			✓	✓	✓	✓
Illiana VA-Danville	2 –Medium Complexity	Rural	2996	✓	✓						✓
Marion VA	2 –Medium Complexity	Urban	4732	✓	✓						✓
Captain James A. Lovell VA	98-Excluded	Urban	2913	✓	✓	✓					✓
Richard L. Roudebush VA	1a-High Complexity	Urban	7924	✓				✓			✓

SOURCE: VSSC, 2014; VHA online, 2015

The views, opinions, and/or findings contained in this report are those of the assessment team and should not be construed as an official government position, policy, or decision.

Distribution of complexity level 1 and 2 facilities against key characteristics (3/6)

VAMC	Complexity	Rurality	Adjusted admissions	Community Living Center (CLC)?	Domiciliary Residential Rehab Treatment Program?	Joint DoD facility?	Polytrauma Rehabilitation Center?	Polytrauma Network Site?	Regional Spinal Cord Injury center?	Blind Rehabilitation Center?	Academic affiliation?
Northern Indiana VA-Marion	2 –Medium Complexity	Rural		✓	✓						✓
Northern Indiana VA-Fort Wayne	2 –Medium Complexity	Urban	1087								✓
Eastern Kansas VA-Colmery-O'Neil	1c-High Complexity	Urban	4479	✓							✓
Eastern Kansas VA-Dwight D. Eisenhower	1c-High Complexity	Rural		✓	✓						✓
Robert J. Dole VA	2 –Medium Complexity	Urban	1714	✓							✓
Lexington VA-Cooper	1c-High Complexity	Urban	5628					✓			✓
Robley Rex VA	1c-High Complexity	Urban	3280	✓							✓
Southeast Louisiana VA-New Orleans	1b-High Complexity	Urban		✓							✓
Overton Brooks VA	1c-High Complexity	Urban	2828								✓
Boston VA-West Roxbury	1a-High Complexity	Urban						✓	✓		✓
Boston VA-Brockton	1a-High Complexity	Urban	6617	✓	✓			✓	✓		✓
Maryland VA-Baltimore	1b-High Complexity	Urban	6719	✓	✓						✓
Maryland VA-Perry Point	1b-High Complexity	Urban		✓	✓						✓
Maine VA	2 –Medium Complexity	Rural	2506	✓							✓
Ann Arbor VA	1b-High Complexity	Urban	5604	✓							✓
John D. Dingell VA	1b-High Complexity	Urban	5330	✓	✓						✓
Minneapolis VA	1a-High Complexity	Urban	5382	✓			✓	✓	✓		✓
Kansas City VA	1c-High Complexity	Urban	4440	✓							✓
Harry S. Truman VA	1c-High Complexity	Urban	3847	✓	✓						✓
St. Louis VA-John Cochran	1a-High Complexity	Urban									✓

SOURCE: VSSC, 2014; VHA online, 2015

Distribution of complexity level 1 and 2 facilities against key characteristics (4/6)

VAMC	Complexity	Rurality	Adjusted admissions	Community Living Center (CLC)?	Domiciliary Residential Rehab Treatment Program?	Joint DoD facility?	Polytrauma Rehabilitation Center?	Polytrauma Network Site?	Regional Spinal Cord Injury center?	Blind Rehabilitation Center?	Academic affiliation?
St. Louis VA-Jefferson Barracks	1a-High Complexity	Urban		✓	✓			✓	✓		✓
Gulf Coast VA-Biloxi	1c-High Complexity	Urban	6917	✓	✓					✓	✓
G. V. (Sonny) Montgomery VA	1b-High Complexity	Urban	5699	✓	✓						✓
Montana VA-Fort Harrison	2 –Medium Complexity	Rural	2717	✓							✓
Durham VA	1a-High Complexity	Urban	6880	✓							✓
Charles George VA	1c-High Complexity	Urban	5255	✓	✓						✓
W.G. (Bill) Hefner VA	1c-High Complexity	Urban	1217	✓	✓						✓
Fayetteville VA	2 –Medium Complexity	Urban	2424	✓							✓
Fargo VA	2 –Medium Complexity	Urban	3218	✓							✓
Nebraska-Western Iowa VA-Omaha	1c-High Complexity	Urban	2828	✓							✓
New Jersey VA-East Orange	1c-High Complexity	Urban	4958	✓				✓			✓
New Jersey VA-Lyons	1c-High Complexity	Urban		✓	✓						✓
New Mexico VA-Raymond G. Murphy	1a-High Complexity	Urban	5909	✓	✓	✓		✓			✓
Sierra Nevada VA-Ioannis A. Lougaris	2 –Medium Complexity	Urban	4076	✓							✓
Southern Nevada VA-North Las Vegas	2 –Medium Complexity	Rural	4435			✓					✓
Western New York VA-Buffalo	1c-High Complexity	Urban	3196	✓	✓						✓
Syracuse VA	1c-High Complexity	Urban	4797	✓				✓	✓		✓
Samuel S. Stratton VA	1c-High Complexity	Urban	2779	✓	✓						✓
James J. Peters VA	1c-High Complexity	Urban	4096	✓				✓	✓		✓
New York Harbor VA-Manhattan	1a-High Complexity	Urban		✓							✓

SOURCE: VSSC, 2014; VHA online, 2015

Distribution of complexity level 1 and 2 facilities against key characteristics (5/6)

VAMC	Complexity	Rurality	Adjusted admissions	Community Living Center (CLC)?	Domiciliary Residential Rehab Treatment Program?	Joint DoD facility?	Polytrauma Rehabilitation Center?	Polytrauma Network Site?	Regional Spinal Cord Injury center?	Blind Rehabilitati on Center?	Academic affiliation?
New York Harbor VA-Brooklyn	1a-High Complexity	Urban	9558								✓
Northport VA	1c-High Complexity	Urban	3849	✓	✓						✓
Cincinnati VA	1b-High Complexity	Urban	7362	✓	✓						✓
Louis Stokes VA	1a-High Complexity	Urban	10630	✓	✓			✓	✓	✓	✓
Dayton VA	1c-High Complexity	Urban	6228	✓	✓						✓
Chillicothe VA	2 –Medium Complexity	Rural	4294	✓	✓						✓
Oklahoma City VA	1b-High Complexity	Urban	6875	✓							✓
Jack C. Montgomery VA	2 –Medium Complexity	Rural	3900								✓
Portland VA	1a-High Complexity	Urban	5346								✓
Pittsburgh VA-University Drive	1a-High Complexity	Urban	3180								✓
Lebanon VA	2 –Medium Complexity	Urban	4479	✓	✓						✓
Wilkes-Barre VA	2 –Medium Complexity	Urban	3603	✓	✓						✓
Philadelphia VA		Urban	5888	✓				✓			✓
Caribbean VA-San Juan	1a-High Complexity	Urban	5823	✓				✓	✓	✓	✓
Providence VA	2 –Medium Complexity	Urban	3051								✓
Ralph H. Johnson VA	1b-High Complexity	Urban	4096	✓							✓
William Jennings Bryan Dorn VA	1c-High Complexity	Urban	4542	✓							✓
Sioux Falls VA	2 –Medium Complexity	Urban	2551	✓							✓
Memphis VA	1a-High Complexity	Urban	7331	✓					✓		✓
James H. Quillen VA	1c-High Complexity	Urban	5598	✓	✓						✓
Tennessee Valley VA-Nashville	1a-High Complexity	Urban	12273								✓

SOURCE: VSSC, 2014; VHA online, 2015

Distribution of complexity level 1 and 2 facilities against key characteristics (6/6)

VAMC	Complexity	Rurality	Adjusted admissions	Community Living Center (CLC)?	Domiciliary Residential Rehab Treatment Program?	Joint DoD facility?	Polytrauma Rehabilitation Center?	Polytrauma Network Site?	Regional Spinal Cord Injury center?	Blind Rehabilitation Center?	Academic affiliation?
Alvin C. York VA	1a-High Complexity	Urban		✓							✓
Michael E. DeBakey VA	1a-High Complexity	Urban	7862	✓				✓	✓		✓
North Texas VA-Dallas	1a-High Complexity	Urban	13277	✓	✓			✓	✓		✓
South Texas VA-Audie L. Murphy	1a-High Complexity	Urban	12715	✓	✓		✓	✓	✓		✓
South Texas VA-Kerrville	1a-High Complexity	Rural		✓							✓
Central Texas VA-Olin E. Teague	1c-High Complexity	Urban	23246	✓	✓						✓
Central Texas VA-Waco	1c-High Complexity	Urban		✓	✓					✓	✓
Thomas E. Creek VA	2 -Medium Complexity	Urban	2299	✓							✓
George E. Wahlen VA	1b-High Complexity	Urban	6068	✓							✓
Hunter Holmes McGuire VA	1a-High Complexity	Urban	8163	✓	✓		✓	✓	✓		✓
Salem VA	1c-High Complexity	Urban	2800	✓	✓						✓
Hampton VA	2 -Medium Complexity	Urban	6970	✓	✓				✓		✓
White River Junction VA	2 -Medium Complexity	Rural	2969	✓							✓
Puget Sound VA-Seattle	1a-High Complexity	Urban	6317	✓				✓	✓		✓
Puget Sound VA-American Lake	1a-High Complexity	Rural		✓	✓					✓	✓
William S. Middleton VA	1b-High Complexity	Urban	3636	✓	✓						✓
Clement J. Zablocki VA	1a-High Complexity	Urban	9665	✓					✓		✓
Louis A. Johnson VA	2 -Medium Complexity	Rural	2968	✓	✓						✓
Martinsburg VA	2 -Medium Complexity	Urban	5173	✓	✓						✓
Huntington VA	2 -Medium Complexity	Rural	3344								✓
Cheyenne VA	2 -Medium Complexity	Urban	878	✓							✓

SOURCE: VSSC, 2014; VHA online, 2015

A.2 Summary of Best Practice Case Studies From High Performing Facilities

Table A- 2. Comprehensive Best Practices and Benchmarking Table

Table	Title	Page
5-2	VAMC Case Study: Nurse Staffing Methodology	34
5-3	VAMC Case Study: Local Data Management	37
5-4	VAMC Case Study: Interdisciplinary Staffing	40
6-1	VAMC Case Study: VAMC Case Study: Data Management	80
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7-1	VAMC Case Study: LOS Performance Management	119
7-3	VAMC Case Study: National Collaborative Impact	124
7-4	External Case Study: Inpatient Clinical Pathways	136
7-5	VAMC Case Study: Inpatient Case Managers	140
9-1	VAMC Case Study: Provider Documentation Training	198

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Appendix B   Additional Detail on Clinical Staffing

B.1   Professional Association Definitions of "Clinical Staff"

American College of Physicians: Licensed clinical staff members (including APRN, PA, RN, LSCSW, LPN and "medical technical assistants" or CMAs) who are directly employed by the clinician (or the clinician's practice) or a contracted third party and whose CCM services are generally supervised by the clinician, whether provided during or after hours. Thus the "incident to" rules do not necessarily require that the clinician be on the premises providing direct supervision (American College of Physicians, 2015).

American Medical Association: A clinical staff member is a person who works under the supervision of a physician or other qualified health care professional and who is allowed by law, regulation and facility policy to perform or assist in the performance of a specified professional service; but who does not individually report that professional service. Clinical staff are medical assistants, licensed practical nurse, etc. (American Medical Association, 2013).

Utilization Review Accreditation Commission: Employees or contracted consultants of the health care organization who are clinically qualified to perform clinical triage and provide health information services. (Utilization Review Accreditation Committee, 2008).

Centers for Disease Control and Prevention: cites "Nurses, medical providers, and therapists." (Centers for Disease Control and Prevention, 2014).

B.2   Differences in Staffing Practices by Clinical Occupation

Table B-1. Staffing Practices by Clinical Occupation

Staffing component	Practices by clinical occupation
Determining staffing need – staffing methodologies	Varies by occupation – see Section 5.2.1 for detail: ▪ Comprehensive staffing methodology, including FTE calculator and guidance on process to develop FTE requests: nursing ▪ National guidance on minimum staffing and coverage levels: emergency medicine, ophthalmology, pharmacy; radiology; surgery ▪ No national staffing directives for setting staffing levels for inpatient staff: advanced practitioners (NPs, PAs, CNSs, and CRNAs); all physician specialties other than radiology, ophthalmology, and surgery; dietary and nutrition services; hospitalist medicine; inpatient mental health; occupational therapy; physical medicine and rehabilitation; respiratory therapy; social work; speech pathology and audiology
Resource management structure	Facilities observed used the same resource management structures for all clinical staff (typically, a resource management committee – see Section 5.2.1 for more detail)

Staffing component	Practices by clinical occupation
Scheduling tools, support, and accountability	▪ Varies by clinical occupation: ▪ **AHPs:** schedules typically set by AHP team leaders/supervisors (43% of interviewees), or by teams of AHPs (43%)[481], using Excel spreadsheets (74%)[482] ▪ **Nurses:** schedules typically set by nurse managers, with a small majority of sites using self-scheduling (55%) and very few using scheduling software such as AcuStaf (10%)[483] ▪ **Physicians:** department chief typically responsible for setting schedules (79%),[484] using Excel (94%)[485]
Flexing	▪ Varies by clinical occupation (see Section 5.2.3): ▪ **AHPs:** flex needs typically met by floating of staff across inpatient and outpatient (90%), overtime (57%), and triaging patients when staffing is not available to support care (24%).[486] Agency use is very low (14%).[487] ▪ **Nurses:** flex needs typically met by floating of staff nurses across units (95%), voluntary overtime (90%), mandated overtime (50%), contract labor (50%), float pool (40%), and closing beds when staffing is not available to support care (25%)[488] ▪ **Physicians:** flex needs typically met by increasing staff physician hours, using per diems (50%), other contract labor (30%), and diverting patients when staffing is not available to support care (40%)[489]

B.3   Mapping to Organization, Workflow Processes, and Tools

Table B-2. Mapping to Organization, Workflow Processes, and Tools Domains Specified by the Statute

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[481] N=21

[482] N=19

[483] N=20

[484] N=19

[485] N=18

[486] N=21

[487] Ibid.

[488] N=20

[489] N=20

Findings and recommendations	Organization	Workflow processes	Tools
5.2.1: VHA does not have the tools or data to set or monitor staffing levels appropriately			
5.2.1.1: The nursing service has developed a comprehensive, evidence-based staffing methodology, though other occupations lack clear guidance on assessing staffing need	✓	✓	✓
5.2.1.2: Some facilities manage data well locally; however, VHA as a whole does not consistently capture and track data needed to assess the appropriateness of staffing		✓	✓
5.2.1.3: Resource management is siloed by service line, resulting in inconsistent decision-making that does not always match needs	✓	✓	
5.2.1.4: Local resource management decision-making does not always reflect national service line staffing guidance	✓	✓	✓
5.2.2: Hiring timeline significantly exceeds private sector benchmarks, affecting ability to fill vacancies			
5.2.2.1: Hiring requirements (e.g., credentialing, boarding) are complex and time-consuming		✓	
5.2.2.2: Local hiring processing is reported to be inefficient	✓	✓	
5.2.2.3: Attracting talented clinical staff can be a challenge due to low pay compared to private sector in many geographies	✓		
5.2.3: Allocation of staff does not consistently match patient care need			
5.2.3.1: Hospital operating models are skewed toward clinic hours	✓		
5.2.3.2: Access to flex resources is limited, inhibiting ability to meet peaks in demand or manage short-term understaffing	✓	✓	
5.3.1 Increase transparency of staffing by providing evidence-based staffing methodologies for all clinical staff and improving data management			

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Findings and recommendations	Organization	Workflow processes	Tools
5.3.1.1 Provide and support scalable, evidence-based staffing methodologies an interdisciplinary resource management processes	✓	✓	✓
5.3.1.2 Improve data management			✓
5.3.2 Increase timeliness of hiring to patient care teams			
5.3.2.1 Review and streamline hiring requirements		✓	✓
5.3.2.2 Increase HR service level expectations needed to facilitate streamlined requirements	✓	✓	
5.3.2.3 Communicate an optimal hiring process to VAMCs, clarifying their responsibilities and encouraging them to complete activities in parallel	✓	✓	
5.3.2.4 Expand ability to increase pay to match market	✓	✓	
5.3.3 Allocate staff to match patient care needs			
5.3.3.1 Ensure that staffing on WHEN hours is sufficient to meet patient need		✓	✓
5.3.3.2 Make contracting more flexible and efficient		✓	
5.3.3.3 Increase flexibility of float position structure to meet patient need	✓	✓	

B.4   Past Findings and Recommendations

Figures B-1 and B-2 below are illustrative of the types of issues identified and recommendations made in recent years, and not comprehensive lists.

Figure B-1. Previous Reports' Findings

1 VA Office of the Inspector General, "Healthcare inspection: a follow-up review of VHA mental health residential rehabilitation treatment programs (MH RRTP)" (22 June 2011)
2 VA Office of the Inspector General, "Combined assessment program summary report: evaluation of nurse staffing in Veterans Health Administration facilities" (30 April 2013)
3 VA Office of the Inspector General, "Healthcare inspection: evaluation of nurse staffing in Veterans Health Administration facilities" (13 August 2004)
4 VA Office of the Inspector General, "Issues at VA Medical Center Bay Pines, Florida and procurement and deployment of the core financial and logistics system (CoreFLS)" (2004)
5 VA Office of the Inspector General, "Review of Selected Financial and Administrative Operations at VISN 1 Medical Facilities" (2006)
6 7 VA Office of the Inspector General, Follow-Up Evaluation of Clinical and Administrative Issues Bay Pines Health Care System Bay Pines, Florida" (2006)
7 VA Office of the Inspector General, "Healthcare inspection: Review of Veterans Health Administration Residential Mental Health Care Facilities" (25 June 2009)
8 VA Office of the Inspector General, "Audit of physician staffing levels for specialty care services" (27 December 2012)
9 VA Office of the Inspector General, "Review of Veterans' Access to Mental Health Care" (23 April 2012)
10 VA Office of the Inspector General, "Audit of VISN Procurement Practices for FSS Professional and Allied Healthcare Staffing Services" (7 June 2010)
11 VA Office of the Inspector General, "Audit of Veterans Health Administration Mental Health Initiative Funding" (6 April 2009)
12 VA Office of the Inspector General, "OIG determination of Veterans Health Administration's occupational staffing shortages" (30 January 2015)
13 United States Government Accountability Office, "VA healthcare: Actions Needed to Ensure Adequate and Qualified Nurse Staffing" (October 2014)

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Figure B-2. Previous Reports' Recommendations

While some recommendations have generated momentum, many have stalled

In keeping with this study's recommendations
Not in keeping with this study's recommendations
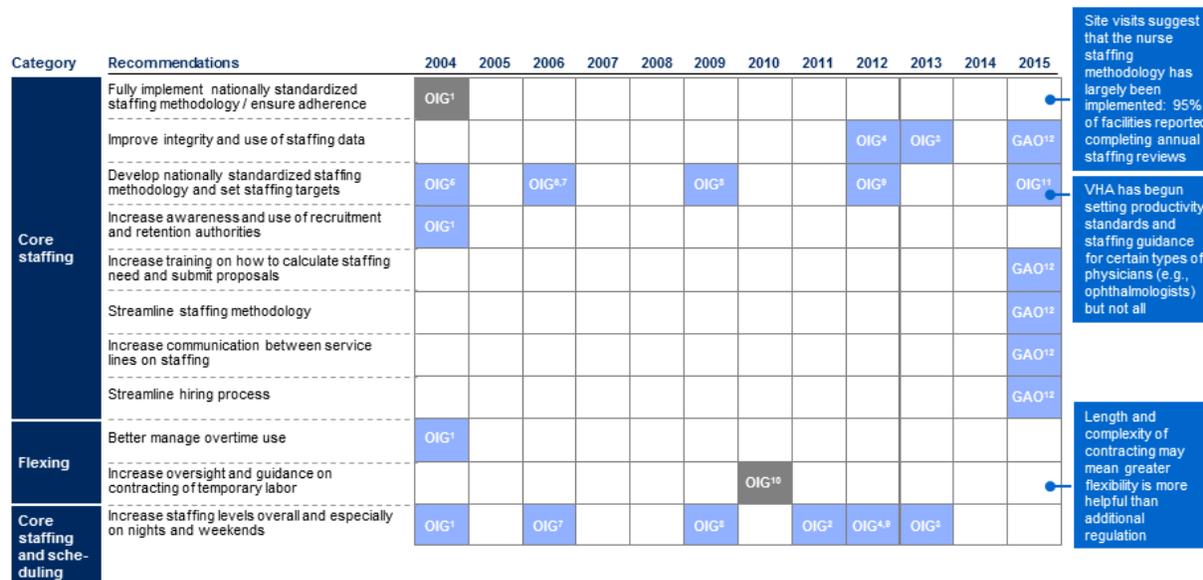
Site visits suggest that the nurse staffing methodology has largely been implemented: 95% of facilities reported completing annual staffing reviews

VHA has begun setting productivity standards and staffing guidance for certain types of physicians (e.g., ophthalmologists) but not all

Length and complexity of contracting may mean greater flexibility is more helpful than additional regulation

1 VA Office of the Inspector General, "Healthcare inspection: evaluation of nurse staffing in Veterans Health Administration facilities" (13 August 2004)
2 VA Office of the Inspector General, "Healthcare inspection: a follow-up review of VHA mental health residential rehabilitation treatment programs (MH RRTP)" (22 June 2011)
3 VA Office of the Inspector General, "Combined assessment program summary report: evaluation of nurse staffing in Veterans Health Administration facilities" (30 April 2013)
4 VA Office of the Inspector General, "Review of Veterans' Access to Mental Health Care" (23 April 2012)
5 VA Office of the Inspector General, "Issues at VA Medical Center Bay Pines, Florida and procurement and deployment of the core financial and logistics system (CoreFLS)" (2004)
6 VA Office of the Inspector General, "Review of Selected Financial and Administrative Operations at VISN 1 Medical Facilities" (2006)
7 VA Office of the Inspector General, Follow-Up Evaluation of Clinical and Administrative Issues Bay Pines Health Care System Bay Pines, Florida" (2006)
8 VA Office of the Inspector General, "Healthcare inspection: Review of Veterans Health Administration Residential Mental Health Care Facilities" (25 June 2009)
9 VA Office of the Inspector General, "Audit of physician staffing levels for specialty care services" (27 December 2012)
10 VA Office of the Inspector General, "Audit of VISN Procurement Practices for FSS Professional and Allied Healthcare Staffing Services" (7 June 2010)
11 VA Office of the Inspector General, "OIG determination of Veterans Health Administration's occupational staffing shortages" (30 January 2015)
12 United States Government Accountability Office, "VA healthcare: Actions Needed to Ensure Adequate and Qualified Nurse Staffing" (October 2014)

B.5   Downshifting by Role, Based on Data Call

Table B-3. Change in Staffing

	Best / standard practice % change in staffing	Level 1 and 2 complexity VAMC % change in staffing (based on data call)		
Dept[490]	All WHEN shifts	Weeknights	Weekend days	Weekend nights

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[490] Clinical staff and auxiliary support staff not listed were not included due to lack of responses to data call

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ED	MDs: 0%[491] RNs: 0%[492] CNAs: 0%[493] EMS: no clear best practice	MDs: -40-45% [494] RNs: -20-25%[495] CNAs: -70-75%[496] EMS: -60-65%[497]	MDs: -30-35% RNs: -20-25% CNAs: -55-60% EMS: -45-50%	MDs: -30-35% RNs: 0 to -5% CNAs: -55-60% EMS: -100%
Med / Surg	Hospitalists and/or LIPs: 0%[63] RNs: -8%[64] CNAs: -28%[64] EMS: no clear best practice	Hospitalists: -60-65%[498] LIPs: -90-95%[499] RNs: -10-15%[500] CNAs: -40-45%[501] EMS: -65-70%[502]	Hospitalists: -55-60% LIPs: -75-80% RNs: -10-15% CNAs: -35-40 EMS: -80-85%	Hospitalists: -70-75% LIPs: -95-100% RNs: -35-40% CNAs: -50-55% EMS: -80-85%
ICU	MDs: depends on intensity of day-time staffing[503] RNs: -5[64] CNAs: -7%[64] EMS: no clear best practice	MDs: -85-90%[504] RNs: 40-45%[505] CNAs: -55-60%[506] EMS: -95-100%[507]	MDs: -65-70% RNs: 0-5% CNAs: -60-65% EMS: -70-75%	MDs: -85-90% RNs: 0 to -5% CNAs: -55-60 EMS: -100%

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[491] Best practice, based on the academic literature, suggests that WHEN staffing should approximately match weekday staffing, especially on weekend days (Cavallazzi et al., 2010; Ananthakrishnan et al., 2009; Aujesky et al., 2009; Shaheen et al., 2009; Peberdy et al., 2008; Kostis et al., 2007)

[492] Standard practice, drawn from hospital survey data (Labor Management Institute, 2014)

[493] Ibid.

[494] N=14

[495] N=8

[496] N=4

[497] N=2

[498] N=15

[499] N=9. Includes inpatient medicine and inpatient surgery units

[500] N=21. Includes inpatient medicine and inpatient surgery units.

[501] N=15. Includes inpatient medicine and inpatient surgery units.

[502] N=7. Includes inpatient medicine and inpatient surgery units

[503] The literature is mixed on the effect of night-time intensivists on patient outcomes. However, recent studies appear to be converging on the view that staffing night-time intensivists improves outcomes for facilities with low-intensity day-time intensivist staffing (i.e., optional intensivist consultation) and has no significant effect on facilities with high-intensity day-time intensivist staffing (i.e., mandatory intensivist consultation or where intensivist has primary responsibility for patient care) (Wallace et al., 2012). This finding corroborates earlier literature finding positive effects of night-time intensivist coverage in facilities with low-intensity day-time coverage (Blunt and Burchett, 2000) and no effects in facilities with high-intensity day-time coverage (Kerlin et al., 2013; Gajic et al., 2008).

[504] N=6

[505] N=6

[506] N=4

[507] N=2

Hospital -wide[508]	PTs: no clear best practice OTs: no clear best practice RTs: no clear best practice Speech and audiology: no clear best practice	PTs: -100%[509] OTs: -100%[510] RTs: -30-35%[511] Speech and audiology: -95-100%[512]	PTs: -85-90% OTs: -85-90% RTs: -40-45% Speech and audiology: -75-80%	PTs: -100% OTs: -100% RTs: -45-50% Speech and audiology: -100%

B.6   Best Practices and Benchmarks

Table B-4. Clinical Staffing – Best Practices and Benchmarks

Category	Component	Best practice / benchmark
Organization	Staffing ratio[513]	Ensure physician, NP, and PA staffing appropriate to each care setting: ▪ Hospital-wide: 1 staff physician to 3.7 occupied beds (Sanofi, 2014);[514] 1 resident physician to 2.9 occupied beds (Sanofi, 2014);[515] 1 PA to 9.1 occupied beds (Sanofi, 2014)[516] ▪ Critical care ICU: 1 intensivist to 14 patients (Ward et al., 2013)[517]; use of high-intensity model (i.e., mandatory intensivist consultation or closed ICU) rather than low-intensity model (no intensivist or

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[508] Where best or standard practices are not department-specific (e.g., for staff that serve multiple departments)

[509] N=23

[510] N=21

[511] N=20

[512] N=13

[513] Percentages and ratios refer to day shift.

[514] Industry standard practice, based on Sanofi survey of hospitals. Figure is hospital-wide, and refers to multi-hospital systems (MHS). Sanofi provides data on MHS and non-MHS hospitals. We judged MHS systems to be a more appropriate benchmark for the VA integrated health care system than non-MHS hospitals. Figure reported as 0.27 physicians per occupied bed, converted to physician-to-occupied bed ratio.

[515] See footnote 3 for detail on source. Figure reported as 0.35 physicians per occupied bed, converted to physician-to-occupied bed ratio.

[516] See footnote 3 for detail on source. Figure reported as 0.11 PAs per occupied bed, converted to PA-to-occupied bed ratio.

[517] Figure represents best practice; Ward et al. found that outcomes worsened after the intensivist-to-patient ratio dropped below 1:14.

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Category	Component	Best practice / benchmark
		elective intensivist consultation) (Pronovost et al., 2002)[518]
		▪ Med/Surg: : at least 0.13 hospitalists per 1,000 adjusted patient days (Epané and Weech-Maldonado, 2015)519
		▪ ED: 1 ED physician to 2.2 patients per hour (Phoenix Physicians, 2011; Collins, 2009)520
		Ensure RN, CNA, and LPN/LVN staffing appropriate to each care setting (Labor Management Institute, 2014)[521],[522]:
		▪ Hospital-wide: N/A
		▪ Critical care ICU: 1 RN to 1.8 patients, 1 CNA to 9 patients, and if LPNs/LVNs are used, 1 LPN/LVN to 5.9 patients523
		▪ Med/Surg: 1 RN to 4.8 patients, 1 CNA to 8.7 patients , and if LPNs/LVNs are used, 1 LPN/LVN to 11.9 patients524
		▪ ED: 1 RN to 6 patents, 1 CNA to 10.9 patients, and if LPNs/LVNs are used, 1 LPN/LVN to 3.5 patients 525

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[518] Pronovost et al. find that high-intensity intensivist staffing models are associated with reduced mortality and LOS.

[519] Epané and Weech-Maldonado found high-intensity hospitalist staffing (defined as mandatory intensivist consultation or closed ICU; represented upper quartile of their sample, 0.13 – 24.06 hospitalists per 1,000 adjusted patient days) reduced LOS.

[520] Figure is an average of best practice recommendations by the American College of Emergency Physicians (1.8 to 2.8 patients per physician per hour) and a white paper by Phoenix Physicians (2 to 2.25 patients per physician per hour).

[521] LPN/LVN roles are gradually being phased out of most private sector facilities via attrition, per recommendation of the Institute of Medicine (Institute of Medicine, 2011). Having a lower LPN/LVN-to-patient ratio than that seen in Labor Management Institute survey data should not necessarily be taken as meaning a facility is not meeting best practice.

[522] CNA-to-patient ratios seen in the Labor Management Institute survey day may reflect use of sitters to meet 1:1 patient needs in many hospitals (e.g., for suicidal patients). If sitters are not used in a VAMC, CNA-to-patient ratios may need to be greater than ratios seen in private facilities.

[523] Results in nurse staffing model composition of 66% RNs, 20% LPNs/LVNs, and 13% CNAs.

[524] Results in nurse staffing model composition of 51% RNs, 21% LPNs/LVNs, and 28% CNAs.

[525] Results in nurse staffing model composition of 31% RNs, 53% LPNs/LVNs, and 17% CNAs. The ratio of CNAs to patients seen in EDs surveyed by the Labor Management Institute may be relatively high because EDs are consistently using ancillary support roles such as unit clerks and transporters to perform clerical and transport functions. While VAMCs should also ensure that these supporting roles are used to support nurses and nursing assistants, if they do not consistently staff unit clerks and transporters, they should likely use a CNA-to-patient ratio closer to that seen on the floors (~1:9).

Category	Component	Best practice / benchmark
		Ensure AHP and therapy assistant staffing appropriate to providing inpatient care across the facility, based on best estimates in currently limited literature: [526] ▪ PTs: ICU, 2 hrs/bd.dy (Ridoutt et al., 2006); Med/Surg, 0.3-0.5 hrs/bd.dy (Christie and Grimwood, 2006); average across hospital setting, 1.3 hrs/bd.dy (Allied Health in Rehabilitation Consultative Committee, 2007; Australasian Faculty of Rehabilitation Medicine, 2005)[527] ▪ OTs: Med/Surg, 0.1-0.3 hrs/bd.dy (Christie and Grimwood, 2006); average across hospital setting, 1.2 hrs/bd.dy (Allied Health in Rehabilitation Consultative Committee, 2007; Australasian Faculty of Rehabilitation Medicine, 2005) ▪ Speech pathologists: average across hospital setting, 0.6 hrs/bd.dy (Allied Health in Rehabilitation Consultative Committee, 2007; Australasian Faculty of Rehabilitation Medicine, 2005) ▪ Dieticians: average across hospital setting, 0.4 hrs/bd.dy (Allied Health in Rehabilitation Consultative Committee, 2007; Australasian Faculty of Rehabilitation Medicine, 2005) ▪ Podiatrists: average across hospital setting, 0.1 hrs/bd.dy (Allied Health in Rehabilitation Consultative Committee, 2007; Australasian Faculty of Rehabilitation Medicine, 2005) ▪ Clinical psychiatrists: average across hospital setting, excluding mental health units, 0.4 hrs/bd.dy (Allied Health in Rehabilitation Consultative Committee, 2007; Australasian Faculty of Rehabilitation Medicine, 2005)

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[526] Estimating AHP staffing need is an issue industry-wide, with no clear consensus on best practice data and methodology to support AHP staffing decision-making. As Cartmill et al. write, "The evidence for use of staffing ratios for allied health practitioners is scarce and lags behind the fields of nursing and medicine" (Cartmill et al., 2012, 1). We have drawn on such guidance as does exist in the literature, though this research is far less definitive than the body of work on nurse and physician staffing. For further discussion of challenges in AHP staffing decision-making, see Fraher et al., 2011.

[527] Allied Health in Rehabilitation Consultative Committee and Australasian Faculty of Rehabilitation Medicine averages taken from each organization's published standards for amputation, arthritis, burns, cardiac, head injury, major multi-trauma, neurological, orthopedic, pain, pulmonary, spinal, amputation (acute), amputation (rehab), and TBI.

Category	Component	Best practice / benchmark
		Ensure pharmacist and pharmacy technician staffing appropriate to providing inpatient care across the facility: ▪ Pharmacists: 17.8 pharmacists per 100 occupied beds (ASHP, 2013) ▪ Pharmacy technicians: 16 pharmacy technicians per 100 occupied beds (ASHP, 2013)
Organization	Reducing off-tour staffing (Downshifting)	Maintain adequate physician, NP, and PA staffing on "off-tour," including by: ▪ Hospital-wide: N/A ▪ Critical care ICU: staffing night-time intensivists for facilities with low-intensity day-time intensivist staffing (Wallace et al., 2012)[528] ▪ Med/Surg and ED: ensuring weekend day-time coverage matches weekday coverage (Cavallazzi et al., 2010; Ananthakrishnan et al., 2009; Aujesky et al., 2009; Shaheen et al., 2009; Peberdy et al., 2008; Kostis et al., 2007)[529] Maintain adequate RN, CNA, and LPN/LVN staffing on "off-tour," decreasing staffing at most by (Labor Management Institute, 2014): ▪ Hospital-wide: N/A ▪ Critical care ICU: RNs, 5%; LPNs/LVNs, 21%, CNAs, 7% ▪ Med/Surg: RNs, 8%, LPNs/LVNs, no change,[530] CNAs, 28% ▪ ED: RNs, no change; LPNs/LVNs, no change; CNAs, no change[531]

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[528] Wallace et al. find that night-time intensivist coverage reduces in-hospital mortality for facilities with a low-intensity day-time intensivist staffing model (defined as optional consultation with an intensivist), and see no effect of night-time coverage for facilities with high-intensity coverage. This finding corroborates other studies demonstrating positive effects of night-time intensivist coverage in facilities with low-intensity day-time coverage (Blunt and Burchett, 2000) and no effects in facilities with high-intensity day-time coverage (Kerlin et al., 2013; Gajic et al., 2008).

[529] Studies cited found significant association between weekend admission, when staffing levels and mix decline, and poorer outcomes.

[530] Among hospitals surveyed by the Labor Management Institute, LPN/LVN staffing levels increased on average by 2% on night shift

[531] Among hospitals surveyed by the Labor Management Institute, RN staffing levels saw no change on night shift, LPN/LVN staffing levels saw no change on night shift, and CNA staffing levels increase by 3% on night shift. Increase in CNA staffing levels may reflect decreases in unit clerk and transporter coverage overnight, resulting in CNAs serving clerical and transport functions.

Category	Component	Best practice / benchmark
		Maintain adequate AHP staffing on "off-tour," including by: ▪ Hospital-wide: providing weekend physical therapy service for inpatients (Brusco et al., 2007)[532] ▪ Critical care ICU, Med/Surg, and EDU: other best practices for AHP downshifting have not yet been clearly established in the literature
Processes	Flex labor sources	▪ Prioritize use of float pool nurses rather than agency and travel nurses (Strzalka and Havens, 1996)[533] ▪ Limit use of agency and travel nurses to <2% to total number of nursing hours worked (Labor Management Institute, 2014)[534]
Tools	Scheduling tools	▪ Use self-scheduling for nurses (Hung, 2002; Teahan, 1998)[535] ▪ Use predictive scheduling models for roles without set shifts and large cohorts (Ernst et al., 2004; Warner and Prawda, 1972)

B.7 Additional Detail on Past Reform Efforts

ORGANIZATION

- Limited exercise and existence of recruitment and retention authorities (e.g., ability to incent retention and use of Title 38 positions) (VA OIG, 2004a)

- High turnover (VA OIG, 2004a)

- Insufficient staffing mix (VA OIG, 2011)

- Siloed resource management organization and processes (GAO, 2015)

- Inconsistent and insufficient clinical care support staffing (OIG, 2004a)

- Inefficiency in contracting for temporary labor (OIG, 2010)

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[532] Study found decreased LOS for patients who received Monday through Saturday physical therapy, as compared to a control group receiving Monday through Friday therapy.

[533] Strzalka and Havens found that float pool nurses performed better than agency nurses on key clinical indicators.

[534] Based on Labor Management Institute survey data, finding mean average of agency to total number of nursing hours worked of 1.3%, and mean average of traveler to total number of nursing hours worked of 1.7%.

[535] Use of self-scheduling is associated with reduced managerial time spent on scheduling, improved nurse morale, and some decreases in turnover due to improved morale.

PROCESSES

- Inconsistent or problematic implementation of standardized staffing methodologies (VA OIG, 2011; 2013; GAO, 2015)

- No clear staffing methodology or targets (e.g., productivity standards) (VA OIG, 2015; 2012; 2009; 2006; 2006; 2004; 2004)

- Lengthy HR process delaying hiring (GAO, 2015; VA OIG, 2004; 2009)

- Overly high use of overtime and informal floating to meet flex needs (OIG, 2004)

- Excessive downshifting resulting in insufficient staffing on off-tour (OIG, 2011; 2009)

TOOLS

- Unreliable or non-existent staffing data (VA OIG, 2015; 2012)

B.8 Description of clinical Staffing Site Visit Assessment Workshop Improvement Idea Generation Process

Our site visits provided an opportunity to generate potential improvement ideas with front-line staff members familiar with the clinical staffing challenges affecting their facility. As part of each on-site clinical staffing workshop (N=19), we facilitated a conversation regarding barriers to effective access to inpatient care at their facility and then asked participants (~120 total staff members composed of physicians, nurses, allied health professionals) to generate improvement ideas that would strengthen facility-level processes and outcomes. Upon completion of all site visits, we compiled the 262 proposed solutions and grouped similar improvement ideas to assess how often participants cited improvement ideas aligned with our recommendations. Data from this exercise is often included within the "summary of supporting evidence" sections for each sub-recommendation.

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Appendix C   Additional Detail on Access to Care

C.1   Best Practices and Benchmarks

We have identified several inpatient access-to-care best practices and benchmarks in the areas outlined below.

Table C-1. Access to Care – Best Practices and Benchmarks

Category	Component	Best practice / benchmark
Organization	Top of license practice	▪ Staff mid-level providers, particularly in triage (Russ, 2010) ▪ Staff sufficient support roles (e.g., transporters, techs, sitters) to support clinical staff (Chang, 2012)
Organization	Leadership	▪ Staff a board-certified, dedicated ED Director (Patel, 2014) ▪ Facilitate a collaborative environment among leadership and staff in the ED and inpatient departments (Patel, 2014)
Organization	Performance management	▪ Tie clinician individual performance to patient flow performance outcomes (Patel, 2014) ▪ Use a multidisciplinary team to identify opportunities to improve patient flow (California Healthcare Foundation, 2011)
Processes	ED triage/flow	▪ Utilize RN standing order sets for common symptoms (e.g., abdominal pain, chest pain) (Retezar, 2011) ▪ Implement a fast-track process (outside of the main ED) for low-acuity patients to expedite patient flow ▪ Avoid bed assignments for low-acuity patients and instead have them rotate through stations for labs, imaging, doctor consultation, etc. (conveyance model) (Sanchez, 2006, Storrow, 2008) ▪ Discharge patients directly from the fast-track care area (Sanchez, 2006) ▪ Establish and follow a formalized escalation/diversion process to determine when a facility is at capacity (Handel, 2010)
Processes	Bed assignment and admission	▪ Implement a standard bed management algorithm to identify the appropriate bed and unit (e.g., setting of care) for each patient on admission (Chen, 2012)

Category	Component	Best practice / benchmark
		▪ Designate transition units or alternate service locations to reduce ED boarding (McNaughton, 2012; Handel, 2010) ▪ Increase capacity of units to handle variable types of ED admission (pooling) (Handel, 2010)
Tools	ED signaling board and bed management system	▪ Provide a real-time view of the ED and inpatient continuum of care, including bed availability (Proudlove, 2003) ▪ Integrate ED/bed management tool with EHR and add-on patient flow modules (e.g., lab, imaging, OR) (Campbell, 2009)

C.2   Assessment Mapping to Choice Act Legislation

We have matched our findings and recommendations with the organization, workflow processes, and tools as outlined in the legislation.

Table C-2. Mapping to Organization, Workflow Processes, and Tools Domains Specified by the Statute

Findings and recommendations	Organization	Workflow processes	Tools
6.2.1: Data gaps limit VHA's understanding of patient demand patterns and available VAMC capacity (e.g., bed and staffing)			
6.2.1.1: Inaccurate view of bed capacity across multiple systems limits VHA's ability to understand current capacity	✓	✓	✓
6.2.1.2: Incomplete view of patient demand, including unmet patient care needs, limits VHA's ability to understand demand relative to current capacity	✓	✓	✓
6.2.2: Inappropriate hospital visits and admissions (e.g., from the ED and surgical suite) contribute to ED bottlenecks and limit bed availability			
6.2.2.1: Demographic characteristics of Veterans (e.g., higher incidence of mental health diagnoses, co-morbidities, and homelessness among Veterans as compared to the general population)			

Findings and recommendations	Organization	Workflow processes	Tools
6.2.2.2: Limited access to immediate (e.g., same day or same week) primary and urgent care clinic appointments, contributing to ED demand		✓	✓
6.2.2.3: Insufficient access to sub-acute facilities (e.g., short-term rehab, detox clinics) for patients who should not be discharged home following an ED visit or surgical procedure, but do not require admission to an inpatient bed		✓	✓
6.2.2.4: Minimal physician acceptance of and accountability for UM admission standards (e.g., the evaluation of the appropriateness of health care services according to evidence based criteria)	✓	✓	✓
6.2.3: Best practices related to workflow and performance management exist at some facilities, but have not been scaled across the system			
6.2.3.1: Inconsistent adoption of proven best practices to manage patient flow within facilities (e.g., early initiation of clinical protocols in ED triage, fast-track processes for low-acuity patients, team focused on managing flow)	✓	✓	✓
6.2.3.2: Limited cross-facility communication and sharing of best practices	✓	✓	✓
6.3.1: Develop an accurate end-to-end picture of patient demand and VAMC capacity			
6.3.1.1: Simplify the process and required approvals by which beds are classified as operational or unavailable	✓	✓	✓
6.3.1.2: Develop a prioritized set of standardized metrics to understand current demand at the VAMC, VISN, and VHACO levels and implement an automated process to collect and aggregate this data across the system	✓		✓
6.3.1.3: Expand use of evidence-based processes for managing patient flow, including clear role	✓	✓	

Findings and recommendations	Organization	Workflow processes	Tools
assignments and individual performance management			
6.3.2. Decrease inappropriate admissions due to limited access to sub-acute care			
6.3.2.1: Ensure appropriate access to near-team (e.g., same day, same week) primary and urgent care	✓	✓	
6.3.2.2: Facilitate access to sub-acute resources for Veterans who are not appropriate to go home without support following a procedure or ED visit, but do not require acute hospital care	✓	✓	
6.3.2.3: Staff case managers and social workers consistently across VAMC EDs to connect patients with appropriate sub-acute resources and help them navigate transitions following a procedure or ED visit	✓		
6.3.2.4: Build provider awareness around the importance and nuances of UM admission criteria and then hold physicians to admissions standards	✓		✓
6.3.2.5: Educate Veterans and their families on the resources available in the VA health care system as well as when it is appropriate to use different settings of care	✓	✓	
6.3.3: Expand use of evidence-based processes for managing patient flow, including clear role assignments and individual performance management			
6.3.3.1: Expedite the initiation of clinical protocols in triage	✓	✓	✓
6.3.3.2: Segment ED diagnostics and care through fast track processes to treat non-urgent patients in a dedicated area by dedicated staff	✓	✓	
6.3.3.3: Standardize the inpatient flow process (e.g., admission through bed placement) including	✓	✓	✓

Findings and recommendations	Organization	Workflow processes	Tools
clear role assignments and individual accountability for patient flow			
6.3.3.4: Build the infrastructure at the VHACO level to promote cross-facility sharing of patient flow best practices	✓	✓	✓

C.3   Past Findings and Recommendations Detail

Figure C-1. Sample Access to Care Issues Identified in Past Assessments

Prior access to inpatient care findings

NOT EXHAUSTIVE

■ Identified in study

Related current findings section	Sample past issues cited	2009	2010	2011	2012	2013	2014	2015
Finding 6.2.1	Limitations in inpatient bed availability (particularly for telemetry and isolation beds)				OIG[3]	OIG[4]	OIG[5]	
Finding 6.2.2	Limitations in sub-acute access contribute to greater ED visits by older Veterans with chronic conditions					Has[7]		
Finding 6.2.2	Gaps in ED services impact mental health access		OIG[2]		OIG[3]	OIG[4]		
Finding 6.2.3	Inconsistencies in triage examination, physician ordering, and documentation in the ED	OIG[1]						OIG[6]
Finding 6.2.3	Gaps in specialty services and delays with diagnostic turnaround					OIG[4]		
Finding 6.2.3	Inefficiencies in triage and patient monitoring observed in some facilities	OIG[1]				OIG[4]		

1 Office of Inspector General, Department of Veterans Affairs, "Semiannual Report to Congress (SAR)" (2009)
2 Office of Inspector General, Department of Veterans Affairs, "Semiannual Report to Congress (SAR)" (2010)
3 Office of Inspector General, Department of Veteran Affairs, "Emergency Department Delays Memphis VA Medical Center – Memphis, TN" (2012)
4 Office of Inspector General, Department of Veteran Affairs, "Semiannual Report to Congress, April 1-September 30, 2013" (2013)
5 Office of Inspector General, Department of Veteran Affairs, "Emergency Department Staffing and Patient Safety Issues, VA San Diego Health care System" (2014)
6 Office of Inspector General, Department of Veteran Affairs, "Emergency Department Staffing and Patient Safety Issues, VA San Diego Health care System" (2015)
7 Hastings, Susan Nicole, et al, "Health Services use of Older Veterans Treated and Released from Veterans Affairs Medical Center Emergency Departments" Journal of the American Geriatrics Society 61.9 (2013): 1515-1521

Figure C-2. Sample Access to Care Recommendations From Past Assessments

Prior access to inpatient care recommendations

NOT EXHAUSTIVE

■ Identified in study

Related current recommendation	Sample past recommendations	2009	2010	2011	2012	2013	2014	2015
Recommendation 6.3.1	Develop a new policy to augment ED staffing in time of acute overload						OIG[5]	
Recommendation 6.3.2	Increase off tour imaging and lab coverage, including ultrasound				OIG[2]		OIG[7]	
	Increase operational transparency including improved data management and accountability						WH[8]	
	Improve access to the appropriate level of care (sub-acute)						BP[9]	
Recommendation 6.3.3	Staff advanced practitioners in triage				Day[3]			
	Hold ED directors accountable for ED throughput measures				OIG[2]			
	Staff dedicated patient flow coordinators					OIG[4]	OIG[6]	

1 Office of Inspector General, Department of Veterans Affairs, "Semiannual Report to Congress (SAR)" (2009)
2 Office of Inspector General, Department of Veteran Affairs, "Emergency Department Delays Memphis VA Medical Center – Memphis, TN" (2012)
3 Day, Theodore Eugene, Abdul Rahim Al-Roubaie, and Eric Jonathan Goldlust, "Decreased Length of Stay After Addition of Health Care Provider in Emergency Department Triage: A Comparison Between Computer-Simulated and Real-World Interventions" Emergency Medicine Journal (2012): emermed-2012
4 Office of Inspector General, Department of Veterans Affairs, "Semiannual Report to Congress, April 1-September 30, 2013" (2013)
5 Office of Inspector General, Department of Veteran Affairs, "Emergency Department Staffing and Patient Safety Issues, VA San Diego Health care System" (2014)
6 Office of Inspector General, Department of Veteran Affairs, "Evaluation of Quality Management in VHA Admin Facilities" (2014)
7 Office of Inspector General, Department of Veterans Affairs, "Semiannual Report to Congress (SAR) April 1-September 30, 2014" (2014)
8 White House "Issues Impacting Access to Timely Care at VA Medical Facilities" June 2014
9 VHA Blue Ribbon Panel for Excellence (2014)

C.4 Description of ED Throughput Site Visit Assessment Workshop Improvement Idea Generation Process

Our site visits provided an opportunity to generate potential improvement ideas with front-line staff members familiar with the ED throughput challenges affecting their facility. As part of each on-site ED throughput assessment workshop (N=21), we facilitated a conversation regarding barriers to effective access to inpatient care at their facility and then asked participants (~120 total staff members composed of physicians, nurses, social workers, UM nurses, case managers) to generate improvement ideas that would strengthen facility-level processes and outcomes. Upon completion of all site visits, we compiled the 315 proposed solutions and grouped similar improvement ideas to assess how often participants cited improvement ideas aligned with our recommendations. Data from this exercise is often included within the "summary of supporting evidence" sections for each sub-recommendation.

Appendix D   Additional Detail on Effective Length-of-Stay Management and Care Transitions

D.1   Best Practices and Benchmarks

We have identified several LOS management/effective care transitions best practices and benchmarks in the following areas:

Table D-1. LOS Management – Best Practices and Benchmarks

Category	Component	Best practices / benchmarks
Organization	Case management department structure	▪ Dedicate inpatient-focused case managers/discharge planners (Kim, 2005) ▪ Employ proper staffing levels and mix of case management professionals, including RN case managers, social workers, utilization review specialists, and other supporting personnel (ACMA, 2013)
Organization	Hospital operating model and service availability	▪ Provide adequate coverage of clinical and support personnel across days and times to minimize delays in patient care due to e.g., inability to fill a PT consult, limited prosthetics staff off-tour (Engel, 2013; Kolber, 2013; Rapoport, 1989)
Organization	Post-acute care facility availability	▪ Ensure adequate capacity within facilities to support unique post-acute care needs of patients treated in the inpatient setting (Lindsay, 2014)
Workflow processes	Interdisciplinary discharge-focused meetings	▪ Hold daily interdisciplinary discharge-focused meetings to enable early identification of discharge barriers and facilitate interventions to mitigate anticipated delays (Shepperd, 2004; Curley, 1998) ▪ Promote attendance from all key stakeholders (e.g., providers, case managers, social work, UM, PT/OT, pharmacy) for effective interdisciplinary collaboration (Zwarenstein, 2009)
Workflow processes	Discharge planning	▪ Initiate discharge planning at time of admission (Cherlin, 2013; ACMA, 2013) ▪ Set goals to increase percentage of early morning discharges (Wertheimer, 2014; Kravet, 2007)
Workflow processes	Clinical pathway adoption	▪ Employ accepted clinical protocols to standardize delivery of key interventions (e.g., ventilator weaning, early mobility) around evidence-based standards (Girard, 2008; Gao, 2005)

Category	Component	Best practices / benchmarks
		▪ Implement clinical pathways specific to key diagnoses to increase delivery of efficient, evidence-based care (Winther, 2015; Wind, 2006)
Tools	Utilization management trackers	▪ Use tools that standardize tracking of UM metrics and promote transparency into local performance (Wickizer, 1989)
Tools	Case management prioritization system	▪ Support case management activities with tools that target interventions to priority patient subgroups (ACMA, 2013)
Tools	Discharge planning tools / checklists	▪ Use aids that streamline discharge process (e.g., checklists) by ensuring consideration of all relevant discharge needs (Soong, 2013; Halasyamani, 2006)
Tools	Post-acute care coordination and communication tool	▪ Support coordination with post-acute care facilities using tools to streamline process of locating and communicating with local facilities (ACMA, 2013)

D.2   Past Findings and Recommendations Detail

Figure D-1. Sample LOS Management Issues Identified in Past Assessments

Prior LOS management and care transitions findings

NOT EXHAUSTIVE

Related current finding	Sample past issues identified	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Finding 7.2.1	Lack of targeted action on utilization reviews not meeting criteria				OIG[7]		OIG[11]						De Cordova[6]
Finding 7.2.2	Overall VHA LOS exceeding private hospitals within comparable areas	Rosenthal[1]										Auerbach[2]	
	Limited availability of post-acute facilities	Rosenthal[1]											
	Mental health LOS exceeding private hospitals within comparable areas											OIG[3]	
Finding 7.2.3	Decreased clinical staffing levels during night shifts												De Cordova[6]
Finding 7.2.4	Limited interdisciplinary team planning focused on discharge needs				OIG[7]							OIG[3]	
	Case managers not assigned to high-needs patients											OIG[4]	
	Silo-ed organization prevents optimal case management assignment								OIG[5]				
	Inadequate discharge plan development				OIG[7]					OIG[10]		OIG[9]	
	Inconsistent execution and of initial case management evaluation				OIG[7]						OIG[8]		

1 Rosenthal, Gary E., et al; "Mortality and LOS in a VA Hospital and Private Sector Hospitals Serving a Common Market" Journal of General Internal Medicine, 18.8 (2003): 601-608
2 Auerbach, David I., William B. Weeks, and Ian Brantley, "Health Care Spending and Efficiency in the U.S. Department of Veterans Affairs" RAND Corporation (2013)
3 Office of the Inspector General, Department of Veterans Affairs, "Mismanagement of Inpatient Mental Health Care Atlanta VA Medical Center: Decatur, GA." (17 April 2013)
4 Office of the Inspector General, Department of Veterans Affairs, "Evaluation of Mental Health Treatment Continuity at Veterans Health Administration Facilities" (29 April 2013)
5 Office of the Inspector General, Department of Veterans Affairs, "Review of Quality of Care at a VA Medical Center" (9 December 2010)
6 De Cordova, Pamela, "Night and Day in the VA: Associations Between Night Shift Staffing, Nurse Workforce Characteristics, and LOS." Research in Nursing and Health, 37.2 (2014): 90-97
7 Office of the Inspector General, Department of Veterans Affairs, "Combined Assessment Program Review of the South Texas Veterans HCS: San Antonio, Texas" (2 February 2006)
8 Office of the Inspector General, Department of Veterans Affairs, "Combined Assessment Program Review of the Samuel S. Stratton VAMC: Albany, New York" (16 February 2012)
9 Office of the Inspector General, Department of Veterans Affairs, "Quality of Care Issues San Juan VA Medical Center: San Juan, Puerto Rico" (30 December 2013)
10 Office of the Inspector General, Department of Veterans Affairs, "Issues with Quality of Patient Care and Communication Hampton VAMC: Hampton, Virginia" (15 February 2011)
11 Office of the Inspector General, Department of Veterans Affairs, "Combined Assessment Program Review of the Philadelphia VAMC: Philadelphia, Pennsylvania" (4 January 2008)

Figure D-2. Sample LOS Management Recommendations From Past Assessments
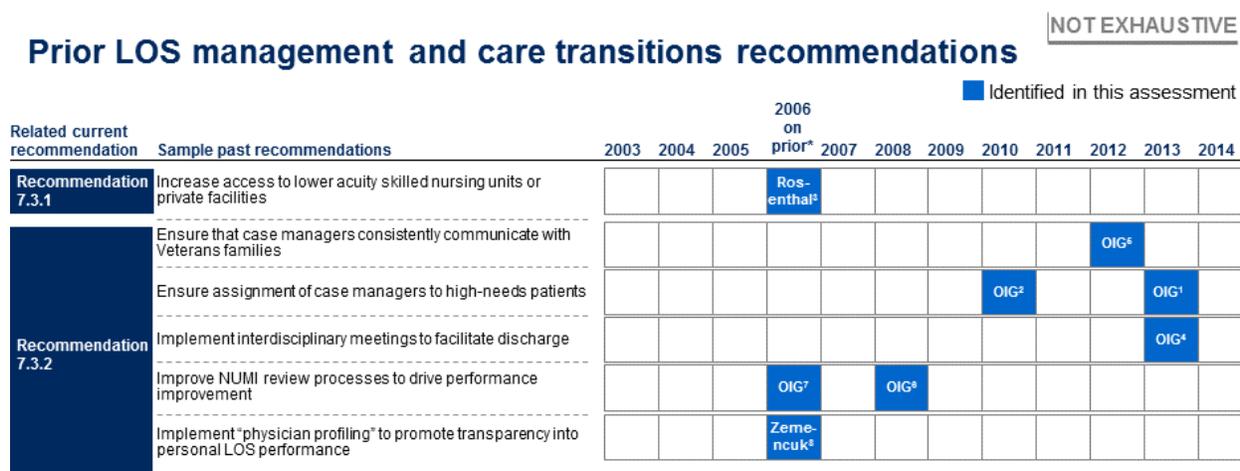
* All assessments indicated in this column are from 2006 except Rosenthal (2003)

1 Office of the Inspector General, Department of Veterans Affairs, "Evaluation of Mental Health Treatment Continuity at Veterans Health Administration Facilities" (29 April 2013)
2 Office of the Inspector General, Department of Veterans Affairs, "Review of Quality of Care at a VA Medical Center" (9 December 2010)
3 Rosenthal, Gary E., et al, "Mortality and LOS in a VA hospital and private sector hospitals Serving a Common Market" Journal of General Internal Medicine, 18.8 (2003): 601-608
4 Office of the Inspector General, Department of Veterans Affairs, "Mismanagement of Inpatient Mental Health Care Atlanta VA Medical Center: Decatur, GA" (17 April 2013)
5 Office of the Inspector General, Department of Veterans Affairs, "Combined Assessment Program Review of the Samuel S. Stratton VAMC: Albany, New York" (16 February 2012)
6 Office of the Inspector General, Department of Veterans Affairs, "Combined Assessment Program Review of the Philadelphia VAMC: Philadelphia, Pennsylvania" (4 January 2008)
7 Office of the Inspector General, Department of Veterans Affairs, "Combined Assessment Program Review of the South Texas Veterans HCS: San Antonio, Texas" (2 February 2006)
8 Zemencuk, Judith K., et al. "What Effect does Physician 'Profiling' Have on Inpatient Physician Satisfaction and Hospital Length of Stay," BMC Health Services Research, 6.1 (2006): 45

D.3 Assessment Mapping to Choice Act Legislation

We have matched our findings and recommendations with the organization, workflow processes, and tools domains outlined in the legislation.

Table D-2. Mapping of Drivers to Organization, Workflow Processes, and Tools Domains Specified by The Statute

Findings and recommendations	Organization	Workflow processes	Tools
7.2.1: Implementation of national LOS programs and initiatives has failed to achieve organization-wide improvements despite local pockets of best practice adoption			
7.2.1.1: Lack of availability of LOS performance metrics at the front-line and limited performance		✓	

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Findings and recommendations	Organization	Workflow processes	Tools
management inhibit the transparency and emphasis necessary to drive improvements			
7.2.1.2: Limited organization-wide engagement in the national utilization management (UM) program reduces the program's potential impact	✓		✓
7.2.1.3: Variable participation in national LOS management initiatives and inconsistent adoption of best practices drive variation in recent LOS improvements	✓	✓	
7.2.2: Existing post-acute care options (e.g., rehabilitation / skilled nursing facilities) do not always match Veteran needs, delaying discharge			
7.2.2.1: Veterans requiring placement within post-acute care facilities experience significant discharge delays	✓	✓	
7.2.2.2: Limited social resources (e.g., transitional housing / homeless programs) for Veterans awaiting discharge prolongs LOS	✓	✓	
7.2.3: Typical VAMC operating models do not promote efficient inpatient care, leading to prolonged LOS			
7.2.3.1: Reduced access to consultative services (e.g., specialist / allied health consults) over the weekend heightens discharge challenges	✓	✓	
7.2.3.2: Inconsistent implementation of standard protocols and pathways drives variability in care patterns and may increase patient LOS		✓	✓
7.2.4: Use of discharge planning best practices is inconsistent, decreasing effectiveness and coordination			
7.2.4.1: Suboptimal and inconsistent use of case managers results in re-allocation of critical discharge planning responsibilities to other staff	✓		
7.2.4.2: Variable implementation of key processes designed to expedite discharge results in avoidable discharge delays		✓	

Findings and recommendations	Organization	Workflow processes	Tools
7.2.4.3: Limited adoption of discharge planning tools may inhibit optimal application of case management efforts			✓
7.3.1: Mitigate discharge delays related to post-acute placement (e.g., increase availability of post-acute care options)			
7.3.1.1: Increase availability of post-acute care options, particularly for special needs Veteran populations	✓	✓	
7.3.1.2: Increase resources for patient transportation and provide front-line staff with authority to approve transport when it poses a barrier to timely discharge	✓	✓	
7.3.2: Build on existing best practices, both internal and external to VHA, to increase local adoption of evidence-based inpatient care and discharge planning practices			
7.3.2.1: Track key performance measures related to LOS management processes to increase transparency, accountability, and performance improvement	✓	✓	✓
7.3.2.2: Develop evidence-based care pathways for common inpatient clinical processes, and incorporate into EHR tools and clinical workflows		✓	✓
7.3.2.3: Promote sharing and implementation of discharge planning best practices across VAMCs	✓	✓	✓
7.3.2.4: Increase off-hours coverage of clinical services including specialist consults, allied health evaluations, and imaging/diagnostics	✓	✓	

D.4 Description of Discharge Planning Site Visit Assessment Workshop Improvement Idea Generation Process

Our site visits provided an opportunity to generate potential improvement ideas with front-line staff members familiar with the discharge challenges affecting their facility. As part of each on-site discharge planning assessment workshop (N=20), we facilitated a conversation regarding barriers to effective LOS management and care transitions at their facility and then asked participants (approximately 125 total staff members composed of physicians, nurses, social workers, UM nurses, case managers) to generate improvement ideas that would strengthen

facility-level processes and outcomes. Upon completion of all site visits, we compiled the 327 proposed solutions and grouped similar improvement ideas to assess how often participants cited improvement ideas aligned with our recommendations. Data from this exercise is often included within the "summary of supporting evidence" sections for each sub-recommendation.

D.5   Additional Supporting Figures

Figure D-3. Illustrative Discharge Planning Checklist

Illustrative discharge planning checklist

Patient Name:_____
Planned Discharge Date:_____

M.D./ D.O./ Provider
- Written discharge instructions ☐
- Review medication list ☐
- Prescribe discharge meds/supplies ☐
- Discharge summary co-signed by PCP ☐
- Consult IV infusion services, if needed ☐
- Order home oxygen, if needed ☐
- Order wound care supplies ☐
- Schedule follow-up appointments ☐
- Non-VA funding requests ☐
- Complete discharge consults ☐

Pharmacy
- Medication reconciliation ☐
- Dressing supplies (Medicare / VA pay) ☐
- Medication teaching ☐

PT
- Home health recommendations ☐
- Equipment ordered ☐
- Caregiver training ☐
- Schedule outpatient follow-up ☐
- Discharge summary co-signed by PCP ☐

OT
- Home health recommendations ☐
- Durable medical equipment ordered ☐
- Caregiver training ☐
- Schedule outpatient follow-up ☐
- Discharge summary co-signed by PCP ☐

Speech
- Home health recommendations ☐
- Caregiver training ☐
- Schedule outpatient follow-up ☐

Nursing
- Start PM&R interdisciplinary discharge note ☐
- Patient / family teaching ☐
- Confirm transportation and discharge plan with family ☐
- Verify Medicare / VA pay ☐
- Order home health ☐
- Coordinate with IV nurse if needed ☐

Nutrition
- Diet / texture recommendation ☐
- Outpatient follow-up ☐

Psych
- Schedule outpatient follow-up ☐

Rec Therapy
- Outpatient follow-up ☐

Social Work
- Coordinate community resources ☐
- Arrange transportation, as needed ☐
- Arrange placement ☐
- Ensure means test done ☐

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Appendix E   Additional Detail on Patient Experience

E.1   Comparison of VHA and HCAHPS Questions and Scoring and Detail of VHA's Methodology for Calculating Patient Satisfaction Scores

The order of measures is in line with Figure 8-1.[536]

Table E-1. SHEP and HCAHPs Questions and Methodology Comparison

Please answer the following questions about your stay at the hospital named on the cover. Do not include any other hospital stays in your answer.			
SHEP/HCAHPS Reporting measure	**SHEP/HCAHPS Survey Questions**	**SHEP/HCAHPS Scoring**	**SHEP methodology applied to HCAHPS**
Care Transition	**Question 1.** During this hospital stay, staff took my preferences and those of my family or caregiver into account in deciding what my health care needs would be when I left. **Question 2.** When I left the hospital, I had a good understanding of the things I was responsible for in managing my health. **Question 3.** When I left the hospital, I clearly understood the purpose for taking each of my medications.	**Questions 1, 2, 3** have the following response scale: Strongly disagree Disagree Agree Strongly agree	The score on each item is calculated as the percentage of responses that fall in the top category (Strongly agree). Care Transition is then calculated as the average of the site's scores on the three items.
Cleanliness of the Hospital Environment	**Question 1.** During this hospital stay, how often were your room and bathroom kept clean?	**Question 1** has the following response scale: Never Sometimes	The reporting measure is calculated as the percentage of responses that fall in the top two categories (Usually, Always).

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[536] SHEP FY14 and HCAHPS training materials (HCAHPS.online.org)

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Please answer the following questions about your stay at the hospital named on the cover. Do not include any other hospital stays in your answer.			
SHEP/HCAHPS Reporting measure	**SHEP/HCAHPS Survey Questions**	**SHEP/HCAHPS Scoring**	**SHEP methodology applied to HCAHPS**
		Usually Always	
Communication about Medication	**Question 1.** Before giving you any new medicine, how often did hospital staff tell you what the medicine was for? **Question 2.** Before giving you any new medicine, how often did hospital staff describe possible side effects in a way you could understand?	**Questions 1 & 2** have the following response scale: Never Sometimes Usually Always	The score on each item is calculated as the percentage of responses that fall in the top two categories (Usually, Always). Communication about Medication is then calculated as the average of the site's scores on the two items.
Discharge Information	**Question 1.** During this hospital stay, did doctors, nurses, or other hospital staff talk with you about whether you would have the help you needed when you left the hospital? **Question 2.** During this hospital stay, did you get information in writing about what symptoms or health problems to look out for after you left the hospital?	**Questions 1 & 2** have the following response scale: Yes No	The score on each item is calculated as the percentage of "Yes" responses. Discharge Information is then calculated as the average of the site's scores on the two items.
Communication with Nurses	**Question 1.** During this hospital stay, how often did nurses treat you with courtesy and respect?	**Questions 1, 2, & 3** have the following response scale: Never Sometimes	The score on each item is calculated as the percentage of responses that fall in the top two categories (Usually, Always).

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SHEP/HCAHPS Reporting measure	SHEP/HCAHPS Survey Questions	SHEP/HCAHPS Scoring	SHEP methodology applied to HCAHPS
	Question 2. During this hospital stay, how often did nurses listen carefully to you? **Question 3.** During this hospital stay, how often did nurses explain things in a way you could understand?	Usually Always	Communication with Nurses is then calculated as the average of the site's scores on the three items.
Communication with Doctors	**Question 1.** During this hospital stay, how often did doctors treat you with courtesy and respect? **Question 2.** During this hospital stay, how often did doctors listen carefully to you? **Question 3.** During this hospital stay, how often did doctors explain things in a way you could understand?	**Questions 1, 2, & 3** have the following response scale: Never Sometimes Usually Always	The score on each item is calculated as the percentage of responses that fall in the top two categories (Usually, Always). Communication with Doctors is then calculated as the average of the site's scores on the three items.

| Responsiveness of Hospital Staff | **Question 1.** During this hospital stay, after you pressed the call button, how often did you get help as soon as you wanted it? | **Question 1** has the following response scale: Never Sometimes Usually Always I never pressed the call button | The score on Question 1 is calculated as the percentage of responses that fall in the top two categories (Usually, Always); responses of "I never pressed the call button" are excluded from the denominator in the calculation of this percentage. |

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	Question 2. How often did you get help in getting to the bathroom or using a bedpan as soon as you wanted?	**Question 2** has the following response scale: Never Sometimes Usually Always	The score on Question 2 is calculated as the percentage of responses that fall in the top two categories (Usually, Always). "Responsiveness" is then calculated as the average of the site's scores on the two items.
Willingness to Recommend Hospital	**Question 1.** Would you recommend this hospital to your friends and family?	**Question 1** has the following response scale: Definitely no Probably no Probably yes Definitely yes	The reporting measure is calculated as the percentage of responses in the top category (Definitely yes).
Pain Management	**Question 1.** During this hospital stay, how often was your pain well controlled? **Question 2.** During this hospital stay, how often did the hospital staff do everything they could to help you with your pain?	**Questions 1 & 2** have the following response scale: Never Sometimes Usually Always	The score on each item is calculated as the percentage of responses that fall in the top two categories (Usually, Always). Pain Control is then calculated as the average of the site's scores on the two items.

Overall Rating of Hospital	**Question 1.** Using any number from 0 to 10, where 0 is the worst hospital possible and 10 is the best hospital possible, what number would you use to rate this hospital during your stay?	**Question 1** has the following response scale: 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10	The reporting measure is calculated as the percentage of responses that fall in the top two categories (9, 10).

Quietness of the Hospital Environment	**Question 1.** During this hospital stay, how often was the area around your room quiet at night?	**Question 1** has the following response scale: Never Sometimes Usually Always	The reporting measure is calculated as the percentage of responses that fall in the top two categories (Usually, Always).

E.2 Best Practices and Benchmarks

We have identified several patient experience best practices and benchmarks in the following areas:

Table E-2. Patient Experience – Best Practices and Benchmarks

Category	Component	Best practice / benchmark
Organization	Strategic priority	Establish a system-wide approach to patient experience that goes beyond survey results and department-led initiatives to align the hospital's mission and vision statements to support patient and family engagement (The Beryl Institute, 2010)
Organization	Leadership	Drive cultural change from the top with strong executive leadership support (Singer, 2013) Designate a system- and facility-level position focused exclusively on patient experience (Cleveland Clinic, 2010 and Beryl Institute, 2010)
Organization	Performance management	Tie individual performance to patient experience and employee engagement performance outcomes
Organization	Interdisciplinary collaboration	Create cross-functional teams that include both operational and clinical leaders as well as front-line employees to focus on patient experience (Manary, 2014)
Organization	Activate patients in their own care	Engage an advisory council, including patients and families, to provide real-time feedback and creative solutions for patient experience challenges (engage the patient as an active participant) (Hibbard, 2013; Wolf, 2014)
Processes	Training	Mandate patient-centered training for all employees (Luxford, 2011) Provide management training for front-line supervisors to improve the relationship between the front-line and promote employee engagement (Luxford, 2011)

Category	Component	Best practice / benchmark
Processes	Rounding	Establish a cadence for leadership rounding on patients and staff; personalized recognition of high-performing staff (Singer, 2013)
		Provide immediate service recovery by rounding on patients several times per day (or even hourly) (Hibbard, 2013)
Processes	Patient and employee engagement	Employ a communication framework across staff to assist with patient interaction and promote immediate service recovery (Locatelli, 2014)
		Educate patients and family on discharge planning immediately following admission and throughout a patient's stay (Beryl, 2010)
		Empower front-line to develop and own performance improvement (potentially in an anonymous fashion) (Luxford, 2011)
Tools	Feedback solicitation	Solicit patient and employee feedback regularly (Beryl, 2010)
		Provide a real-time, or near real-time, view of patient and employee satisfaction (Beryl, 2010)
		Track performance improvement to patient and employee feedback (Beryl, 2010)
Tools	Careboards	Communicate with patients and family through updated white boards that indicate their provider team, plan. or discharge, approach to pain management, etc. (Locatelli, 2014)

E.3   Assessment Mapping to Choice Act Legislation

We have matched our findings and recommendations with the organization, workflow processes, and tools as outlined in the legislation.

Table E-3. Mapping to Organization, Workflow Processes, and Tools Domains Specified by the Statute

Findings and recommendations	Organization	Workflow processes	Tools
8.2.1: National and facility-level focus on the prioritization and provision of Veteran-Centered care has driven innovations in best practices			

Findings and recommendations	Organization	Workflow processes	Tools
8.2.1.1: Veteran-focused initiatives, developed locally at individual VAMCs, exemplify industry best practices at the bedside	✔		✔
8.2.1.2: Veteran-focused initiatives, developed locally at individual VAMCs, exemplify industry best practices at the bedside	✔	✔	✔
8.2.2: Adoption of best practices and engagement of Program Office support services are varied across VAMCs.			
8.2.2.1: Central Office reach is limited by the level of facility leadership engagement	✔	✔	
8.2.2.2: Structure to codify and share facility-driven initiatives across the system is limited	✔	✔	
8.2.2.3: Implementation of point-of-care feedback tools (e.g., GetWell Network, Truth Point) is varied across the system	✔	✔	✔
8.2.3: Challenges with respect to timeliness and specificity in the SHEP survey results limit VAMCs' ability to drive performance improvement			
8.2.3.1: SHEP results are often delayed by 3 to 6 months and reflect aggregate VAMC patient satisfaction scores (for example, data is not segmented by individual department or unit)	✔	✔	✔
8.2.3.2: Patient satisfaction metrics are not generally included in individual's performance reviews because SHEP data is aggregated at the VAMC level	✔	✔	
8.3.1: Collect more timely and relevant patient experience data to drive transparency and performance improvement at the facility, department, and individual levels			
8.3.1.1: Ensure VHA's patient satisfaction feedback tool(s) delivers survey results in a timely (real time or near real-time) and actionable format (for example, segmented at the VISN, VAMC, department and unit levels)		✔	✔

Findings and recommendations	Organization	Workflow processes	Tools
8.3.1.2: Include patient experience metrics in leadership and department level performance reviews	✓		✓
8.3.2: Strengthen national and facility-level support for patient-centered care programs to increase adoption			
8.3.2.1: Coordinate Veteran-centered initiatives across Program Offices	✓	✓	✓
8.3.2.2: Promote consistent leadership at the VAMCs	✓		
8.3.2.3: Facilitate sharing of facility-driven best practices	✓	✓	✓

E.4   Past Findings and Recommendations Detail

Figures E-1 and E-2 below are illustrative of the types of issues identified and recommendations made in recent years, and are not comprehensive lists.

Figure E-1. Sample Patient Experience Issues Identified in Past Assessments

Prior patient experience findings

NOT EXHAUSTIVE

■ Identified in study

Related current finding	Sample past issues cited	2009	2010	2011	2012	2013	2014	2015
Finding 8.2.2	Excessive leadership and front-line staff vacancies				AL[2]			
	Insufficient staffing of patient advocates at some facilities			VOV[1]	AL[2]			
	Inability for facilities to deliver on new strategic initiatives because of considerable delays, close to 6 months, in receiving strategic plan from the VACO				AL[2]			
	Excessive number of performance measures				AL[2]			
	Difficulties in navigating the systems (e.g., incorrect room numbers)						Sara[3]	
Finding 8.2.3	Delayed SHEP reporting of 3 to 6 months, limits the application of performance metrics			VOV[1]	AL[2]			

1 Department of Veteran Affairs, "Voice of the Veteran" (2011)
2 American Legion, "2012 Task Force Report, Quality of Care and Patient Satisfaction" (2012)
3 Sara, M., et al, "Veterans' Experiences of Patient-Centered Care: Learning from Guided Tours," Patient Experience Journal 1.1 (2014): 88-94

Figure E-2. Sample Access to Care Recommendations From Past Assessments

Prior patient experience recommendations

NOT EXHAUSTIVE
■ Identified in study

Related current recommendation	Sample past recommendations	2009	2010	2011	2012	2013	2014	2015
Recommendation 8.3.1	Ensure adequacy of patient advocate and navigator support				AL[2]		BP[5]	
Recommendation 8.2.3	Proactively encourage family and Veteran involvement in customer service and Veteran advocacy programs			VOV[1]	AL[2]		Krej[4]	
	Respond to call buttons in a timely manner			VOV[1]				
	Educate Veteran patients on full complement of pain management options available						Kreji[4]	
	Address food concerns of Veterans, family, and staff			VOV[1]			Sara[3]	
	Real-time patient satisfaction data, vice waiting 3-6 months for SHEP				AL[2]			
	Evolve from a sick-care focused system to one that provides integrated support for health and wellness			VOV[1]	AL[2]			

1 Department of Veteran Affairs, "Voice of the Veteran" (2011)
2 American Legion, "2012 Task Force Report, Quality of Care and Patient Satisfaction" (2012)
3 Sara, M., et al, "Veterans' Experiences of Patient-Centered Care: Learning from Guided Tours," Patient Experience Journal 1.1 (2014): 88-94
4 Krejci, Laura P., Kennita Carter, and Tracy Gaudet. "Whole Health: The Vision and Implementation of Personalized, Proactive, Patient-driven Health Care for Veterans," Medical care 52 (2014): S5-S8
5 VHA Blueprint for Excellence (2014)

Appendix F   Additional Detail on Accurate Documentation and Subsequent Coding

F.1   Best Practices and Benchmarks

We have identified several documentation and coding best practices and benchmarks in the following areas:

Table F-1. Documentation and Coding – Best Practices and Benchmarks

Category	Component	Best practices / benchmarks
Organization	HIMS organizational structure	▪ Organize HIMS reporting structure to promote proper emphasis on documentation and coding from senior hospital leadership (Johns, 2013)
Organization	Performance management	▪ Promote provider buy-in on documentation and coding objectives through performance management and supporting incentives (Intermountain Healthcare Interview, 2015)
Organization	CDI program implementation	▪ Establish multi-disciplinary clinical documentation improvement (CDI) programs with emphasis on review of provider documentation, increased provider engagement, and education and training for non-coding staff (Arrowood, 2013; Danzi, 2000)
Workflow processes	Provider documentation training	▪ Conduct targeted provider documentation training sessions to teach and reinforce proper documentation patterns (Russo, 2013)
Workflow processes	Documentation quality assurance	▪ Maintain integrity of the medical record through effective quality review processes (Arrowood, 2013)
Workflow processes	Coding quality assurance	▪ Implement coder audits to ensure reliability of coding and to provide training and focused coaching for performance issues (Prophet, 1998)
Workflow processes	Provider query processes	▪ Clarify ambiguous or unclear documentation consistently to ensure that translation from medical documentation to codes is reflective of the patient's true clinical condition (Prophet, 2001)
Tools	Electronic health record (EHR)	▪ Standardize information capture to enable extraction of needed data from the medical record (e.g., for coding, quality measurement) (Clark, 2012) ▪ Incorporate program features that encourage proper documentation practices (e.g., automated copy-paste audits) (Arrowood, 2013)

Category	Component	Best practices / benchmarks
Tools	Coding software	▪ Incorporate resources within the core coding environment to facilitate proper code assignment (e.g., error checking, decision support) (Fletcher, 2002) ▪ Train coders adequately to ensure competency and promote targeted improvements, as needed (Santos, 2008)

F.2 Past Findings and Recommendations Detail

Figure F-1. Sample Documentation and Coding Issues Identified in Past Assessments

Prior documentation and coding findings

NOT EXHAUSTIVE

■ Identified in this assessment

Related current finding	Sample past issues identified	2007	2008	2009	2010	2011	2012	2013
Finding 9.2.1	Inaccurate documentation contained in the medical record			OIG[4]				
	Clinical documentation not containing all necessary information for third-party billing						OIG[1]	OIG[2]
	Documentation not meeting requirements for patient transfer or discharge				OIG[3]			
	Difficulties identifying patients with third-party insurance						OIG[1]	
	Administrative staff not trained on third-party insurance identification						OIG[1]	
Finding 9.2.2	EHR review committee not in place or meeting at specified frequency						OIG[6] OIG[7]	
	EHR permits easy copy and pasting of information from one note to another						OIG[7]	
	Facilities not performing assessments of use of copy-paste function						OIG[8] OIG[9]	
	Resident documentation standards not being met for certain subsets of notes	OIG[10]						
Finding 9.2.3	Discrepancies in coding based on clinical documentation				OIG[5]			

1 Office of the Inspector General, Department of Veterans Affairs, "Audit of Medical Care Collections Fund Billing of VA-Provided Care" (30 August 2012)
2 Office of the Inspector General, Department of Veterans Affairs, "Nursing Care in the Community Living Center for Spinal Cord Injury Louis Stokes VAMC: Cleveland, Ohio" (27 June 2013)
3 Office of the Inspector General, Department of Veterans Affairs, "Evaluation of Emergency Departments and Urgent Care Clinics in Veterans Health Administration Facilities" (28 April 2010)
4 Office of the Inspector General, Department of Veterans Affairs, "Quality of Care, Documentation, and Courtesy Issues Hampton VA Medical Center: Hampton, Virginia." (18 September 2009)
5 Carlson, Kathleen F., et al., "Accuracy of external cause-of-injury coding in VA polytrauma patient discharge records." J Rehabil Res Dev, 47.8 (2010): 689-97
6 Office of the Inspector General, Department of Veterans Affairs, "Combined Assessment Program Review of the VA Gulf Coast Veterans HCS: Biloxi, Mississippi." (29 February 2012)
7 Office of the Inspector General, Department of Veterans Affairs, "Combined Assessment Program Summary Report: Evaluation of Quality Management in Veterans Health Administration Facilities Fiscal Year 2011" (17 May 2012)
8 Office of the Inspector General, Department of Veterans Affairs, "Combined Assessment Program Review of the Cincinnati VA Medical Center: Cincinnati, Ohio" (13 February 2012)
9 Office of the Inspector General, Department of Veterans Affairs, "Combined Assessment Program Review of the VA Roseburg Healthcare System: Roseburg, Oregon" (13 March 2012)
10 Office of the Inspector General, Department of Veterans Affairs, "Review of Resident Supervision Documentation and Billing Practices in VHA Facilities" (8 January 2007)

Figure F-2. Sample Documentation and Coding Recommendations from Past Assessments

Prior documentation and coding recommendations

NOT EXHAUSTIVE

■ Identified in this assessment

Related current recommendation	Sample past recommendations	2007	2008	2009	2010	2011	2012	2013
Recommendation 9.3.1	Ensure that clinical staff properly document patient care, including at care transitions			OIG[7]	OIG[6]			
	Train administrative staff on third-party insurance identification						OIG[5]	
Recommendation 9.3.2	Implement policy and perform copy-paste audits for the facility						OIG[1] OIG[3] OIG[4]	
	Ensure that health records review committee meet at frequency outlined in VHA directives						OIG[2]	
	Organize health record review committees at facilities where lacking						OIG[1]	
	Ensure adequate supervision and oversight of resident documentation practices	OIG[8]						

1 Office of the Inspector General, Department of Veterans Affairs. "Combined Assessment Program Review of the VA Gulf Coast Veterans HCS: Biloxi, Mississippi." (29 February 2012)
2 Office of the Inspector General, Department of Veterans Affairs. "Combined Assessment Program Summary Report: Evaluation of Quality Management in Veterans Health Administration Facilities Fiscal Year 2011." (17 May 2012)
3 Office of the Inspector General, Department of Veterans Affairs. "Combined Assessment Program Review of the Cincinnati VA Medical Center: Cincinnati, Ohio." (13 February 2012)
4 Office of the Inspector General, Department of Veterans Affairs. "Combined Assessment Program Review of the VA Roseburg Healthcare System: Roseburg, Oregon." (13 March 2012)
5 Office of the Inspector General, Department of Veterans Affairs. "Audit of Medical Care Collections Fund Billing of VA-Provided Care." (30 August 2012)
6 Office of the Inspector General, Department of Veterans Affairs. "Evaluation of Emergency Departments and Urgent Care Clinics in Veterans Health Administration Facilities." (28 April 2010)
7 Office of the Inspector General, Department of Veterans Affairs. "Quality of Care, Documentation, and Courtesy Issues Hampton VA Medical Center: Hampton, Virginia." (18 September 2009)
8 Office of the Inspector General, Department of Veterans Affairs. "Review of Resident Supervision Documentation and Billing Practices in VHA Facilities." (8 January 2007)

F.3   Assessment Mapping to Choice Act Legislation

We have matched our findings and recommendations with the organization, workflow processes, and tools domains outlined in the legislation.

Table F-2. Mapping of Drivers to Organization, Workflow Processes, and Tools Domains Specified by the Statute

Findings and recommendations	Organization	Workflow processes	Tools
9.2.1: Inconsistent focus on clinical documentation impedes consistent capture of complete clinical information, hindering appropriate resource allocation and revenue collection			
9.2.1.1: Limited direct integration of health information management (HIM) and finance functions	✓		

The views, opinions, and/or findings contained in this report are those of the assessment team and should not be construed as an official government position, policy, or decision.

Findings and recommendations	Organization	Workflow processes	Tools
at the VAMC level weakens leadership prioritization of documentation			
9.2.1.2: Inconsistent provider education and training practices are not aligned with VHA's view of the high importance of clinical documentation	✓	✓	
9.2.1.3: Lack of performance management contributes to low priority on documentation	✓	✓	✓
9.2.2: Adoption of documentation best practices is variable, resulting in inconsistent quality of clinical documentation system-wide			
9.2.2.1: Inconsistent adoption of provider documentation best practices (e.g., template use, appropriate copy-paste) challenges effectiveness		✓	✓
9.2.2.2: Ineffective provider query practices and limited provider responsiveness at many facilities contribute to persistence of suboptimal documentation		✓	✓
9.2.2.3: Incomplete uptake of clinical documentation improvement (CDI) programs and variable best practice implementation has limited potential impact from these programs	✓	✓	
9.2.3: VHA's performance on coding accuracy and timeliness closely matches or exceeds private sector			
9.2.3.1: Visibility into performance through establishment of clear coding targets and performance tracking supports transparency and improvement	✓		✓
9.2.3.2: Regular application of coder auditing by internal coding experts at the facility-level yields feedback loop to identify inaccuracies and improve performance		✓	
9.2.3.3: Use of coding software that incorporates best practice features (e.g., error checking, decision support) facilitates coding accuracy			✓
9.3.1: Increase local prioritization of clinical documentation through acceleration of national CDI program and targeted provider education and training,			

Findings and recommendations	Organization	Workflow processes	Tools
supported by performance management at the facility and provider level.			
9.3.1.1: Incorporate documentation metrics into regular performance reviews for both providers and facilities	✓	✓	✓
9.3.1.2: Reinforce CDI program by providing targeted guidance on national documentation priority areas and by creating a national information-sharing network for CDI best practice sharing	✓		✓
9.3.1.3: Develop and deploy provider educational and training programs to address unique VHA documentation needs and reemphasize the importance of documentation for Veterans and the organization	✓	✓	✓
9.3.2: Strengthen provider documentation standards (e.g., management of clinical templates, EHR review process) to promote optimal capture of patient information and improve resulting resource management.			
9.3.2.1: Eliminate duplicative clinical templates and standardize requirements for new template creation			✓
9.3.2.2: Strengthen EHR reviews to ensure appropriate use of copy-paste, including implementation of CPRS tool to automate the process	✓	✓	✓
9.3.2.3: Implement standardized processes for following up on outstanding provider queries and improve provider accountability for query responsiveness	✓	✓	

F.4 Description of Documentation and Coding Site Visit Assessment Workshop Improvement Idea Generation Process

Our site visits provided an opportunity to generate potential improvement ideas with front-line staff members familiar with the documentation and coding challenges affecting their facility. As part of each on-site documentation and coding assessment workshop (N=20), we facilitated a conversation regarding barriers to accurate documentation and coding at their facility and then asked participants (approximately 115 total staff members composed of physicians, medical

coders, utilization management nurses, and HIM chiefs) to generate improvement ideas that would strengthen facility-level processes and outcomes. Upon completion of all site visits, we compiled the 210 proposed solutions and grouped similar improvement ideas to assess how often participants cited improvement ideas aligned with our recommendations. Data from this exercise is often included within the "summary of supporting evidence" sections for each sub-recommendation.

F.5   Additional Supporting Figures

Figure F-3. Illustrative Template Review Checklist

A standardized template review process promotes appropriate and effective new template development

Sample considerations

General	• Is the template **duplicative** of another template? • Will the note trigger a **provider alert**?
Spelling	• Does the note avoid **inappropriate abbreviations**? • Are **acronyms** correctly spelled?
Format	• Is **punctuation** correct? • Does the template **flow logically**?
Grammar	• Is **use of tense** consistent? • Is the **use of gender** correct?
Review of note title	• Does the title accurately **reflect the contents**? • Is the title sufficiently **different from other titles**?

SOURCE: AHIMA, "Electronic Documentation Templates Support ICD-10-CM/PCS Implementation. Appendix C: Checklist for Template Review," Journal of AHIMA 83, no.10 (October 2012): expanded online version

Figure F-4. Illustrative Provider Query Follow-Up Process

Illustrative approach to following up on physician queries

Timing	Day 0	Day 2	Day 4	Day 7
Proposed actions	• Coder submits query to physician **via email**	• Coder **calls physician** to inform them of query submission	• Coder **contacts service line chief** • Service line chief **calls physician** to solicit response to the query	• Coder **abandons query** to permit timely closing of the record • Service line chief **notes physician non-response** and discusses with physician during next performance review

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Appendix G   Bibliography

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Appendix H   Acronyms

ACMA	American Case Management Association
ADPCS	Assistant Director of Patient Care Services
AHIMA	American Health Information Management Association
AHP	Allied Health Professional
ANA	American Nurses Association
APRN	Advanced Practice Registered Nurse
ASHP	American Society of Health-System Pharmacists
BMS	Bed Management System
CAMH	CMS Alliance to Modernize Healthcare
CMS	Centers for Medicare & Medicaid Services
CNS	Clinical Nurse Specialist
FFRDC	Federally Funded Research and Development Center
HHS	Department of Health and Human Services
CBOC	Community-Based Outpatient Clinics
CDC	Center for Disease Control
CDI	Clinical Documentation Improvement
CLC	Community Living Center
CNA	Certified Nursing Assistant
CPRS	Computerized Patient Record System
CRNA	Certified Registered Nurse Anesthetist
DRG	Diagnosis-Related Group
ED	Emergency Department
EDIS	Emergency Department Integrated Software
EHR	Electronic Health Record
FIT	Field Implementation Teams
FTE	Full-time Equivalent
GAO	Government Accountability Office
HCAHPS	Hospital Consumer Assessment of Healthcare Providers and Systems
HIM	Health Information Management
HTM	Healthcare Talent Management

ICU	Intensive Care Unit
IHC	Integrating Health Coordination Center
IPEC	Inpatient Evaluation Center
LIP	Licensed Independent Practitioner
LMI	Labor Management Institute
LOS	Length-of-Stay
LPN	Licensed Practical Nurse
LSCSW	Licensed Specialist Clinical Social Worker
LVN	Licensed Vocational Nurse
LWBS	Left Without Being Seen
MD	Medical Doctor
MHS	Multi-hospital Systems
NBCD	National Bed Control Database
NBCOT	National Board for Certification in Occupational Therapy
NCA	National Cemetery Association
NHPPD	Nursing Hours Per Patient Day
NP	Nurse Practitioner
NUMI	National Utilization Management Integration
OIG	Office of the Inspector General
OMELOS	Observed-Minus-Expected Length-of-Stay
ONS	Office of Nursing Services
OPCC&CT	Office of Patient Centered Care and Cultural Transformation
OR	Operating Room
OT	Occupational Therapist
PA	Physician Assistant
PAID	Paid Accounting Integrated Data
PCC	Patient Centered Care
PM&R	Physical Medicine & Rehabilitation
PSA	Patient Support Assistant
PT	Physical Therapist
RN	Registered Nurse

RT	Respiratory Therapist
RVU	Relative Value Unit
SAIL	Strategic Analytics for Improvement and Learning
SHEP	Survey of Patients' Hospital Experiences
TNS	Travel Nurse Corps
UM	Utilization Management
VA	Veterans Affairs
VACO	Veterans Affairs Central Office
VAMC	Veterans Affairs Medical Center
VBA	Veterans Benefits Administration
VERA	Veterans Equitable Resource Allocation
VHA	Veterans Health Administration
VHACO	Veteran Health Administration Central Office
VISN	Veterans Integrated Service Networks
VistA	Veterans Health Information Systems and Technology Architecture
VSSC	VA Support Service Center
WHEN	Weekend, Holiday, Evening, Nights

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Prepared by:

Grant Thornton

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Prepared For:
U.S. Department of Veterans Affairs

At the Request of:
Veterans Access, Choice, and Accountability Act of 2014
Section 201: Independent Assessment of the Health Care Delivery
Systems and Management Processes of the Department of Veterans
Affairs

Assessment G (Staffing/Productivity/Time Allocation)

September 1, 2015

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This report is the result of the contributions of several team members, who conducted site visits, processed and analyzed data, managed team activities, and enabled the Grant Thornton team to execute a rigorous study over a short period of time. The team was led by Grant Thornton, with integral support from team member FTI Consulting, and three independent contractors.

The views, opinions, and/or findings contained in this report are those of Grant Thornton and should not be construed as an official government position, policy, or decision.

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Preface

Congress enacted and President Obama signed into law the Veterans Access, Choice, and Accountability Act of 2014 (Public Law 113-146) ("Veterans Choice Act"), as amended by the Department of Veterans Affairs (VA) Expiring Authorities Act of 2014 (Public Law 113-175), to improve access to timely, high-quality health care for Veterans. Under "Title II – Health Care Administrative Matters," Section 201 calls for an Independent Assessment of 12 areas of VA's health care delivery systems and management processes.

VA engaged the Institute of Medicine of the National Academies to prepare an assessment of access standards and engaged the Centers for Medicare & Medicaid Services (CMS) Alliance to Modernize Healthcare (CAMH)[1] to serve as the program integrator and as primary developer of the remaining 11 Veterans Choice Act independent assessments. CAMH subcontracted with Grant Thornton, McKinsey & Company, and the RAND Corporation to conduct 10 independent assessments as specified in Section 201, with MITRE conducting the 11th assessment. Drawing on the results of the 12 assessments, CAMH also produced the Integrated Report in this volume, which contains key findings and recommendations. CAMH is furnishing the complete set of reports to the Secretary of Veterans Affairs, the Committee on Veterans' Affairs of the Senate, the Committee on Veterans' Affairs of the House of Representatives, and the Commission on Care.

The research addressed in this report was conducted by Grant Thornton LLP, under a subcontract with The MITRE Corporation. Grant Thornton also subcontracted with FTI Consulting and other independent contractors in the conduct of the assessment.

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[1] The CMS Alliance to Modernize Healthcare (CAMH), sponsored by the Centers for Medicare & Medicaid Services (CMS), is a federally funded research and development center (FFRDC) operated by The MITRE Corporation, a not-for-profit company chartered to work in the public interest. For additional information, see the CMS Alliance to Modernize Healthcare (CAMH) website (http://www.mitre.org/centers/cms-alliances-to-modernize-healthcare/who-we-are/the-camh-difference).

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Executive Summary

In a health system comprised of more than 150 hospitals and nearly 1,400 community-based outpatient clinics, Vet Centers and domiciliaries,[2] determining the staffing levels, caseload, and productivity required of VHA providers to meet the needs of over nine million enrolled Veterans[3] is a complex task. Yet, adequate provider staffing levels and a health care system that enables its clinicians to be productive in delivering VHA's population health focused model of care are essential to meeting the goal of timely, high quality care for our Veterans. This report details an assessment of the staffing levels, caseload, and productivity of providers across the VHA health care delivery system, and the allocation of providers' time between delivery of patient care and other tasks such as administration, education, and research. This assessment addresses section 201(G) of the Veterans Access, Choice and Accountability Act of 2014 (Veterans Choice Act).

Congress enacted the Veterans Choice Act to improve Veterans' access to timely, high-quality health care. It included a request for an independent assessment of several aspects of the VHA health care delivery system. Part G of Section 201 requires an independent assessment of "the staffing level at each medical facility of the Department and the productivity of each health care provider at such medical facility, compared with health care industry performance metrics, which may include an assessment of the case load and number of patients treated by each health care provider, time spent by health providers on matters other than caseload, including time spent at an affiliate, conducting research, training, or supervising other health care professionals of the department."

To address this requirement, and under contract to the MITRE Corporation, the Assessment G team, led by Grant Thornton LLP, in partnership with FTI Consulting, and three independent contractors, conducted an assessment of current provider staffing levels, caseload, and productivity, in comparison to health care industry benchmarks. This included an in-depth assessment of nurse staff resource allocation, decision-making, and processes which impact provider productivity and efficiency. The Assessment G team's approach involved both quantitative analyses (for example, benchmarking against nationally recognized industry benchmark surveys), as well as qualitative data analyses (root cause analysis review of data collected from over 700 interviews at 24 site visits, as well as data collected from VHA subject matter experts at VHA Central Office).

The Assessment G team had several key findings and observations pertaining to the core assessment objectives: staffing, productivity, and time allocation.

Staffing

The Assessment G team analyzed VHA provider staffing levels and compared them to the private sector (using physician per population ratio industry comparisons) and identified some

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[2] Veterans Health Administration: About VHA. (2015). Retrieved from http://www.va.gov/health/aboutvha.asp

[3] Bagalman, Erin. (2014) The Number of Veterans That Use VA Health Care Services: A Fact Sheet. p3. Congressional Research Service. Retrieved from https://www.fas.org/sgp/crs/misc/R43579.pdf

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of the challenges VHA faces in ensuring it has sufficient providers to meet demand. In summary, VHA's provider staffing mix reflects VHA's care model and the needs of the Veteran population, but conclusions from Assessment G about the adequacy of provider staffing levels and the impact of contract providers are difficult to make without consideration of the results of Assessment A (Demographics) and Assessment B (Capacity). VA medical centers face issues with provider vacancies, lengthy hiring processes, and competitive compensation, each of which can contribute to provider shortages. Key findings with respect to the VHA provider staffing levels are:

- **Finding 1:** VHA specialties with the highest provider full time equivalent (FTE) levels include medicine specialties, mental health, and primary care, consistent with VHA's care model and the needs of the Veteran population. Social Workers also represent a significant portion of provider FTEs. (See Section 2.2.2)
- **Finding 2:** VHA does not systematically track fee-based provider productivity, and does not capture FTE level information for fee-based care providers. (See Section 2.2.3)
- **Finding 3:** VHA physician staffing levels per population are, in most specialties, lower than industry ratios. These ratios are not sufficient to establish whether VHA is staffed to meet demand. One factor to consider is that even industry physician supply is not sufficient to meet demand in many specialties. Another factor to consider is that VHA uses Advanced Practice Providers (APPs) extensively, but APPs are not included in industry ratios. (See Section 2.2.6.)

Productivity

The Assessment G team assessed the productivity of VHA providers in comparison to providers in the private sector. This assessment used several common health care industry productivity measures: encounters (count of direct provider-patient interactions in which the provider diagnoses, evaluates, or treats the patient's condition), work relative value units (wRVUs—a measure of a provider's output which takes into account the relative amount of time, skill, and intensity required to complete a given procedure), and primary care panel size (the number of unique patients for whom a care team is responsible). The Assessment G team considered VHA's care model, benchmarked providers accordingly, and considered the barriers VHA faces in delivering care at a rate of productivity that matches health care systems in the private sector. In summary, we found that the average caseload or panel size of primary care providers is slightly below the level expected, but VHA's target panel size is comparable to the private sector considering the type of patient population served and the findings described in the body of this report. VHA mental health providers are generally more productive than many of their peers in the private sector. VHA specialty providers on the other hand tend to lag the private sector in their productivity, although providers at high complexity VA facilities tend to have high productivity.

There are several operational constraints or barriers which may explain these differences, such as: insufficient exam rooms and clinical or non-clinical support staff, and a lack of standard practices for managing daily staff absences. Based upon the Assessment G team's observations and the findings of Assessment F (Clinical Workflow), we have concerns that providers may not be properly documenting all of their workload, which may explain some of the difference in

productivity. The accuracy of documentation and coding shouldn't be just considered for the sake of measuring wRVUs; coding is important to measuring whether clinical pathways are being appropriately followed and understanding care outcomes. Key findings with respect to the caseload and productivity of VHA providers are:

- **Finding 4:** VHA measures the performance of its PCPs using panel size. VHA calculates a modeled panel size for providers based on a variety of factors at each facility. The model was developed based on research into the appropriate panel size for the unique needs of Veterans. (See Section 2.3.5.2)

- **Finding 5:** In accordance with policy, VHA facilities establish a maximum panel size for each primary care provider which is often lower than the modeled panel size. The maximum figure takes into account specialized panel needs (for example, a geriatric population) and other factors deemed appropriate by the facility. (See Section 2.3.5.4).

- **Finding 6:** The actual panel size of VHA primary care providers is lower than internal and external benchmarks. (See Section 2.3.5.5)

- **Finding 7:** When compared to the private sector using wRVUs, there is a productivity gap in VHA specialty care. (See Section 2.3.6.3)

- **Finding 8**: When encounters (visits) are used as a measure, the gap shrinks and VHA specialty care compares more favorably to the private sector. (See Section 2.3.6.4).

- **Finding 9**: VHA mental health providers are more productive than academic medical center (American Medical Group Management Association [AMGMA]) benchmarks, as measured by both wRVUs and encounters. (See Section 2.3.6.5)

- **Finding 10:** Overall, VHA specialty care providers are producing fewer wRVUs than private sector benchmarks; however, VHA specialty care providers at the highest complexity facilities are more productive than their peers. Further, the most productive VHA providers (those at the 75th percentile of VHA providers) are often more productive than the private sector. (See Section 2.3.6.6)

- **Finding 11:** Productivity and access are important measures in population based health models like VHA that focus on patient outcomes, rather than volume. VHA's Office of Productivity, Efficiency, and Staffing (OPES) reports on productivity and access offer tools for use by medical facilities. With some improvements to expedite adoption and regular use by medical centers, these tools could become key resources in optimizing productivity and maximizing access to care. (See Section 2.3.6.8)

- **Finding 12:** VHA dentists see fewer patients on average than private sector benchmarks, but serve a population with special needs. The dentistry patient population of VHA generally has a compensable service-connected dental disability, is older, has more complex injuries, and may present for dental care following years of dental neglect. (See Section 2.3.7.4).

Key findings with respect to the barriers VHA faces in delivering care that is equally as productive as the private sector are:

- **Finding 13:** Insufficient exam rooms and poor configuration of space limits providers' productivity, ability to maximize patient throughput, and reduces patient access. (See Section 2.3.8.3)

- **Finding 14:** Clinical and administrative support staff ratios are insufficient and may limit provider productivity. (See Section 2.3.8.4)

- **Finding 15:** Insufficient clinical and administrative support staff results in providers and clinical support staff not working to the top of their licensure. (See Section 2.3.8.4.1).

- **Finding 16:** While there has been widespread implementation of the Patient Aligned Care Team (PACT) model in primary care clinics and the National Nurse Staffing Methodology in many areas of inpatient care, there are no current VHA standards for staffing levels and/or mix in specialty clinics, with the exception of eye clinics. Furthermore, VHA OPES has developed state of the art tools for managing staffing and productivity, but these tools will require improvements for leaders to more effectively leverage them in resource decisions. (See Section 2.3.8.4.2)

- **Finding 17:** Organizational siloes and separate reporting lines exist for physicians, nurses and medical service administrators at a majority of VA Medical Centers (VAMCs). As a result, service chiefs do not have control over the resourcing and performance of their clinical support staff (nurses) or clerical and administrative support staff. (See Section 2.3.8.4.3)

- **Finding 18:** Many facilities do not have a centralized staffing office or nurse float pool to address daily staff variances or absences. (See Section 2.3.8.4.4)

- **Finding 19:** During site visits and interviews with VHA Central Office leaders, we consistently heard concerns that providers do not fully document and accurately code all of their clinical workload. (See Section 2.3.8.5)

Provider Time Allocation

The Assessment G team assessed how VHA providers spend their time, to include the time that VHA providers spend on non-patient care activities, particularly time spent on education and research activities, as well as time spent overseeing residents in a clinical setting, and time spent at academic affiliate medical centers. We compared VHA providers' clinical time to private sector data, as well. In summary, we found that VHA providers spend approximately the same proportion of their time on clinical care activities as the private sector, despite a rich research output. Key findings with respect to VHA providers' time allocation are:

- **Finding 20:** VHA physicians spend a comparable proportion of total time devoted to clinical activities as private sector physicians. There is some potential difference in the definition of direct patient care used by the private sector, specifically with respect to training, teaching and research, but we believe this represents only a small proportion of a provider's direct patient care time. (See Section 2.4.2)

- **Finding 21:** Across all VHA providers, less than two percent of time is devoted to research. Since provider time spent devoted to clinical care activities is comparable to the private sector, it does not appear that research activities reduce providers' time spent treating patients. Despite the overall low proportion of time spent on research, the

accomplishments of VHA's research program, and contributions to advancing care for Veterans, are numerous. (See Section 2.4.4)

Recommendations

Several recommendations and best practices were identified to address the findings of this assessment. These should be considered in concert with the findings and recommendations of other Veterans Choice Act Assessments (Assessments E-Scheduling, F-Clinical Workflow, and H-Technology). In formulating these recommendations, the Assessment G team considered the findings and recommendations of the other Veterans Choice Act Assessments, prior reports by the VA Office of the Inspector General (OIG), the Government Accountability Office (GAO) and other government bodies, together with promising VHA practices identified in the course of our site visits, and best practices from external health care organizations identified through the course of our literature review.

The Assessment G team offers five overarching recommendations to VHA. In Section 3 we identify the supporting evidence for each recommendation, relevant promising or best practices, and potential near-term actions or next steps. We also provide a discussion of cross-cutting implementation considerations that may be used to develop, enhance, or speed implementation. By implementing these recommendations, along with the recommendations of the other Veterans Choice Act Assessments, VHA can with the support of Congress evolve into a consistently high performing health system, enabling access to high quality care in an efficient and cost effective manner.

1.   **VHA should improve staffing models and performance measurement.**

This assessment recommends that VA conduct an evaluation of the design and implementation of current VHA staffing models to determine the extent to which they are sufficient to meet the goals of VHA's population health focused model and ensure all eligible Veterans have access to high quality, timely care. VHA should conduct a program review of the implementation of the PACT staffing model in primary care to identify the causes of the gaps between actual, facility maximum, modeled and external benchmarks, the impacts of these performance gaps on access to quality care, the appropriateness of current guidelines and performance standards, and determine areas for improvement. VHA should develop and implement staffing models for outpatient specialty care services and improve existing performance measurement systems to realize the benefits of specialty care staffing models. VHA should refine and implement the National Nurse Staffing Methodology across inpatient services and improve the performance measurement system to realize the benefits of the methodology. We further recommend that VHA mandate all VAMCs adopt and report nursing quality metrics to a national database to compare VHA to other external health organizations.

To improve staffing and productivity measurement and better determine the capacity of VHA specialty clinics, this assessment recommends that VHA gather data and assess the productivity of fee-based providers, as well as conduct a work measurement study (or confirm existing workload data) to determine the volume and distribution of workload annually to better match staffing requirements to demand. For future reporting, OPES should complete the development of the APP productivity cube, to include completion of business rules that would allow APPs to be mapped to a specialty designation and included in OPES specialty group practice and facility

productivity reports to accurately reflect care teams' overall effort and present a combined provider (doctor of medicine [MD] and APP) productivity view.

2. **VAMCs should create the role of clinic manager and drive more coordination and integration among providers and support staff.**

This assessment identifies recommendations for increasing the level of teamwork and accountability among all outpatient clinic staff, especially in specialty care services. This might be achieved by creating multidisciplinary management teams for specialty clinics that include a physician leader, nurse leader, and business administrator. Alternatively, specialty clinics might establish a single or dual reporting line and operating a model for providers and their clinical and non-clinical support staff, so that all of the members of the specialty clinic team have more accountability to each other and the Service Chief of the specialty.

3. **VA Medical Centers should implement strategies for improving management of daily staff variances, and include a replacement factor for all specialties, including PACT.**

With respect to managing staff absences, this assessment makes recommendations for improving the management of daily staffing variances by implementing several strategies that include intermittent float pools of support staff and the inclusion of a replacement factor across all staffing methodologies/models, to include PACT.

4. **VA Medical Centers should implement local best practices that mitigate space shortages within specialty clinics.**

This assessment identifies recommendations to help VA medical facilities mitigate space shortages within specialty clinics. These include strategies such as: standardized schedule templates, expanded clinic hours, increased use of non-face-to-face encounters for follow-up consults by specialty care, and system redesign initiatives to improve patient flow within clinics.

5. **VHA should improve the accuracy of workload capture.**

This assessment recommends that VHA conduct an audit of health record documentation and current procedural terminology (CPT®) coding accuracy and reliability to validate physician productivity measurement and that if the results support it, evaluate the ability of commercially available computer assisted coding (CAC) applications to assist providers with coding. The creation of the role of clinic manager for Specialty Care clinics should also be used to improve clinic management and coding practices.

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Cross Reference from Legislation to Report Sections

Legislation	Cross-Reference(s)
Staffing levels at VA medical centers (VAMCs)	Section 2.2, Appendix Section B.2
Provider productivity and comparisons to industry standards, as well as provider caseload, number of patients treated (encounters)	Section 2.3, Appendix A, **Figure** 2-16, Figure 2-21, Figure 2-22, Table 2-5 Section 2.3.5,Section 2.3.5.5, Section B.2.5
Time spent by providers on matters other than caseload	Section 2.4, Section 2.4.1, Section 2.4.2, Figure 2-31, Figure 2-33, Figure 2-34, Figure 2-36
Provider time spent at an affiliated medical facility	Section 2.4.3
Provider time conducting research	Section 2.4.4, Figure 2-34
Provider time training or supervising other health care professionals of the Department	Section 2.4.5, Figure 2-36

1 Introduction

As the nation's largest integrated health care delivery system[4] – and one dedicated solely to providing care and support services to Veterans, their dependents and survivors – the roles and missions of the Department of Veterans Affairs (VA) are important to all Americans. VA endeavors to provide our nation's heroes with the highest quality health care possible. To do so, it must address the unique health care needs of Veterans while removing the barriers and challenges that hamper its provider's ability to deliver Veterans the timely, high quality care and positive patient experience they deserve. The Veterans Health Administration (VHA) offers care that is good or better than national benchmarks, and the majority report positive experiences with their health care providers. However, too many of our Veterans wait too long to receive the high quality care they deserve.

In a health system comprised of more than 150 hospitals and nearly 1,400 community-based outpatient clinics, Vet Centers and domiciliaries,[5] determining the staffing levels, caseload, and productivity required of VHA providers to meet the needs of over nine million enrolled Veterans[6] is a complex task. Adequate provider staffing levels and a health care system that enables its clinicians to be productive in delivering VHA's population health focused model of care are essential to meeting the goals of timely, high quality care for our Veterans. This report details an assessment of the staffing levels, caseload, and productivity of providers across the VHA health care delivery system, and the allocation of providers' time between delivery of patient care and other tasks such as administration, education, and research. This assessment addresses section 201(G) of the Veterans Access, Choice and Accountability Act of 2014.

1.1 Purpose, Scope, and Sub-assessments

1.1.1 Purpose

Congress enacted the Veterans Choice Act to improve Veterans' access to timely, high-quality health care. As the first step toward improving access, the Veterans Choice Act required an independent assessment of the VHA health care delivery system. In response, the MITRE Corporation brought together independent industry experts, to include Grant Thornton, to identify current practices and opportunities for improvement, as well as opportunities to scale best or promising practices. Part G of Section 201 requires an independent assessment of:

The staffing level at each medical facility of the Department and the productivity of each health care provider at such medical facility, compared with health care industry performance metrics, which may include an assessment of any of the following:

> (i) The case load of, and number of patients treated by, each health care provider at such medical facility during an average week.

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[4] Veterans Health Administration: About VHA. (2015). Retrieved from http://www.va.gov/health/aboutvha.asp

[5] Ibid.

[6] Bagalman, Erin. (2014) The Number of Veterans That Use VA Health Care Services: A Fact Sheet. p3. Congressional Research Service. Retrieved from https://www.fas.org/sgp/crs/misc/R43579.pdf

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(ii) The time spent by such health care provider on matters other than the case load of such health care provider, including time spent by such health care provider as follows:

(I) At a medical facility that is affiliated with the Department.

(II) Conducting research.

(III)Training or supervising other health care professionals of the Department.[7](113 U.S.C, Veterans Choice Act p. 16-17)

1.1.2 Scope

Pursuant to the language in Section 201 of the Choice Act, the scope of our assessment focuses on VHA provider staffing levels, caseload, productivity, and time in comparison to health care industry benchmarks. To further refine the legislative language, we developed the following assessment objectives and structured our study around them:

1. Describe the current state of VHA provider[8] staffing levels, as compared to industry standards, benchmarks, and metrics.
2. Assess VHA provider productivity as compared to industry standards, benchmarks, and metrics.
3. Describe the relative time spent by VHA providers on non-patient care activities.

In addition to completing benchmark comparisons, we assessed the drivers of productivity within VHA, and potential causes of differences between the productivity of VHA providers and the private sector. In doing so, we compared current VHA practices that impact productivity to accepted best practices drawn from literature and professional associations, as well as standard practices from benchmark data and surveys. We also considered promising practices observed at individual VAMCs we visited. This provided insight into alternative approaches and recommendations that could be implemented VHA wide to improve staffing and productivity practices. By implementing these recommendations, along with the recommendations of the other Veterans Choice Act Assessments, VHA can, with the support of Congress evolve into a

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[7] Veterans Access, Choice and Accountability Act of 2014, 113 U.S.C. Congress § 3230. (2014). Retrieved from http://www.gpo.gov/fdsys/pkg/BILLS-113hr3230enr/pdf/BILLS-113hr3230enr.pdf

[8] ***Definition***: *VHA provider, for the purposes of this assessment, is defined as an independent licensed practitioner (Physician Assistants [PA], Nurse Practitioners [NP], Doctor of Medicine [MD], Physical Therapists, Psychologists, Social Workers), taking the Health Resources and Services Administration's [HRSA] definition of independent licensed practitioner to be "a physician, dentist, NP, nurse midwife, or any other individual permitted by law and the organization to provide care and services without direction or supervision, within the scope of the individual's license and consistent with individually granted clinical privileges." Clinical Nurse Specialists are excluded from this definition. The definition of a VHA provider includes providers employed full-time by VA. The scope of VHA providers includes inpatient and outpatient care, primary care, specialty care, dentists, and mental health providers. Although contract and fee providers are, in some facilities, a significant proportion of care delivery teams; they are deemed out of the scope of this assessment, due to an inability to quantify staffing levels (full time equivalent [FTE]), or hours worked, as VA does not track this information.*

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consistently high performing health system, enabling access to high quality care in an efficient and cost effective manner.

Assessment G is closely connected to several other assessments requested within the Choice Act, including, but not limited to, assessments A (demographics), B (capacity and resources), E (scheduling), F (clinical workflows), H (information technology), and K (facilities). To avoid overlap and duplicative analysis, we completed our assessment in close collaboration with others. We have indicated key instances where further relevant analyses are included in related assessments, throughout our report.

1.1.3 Sub-Assessments

The scope of Assessment G can be broken into three elements, or "sub-assessments" which tie to the three main objectives of this assessment: provider staffing, provider productivity, and provider time allocation.

1.1.3.1 Provider staffing (Objective 1)

To assess the provider staffing levels at VHA, we report the current staffing levels across all VHA facilities, as well as at individual facilities, and averages across varying facility types, defined by the complexity of care provided. We also compared physician supply to population ratios of VHA with external benchmarks which provide an indicator of physician need (there are no comparison data available for advanced practice providers [APPs]). For primary care providers, we compared panel sizes which is a measure of both staffing and productivity – this analysis is provided in the subsequent section on provider productivity. Since part of our defined assessment scope was to understand how provider staffing might differ from the private sector to meet the unique needs of the Veteran populations, we used supplemental data on the needs of Veterans from Assessment A (Demographics) to explain differences in VHA's physician workforce compared to the private sector. We did not explicitly assess whether current physician staffing levels would enable VHA to provide timely and accessible care to Veterans as this is part of the scope of Assessment B (Capacity). However, we do elaborate on some of the challenges of assessing the adequacy of staffing levels. We did not assess projected staffing levels as this was also part of the scope of Assessment B. Lastly, we assessed the challenges that VHA faces in filling provider vacancies to meet mission needs, as reported on our site visits and supported by the data.

1.1.3.2 Provider productivity (Objective 2)

We assessed the productivity and caseload of providers, compared to the private sector. For specialty care providers, we analyzed the caseload and productivity relative to industry benchmarks using work relative value units and patient visits per year (encounters). Because VHA has a population based health care delivery model in which primary care providers are responsible for managing the health of a panel (the number of patients a provider a care team is accountable for)[9] of patients, we assessed the productivity and caseload of primary care

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[9] A primary care panel is equivalent to the caseload definition used in specialty care.

providers by comparing primary care panel sizes to comparable private sector panel size benchmarks.

We also discuss VHA barriers to optimal productivity in detail as part of this report. We present the barriers identified through our site visits and through a comprehensive root cause analysis, and provide supporting evidence with supplemental data analyses. One of the key drivers we identified was the presence of adequate clinical support staff. Provider productivity is enhanced by the right number, composition, and use of clinical support staff. Variations from best practice support staffing ratios result in workflow inefficiencies that reduce productivity, result in fragmentation of care, and decreased access. Because this issue was one of the most significant barriers, we conducted a more focused review of it. This part of the study was also conducted in especially close coordination with Assessment F and included separate objectives and assessment questions, listed in Appendix B. The results of this sub-study are presented within the overall barriers section.

1.1.3.3   Provider time allocation (Objective 3)

The Assessment G team analyzed VHA provider time allocation to determine the percentage of provider time spent in non-clinical care activities. Specifically, we calculated the proportion of provider time spent across each category of clinical, administrative, research, and teaching activities. We compared VHA provider clinical time to an industry survey. We also assessed, by way of a case study, VHA providers' time spent at academic affiliate institutions (medical schools and their associated medical centers). We assessed how VHA uses academic affiliations, as well as opportunities for providers to conduct research and teaching, as recruitment tools to secure providers and other clinical staff, and their importance to VHA's objective of leading the nation in research on the unique needs of Veterans.

1.2   Approach

Our team followed a four-phased approach to conduct the staffing assessment: discovery, analysis, findings and conclusions, and recommendations. This section provides an overview of the Assessment G team's approach, broken out by these four phases. For a more detailed review of the methodology, to include additional detail on data sources, definitions, and approaches to reviewing, aggregating, adjusting, analyzing and reporting data, as well as study limitations, please reference Appendix B.

1.2.1   Discovery

Key activities conducted during the discovery phase of the assessment included:

- Background research: The Assessment G team conducted background research on VHA provider staffing and productivity during the discovery phase of this project. This research included reviews of VHA policies and directives as well as management reports to determine the business rules that influence staffing levels and productivity measurement of VHA providers. We also reviewed reports related to staffing, productivity and access from GAO, VA Inspector General Reports, Congressional testimonies, Institute of Medicine, and other relevant sources.

- Interviews: The team interviewed VHA policy leaders and subject matter experts from the major specialties as well as the leaders of the program offices responsible for reporting VHA staffing levels and provider productivity.[10] Through these interviews, the team identified clinical policies and administrative requirements that could potentially impact the productivity of VHA providers.

- Data collection: We obtained staffing, workload, and time allocation data of VHA providers from VHA for fiscal year 2014. The sources and definitions of the data are described in detail in Appendix B. All provider data was de-identified by VHA, (for example, individual provider names were removed).

- Identification of benchmark surveys: The team identified potential external health care industry performance benchmark surveys to compare to VHA. These included the most current (2014 report using 2013 survey data) Medical Group Management Association (MGMA) Physician Compensation and Production Survey (the most widely used benchmarking survey) and Academic Practice Compensation and Production Survey, and 2010 American Dental Association (ADA) Survey of Dental Practices, as well as primary care panel benchmarks from MGMA surveys, as well as the American Medical Group Association (AMGA), Kaiser Permanente Medical Group Northern California, and American Academy of Family Physicians. In addition, we used several sources for supplemental comparisons related to staffing and productivity. These are detailed throughout the report and in the methodology (Appendix B).

- Site selection: In coordination with other independent assessment teams, the Assessment G team selected 24 VAMCs and community based outpatient clinics (CBOCs) to visit. The purpose of the site visits was to interview local facility leaders and providers to understand the differences between VHA provider staffing, caseload and productivity levels from the private sector. The team also used VHA management reports of provider productivity to identify trends and outliers across each of the specialty groups across VHA. The Assessment G team then selected for interviews the service leaders and providers from a range of trend groups, to include highly productive specialties, low productivity specialties, specialties with good Veteran access to care, and poor Veteran access to care.

Figure 1-1 depicts the facilities that the Assessment G team selected and subsequently visited during the analysis phase of the assessment.

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[10] These offices included: Primary Care, Office of Specialty Care Services, Mental Health, Dentistry, OPES, the Managerial Cost Accounting Office (MCAO), Surgery, Geriatrics, Physical Medicine and Rehabilitation, Women's Health, Telehealth, Workforce Management, and offices within VHA that oversee research, academic affiliations, and medical coding.

Figure 1-1. Assessment G selected site visits
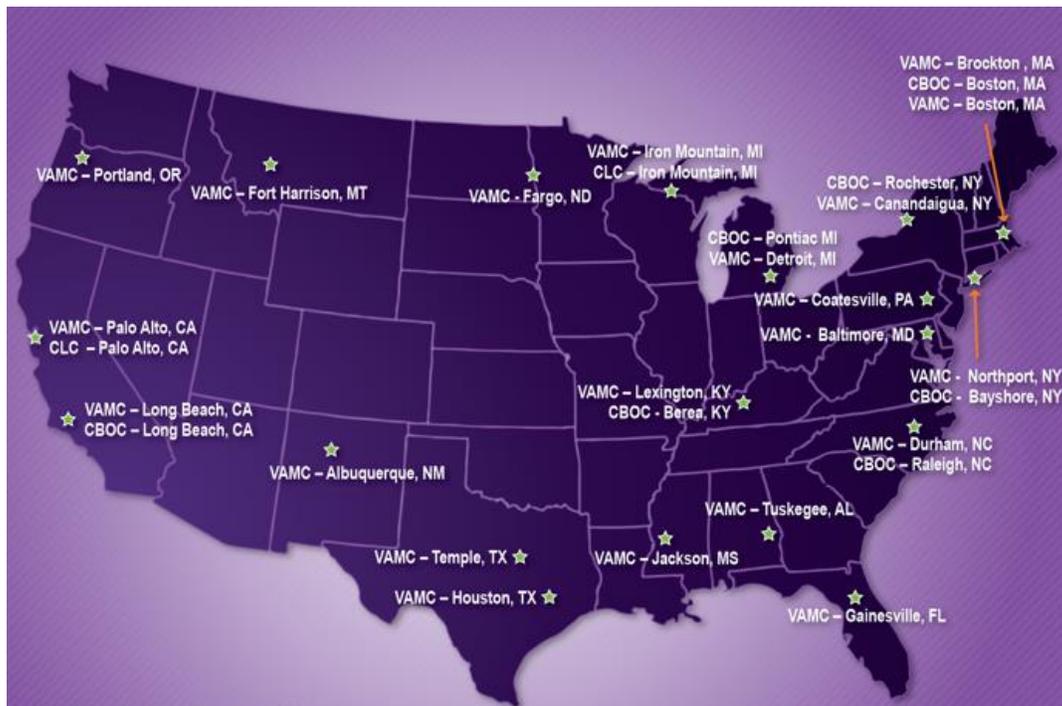
1.2.2   Analysis

The team used a combination of quantitative and qualitative analysis techniques to address the Assessment G objectives.

1.2.2.1   Quantitative Analysis

We employed several quantitative methods, to include:

Provider Staffing Levels (Objective 1):

- Aggregate staffing levels: We calculated aggregate staffing levels across seven categories of physicians and APPs (primary care, hospital based specialists, non-hospital based specialists, social workers, mental health, and dentistry) using VA's Personnel and Accounting Integrated Data (PAID) FTE data.
- Comparison to Industry ratios: We calculated the number of physicians (by specialty) per 100,000 enrollees and compared to an industry ratio.
- Staffing Levels by facility: Using the aggregate staffing levels data, we broke out staffing levels by facility.

Provider Productivity (Objective 2):

- Benchmarking: The team calculated total encounters and work relative value units (wRVUs) per provider across each specialty and facility using individual provider workload as reported in VHA productivity cubes and provided by VHA OPES. The team validated the wRVU data using total encounters obtained for each provider.

- o Our team applied relevant adjustments (modifiers, gap and imputed codes, and duplication of workload credit to multiple providers) to the VHA wRVU data set to allow the most accurate comparison to external benchmark surveys. For encounter productivity analysis, the Assessment G team was unable to apply the same level of rigorous validation and adjustment as was applied to the wRVU data.
  - o The team also used benchmarking data from external benchmark surveys and calculated VHA provider productivity percentiles relevant to these benchmark data sets (using both wRVUs and encounters).
- Primary care panel comparison: The team obtained actual and modeled panel sizes for VHA primary care providers from VHA's Office of Information and Analysis and calculated averages and benchmarked them.

Provider Time Allocation (Objective 3):

- Allocation of time across labor mapping categories: We calculated the allocation of VHA provider time between patient care, research, education, and administration using VHA labor mapping data from its Decision Support System (DSS). We compared this time to an industry survey.
- Time spent at an affiliate: We calculated time spent by a sample of providers at an affiliate institution using data collected from a site visit.

1.2.2.2 Qualitative analysis

We used several qualitative methods, to include:

- A literature review of relevant VHA policies and directives that impact provider staffing and productivity.
- A literature review of relevant best practices across external health care industry organizations. In collaboration with other assessment teams and the Integrator, the team also visited two of the nation's leading health care systems to glean additional leading practices.
- Interviews with VHA national policy and operations leaders and staffing and productivity subject matter experts.
- Site visits to VA medical facilities and CBOCs which included interviews with VHA medical facility leaders and providers. The Assessment G team interviewed 355 providers, 279 facility leaders, and 94 nurse executives, for a total of more than 700 interviews across all site visits.
  - o Content analysis: We analyzed content to identify themes from the interviews (by the frequency with which various themes were raised by leaders) and the use of a weighting tool to categorize, aggregate and prioritize a set of contributing factors to provider productivity and patient access. These contributing factors were considered potential causal areas to focus on in a root cause analysis.
  - o Root cause analysis: We used root cause analysis to understand the "who, what, where, how and why" of provider productivity gaps and to introduce systems-

based thinking into the analysis of potential factors that make it difficult for certain VHA specialties to match the private sector on productivity. The team used the potential causal areas and preliminary fishbone diagrams to identify additional questions to ask facility leaders and providers regarding possible contributing factors to further the evidence base.

1.2.3 Documentation of findings and conclusions

The Assessment G team documented its findings using data and evidence from the quantitative and qualitative analyses. The findings address the requests articulated within Section 201(G), as well as qualitative and quantitative findings which help to explain *why* the staffing level, productivity, and time allocation data is as presented, or other notable observations relevant to the subject matter studied. The latter findings are especially important as they map to recommendations and provide insights into *how* productivity, staffing, or time allocation issues or deficiencies may be addressed. Findings are listed throughout the report, alongside the relevant analyses, and in the order of the assessment objectives.

At the completion of the analysis phase, the Assessment G team conducted a full team meeting to review the findings and the tentative conclusions with respect to each assessment objective. At this early May meeting, the team discussed and validated each key finding and tentative conclusion, which were drawn from both quantitative and qualitative analyses. This formed the basis of the findings and conclusions documented within the assessment report.

1.2.4 Documentation of recommendations

To inform the development of recommendations, the team identified promising practices related to provider staffing and productivity during site visits and combined them with external best practices identified earlier during the literature review of external health care industry organizations, and from the site visits to two high performing health systems.

Physician practice specialists, health data analysts and statisticians, health care delivery consultants, and clinician team members who participated in the site visits and quantitative data analyses reviewed the key findings, tentative conclusions, and internal and external leading practices. Using the promising or best practices research – documented both internally and externally, we identified recommendations. We developed the recommendations for groups of findings – and in some cases, for individual findings, that would benefit from being addressed. In several cases, findings identified a positive outcome and did not need to be addressed with a recommendation. The team identified the supporting evidence for each recommendation, relevant promising or best practices, and potential near-term actions or next steps. Finally, the team discussed cross-cutting implementation considerations that may be used to develop, enhance, or speed implementation.

2 Findings

In this section, we provide our key findings and observations related to VHA provider staffing, productivity, and allocation of providers' time. This section is broken out into four sub-sections, the VHA care model followed by the three assessment objectives. We intentionally describe the care model within VHA first, because the needs of VHA's patient population, which dictate the need for a care model that is somewhat different from many private health care systems, is the foundation for how VHA staffs its medical centers and CBOCs, which subsequently can impact both productivity and time allocation.

To see where we explicitly address the requirements within the Section 201(G) legislation, please refer to the table at the bottom of the report's table of contents.

2.1 VHA's Personalized, Proactive, Patient Driven Care Model

Fundamental to understanding how VHA resources its medical centers to meet patient needs is first understanding its population health focused model of care delivery. This model places primary care providers as the central access point and accountable party for a Veteran's care, and influences how VHA serves Veterans, to include the types of care it provides, in other environments. VHA endeavors to provide care to Veterans through a primary care-driven, population health focused model. This model of care is similar to that adopted by other leading health care systems, such as Kaiser Permanente, Geisinger, and Cleveland Clinic. The population health approach aims to enhance the health and well-being of the Veteran population by achieving the first goal within VHA's current strategic plan to "provide Veterans personalized, proactive, patient-driven health care."[11] These three tenets are of utmost importance, and are defined as follows within VHA's current strategic plan:

- **Personalized**: a dynamic adaptation or customization of recommended education, prevention and treatment that is specifically relevant to the individual user, based on the user's history, clinical presentation, lifestyle, behavior and preferences.

- **Proactive**: acting in advance of a likely future situation, rather than just reacting; taking initiative to make things happen rather than just adjusting to a situation or waiting for something to happen.

- **Patient-driven**: an engagement between a patient and a health care system where the patient is the source of control such that their health care is based in their needs, values, and how the patient wants to live.[12]

The current VHA strategic plan further elaborates on several objectives that fall under this first goal, which cover key aspects of a population health focused care model, such as:

- Partnering with patients in care delivery;

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[11] U.S. Department of Veterans Affairs. (2013). VHA Strategic Plan FY2013-2018. p1. Retrieved from http://www.va.gov/health/docs/VHA_STRATEGIC_PLAN_FY2013-2018.pdf

[12] Ibid.

- Communicating the care model to stakeholders and the workforce;
- Clearly defining the care model and ensuring that it is understood by stakeholders and the workforce;
- Ensuring that Veterans have convenient access to information, and support to make informed decisions as well as implement their personal health plans;
- Ensuring Veterans receive timely, high quality, personalized, safe, effective and equitable health care;
- Driving an improvement culture across the organization; and,
- Strengthening collaborations with communicates and other organizations.

This approach is grounded in VHA's patient centered medical home (PCMH) model, known as PACT, which VHA began implementing across facilities in 2009. The PACT model was implemented in all facilities, but level of implementation maturity varies.

VHA's specialty care transformation initiative has focused on building a stronger interface with PACT to make care more Veteran-centered, timely, coordinated (less fragmented) and accessible. To enhance access to specialties, especially in rural areas, VHA has increased the use of telehealth and other non-face to face modes and modalities of care delivery (for example, secure messaging) for providing specialty care services.[13] While primary care at VHA has developed specific staffing guidance as part of PACT, specialty care lags behind primary care in that most specialty clinics lack specific staffing guidance, though the delivery model is meant to be patient centered and promote close collaboration with a patient's primary care provider and other care team members. Appropriate staffing and resourcing guidance or models are an important element of enabling a care model to be effective.

> **What is a model of care?**
>
> A "model of care" generally defines how health services are delivered, based on theoretical and evidence-based principles, and reflecting the preferences of patients, providers, and policy makers.

VHA faces challenges in the development and maintenance of demand forecasting models, as well as staffing and resourcing guidance due to the fact that most Veterans have more than one possible source of health coverage and may receive some portion of their health care from external providers using other health care coverage; for example, private insurance or TRICARE (see Assessment A by RAND).

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[13] Retrieved from http://www.va.gov/healthbenefits/access/specialty_care_services.asp

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Many Veterans, including a percentage of those enrolled in VHA care, receive their health care from non-VA sources, including from non-VHA providers Medicare and Medicaid benefits.[14] In other words, there is a large number of co-managed patients at VHA, far more than patients who rely solely on VHA. Additional studies have reported on the reliance of Veterans on VA versus other health care sources. The American Community Survey found that more than one third of VA enrollees receive care from other programs.[15] Another survey of Veterans found that a third of respondents were enrolled in Medicare, and over half received insurance from a current or former employer.[16]

Of those Veterans who choose to have all or a portion of their care covered by VA, certain Veterans are permitted to choose care outside of the VA system and have their provider of choice paid for by VA, as a result of the Veterans Choice Act passage, and initiation of the Choice Card Program. More specifically, Veterans who live more than 40 miles from a VA health care facility are eligible to receive non-VA care using their Choice card. Although the Choice Card program and broader non-VA programs offer valuable care options to Veterans in need, when Veterans are receiving care from multiple fragmented sources, it can create a co-managed care system that relies on the input and collaboration of providers in and outside of the VA system, and raises the potential difficulty of ensuring continuity of care.

A population health care model (for example, PCMH) is tailored to serve the unique needs and requirements of a population that it serves. Of the total Veteran population of 21 million, approximately 9 million are enrolled in VA health care, almost 7 million access VA care for certain conditions or types of treatment, and approximately 2 million use VA health care exclusively.[17] The Veteran population who use VA health care is changing. According to RAND's Assessment A report, the mean age of Veterans using VA health care will increase slightly over the next ten years and the Veteran population will have a higher proportion of both older and younger Veterans. Care models and the staffing and resourcing plans that accompany them will need to change to adapt to these changing Veteran demographics and needs.

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[14] U.S. Department of Veterans Affairs National Center For Veterans Analysis and Statistics. (2015). Profile of Veterans: 2012 Data from the American Community Survey. p10. Retrieved from http://webcache.googleusercontent.com/search?q=cache:-tlmX7E36KEJ:www.va.gov/vetdata/docs/SpecialReports/Profile_of_Veterans_2012.pdf+&cd=1&hl=en&ct=clnk&gl=us

[15] U.S. Department of Veterans Affairs National Center For Veterans Analysis and Statistics. (2015). Profile of Veterans: 2012 Data from the American Community Survey. p10. Retrieved from http://webcache.googleusercontent.com/search?q=cache:-tlmX7E36KEJ:www.va.gov/vetdata/docs/SpecialReports/Profile_of_Veterans_2012.pdf+&cd=1&hl=en&ct=clnk&gl=us

[16] Westat. (2010). National Survey of Veterans, Active Duty Service Members, Demobilized National Guard and Reserve Members, Family Members, and Surviving Spouses. p138. Retrieved at http://www.va.gov/SURVIVORS/docs/NVSSurveyFinalWeightedReport.pdf

[17] Bagalman, E. (2014). The Number of Veterans That Use VA Health Care Services: A Fact Sheet. p3. Congressional Research Service. Retrieved at https://www.fas.org/sgp/crs/misc/R43579.pdf

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VHA's Office of Rural Health (ORH) has studied the rise of Veterans using both VA and non-VA health care providers, an especially important topic for rural Veterans who have reduced access to health care overall. ORH notes that many of the critical relationships required between VA health care and local and private sector health care systems to ensure delivery of comprehensive, quality health care to these Veterans are underdeveloped. ORH states that improving relationships between VA and private health care systems by enhancing communication and coordination, as well as identifying dual use in Veteran populations, is crucial for improving health outcomes and avoiding potential pitfalls in care of rural and highly rural Veterans.[18]

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[18] Retrieved July 10, 2015 from http://www.ruralhealth.va.gov/resource-centers/central/comanagement-toolkit.asp

Table 2-1 compares the benefits of population health oriented model, like what VHA strives to be, and co-managed care models, which may be more similar to the context in which many VAMCs are currently operating.

Table 2-1. Care model benefits

Care Model Benefits	
Population health model[19]	Co-Managed/Dual Use Care[20]
• Fewer emergency department (ED) visits • Reduced hospital admissions • Reduction in specialist utilization • Fewer inpatient hospital days • High return on investment for disease management programs	• Patient preference • Patient has more provider options for care • Higher patient access to care • More continuity of care for families (as families could receive care from one common provider) • Access to certain very specialized care

With a large portion of the Veteran population receiving outside care, VHA's vision of a population health care model is misaligned with the current state of co-managed care. For VHA to enable successful execution of co-managed care models, it will need to continue to address the issues raised by ORH and to foster relationships with the community, matching infrastructure needs to support these relationships (for example, IT systems that enable more seamless transfer of information).

VHA's population focused care model has key implications for this study. Namely, it dictates various staffing requirements that influence differences between VHA provider staffing levels and the private sector, as well as influence the productivity of its providers. For example, VHA has developed specialized PACTs for unique Veteran health needs, such as geriatrics. These PACTs, termed "geri-PACTs" have unique staffing requirements that may differ from the private sector, influencing both staffing levels and productivity, as support staff is a key driver of productivity. Conversely, because Veterans are given many options for access to care, to include accessing care in the community, providers are sometimes forced into a co-managed care model, which can be significantly less productive as VHA providers lose time looking for test results and care documentation from Veterans' private sector providers. Perhaps more importantly, we provide context of VHA's care model at the start of this report because it is important in reviewing benchmark comparisons of VHA against the private sector, which primarily consists of a volume-driven, non-population health oriented environment, in which

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[19] Nielson, M., Langener, B., Zema, C., Hacker, & T. Grundy, P. (2012). Benefits of Implementing the Primary Care Patient-Centered Medical Home: A Review of Cost & Quality Results, 2012. Patient-Centered Primary Care Collaborative. 3-15. Retrieved from https://www.pcpcc.org/sites/default/files/media/benefits_of_implementing_the_primary_care_pcmh.pdf

[20] Borowsky, S. J., & Cowper, D. C. (1999). Dual Use of VA and Non-VA Primary Care. *Journal of General Internal Medicine*, *14*(5), 274–280. doi:10.1046/j.1525-1497.1999.00335.x

providers are incentivized not on patient outcomes or satisfaction, but on volume of services provided.

2.2 Provider Staffing Levels (Objective 1)

In this section, we report the provider staffing levels of VHA, by specialty and specialty grouping, and by both individual facilities and facility complexity level. We also compare VHA physician to Veteran enrollee population ratios with national private sector physician to population ratios. In our analysis of how VHA compares to industry, we considered the differences in the needs of the VA population that may dictate a need for higher or lower ratios of certain physician types (for example, significantly fewer Veterans are female than compared to the private sector population, meaning that there is a lesser need for gynecologists per population than in the private sector). Because a key measure of provider staffing for primary care is the size of a provider's panel (the number of patients for which a particular care team is accountable) we also compared VHA primary care provider panel sizes to benchmarks – since panel size is both an indicator of staffing and productivity, this information is presented later in the report (see Section 2.3.5.5). We conclude this section with a discussion of the challenges which VHA faces in ensuring it has sufficient providers to meet demand.

2.2.1 Summary of VHA provider staffing level findings

The Assessment G team's findings as they relate to VHA provider staffing levels are listed below:

- **Finding 1.** VHA specialties with the highest provider paid FTE levels include medicine specialties, mental health, and primary care, consistent with VHA's care model and the needs of the Veteran population. Social Workers also represent a significant portion of provider FTEs. (see section 2.2.2)

- **Finding 2.** VHA does not systematically track fee-based provider productivity, and does not capture FTE level information for fee-based care providers. (see section 2.2.3)

- **Finding 3.** VHA physician staffing levels per population are, in most specialties, lower than industry ratios. These ratios are not sufficient to establish whether VHA is staffed to meet demand. One factor to consider is that even industry physician supply is not sufficient to meet demand in many specialties. Another factor to consider is that VHA uses APPs extensively, but APPs are not included in industry ratios. (See Section 2.2.6)

2.2.2 Overall provider staffing generally reflects Veteran needs (Finding 1)

VHA specialties with the highest provider FTE levels include medicine specialties, mental health, and primary care, consistent with VHA's care model and the needs of the Veteran population. Social Workers also represent a significant portion of provider FTEs.

Figure 2-1 illustrates that there were 28,490 total FTE employed VHA providers,[21] working at VHA medical centers[22] across VHA (5,938 APPs; 22,552 physicians; and 9,827 social workers) in fiscal year 2014. The FTE total is based on total *paid* FTE which includes vacation, holiday, and other non-working time for which the provider is compensated; note that FTE is not the same as headcount. Contract or "fee-based" providers who provide care within VAMCs as a contractor rather than an employee are omitted from this count, as VHA does not have data available on the FTE level of fee-based providers).

Figure 2-1. Total provider FTEs (Paid) by major grouping, FY 2014[23]
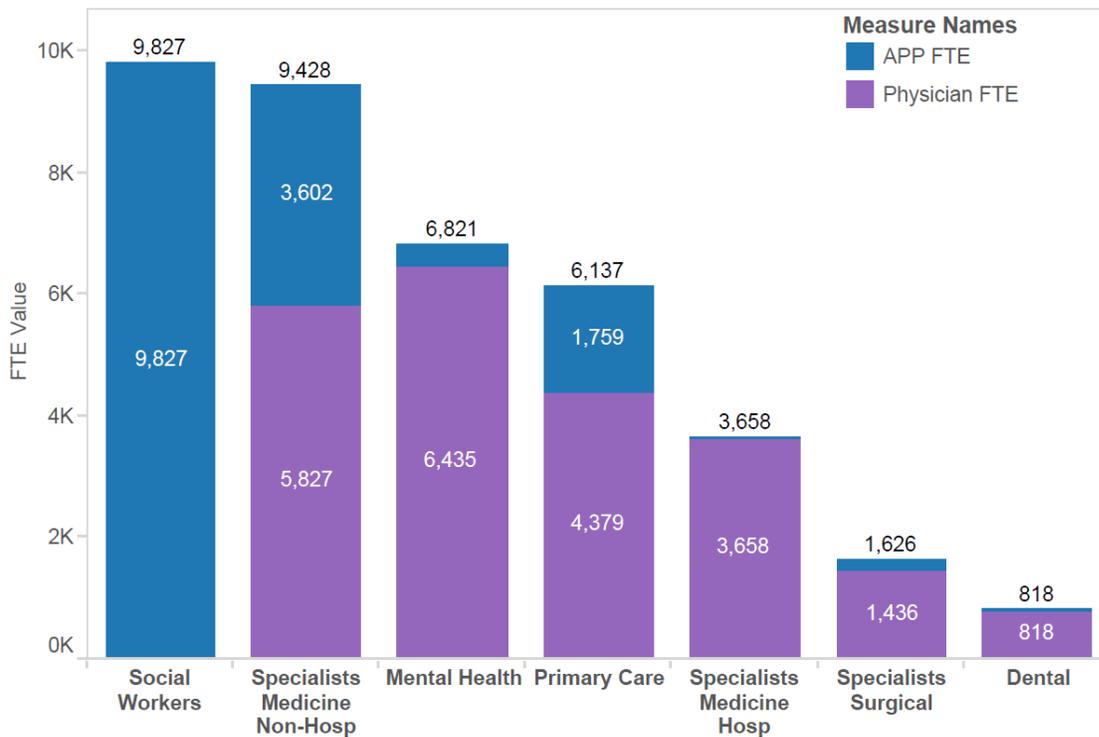
We evaluated VHA provider FTE in more than 30 aggregate specialties, but present them as by major groupings of specialties. Social workers are categorized separately because the VHA data does not allow us to align them to a particular specialty care, and as a separate group are higher than all other major groupings. Specialties with the highest FTE levels include medicine specialties (includes internal medicine hospitalists and specialists), mental health (psychology, psychiatry) and primary care. Many patients require mental health services due to a high prevalence of mental health and psychiatric conditions in the Veteran population such as Post

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[21] Providers primarily includes independently licensed practitioners; the complete definition is in Section 1.1.2.

[22] This number excludes those Without Compensation (WOC) providers serving in an administrative capacity at VISN offices and VA Central Office [VACO], who primarily do not provide patient care.

[23] Assessment G team analysis of Provider Labor Detail, provided by VHA OPES, April 9, 2015

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Traumatic Stress Disorder (PTSD), which explains the high number of mental health providers.[24] The Assessment A report includes an analysis which shows that Veterans have a significantly higher prevalence of mental health conditions as well as Posttraumatic Stress Disorder (PTSD) than non-Veterans, which further supports the higher number of mental health providers (see also the following section of the report which shows a high proportion of mental health providers per population compared to the private sector).[25] Assessment A also finds that Veterans also have a higher prevalence of undiagnosed health conditions, to include chronic diseases, for several conditions, such as Cancer, Chronic Obstructive Pulmonary Disease, Diabetes, GERD and hearing loss.[26] These types of conditions may require a need for more primary care providers and medicine specialists, which is seen in the predominance of provider FTEs in these categories (when compared to non-hospital based specialists, i.e. radiologists and pathologists, and surgical specialists). This is explored further in section 2.2.6. The low number of dental specialists can be explained by a small number of Veterans eligible to receive dental care from VHA. This is further explained in section 2.2.5

Table 2-2 illustrates the total provider FTE and clinical provider FTE (total FTE aligned to clinical care activities) by specialty. Note that in Table 2-2, primary care is included within internal medicine.

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[24] Seal, K.H., Bertenthal, D., Miner, C.R., Sen, S., Marmar, C. (2007). Bringing the War Back Home: Mental Health Disorders Among 103,788 US Veterans Returning From Iraq and Afghanistan Seen at Department of Veterans Affairs Facilities. *Arch Intern Med*. 2007; 167 (5):476-482. doi:10.1001/archinte.167.5.476

[25] Rand Corporation. (2015). Veterans Choice Act Assessment A Final Report.

[26] Ibid.

Table 2-2. Provider FTE (Paid) totals by specialty[27]

Specialty	Total FTE	Clinical FTE
Internal Medicine	5,714	5,148
Psychology	3,901	3,363
Psychiatry	2,534	2,193
Radiology	969	831
Optometry	660	615
Anesthesiology	683	614
Emergency Medicine	548	508
Cardiology	590	483
Physical Medicine & Rehabilit..	524	429
Surgery	517	418
Neurology	493	362
Critical Care / Pulmonary Dise..	481	351
Geriatric Medicine	449	338
Podiatry	361	336
Gastroenterology	422	328
Pathology	404	315
Ophthalmology	332	288
Orthopaedic Surgery	307	280
Hematology-Oncology	333	264
Urology	261	228
Nephrology	275	186
Infectious Disease	245	144
Endocrinology	218	144
Otolaryngology	155	134
Dermatology	162	126
Vascular Surgery	141	112
Rheumatology	152	105
Thoracic Surgery	103	83
Obstetrics & Gynecology	77	71
Plastic Surgery	79	70
Preventive Medicine	72	62
Neurological Surgery	67	55
Pain Medicine	55	49
Chiropracty	47	43
Allergy and Immunology	32	26
Grand Total	**22,363**	**19,102**

2.2.3   VHA has limited information on fee-based providers (Finding 2)

VHA does not systematically track fee-based provider productivity, and does not capture FTE level information for fee-based care providers.

Providers who work in VAMCs as non-employees on a contract basis, termed fee-based providers, are not included in staffing information maintained by VHA. More specifically, VHA

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[27] Assessment G team analysis of Provider Labor Detail, provided by VHA OPES, April 9, 2015

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does not keep total FTE data for fee-based providers,[28] nor does VHA systematically track the productivity of these providers. VHA also does not have this information on providers who may generate workload but who do not have a labor mapping. VHA terms these providers "without compensation," or "WOC" providers, and they include providers who may, for example, work in an administrative capacity at VHA Central Office, do not have a labor mapping, yet work a few hours per month as a provider seeing patients at a nearby medical center. It could also include providers with a labor mapping at one facility, but who see patients sometimes at another facility and this time is not accounted for. For the purposes of this section, we refer to these providers as fee-based providers and other providers without a labor mapping. VHA does have information on the encounters and wRVUs generated by this part of the workforce; however, without knowing how many hours these providers spend generating these wRVUs, it is difficult to reliably determine how productive they are. OPES has developed a methodology for imputing presumed FTE levels to include these providers in internal VHA reports, which, given the available information, may be a best practice.

For our assessment, we determined the best course of action was to eliminate these key members of the provider workforce because rather than to make assumptions about the FTE levels. As such, fee-based providers and other providers without a labor mapping (those whom we do not know how many hours they work to generate wRVUs) are excluded from the scope of this report. Although the proportion of the workforce that these providers comprise is unknown, they do produce nine percent of the wRVUs generated across all of VHA, with a higher contribution in certain specialties. The lack of transparency around these providers' time represents a missed opportunity for VHA to better understand their performance relative to VHA employed providers and potential opportunities to improve productivity and reduce costs. It also limits the ability to have a comprehensive picture of the true provider workforce.

Figure 2-2 shows the proportion of total workload generated by fee/other providers (those who do not have a labor mapping) by facility complexity level. Overall, the proportion of workload generated by these providers is relatively consistent across facility complexity levels at approximately nine percent (13 percent for physician only workload and six percent for APPs only), with the exception that complexity level 1b facilities appear slightly higher.

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[28] Fee-based providers work as a contractor, typically on a fee-for-service basis, providing care in a VAMC. These providers are not non-VA care providers in the community who are paid through various VHA purchased care contracting mechanisms.

Figure 2-2. Proportion of wRVUs generated by non-labor mapped providers[29]
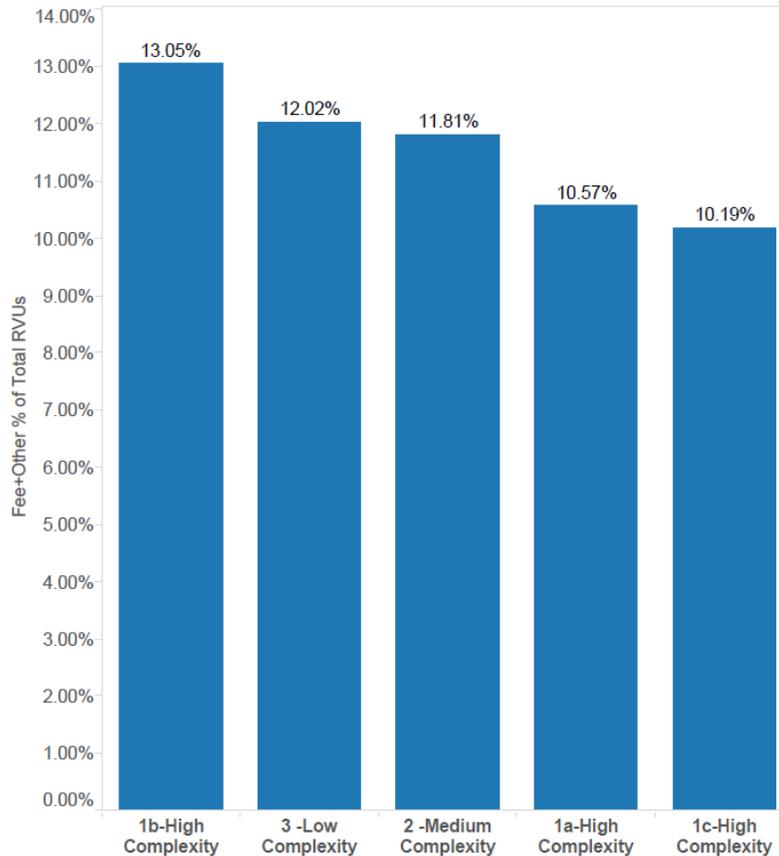
Although the overall proportion of workload generated by these providers (relative to wRVUs generated by all providers) is low, in some facilities, these providers may constitute an entire specialty or large portion of a specialty's provider workforce. More specifically, (in certain specialties), the proportion of total wRVU-based productivity generated by fee-based and other non-labor mapped providers is significantly higher. Figure 2-3 shows the proportion of total wRVUs which are generated by fee-based providers and other providers without a labor mapping, for specialties with the highest proportion of wRVUs generated by these providers.

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[29] Assessment G analysis of Provider Detail FY14, provided by VHA OPES, February 26, 2015.

Figure 2-3. Proportion of wRVUs generated by non-labor mapped providers by specialty[30]
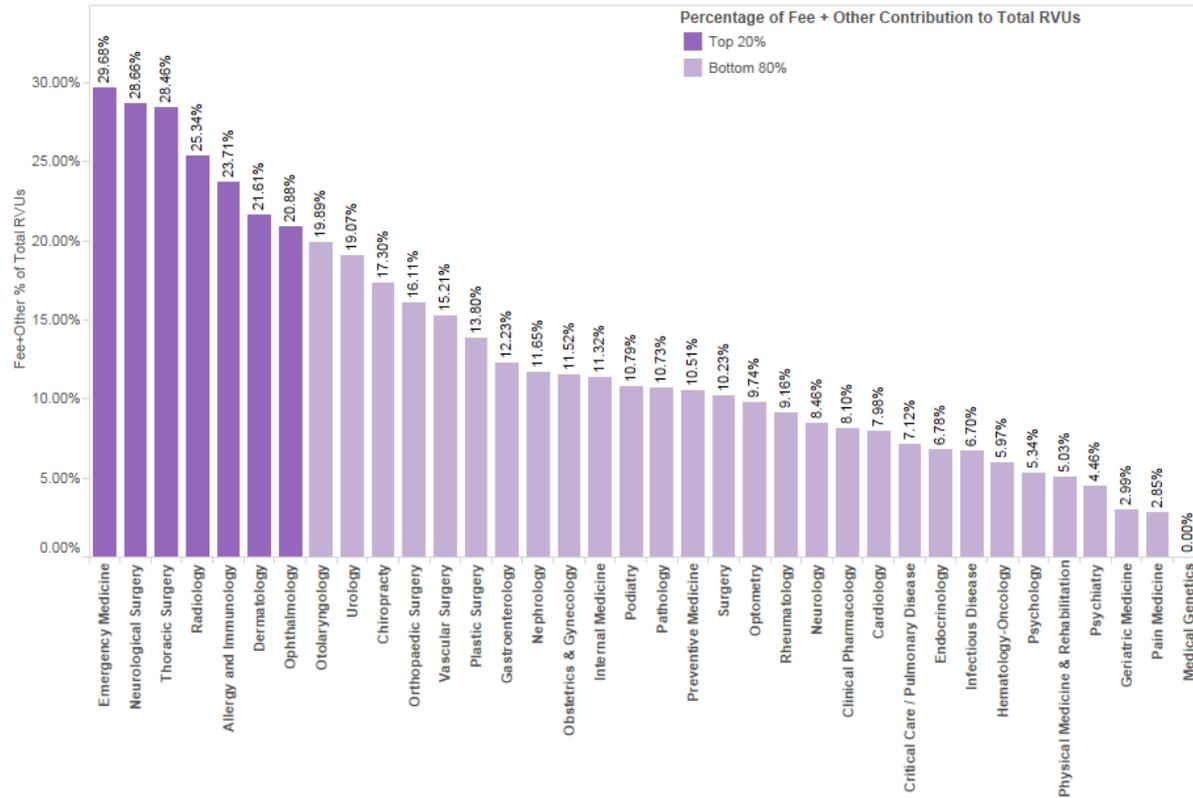
[30] Assessment G analysis of Provider Detail FY14, provided by VHA OPES, February 26, 2015

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Figure 2-3 illustrates that fee-based providers and other non-labor mapped providers appear to be used more widely in emergency departments, as there is a higher proportion of wRVUs generated by them, given total emergency medicine provider wRVUs. Of note, anesthesia was excluded from this figure as anesthesiologist productivity is not measured only by wRVUs. Other specialties with a high proportion of wRVUs generated by fee-based and other non-labor mapped providers may reflect that certain specialties require augmentation with additional support to meet demand (dermatology, ophthalmology, otolaryngology) or use of these providers in lieu of hiring VHA employed providers for specialties with lower demand (neurological surgery, thoracic surgery).

> "*There is a shortage of ophthalmologists, hospitalists, emergency medicine physicians, gastroenterologists, and psychologists; these positions are difficult to recruit and are currently filled by fee-for-service contracted providers.*" - Facility leader at a rural VAMC

Some of these specialties may also be specialties that are more difficult to recruit into VHA due to larger differences in earning potential. We would recommend VHA consider a further examination of the performance of, use of, and impact of fee-based providers across VHA to better understand how they are being used, whether their usage is cost effective and the appropriate scenarios in which to augment the provider workforce with fee-based providers.

2.2.4 Provider staffing levels vary between VA medical centers

Figure 2-4 through Figure 2-8 depict the total quantity of provider FTE (Paid) in each facility. The facilities are sorted by facility complexity level. The highest range of FTE raises dramatically according to the complexity level with the maximum FTE of a complexity level 1a facility over 800 FTE and the maximum FTE of a complexity level 3 facility just under 200 FTE. This is not surprising since higher complexity facilities typically see a much higher volume of patients.

Figure 2-4. Total provider FTEs (Paid), by facility, at level 1a facilities[31]

Facility	SUM Total FTE
(V08) (573) Gainesville, FL	807.7
(V22) (691) Greater Los Angeles HCS	723.2
(V08) (673) Tampa, FL	683.4
(V16) (580) Houston, TX	650.1
(V07) (508) Atlanta, GA	642.2
(V17) (549) Dallas, TX	622.9
(V10) (541) Cleveland, OH	618.6
(V21) (640) Palo Alto, CA	583.8
(V20) (663) VA Puget Sound, WA	575.9
(V08) (516) Bay Pines, FL	539.5
(V20) (648) Portland, OR	516.1
(V23) (618) Minneapolis, MN	514.5
(V09) (626) Middle Tennessee HCS, TN	499.2
(V17) (671) San Antonio, TX	487.1
(V22) (664) San Diego, CA	472.7
(V08) (672) San Juan, PR	468.0
(V19) (554) Denver, CO	459.4
(V03) (630) New York Harbor HCS, NY	441.6
(V12) (578) Hines, IL	433.3
(V06) (558) Durham, NC	431.2
(V01) (523) VA Boston HCS, MA	430.9
(V21) (662) San Francisco, CA	414.7
(V12) (695) Milwaukee, WI	409.0
(V01) (689) VA Connecticut HCS, CT	408.4
(V06) (652) Richmond, VA	405.7
(V04) (646) Pittsburgh, PA	369.4
(V07) (521) Birmingham, AL	359.3
(V11) (583) Indianapolis, IN	334.7
(V18) (678) Southern Arizona HCS	327.2
(V15) (657) St. Louis, MO	318.5
(V09) (614) Memphis, TN	317.4
(V18) (501) New Mexico HCS	313.2

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[31] Assessment G team analysis of Provider Labor Detail FY14, provided by VHA OPES, April 9, 2015. Complexity level derived from VHA FY11 facility complexity level designations.

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Figure 2-5. Total provider FTEs (Paid), by facility at level 1b facilities[32]
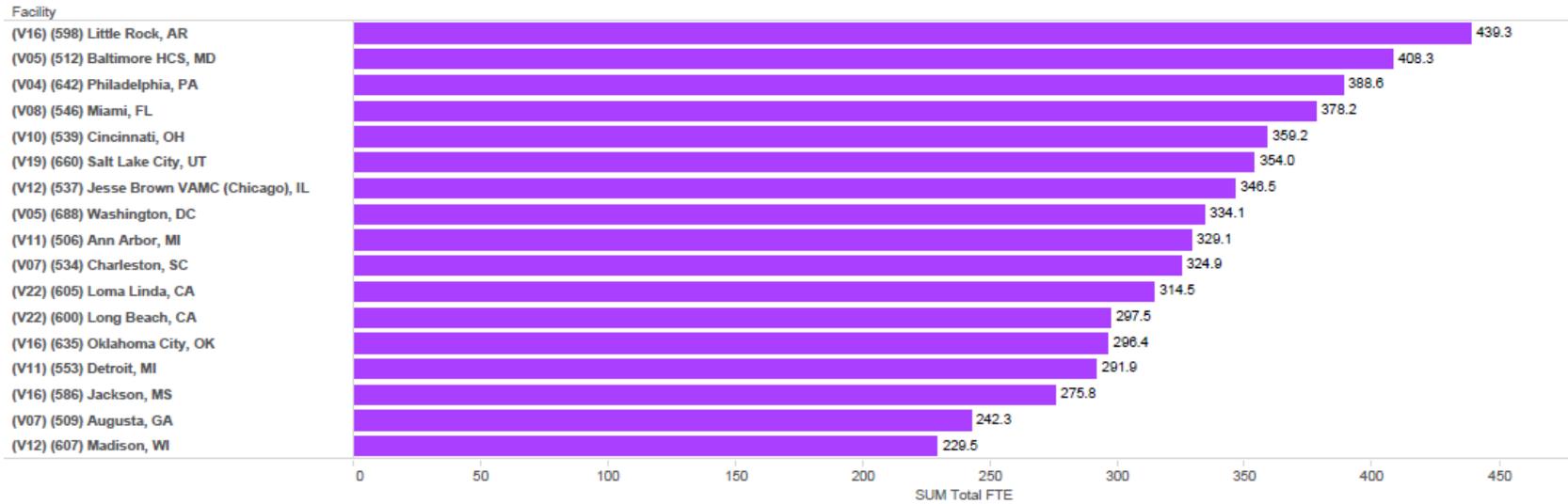
Facility	SUM Total FTE
(V16) (598) Little Rock, AR	439.3
(V05) (512) Baltimore HCS, MD	408.3
(V04) (642) Philadelphia, PA	388.6
(V08) (546) Miami, FL	378.2
(V10) (539) Cincinnati, OH	359.2
(V19) (660) Salt Lake City, UT	354.0
(V12) (537) Jesse Brown VAMC (Chicago), IL	346.5
(V05) (688) Washington, DC	334.1
(V11) (506) Ann Arbor, MI	329.1
(V07) (534) Charleston, SC	324.9
(V22) (605) Loma Linda, CA	314.5
(V22) (600) Long Beach, CA	297.5
(V16) (635) Oklahoma City, OK	296.4
(V11) (553) Detroit, MI	291.9
(V16) (586) Jackson, MS	275.8
(V07) (509) Augusta, GA	242.3
(V12) (607) Madison, WI	229.5

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[32] Assessment G team analysis of Provider Labor Detail FY14, provided by VHA OPES, April 9, 2015. Complexity level derived from VHA FY11 facility complexity level designations.

Figure 2-6. Total provider FTEs (Paid), by facility at level 1c facilities[33]
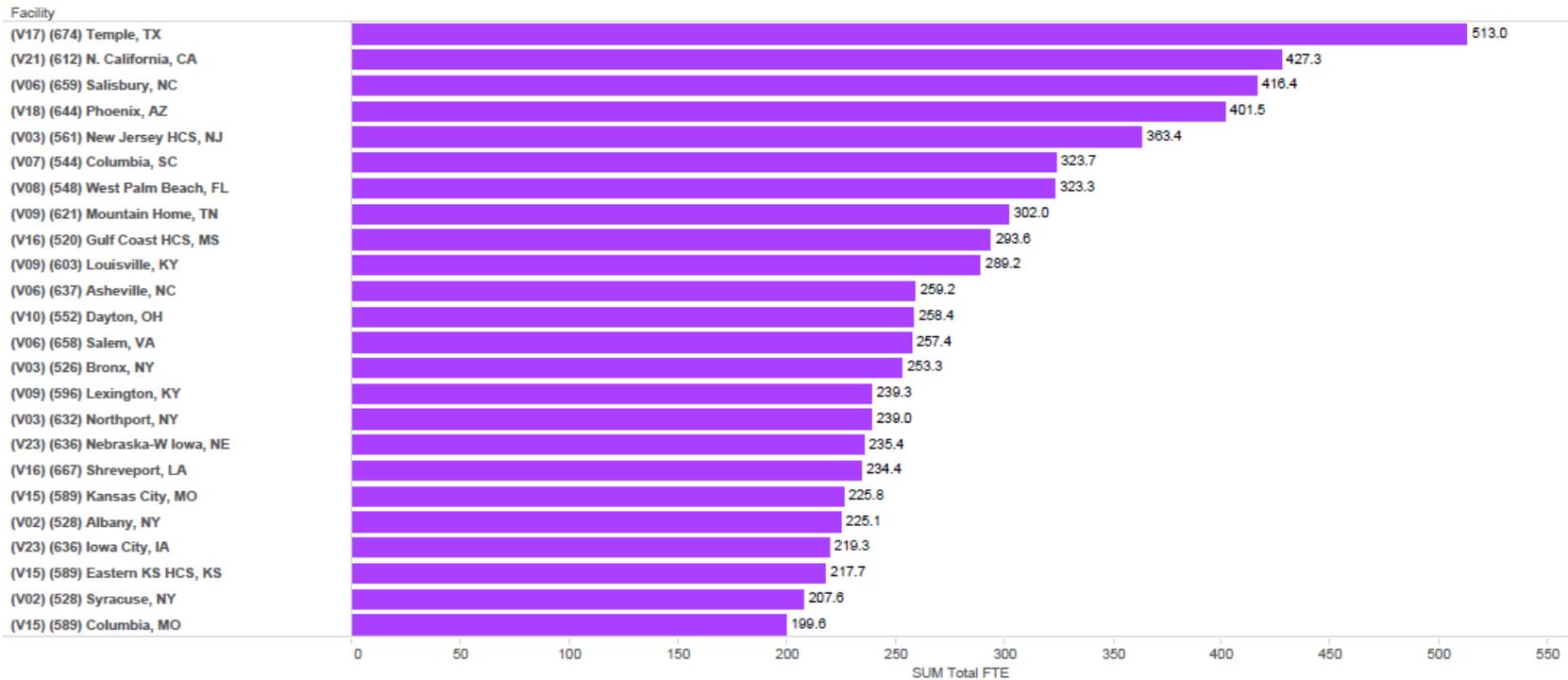
Facility	SUM Total FTE
(V17) (674) Temple, TX	513.0
(V21) (612) N. California, CA	427.3
(V06) (659) Salisbury, NC	416.4
(V18) (644) Phoenix, AZ	401.5
(V03) (561) New Jersey HCS, NJ	363.4
(V07) (544) Columbia, SC	323.7
(V08) (548) West Palm Beach, FL	323.3
(V09) (621) Mountain Home, TN	302.0
(V16) (520) Gulf Coast HCS, MS	293.6
(V09) (603) Louisville, KY	289.2
(V06) (637) Asheville, NC	259.2
(V10) (552) Dayton, OH	258.4
(V06) (658) Salem, VA	257.4
(V03) (526) Bronx, NY	253.3
(V09) (596) Lexington, KY	239.3
(V03) (632) Northport, NY	239.0
(V23) (636) Nebraska-W Iowa, NE	235.4
(V16) (667) Shreveport, LA	234.4
(V15) (589) Kansas City, MO	225.8
(V02) (528) Albany, NY	225.1
(V23) (636) Iowa City, IA	219.3
(V15) (589) Eastern KS HCS, KS	217.7
(V02) (528) Syracuse, NY	207.6
(V15) (589) Columbia, MO	199.6

[33] Assessment G team analysis of Provider Labor Detail FY14, provided by VHA OPES, April 9, 2015. Complexity level derived from VHA FY11 facility complexity level designations.

Figure 2-7. Total provider FTEs (Paid), by facility at level 2 facilities[34]

Facility

Facility	SUM Total FTE
(V08) (675) Orlando, FL	470.4
(V22) (593) Las Vegas, NV	315.0
(V06) (590) Hampton, VA	250.8
(V06) (565) Fayetteville, NC	245.6
(V15) (657) Marion, IL	232.6
(V01) (650) Providence, RI	223.3
(V01) (402) Togus, ME	212.3
(V16) (629) New Orleans, LA	207.8
(V16) (564) Fayetteville, AR	205.3
(V05) (613) Martinsburg, WV	197.9
(V04) (595) Lebanon, PA	196.3
(V23) (636) Central Iowa, IA	193.0
(V07) (619) Central Alabama Veterans HCS, AL	190.5
(V16) (623) Muskogee, OK	189.3
(V20) (531) Boise, ID	185.4
(V21) (654) Reno, NV	182.5
(V09) (581) Huntington, WV	178.7
(V11) (550) Danville, IL	177.2
(V11) (610) Northern Indiana HCS, IN	174.5
(V04) (693) Wilkes-Barre, PA	173.2
(V15) (589) Wichita, KS	166.8
(V19) (436) Montana HCS	165.0
(V10) (538) Chillicothe, OH	164.6
(V21) (570) Fresno, CA	152.5
(V01) (405) White River Junction, VT	150.5
(V23) (437) Fargo, ND	147.5
(V04) (460) Wilmington, DE	139.0
(V23) (438) Sioux Falls, SD	131.7
(V18) (504) Amarillo, TX	118.5
(V04) (540) Clarksburg, WV	109.2
(V19) (442) Cheyenne, WY	91.9
(V19) (575) Grand Junction, CO	78.9

SUM Total FTE

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[34] Assessment G team analysis of Provider Labor Detail FY14, provided by VHA OPES, April 9, 2015. Complexity level derived from VHA FY11 facility complexity level designations.

The views, opinions, and/or findings contained in this report are those of Grant Thornton and should not be construed as an official government position, policy, or decision.

Figure 2-8. Total provider FTEs (Paid), by facility at level 3 facilities[35]
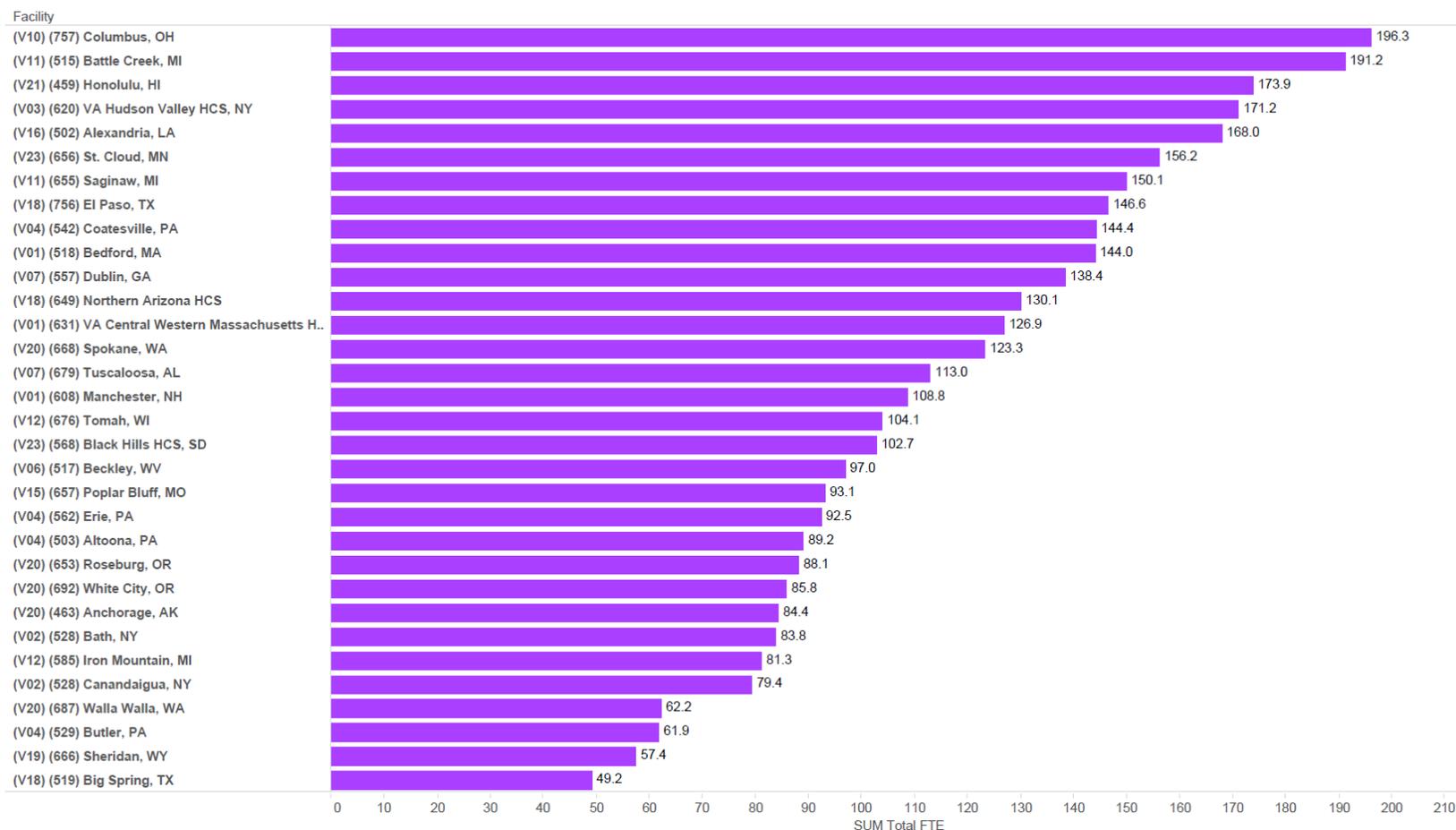
2.2.5 VHA dental staffing reflects unique Veteran needs for sub-specialists

The goal of VHA Dental Services is to provide high quality, cost-effective and evidence-based dental treatment to eligible Veterans.[36] The majority of Veterans are not eligible for dental care; however, of the 1.7 million Veterans who are, approximately 450,000 unique Veterans receive dental care each year from the approximately 818 dental Worked FTEs employed at VA medical centers across the country.[37] Staffing in VHA dental clinics includes dentists and dental subspecialists (general dentistry, oral and maxillofacial pathology, radiology surgery, endodontics, periodontics, and prosthodontics). Dental hygienists, dental assistants, and dental laboratory technicians provide essential support in operating VHA dental clinics.

Many dental specialists are employed on a part-time basis, with the average specialist in FY 2014 being employed as a 0.55 total FTE per VHA staffing and productivity data provided by VHA. This is not surprising given the low number of patients served and spread across the country. Most major facilities offer dental care,[38] though the demand at any given facility may not be high enough to warrant a full time dental specialist provider.

Comparisons between VHA staffing levels and private industry are difficult to model accurately. There is not a well-aligned published comparison group considering the unique dental population of VHA as well as the heavy inclusion of teaching and residency programs. However, it is possible to draw some comparisons to private industry while keeping these limitations in mind.

- In examining the breakout of specialists within the dental workforce, VHA has a higher proportion of specialists compared to industry norms (25 percent of VHA dental workforce compared to 18 percent of the private sector workforce, according to ADA data).

- Correspondingly, VHA's general practice dentists make up 75 percent of their workforce, compared to the private sector where general practice providers make up closer to 82 percent.[39]

- When examining specific specialties, VHA staffs a significantly higher proportion of prosthodontists compared to the proportion seen in the private workforce. In the private sector, there is a larger proportion of orthodontists in the community vs. the proportion staffed at VHA. This corresponds with the differences in the patient populations – VHA patients are generally older, and possibly possess combat related injuries, versus a private sector population that includes children (with a higher demand for orthodontics, for example), and adults seeking cosmetic dental services.

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[36] U.S. Department of Veterans Affairs. (2013). *VHA Handbook 1130.01*, Veterans Health Administration Dental Program. p1. Retrieved from http://www.va.gov/VHAPUBLICATIONS/ViewPublication.asp?pub_ID=2867

[37] Interview with VHA Dental Program, December 30, 2014 and January 5, 2015.

[38] Ibid.

[39] ADA. (2010). 2010 American Dental Association Survey of Dental Practices: Characteristics of Dentists in Their Private Practices and Their Patients. p36. Retrieved from http://www.ada.org/en/publications

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Otherwise, the overall breakdown of the specialist work force to total workforce is comparable between VHA and the community. In Figure 2-1 we display overall FTE and clinical FTE figures per VHA specialty, and in Figure 2-9 we show this comparison between VHA dental providers and private sector providers (comparison data comes from the ADA).[40]

Table 2-3. FY14 Dental Worked FTE levels[41]

	VHA Dental Specialty	Total FTEs	Clinical FTEs
1	Dental Public Health	6	5
2	Endodontics	10	9
	General Practice*	610	525
3	Oral and Maxillofacial Pathology	5	5
4	Oral and Maxillofacial Radiology	2	1
5	Oral and Maxillofacial Surgery	52	44
6	Orthodontics and Dentofacial Orthopedics	3	2
7	Periodontics	41	33
8	Prosthodontics	83	72
9	Oral and Maxillofacial Surgery – OMFS	6	5
	Total	**818**	**701**

"Dentists – General Practice" and "Dentists – Not Specified" from our VHA data set were combined into a single "General Practice" category since they both represented non-specialty care Dentists.

Each specialty total FTE and clinical FTE are rounded to the nearest whole FTE. Totals may not add up perfectly due to rounding. FTE calculations based on worked hours.

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[40] Ibid.

[41] Analysis of aggregate data on Dental FTEEs for FY14, 201G_FY14Aggregate Dentist.xls, provided by VHA Office of Dentistry, April 13, 2015.

Figure 2-9. Dental specialty staffing comparison between private sector and VHA[42]

The views, opinions, and/or findings contained in this report are those of Grant Thornton should not be construed as an official government position, policy, or decision.

2.2.6 VHA physician staffing per population is lower than industry (Finding 3)

VHA physician staffing levels per population are, in most specialties, lower than industry ratios. These ratios are not sufficient to establish whether VHA is staffed to meet demand. One factor to consider is that even industry physician supply is not sufficient to meet demand in many specialties. Another factor to consider is that VHA uses APPs extensively, but APPs are not included in industry ratios.

The physician to population analysis using the Truven Health Analytics Report and VHA Physician FTE per enrollee indicates that VHA is marginally understaffed compared to the private sector. Furthermore, Truven data on physician demand indicate that the private sector is understaffed to meet its demand in 12 out of 34 specialties – in other words, even the private sector supply, in several specialties, are not sufficient to meet demand.[43] Comparisons presented in this section should not be used as an indicator of appropriateness or ability to meet demand, as we did not assess the demand for physicians in VHA. Additionally, physicians are only part of the provider workforce. We did not include the other key members of the provider workforce, APPs, because there is no comparison data set, and because VHA uses APPs extensively (they make up more than 20 percent of the total provider workforce, when social workers are excluded).[44]

We compared the ratio of VHA's employed physicians (using paid physician staffing levels from FY 2014) and the Veteran enrollee population to the physician supply (FTE) from the Truven Health Analytics report,[45] based on robust internal Truven physician FTE supply databases from 2014. The Truven supply is calculated as the number of practicing physicians by zip code, specialty and site of service. The supply was then aggregated to the national level and divided per 100,000 population.[46] Providers known to be assigned to VAMCs were removed from the Truven FTE supply. Future analyses may consider comparing VHA ratios at the zip code level as well, since it may reveal geographic (for example, urban versus rural) patterns of under- or over-staffing. Initially we considered several other published physician to population ratios; since the Truven data was most recent, we analyzed VHA against it rather than the others (additional detail is found in the methodology on other ratios reviewed).

The Truven ratio is calculated as the supply of physicians relative to 100,000 population per specialty (using 2014 data). The VHA ratio is calculated as the number of physician FTE to the 2014 Veteran enrollee population (total enrollees is 9,111,955)[47] per specialty. We applied the Truven ratios to the VHA enrollee population using a multiplier to calculate a Truven

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[43] Truven Health Analytics Population Planning Data Module, February 2015. © 2015 Truven Health Analytics Inc.

[44] Assessment G team analysis of VHA Provider FTE data, see Section 2.2.2 for additional detail.

[45] Truven Health Analytics Population Planning Data Module, February 2015. © 2015 Truven Health Analytics Inc.

[46] Truven Health Analytics acquires all of its demographic data from The Nielsen Company including 2010, 2014, and 2019 statistics for every ZIP Code in the United States. Nielsen bases their estimates on products of the United States Census Bureau, including the 2010 Census Summary File 1 (SF1).

[47] Bagalman, Erin. (2014) The Number of Veterans That Use VA Health Care Services: A Fact Sheet. p3. Congressional Research Service. Retrieved from https://www.fas.org/sgp/crs/misc/R43579.pdf

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'recommended providers' quantity. We subtracted the VHA physician FTE supply levels from the recommended Truven provider quantity and analyzed the differences. With the exception of Internal Medicine and Psychiatry, VHA exhibited lower physician ratios than the Truven industry ratios of physicians per the US population. Figure 2-10 shows the difference in the benchmarked ratio between VHA physician staffing and the Truven Health Analytics ratio per specialty. Of note, since these data exclude non-labor mapped providers (for example, contract or fee-based providers), some of these ratios may not reflect a complete staffing picture where there is a greater presence of contract or fee-based providers.

Figure 2-10. Difference between VHA physician staffing and Truven Health Analytics ratio[48]

Specialty	VHA FTEs	Difference
Allergy and Immunology	33.22	-95
Cardiology	590.05	-191
Critical Care / Pulmonary Disease	481.47	-860
Dermatology	171.03	-198
Emergency Medicine	548.34	-793
Gastroenterology	422.27	-1
General Surgery	517.36	-383
Hematology-Oncology	333.20	-123
Internal Medicine	5,720.67	2,154
Nephrology	274.91	5
Neurology	497.99	18
Obstetrics & Gynecology	77.56	-1,223
Ophthalmology	332.03	-265
Orthopaedic Surgery	307.39	-532
Otolaryngology	155.41	-180
Plastic Surgery	79.22	-143
Psychiatry	2,543.12	1,120
Rheumatology	152.21	-2
Urology	261.14	-75

VA FTE - Truven Recommended Providers

We also note the several key observations from this analysis:

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[48] Assessment G analysis of Provider Labor Detail FY14, provided by VHA OPES, April 9, 2015 (for provider FTE); Bagalman, Erin. (2014) The Number of Veterans That Use VA Health Care Services: A Fact Sheet. p3. Congressional Research Service. Retrieved from https://www.fas.org/sgp/crs/misc/R43579.pdf (for VHA enrollee population); and Truven Health Analytics Population Planning Data Module, February 2015. © 2015 Truven Health Analytics Inc. (for comparison benchmark).

- Notably, VHA has significantly more physicians per population in internal medicine and psychiatry. This is expected given VHA's care model and population needs; internal medicine includes primary care providers, and VHA has a population health focused care model which promotes access to Primary Care and therefore Internal Medicine providers (this high number of primary care providers is also seen in the section above on staffing levels). VHA also makes considerable effort to respond to their mental health patients as quickly as possible. In many facilities, this effort translates into guaranteed appointments for walk-ins seeking mental health care.[49] A small proportion of total wRVUs generated in psychiatry are generated by contract and fee-based providers, or others without a labor mapping (who are not included in the total count of provider FTE in this comparison); therefore, their impact would be low.

- On the lower ratio end, our team expected and confirmed that VHA has fewer obstetricians and gynecological physicians than industry recommendations, attributable largely to the smaller proportion of women to men in the VHA Enrollee population. According to the RAND Assessment A (demographics) analysis. More than 93 percent of Veterans are men compared with 40.5 percent of civilians, per the Medical Expenditure Panel Survey.[50] Since 11.5 percent of total obstetrics and gynecology wRVUs are generated by contract and fee-based providers, it is possible that this also makes the VA physician supply appear lower.

- Figure 2-10 also shows that the ratio of VHA emergency medicine physicians per 100,000 enrollees appears to be significantly lower than the Truven ratio. The Assessment G team believes this may be due to a higher proportion of fee-based and other non-labor mapped physicians (who are excluded from this analysis) supporting VHA's emergency departments; in other words, in this particular specialty, the ratio below does not comprehensively capture the true staffing ratio due to fee-based providers making up a more significant part of the care delivery team in emergency departments (see Section 2.2.3). More specifically, more than 29 percent of all wRVUs generated by emergency medicine providers are generated by contract or fee-based providers.

- The higher proportion of fee-based and other non-labor mapped physicians employed in the VHA specialties of orthopedic surgery, ophthalmology, dermatology and allergy and immunology may also account for lower ratios of these physicians compared with the Truven benchmark.

Our charge was to assess how VHA compares to the private sector on staffing, rather than to assess whether physician supply is sufficient to meet patient demand. As we note above, these ratios are not sufficient to establish whether VHA is staffed to meet demand. More specifically, there are several limitations of making these types of comparisons for the purpose of assessing supply adequacy:

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[49] Observational data gathered from site visits.

[50] Rand Corporation. (2015). Veterans Choice Act Assessment A Final Report.

- The Veteran population is not similar to the general civilian population; Veterans have different (and sometimes unique) health needs due to differences in demographic composition, military experiences, preexisting health conditions, and health behaviors.[51] As such, there is no single population or benchmark data set comparable to Veteran enrollees seeking care from VAMCs.

- The comparisons we made do not consider geographic differences, since we could only report data aggregated nationally; a more in depth study would need to consider local demand and demographic shifting patterns to reflect where demand is.

- Making such comparisons is further complicated by the complexity in measuring demand for services (VHA is a "leaky" system - the majority of Veteran enrolled users of VA medical care seek care outside the system), and the recent implementation of the Choice Card Program, which allows Veterans even greater access to care outside VHA, makes it difficult to tie a population to a medical center or particular region to calculate more specific ratios which tie patients to the specific providers who may treat them. This is further detailed in Section 2.1.

- Additionally, there is no single benchmark data set that comprehensively captures the full provider workforce; available provider staffing ratios tend only to include physicians. Considering that APPs make up 20 percent of the total provider population at VHA (excluding social workers), this is a limitation of these comparisons. Fee-based providers also cannot be quantified as part of the comparison, even though they serve as key members of the provider workforce within VHA and produce nine percent of the workload. Lastly, available benchmark physician to population ratios are all relatively dated and may not reflect the current needs of populations.

We recommend that VHA consider improvements to its current demand forecasting capabilities (See Assessment A), as well as to data that more comprehensively reflects the true supply of the provider workforce. With accurate, real time data on both the supply and demand, VHA would be able to understand whether its current staffing is appropriate for the population it seeks to serve. We also recommend that rather than comparing to dissimilar civilian populations by using private sector ratios which only illustrate a comparison, VHA and Congress should focus on comparing VHA demand to VHA supply using analytic models to determine whether staffing is appropriate to meet demand.

2.2.7 VHA struggles to fill provider vacancies

VHA is struggling to fill its provider vacancies. Provider shortages, in some specialties are a nationwide challenge that many health care systems are currently grappling with, making for an even more competitive provider hiring landscape. To add to the challenge, VHA has lengthy

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[51] For additional information on this topic, please see the Veterans Choice Act Assessment A Final Report, conducted by the RAND Corporation.

hiring processes and offers potential candidates a lower earning potential, further limiting competitiveness for top talent in the marketplace.

As of January 6, 2015, VHA had 16,995 vacancies, to include providers and clinical support staff-that have been open for over 180 days. (Section 301 report, p. 9)[52] As described by McKinsey & Company in the Assessment F report, VHA's vacancy rates are generally higher than their private sector benchmarks, ranging from less than a 3 percent difference for physicians and nurses, to a 9 percent difference for pharmacists.[53] Some VISNs have fewer than 300 vacancies, while other VISNs had over 1,000 vacancies.[54] The number of provider vacancies is even more compelling. In some VISNs, the number of provider staff vacancies is equivalent to 25 percent of providers in the facility.[55] In fiscal year 2014, 24 percent of total VHA vacancies were for providers (excluding nurse practitioners and nurse midwives).[56] VHA has conducted hiring surges to fill specific vacancies. In 2012, President Barack Obama signed an executive order to increase VHA mental health providers and support staff to fill 2,000 vacancies. Following the conclusion of the initiative, over 4,000 mental health providers were hired.[57]

> *"We need additional providers; we are currently treading water; we are utilizing residents and fee-based providers from the academic affiliate to plug in where there are gaps in staff coverage."* – VAMC Physician

Despite the success of this initiative, VHA continues to struggle to fill vacancies. Overall provider shortages, coupled with burdensome hiring processes, and lower earning potential increase VHA's challenge.

2.2.8   Provider shortages nationwide

The Assessment G team found that physician staffing levels per population are, in most specialties, lower than industry ratios. We frequently heard on our site visits about challenges in staffing to meet demand. Insufficient provider staff in specialty care, primary care, and mental health, can result in patient care delays, over reliance on fee-based providers, disruption to the population health care model, and inefficient clinic operations as too few providers attempt to cover all consults.

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[52] Onboard FTE and Turnover by Facility FY14_Data Request N333.xlsx, provided by VHA.

[53] McKinsey & Co. (2015). Veterans Choice Act Assessment F Final Report.

[54] U.S. Department of Veterans Affairs, Veterans Health Administration. (2015). Veterans Access, Choice and Accountability Act Section 301: A Report Assessing the Staffing Needs of Each Medical Facility within the Department of Veterans Affairs.

[55] U.S. Veterans Health Administration. Onboard FTE and Turnover by Facility FY14, VHA Vacancies by Occupation.

[56] Ibid.

[57] U.S. Department of Veterans Affairs. (2014) 2014 Work Force Succession Strategic Plan. Retrieved from http://www.vacareers.va.gov/assets/common/print/2014_VHA_Workforce_Succession_Strategic_Plan_EBook.pdf.

Nation-wide provider shortages in some specialties mean that the challenge VA medical centers face in having enough staff is not unique to VHA. In fact, many specialties in the U.S. have high wait times and poor access as a result of workforces shortages, especially in certain markets; in a 2013 survey, the average cumulative wait time to see a physician for five specialties in 15 markets was 18.5 days, with higher averages in certain specialties for example 28.8 days for dermatology.[58] Further, the number of unfilled provider positions in the U.S. nationwide is projected to grow between 2013 and 2025, based on predicted supply and demand.

Some of these national challenges are outlined in a March 2015 report by the economic modeling and forecasting firm IHS Inc.[59] The physician shortage will persist under every likely scenario that IHS Inc. considered, including increased use of advanced practice nurses (APRNs); greater use of alternate settings such as retail clinics; delayed physician retirement; rapid changes in payment and delivery, for example, accountable care organizations (ACOs) and bundled payments. Addressing the shortage will require a multi-pronged approach that requires innovation in delivery; greater use of technology; improved, efficient use of all health professionals on the care team; and an increase in federal support for residency training. The study's results confirm that no single solution will be sufficient on its own to resolve physician shortages. Because physician training can take up to a decade, a physician shortage in 2025 is a problem that needs to be addressed in 2015. Figure 2-11 presents several of the challenges outlined in the IHS report.

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[58] Merritt Hawkins. (2014). Physician Appointment Wait Times and Medicaid and Medicare Acceptance Rates, 2014 Survey. Retrieved from
http://www.merritthawkins.com/uploadedFiles/MerrittHawkings/Surveys/mha2014waitsurvPDF.pdf

[59] Association of American Medical Colleges. The Complexities of Physician Supply and Demand: Projections from 2013 to 2025. Retrieved from
https://www.aamc.org/download/426260/data/physiciansupplyanddemandthrough2025keyfindings.pdf

Figure 2-11. Physician shortage predictions[60]
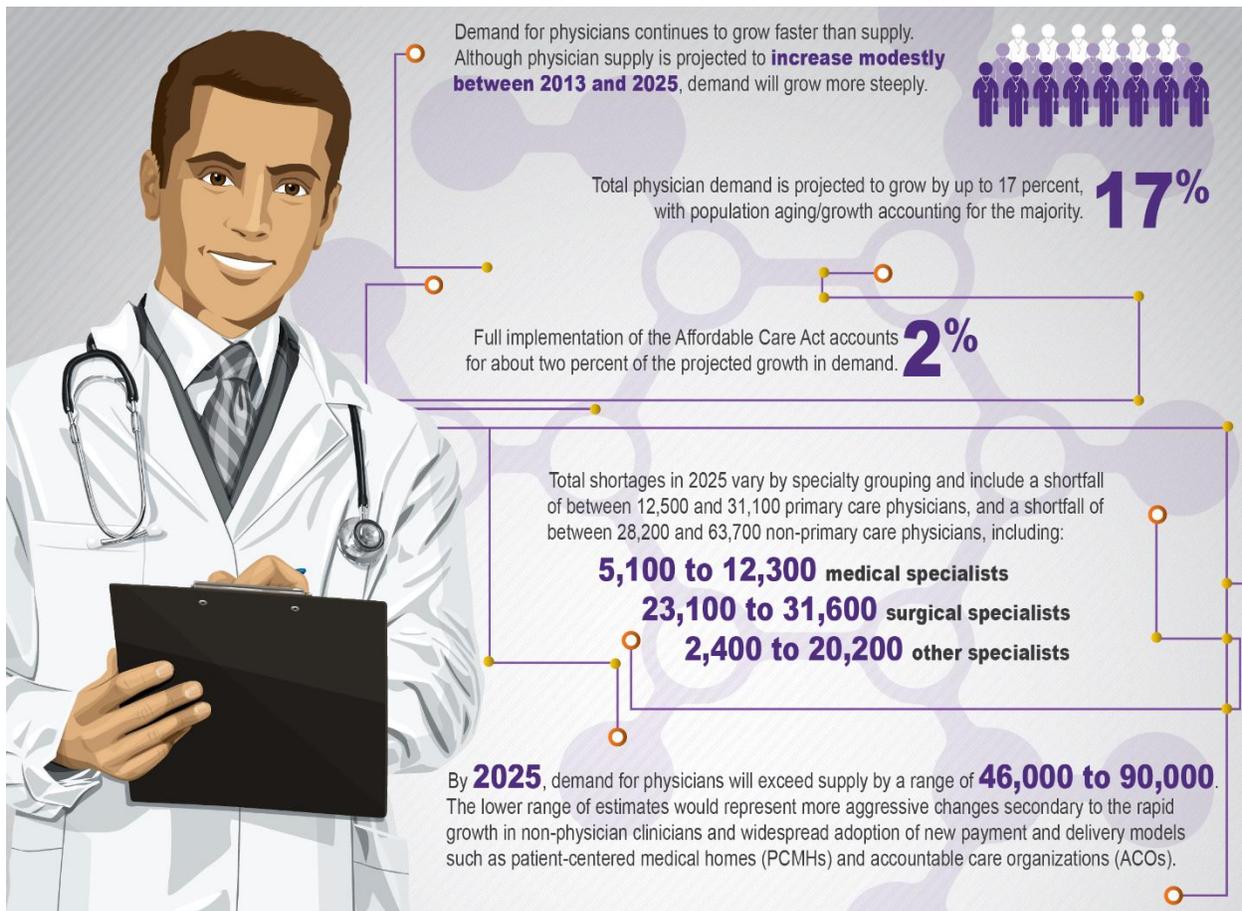
Because we did not study VHA future demand projections in relation to supply, we cannot definitively quantify the potential impact of the physician shortage on Veteran access to care. Yet, the IHS findings, particularly when taken in combination with the findings of the previously presented comparison of VHA and private sector physician supply per population ratios, and staffing challenges reported by VAMC leaders on our site visits, illustrate the challenging context in which VHA is operating.

In the following section, we describe some of the specific challenges that VHA faces in ensuring that it has sufficient providers to meet demand; namely, lengthy hiring processes and non-competitive compensation, each of which can contribute to provider shortages in VA medical centers.

2.2.9 Lengthy hiring processes may contribute to provider shortages

VHA's role as a government-administered health system creates unique challenges which other private sector health systems do not typically face. To fulfill its mission, VHA must hire large

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[60] Association of American Medical Colleges. The Complexities of Physician Supply and Demand: Projections from 2013 to 2025. Retrieved from https://www.aamc.org/download/428622/data/20150401_projbriefingbio.pdf

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numbers of clinicians while simultaneously abiding by federal personnel regulations and statutes. These requirements, among others, lead to lengthy hiring processes, which are often cited by VAMC staff as a significant challenge in recruiting providers and providing timely care to Veterans. In response to section 203 of the Veterans Choice Act, a Northern Virginia Technology Council report stated, "From General Schedule (GS)-5 clerks to senior clinicians, the hiring of needed staff proceeds too slowly. The causes are complex, but much of the delay can be traced to redundant, inconsistent, and inefficient hiring processes."(NVTC, p.12)[61]

> "*Recruitment for vacancies are challenging; Recruitment takes approximately 4 months, including USAjobs.gov posting, requirement to post as internal position for 14 days, 5 days to close CERT, manager subsequently reviews for 5 days – only after this is the position reposted as an external position; Because of the delays and lengthy timing, this facility is not competitive for new graduates.*" – VAMC Senior leader

VHA does not have an enterprise position management system, which limits the organization's ability to provide quantitative data surrounding the length of the hiring process; however the Assessment G team consistently heard from VHA employees that it can take several months.[62] The McKinsey & Company Assessment F team conducted a more in depth review of the hiring process and timeline, finding that VHA's hiring timeline spans 4-8 months while a typical private sector organization hires staff between 0.5 and 2 months. The Assessment G team notes that the major drivers of the extended VHA hiring time are the human resources (HR) certification process of the applicant's credentials, and the VetPro background check.[63]

> "*Recruiting into the VA is challenging - we don't do a good job of advertising and reaching out for provider recruitment. Using USAjobs for recruitment? That is not how recruitment is done in the private sector.*" – VAMC Service Line Chief
>
> "*The HR process is incredibly slow, which includes the hiring process; It can take up to six months after selection of a new hire for the hire to actually step foot in a VA facility; This drives away many candidate*s." – VAMC Service Line Chief

Provider and support staff recruitment and hiring challenges were echoed consistently by multiple staff and virtually all medical centers visited by the Assessment G team. VHA is actively taking steps to improve the timeliness of filling vacancies, many of which VHA outlined in its

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[61] Northern Virginia Technology Council. (2014). Opportunities to Improve the Scheduling of Medical Exams for America's Veterans: A Report Based On a Review of VA's Scheduling Practices by the Northern Virginia Technology Council (NVTC) Retrieved from http://www.va.gov/opa/choiceact/documents/NVTCFinalReporttoVA-revised3.pdf

[62] As reported during Assessment G site visit interviews.

[63] McKinsey & Co. (2015). Veterans Choice Act Assessment F Final Report

Section 301 response to the Veterans Choice Act,[64] submitted to Congress earlier this year. These efforts include recruitment, retention, and compensation planning efforts, such as:

- Increasing entrance survey participation among new employees and encourage facilities to improve recruitment planning based on findings[65]

- Leveraging the National Recruitment Program to recruit clinical and executive positions via private sector recruiting best practices[66]

- Implementing Pathways Internship Program to increase the pipeline of candidates to VHA's workforce[67]

- Conducting and analyzing the results of exit surveys to improve retention programs[68]

- Utilizing the Education Debt Reeducation and Student Loan Repayment Program[69] to recruit highly skilled employees

- Providing the MyCareer@VA portal to offer long-term career growth tools and development to current VHA employees

- Increasing pay ranges for physicians and dentists who provide direct patient care[70]

- Leverage the Physician and Dentist Steering Committee to develop recommendations for each specialty's pay ranges

The Assessment G site visit teams heard positive feedback on a number of these recruitment and retention programs, as well as indicators of gaps where these programs could be expanded. Specifically, a VAMC service chief suggested that the debt reduction programs were a positive incentive for recruiting both physicians and mid-level providers at his facility. Another VAMC section chief praised the debt reduction programs as a helpful recruitment tool to compensate for the pay disparity between VHA physicians and those in the private sector. The team also heard suggestions for how these programs could be expanded, and suggestions for

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[64] U.S. Department of Veterans Affairs, Veterans Health Administration. (2015). Veterans Access, Choice and Accountability Act Section 301: A Report Assessing the Staffing Needs of Each Medical Facility within the Department of Veterans Affairs

[65] Veterans Health Administration. (2014). Interim Workforce and Succession Strategic Plan. Retrieved from http://www.vacareers.va.gov/assets/common/print/2014_VHA_Workforce_Succession_Strategic_Plan_EBook.pdf

[66] U.S. Department of Veterans Affairs, Veterans Health Administration. (2015). Veterans Access, Choice and Accountability Act Section 301: A Report Assessing the Staffing Needs of Each Medical Facility within the Department of Veterans Affairs

[67] U.S. Department of Veterans Affairs. (2014) 2014 Work Force Succession Strategic Plan. Retrieved from http://www.vacareers.va.gov/assets/common/print/2014_VHA_Workforce_Succession_Strategic_Plan_EBook.pdf.

[68] Ibid.

[69] U.S. Department of Veterans Affairs, Veterans Health Administration. (2015). Veterans Access, Choice and Accountability Act Section 301: A Report Assessing the Staffing Needs of Each Medical Facility within the Department of Veterans Affairs.

[70] U.S. Department of Veterans Affairs. (2014) 2014 Work Force Succession Strategic Plan. Retrieved from http://www.vacareers.va.gov/assets/common/print/2014_VHA_Workforce_Succession_Strategic_Plan_EBook.pdf.

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improving programs. With respect to areas where VHA should focus in the future, a member of a VAMC leadership team specified that career fulfillment is an essential element in maintaining provider and staff morale, and an area VHA should try to improve.

2.2.10 Less competitive pay may contribute to provider shortages

Provider earning potential for VHA providers is significantly lower for VHA providers than the private sector. While VHA offers, in many cases, greater work life balance, and unique opportunities for research, teaching, and the opportunity to serve a formidable mission to care for our nation's Veterans, the lower salaries may reduce VHA's competitive edge in the marketplace when trying to attract top provider talent.

The Department of Veterans Affairs Health Care Personnel Enhancement Act of 2004 (Pub. L.108-445) established provisions for a new pay system for VHA physicians and dentists consisting of base pay, market pay, and performance pay. The base pay component is set by statute, while market pay is intended to reflect the recruitment and retention needs for the specialty or assignment of a particular physician or dentist at a facility. Performance pay is intended to recognize achievement of specific goals and performance objectives prescribed annually. With the passage of this law, lawmakers set to establish a pay system driven by both market indicators and employee performance, while recognizing employee tenure in VHA.

In accordance with 38 U.S.C. 7431€(I)(A), the Secretary must prescribe Department-wide minimum and maximum amounts of annual pay for physicians and dentists. Further, 38 U.S.C. 7431€(I)(B) allows for the prescription of separate minimum and maximum amounts by specialty designation or assignment.[71] Specific goals and performance objectives, as they pertain to performance pay, are generally developed at the local level. They cover a wide range of categories including research achievements, reduction in wait times, and patient satisfaction. At the conclusion of the fiscal year, the provider's supervisor evaluates the extent to which each goal was demonstrated or achieved by the individual. If performance pay is granted to the provider, it cannot exceed $15,000 or 7.5 percent of his or her salary, whichever is lower.[72]

The most recent update to the annual pay ranges tables was completed in November 2014. As part of the update, VHA identified and utilized survey data from the Association of American Medical Colleges (AAMC), Hospital and Health care Compensation Service, Sullivan, Cotter, and Associates, MGMA, Physician Executive Management Center, and the Survey of Dental Practice published by the ADA. VHA collectively utilized these surveys as benchmarks from which to prescribe annual pay ranges for physicians and dentists across the scope of assignments/specialties within VHA. While aggregating the data, VHA more heavily weighted

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[71] U.S. Department of Veterans Affairs. (2014). Notice: Annual Pay Ranges for Physicians and Dentists of the Veterans Health Administration. Retrieved from https://www.federalregister.gov/articles/2014/09/18/2014-22187/annual-pay-ranges-for-physicians-and-dentists-of-the-veterans-health-administration

[72] U.S. Department of Veterans Affairs. (2014). VA Handbook 5007/47. Retrieved from http://www1.va.gov/vapubs/viewPublication.asp?Pub_ID=739&FType=2

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those surveys which most directly resembled the environment of VHA.[73] In the recent update, some physician and dentist specialty grouping pay tables increased by $20,000 to $35,000 annually. There was no change to pay tables for physicians serving in leadership roles, such as a Veteran Integrated Service Network (VISN) or VAMC Director.[74]

Despite these adjustments, VHA still falls far below the average provider salary ranges for many specialties relative to the industry. Figure 2-12 shows the difference between the VHA-approved physician pay ranges[75] and the MGMA Physician Compensation and Production Survey, which includes average physician salaries, for a subset of specialties. We compared the top salary tier for VHA providers against the MGMA surveyed 90th percentile salaries in dark purple. The figure shows the lowest salary tier for VHA providers against the MGMA surveyed 10th percentile salaries in light pink. A value of zero indicates no difference between VHA top and bottom tier salaries and the private sector. Dark purple peaks below zero highlight the earning potential gap for VHA providers. This graphic does not depict observed top salaries of VHA providers against private sector providers, but offers insight into the earning potential gap between VHA and private sector.

In analyzing the differences in salaries, our team concluded that VHA is often able to provide physicians an entry salary industry comparable or better to industry, but that VHA physicians' earning potential is dramatically below those of their private sector peers. At the top of the salary ranges, VHA providers made less than their counter parts by up to $310,000 and on average, $74,631. The only specialties where VHA physicians made equal to or more than industry averages were anesthesiology, nephrology, ophthalmology, and psychiatry. To see a table with all specialties, please reference Appendix A.

To address staffing shortages, section 301 of the Veterans Choice Act also allows for increased recruitment and appointment of providers.[76] The inability to provide competitive salaries has resulted in difficulties in recruiting these positions, specifically in areas with a high number of outside health care systems, which may decrease Veterans' access to care. VA facilities have come up with creative ways to get around this barrier, most predominantly, using part-time providers or fee-based providers. Providers may be offered more research and teaching time, and/or a dual-affiliation with a neighboring institution to help attract candidates.

Based on site visit interviews and data reviewed, and notwithstanding the fact that many providers choose to work at VHA because of the important mission and culture, compensation

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[73]U.S. Department of Veterans Affairs. (2014). VA Handbook 5007/47. Retrieved from http://www1.va.gov/vapubs/viewPublication.asp?Pub_ID=739&FType=2.

[74] U.S. Department of Veterans Affairs, Veterans Health Administration. (2015). Veterans Access, Choice and Accountability Act Section 301: A Report Assessing the Staffing Needs of Each Medical Facility within the Department of Veterans Affairs.

[75] Assessment G analysis of data from VHA pay tables available at http://www.va.gov/OHRM/Pay/PhysicianDentist/FinalAnnualPayRanges_20150111.pdf and data from MGMA. (2013). Physician Compensation and Production Survey: 2014 Report Based on 2013 Data.

[76] U.S. Department of Veterans Affairs, Veterans Health Administration. (2015). Veterans Access, Choice and Accountability Act Section 301: A Report Assessing the Staffing Needs of Each Medical Facility within the Department of Veterans Affairs.

does seem to be a factor which should be further examined by Congress and VA leadership to understand how much of an impact it has on provider recruitment and retention.

Figure 2-12. VHA provider salary comparison to MGMA
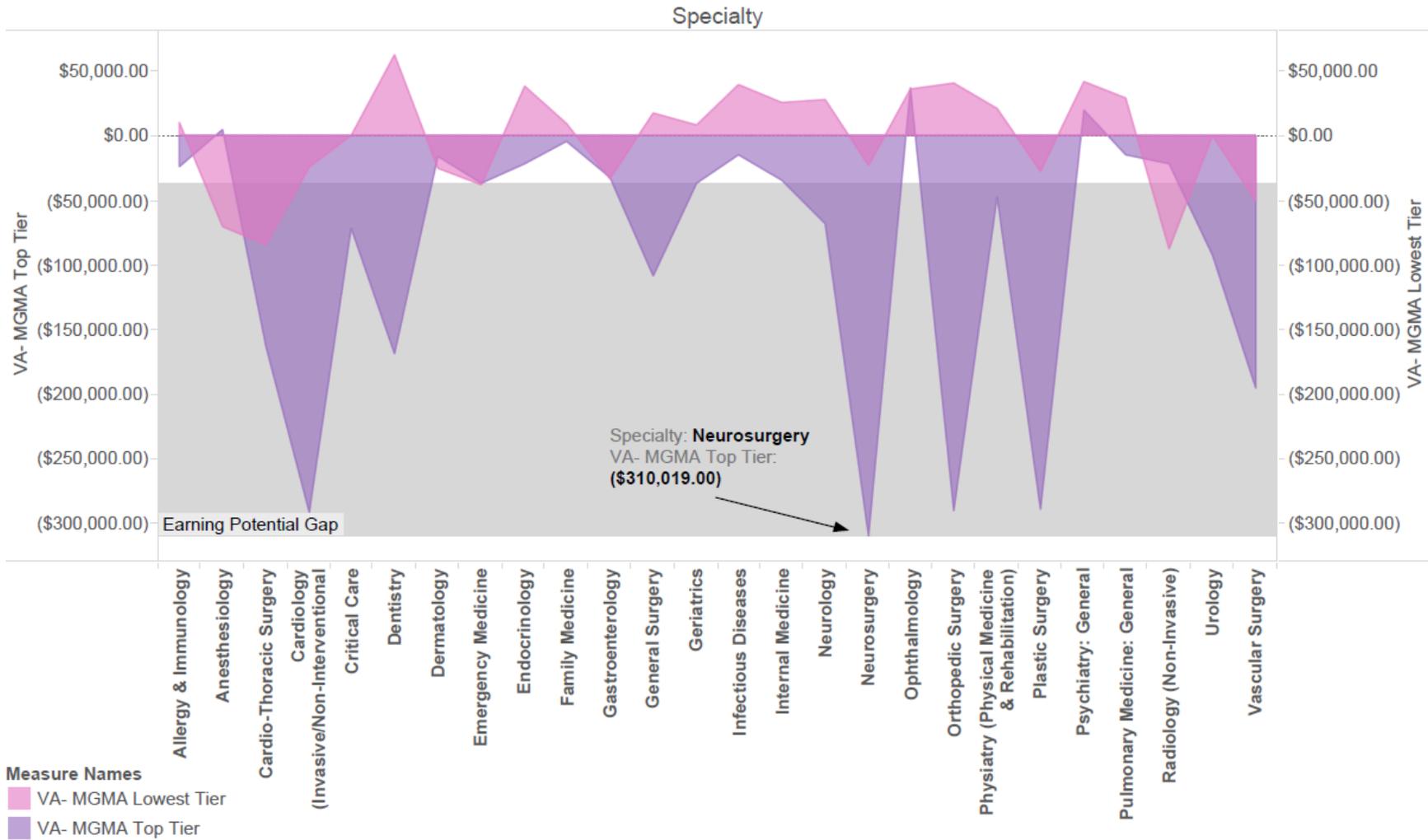
2.3 Provider Productivity (Objective 2)

Comparing the productivity of VHA providers to the private sector requires an understanding of available productivity measures, the limitations of each, available benchmark surveys, and the comparability of benchmark data. Below we summarize productivity measurement in the health care setting, how it is applied as a performance measure, and the use of benchmark data sets.

2.3.1 Productivity measurement is associated with reimbursement

Productivity is a measure of the output, for example, procedures or tests, that can be produced given a certain combination of inputs (number of professional minutes/hours and supplies/resources). Typically, productivity is measured for a specific input, such as labor. It is also possible to consider "system productivity" – the productivity of spending in a hospital, physician practice, or health system – by looking at the output achieved for any given amount of resources devoted to health care services.

- Measurements of productivity generally correspond to the reimbursement system. In the private sector, the common reimbursement models and measures of productivity are based on episodes of care, such as a physician office visit.
- The industry is moving closer to a value based reimbursement system that pays for maintaining and improving the health status of a defined population. As an industry, these reimbursement models and the related performance measures are still in the early stages of development and wide spread acceptance.

A systematic review conducted by Hussey, et al. of the RAND Corporation found that over 97 percent of productivity measures tracked only the utilization of health care services as the output from hospitals and other medical institutions. "Those measures include cost per hospital discharge, cost per outpatient visit, relative value units (RVUs) per physician per month, patient visits per physician per month, average length of stay per discharge, and similar metrics."(McKeller et al., 2013, p2)[77]

2.3.2 Productivity should not be considered in isolation from process and outcome measures

There are several well-defined measures of provider productivity used in the private sector, many of which have robust comparison data sets. Provider productivity measurements offer useful tools for physician compensation package design, administrative decision making (workload management, resource allocation, and cost accounting), or other uses, such as: economic profiling, workforce planning, documenting the level of activity treating patients, or research.

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[77] McKellar, R., Chernew, M., & Colucci, J. (2013). Productivity Measurement in the United States Health System. p2. Retrieved from https://www.newamerica.org/downloads/McKellar_Chernew_Colucci_NAF_10_2013.pdf

Productivity is impacted by a wide range of independent variables to include the patient population and characteristics the organization in which the provider practices. In the private sector, physicians and hospitals operate in a largely fee-for-service environment, creating an incentive to increase utilization of services, and so to increase throughput. In fact, in its 2014 Review of Physician Recruiting Incentives, Merritt Hawkins found that in 57 percent of the physician search assignments it conducted between April 1, 2013 and March 31, 2014, a salary plus a production bonus was the form of compensation offered to physician candidates.[78]

VHA operates closer to a population-based care model where process and outcome measures related to managing patient health becomes a higher priority than procedure based measures of activity; however, there are currently no widely accepted productivity measures based on the population health approach. As the industry migrates from volume-based to value-based care, new measures of provider productivity which consider quality, service, access and outcomes will be critical elements to future performance management and incentive structures.

2.3.3 Provider productivity can be measured in many ways

Specialty care providers are typically measured on caseload or other measures of productivity, whereas primary care providers are typically measured by their panel size. This is because primary care providers typically have a consistent set of the same patients for whom they are accountable to (called a panel), while specialists are more likely to treat patients on a short term basis and have greater fluctuation in unique patients (this set of patients is termed their caseload). Measures of productivity typically used in for specialists include: visits/encounter counts, charges, collections, and work relative value units (wRVUs). Although use of multiple measures provides a more robust picture, the industry standard for benchmarking productivity is wRVUs, especially for specialists. The relative value unit (RVU) system was developed as part of the resource-based relative value scale (RBRVS) by CMS and is currently used as the basis for reimbursement by most third-party payers in the U.S. The RVU system considers three categories that inform the value of health care services: physician work (denoted as work RVU, or, wRVU), practice expense, and malpractice insurance.

The advantage of using wRVUs as a measure of productivity is that they are independent of any dollar amounts involved, so they are not affected by the limitations associated with measuring charges or collections.[79] Another wRVU advantage is that they reflect the acuity of the patient population (subject to accurate and comprehensive coding documentation practices), providing higher value or CPT® Evaluation and Management codes which reflect higher acuity.

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[78] The Physicians Foundation. (2014). 2014 Review of Physician and Advanced Practitioner Recruiting Incentives. Merritt-Hawkins Survey Retrieved from http://www.merritthawkins.com/uploadedFiles/MerrittHawkings/Clients/Merritt_Hawkins_2014_Physician_Recruiting_Incentive_Review.pdf

[79] Physician Productivity Paper. Retrieved from http://www.migrantclinician.org/files/resourcebox/PhysicianProductivityDiscussionPaper.pdf

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In capitated systems (a capitated model is one in which whole networks of hospitals and physicians band together to receive single fixed monthly payments for enrolled health plan members)[80] and other environments where the emphasis is not on maximizing the number of patient encounters and on coding to the highest CPT® E/M level, wRVUs may not serve as the most appropriate measure of comparison due to misalignment of incentives. In these cases, panel size or the number of encounters per provider may be more appropriate. However, these measures have limitations as measures of comparison. One limitation of panel sizes as a measure of productivity, is that the provider may have little or no control over the size of their panels and it is not a measurement of activity. Another limitation is that comparability is limited unless one can risk adjust for patient acuity, and compare to benchmarks that represent organizations with similar care models. Encounters and visit counts are limited as they do not reflect acuity; however, if providers do not code accurately, acuity would not be reflected completely in wRVU data either.

2.3.4 MGMA and AMGMA are appropriate benchmarks for productivity

The most reputable (most used and have the largest sample sizes) are: MGMA's Physician Compensation and Production Survey, MGMA's Academic Practice Compensation and Production Survey [AMGMA]), and AMGA Medical Group Compensation and Financial Survey.

- MGMA Physician Compensation and Production Survey:[81] The survey includes both a single specialty practice edition and a multi-specialty practice edition. The survey includes 4,197 medical groups and 66,299 providers (2,518 multispecialty groups representing more than 44,000 providers). The survey is conducted across primary care and specialty care and a wide range of geographies. This survey is the most commonly used survey of all existing physician performance and compensation benchmarking options. It includes data that highlight staffing, cost, and productivity data points.

- MGMA Academic Practice Compensation and Production Survey:[82] MGMA's academic survey (referred to as AMGMA) includes 20,876 providers and 1,996 administrative staff. This survey includes those multi-mission providers that include clinical, research and teaching time. This survey group, while smaller than MGMA, is in some important aspects most similar to the VA health care system, especially VHA's most complex and affiliated (level 1 and 2) medical centers. This survey is also valuable to understanding the relationship between clinical production and additional responsibilities held by academics such as research and teaching.

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[80] Capitation Models. (2015, June 4).Retrieved from http://www.hci3.org/content/capitation-models.

[81] MGMA. (2013).Physician Compensation and Production Survey: 2014 Report Based on 2013 Data. Retrieved from http://www.mgma.com/Libraries/Assets/Key-Findings-PhysComp_FINAL-with-copyright.pdf

[82] MGMA. (2013) Academic Practice Compensation and Production Survey for Faculty and Management: 2014 Report based on 2013 Data. Retrieved from http://www.mgma.com/Libraries/Assets/Store/Surveys/8743-2014-Key-Findings-Academic-Practice.pdf

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- **AMGA Medical Group Compensation and Financial Survey:**[83] AMGA is the industry group in which most large health systems and medical groups have membership. Only providers can be members, while other industry professionals may purchase access to the information. AMGA's annual survey includes responses from 289 medical groups including 73,700 providers for an average group size of 255. This survey has been conducted since 1986. Respondents tend to be larger organizations. Unlike the other two benchmark sets, data is published demonstrating quartiles, rather than individual provider percentiles.

Note: The Assessment G team was not granted permission to publish data from the AMGA surveys as comparisons to VHA data, although we did conduct an analysis using it.

To describe how productive VHA providers are in comparison to relevant industry benchmarks, the team conducted separate analyses of primary care and specialty care. We used panel size for primary care and encounters and wRVUs for specialty care, as measures of productivity, and benchmarked primarily to AMGMA and MGMA surveys, as well as Kaiser Permanente Northern California, and American Academy of Family Physicians (AAFP) for primary care panel size recognizing the limitations described above.

2.3.5   Primary care

For primary care, panel size is an appropriate measure for comparing both staffing levels and provider performance (productivity) in health care systems that care for a defined patient population, such as VA. Panel size is defined as the number of unique patients for whom a care team is responsible. To assess the provider staffing and productivity of VHA primary care as compared with the private sector, we first examined the characteristics of VHA's primary care model (PACT) and the ways in which it has been adapted for the needs of special populations (women, geriatrics, and Veterans with mental health needs). We considered the ways in which VHA's panel size for primary care providers has been adjusted based upon the demographics and unique health care needs of the patients it serves. We then benchmarked the panel size of VHA primary care providers with comparable industry benchmarks.

2.3.5.1   Summary of findings and analysis for primary care

We synthesized data and observations from benchmarking and site visits into the following three key findings. The sub-sections that follow describe the findings for primary care in detail. Information on the factors that we believe to be the drivers of these findings are presented below.

- Finding 4. VHA measures the performance of its PCPs using panel size. VHA calculates a modeled panel size for providers based on a variety of factors at each facility. The model was developed based on research into the appropriate panel size for the unique needs of Veterans. (See Section 2.3.5.2.)

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[83] AMGA (2014) *2014 Medical Group Compensation and Financial Survey: 2014 Report Based on 2013 Data*. Alexandria, VA, American Medical Group Association.

- **Finding 5.** In accordance with policy, VHA facilities establish a maximum panel size for each primary care provider which is often lower than the modeled panel size. The maximum figure takes into account specialized panel needs (for example, a geriatric population) and other factors deemed appropriate by the facility. (See Section 2.3.5.4.)

- **Finding 6.** The actual panel size of VHA primary care providers is lower than internal and external benchmarks. (See Section 2.3.5.5.)

2.3.5.2   VHA's primary care model establishes the panel size of providers (Finding 4)

VHA measures the performance of its PCPs using panel size. VHA calculates a modeled panel size for providers using a variety of factors at each facility. The model was developed based on research into the appropriate panel size for the unique needs of Veterans.

In October 2009, as part of the Veterans Health Administration Transformation 21 initiative, VHA adopted and customized the Patient Centered Medical Home (PCMH) model of care within its primary care clinics, branding its PCMH model as PACT (Patient Aligned Care Team).[84] Through the use of the PACT model, VHA delivers a team of health care professionals who provide comprehensive primary care in partnership with patients, and who manage and coordinate comprehensive health care services consistent with the agreed upon goals of care. The PACT model aligns with VHA's strategic goal to provide personalized, proactive, patient-driven health care. Each PACT team, known as a 'teamlet' typically consists of a Primary Care Provider (PCP), Registered Nurse Case Manager, Clinical Associate (LPN, LVN, or Heath Technician, and Administrative associate [clerk]). The PCP can be a physician or APP.

Each teamlet consists of a panel of patients under the direction of the PCP. Figure 2-13 shows the VHA-recommended PACT teamlet model and the model's inter-relationship with the patient. A recent study funded by VHA Health Services Research and Development found that Veterans in clinics with the highest medical home adoption had positive health outcomes – they had significantly lower Ambulatory Care Sensitive Conditions rates[85] (20 per 1,000) compared to Veterans in clinics with the lowest (25 per 1,000) and medium (26 per 1,000) adoption of medical home features.[86]

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[84] U.S. Department of Veterans Affairs Health Department. (2014) VHA Handbook 1101.10: Patient Aligned Care Team (PACT) Handbook. Retrieved from http://www.va.gov/vhapublications/ViewPublication.asp?pub_ID=2977

[85] Ambulatory Care Sensitive Conditions: a quality measured defined as the age standardized acute care hospitalization rate for conditions where appropriate ambulatory care prevents or reduces the need for admission to the hospital per 100,000 population younger than age 75 years. Agency for Healthcare Research and Quality. Retrieved from
http://www.qualitymeasures.ahrq.gov/summary_redirect.aspx?type=replaced&objectID=35186

[86] Yano E. (2015). Implementation and Impact of VA Patient Centered Medical Home. IRR 09-082. HSR&D Study. Retrieved from http://www.hsrd.research.va.gov/research/abstracts.cfm?Project_ID=2141701013#.UijbFX_gfms

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Figure 2-13. PACT teamlet model[87]
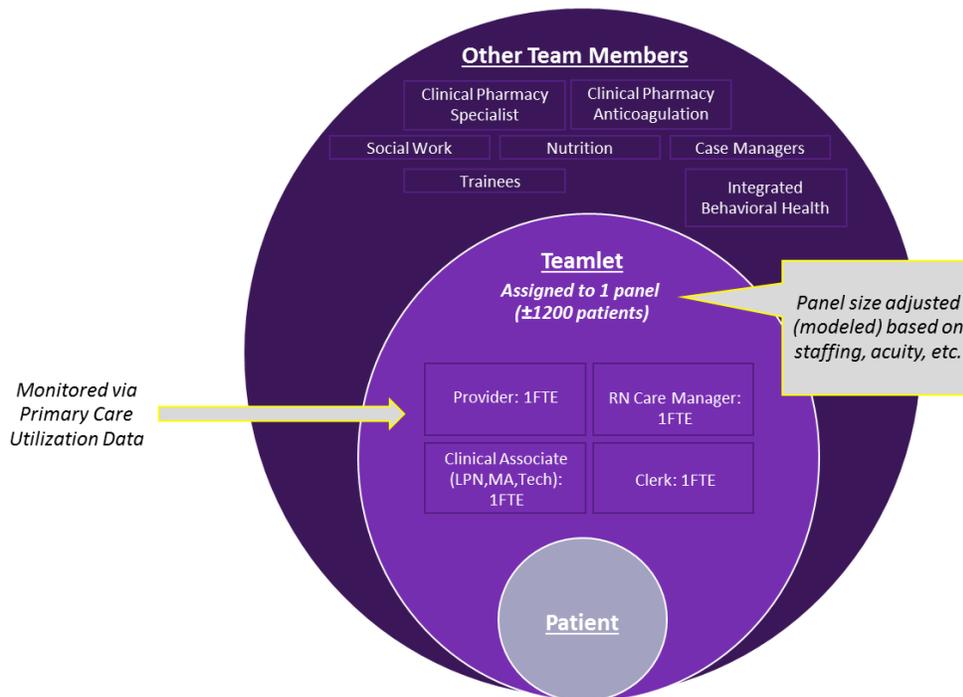
Note: Each parent facility has an HPDP Program Manager, Health Behavior Coordinator, and MyHealtheVet Coordinator

VHA's Office of Primary Care does not measure the productivity of its PCPs using wRVUs. In our discussions with them, VHA primary care leadership expressed significant concerns in using wRVUs to measure productivity, as many clinical activities done by PCPs do not have an associated wRVU value.[88] Furthermore, comparisons to systems which do not operate on a value-driven or patient centered model, are not comparable. In a white paper provided by VHA's Office of Primary Care Services and Office of Primary Care Operations, VHA stipulates that, "as a capitated health care system, management of a population and hence panel size is much more relevant than RVUs."[89](VHA, 2015). Perhaps not surprisingly, the only entities the Assessment G team identified as having methodologies for establishing panel sizes were those health care systems that care for defined patient populations. In analyzing these external entities alongside the VHA Primary Care approach, our team determined that panel size was the most appropriate measure of productivity within VHA Primary Care.

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[87] Shear, J. Clinical Program Manager, VHA Office of Clinical Operations, VHA. (n.d.).VHA Transformation to a PCMH Model of Care Presentation. Colors modified from v.congresocronicos.org/documentos/ponencias/joanne-shear.pdfdocument presentation. Retrieved from v.congresocronicos.org/documentos/ponencias/joanne-shear.pdf

[88] Telephone Interview with several leaders from VHA Office Primary Care Services and Office of Primary Care Operations (January 7, 2015) and Assessment G site visit interviews.

[89] Veterans Health Administration. Panel Size: Private Sector & VHA, White Paper, provided by VHA, January 2015.

VHA modifies primary care panel sizes based on several factors:

- Primary Care intensity score (reflects patient population acuity)
- Support staff ratios
- Number of clinic rooms and other physical support infrastructure
- Presence of newly hired providers
- Specialized panels (a panel which serves a special population, such as a Geri-PACT)

Text box citation: U.S. Department of Veterans Affairs. (2009) VHA PCMM Handbook 1101.02. Retrieved from http://www.cobooks.net/d/vha-handbook-110102-primary-care-management-module-pcmm-579895/

VHA utilized the Primary Care Management Module (PCMM) to compute a modeled panel size (division modeled capacity) for PCPs at each facility. To develop VHA's modeled panel size, VHA compared itself in 2003 to MGMA and U.S. Army Medical Command and made modifications based on factors known to affect physician productivity, for example, patient characteristics, support staff, and exam room ratios. In 2012, a follow up study was conducted that included Santa Clara Valley Medical Center, a county health system with patients who primarily have chronic diseases in Los Angeles County.[90] As reported in VHA's Primary Care Management Module Handbook, "For sites with a patient population reflecting the norms for disease severity and reliance on VHA and who have current norms of 2.17 support staff per 1.0 FTE provider and 3.0 clinic rooms per 1.0 FTE provider, an expected panel would be 1,200 patients for a full-time, established primary care physician. After adjustment for the factors identified, expected panels for VHA primary care providers largely fall in the range of 1,000 to 1,400."[91](VHA Primary Care Management Module [PCMM] Handbook, 2009). For APPs, this translates to roughly 900 patients (75 percent of a physician's panel size) per primary care APP.

2.3.5.3 Facilities can customize primary care models for special populations

In considering the staffing levels and productivity of primary care clinics across VHA, it is important to understand both the general PACT model and specialized models for unique or special populations, which may have different staffing requirements and care models. Special populations are cohorts of patients who meet VHA national or locally approved and published criteria to receive care from a special population PACT. Special population PACTs may include: Women's Health (WH), Geriatric (GERI), Home-based Primary Care (HBPC), Infectious Disease (ID), Post-deployment Care (PD), Renal/Dialysis, Serious Mental Illness (SMI), and Spinal Cord Injuries and Disorders (SCI/D).[92] WH-PACTS represent the largest proportion of specialized

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[90] Veterans Health Administration. Panel Size: Private Sector & VHA, White Paper, provided by VHA, January 2015.

[91] U.S. Department of Veterans Affairs. (2009) VHA PCMM Handbook 1101.02. Retrieved from http://www.cobooks.net/d/vha-handbook-110102-primary-care-management-module-pcmm-579895/

[92] U.S. Department of Veterans Affairs. (2014). VHA PACT Handbook. Retrieved from http://www.va.gov/vhapublications/publications.cfm?pub=2

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population panels. They make up 28.8 percent of PCP FTE (both Physician and APP FTE). The remaining specialized population panels, when combined, make up 9.4 percent of PCP FTE.

These specialized PACTs are unique because their panels are composed of special populations that require more complex primary care. Special population PACTs tend to have smaller patient panels than their traditional primary care counterpart panels (which generally range from 1,000 to 1,400 patients),[93] and may also have different staffing and support staffing requirements. Further, exact staffing models for PACTs may vary by facility (see discussion of Facility Maximum versus VHA Modeled Panel Size in Section 2.3.5.4); however, according to VHA Handbook 1101.10, staffing decisions must optimize PACT function. VHA Handbook 1101.02 provides procedures for determining and adjusting panel sizes and primary care direct patient care time and prorating of support staff FTE based on dedicated primary care clinical activities.

Women Veterans are a relatively small proportion of the total Veteran population (they represent approximately 6 percent of VHA patients),[94] but have specific health care needs served through a certified WH physician. 27.41 percent of primary care physician FTE serve on WH-PACTs. Each WH-PACT has a physician certified in women's health and 10 percent or more women patients. More than 80 facilities across VHA also have comprehensive women's health clinics, with VA requiring each site of care to have a designated women's health provider. Female Veterans that are victims of physical assault, battery, or sexual harassment occurring during active duty or active duty for training receive specialized physical and mental health care through WH-PACTs.[95] Separate of these unique needs, women Veterans tend to be younger (the average age of female Veterans in 2013 was 48, whereas the average age of male Veterans was 63).[96]

Staffing to meet demand is a particular challenge in some women's health clinics due to the increasing influx of women Veterans to the VA system.[97] In fact, since 2000, the number of female Veterans using VA health care has more than doubled, outpacing the growth rate of the male Veteran population. On the other hand, overall demand is low relative to other specialties, so some facilities may not have enough demand for providers to appear productive. The Office of Women's Health and Office of Primary Care recommend a 4:1 ratio of staff for

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[93]House Veterans Affairs Subcommittee on Health. (2015) Congressional Hearing: A Report Assessing the Staffing Needs of Each Medical Facility within the Department of Veterans Affairs. Transcript retrieved from http://www.c-span.org/video/?326075-1/hearing-veterans-affairs-staffing-issues.

[94] U.S. Department of Veterans Affairs. (2014). Sourcebook: Women Veterans in the Veterans Health Administration. Volume 3: Sociodemographics, Utilization, Cost of Care, and Health Profile. p3. Retrieved from http://www.womenshealth.va.gov/.

[95] U.S. Department of Veterans Affairs. (2010) VHA Directive 2010-033. Military Sexual Trauma Programming. Retrieved from http://www.va.gov/vhapublications/ViewPublication.asp?pub_ID=2272.

[96] Women Veterans Health Care, Fact Sheet, July 2014 (sourced from Women's Health Evaluation Initiative [WHEI], Analysis of FY13 WHEI Master Database).

[97] Telephone Interview with the Office of Women's Health. (February 24, 2015) Patricia Hayes, Chief Consultant for the Women Veterans Health Strategic Health Care Group

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PCPs for women's health PACT teamlets in contrast to a 3:1 ratio for regular PACT teams.[98] A unique feature of staffing in a women's health clinic is that a female chaperone is required to be in the room with the provider when certain procedures or exams are being performed.[99] This can impede productivity compared to caring for the male Veteran population, as in some cases where a chaperone is not readily available, the provider and patient must wait for a chaperone to become available.[100]

There is a shortage of specialized geriatric care across the country, with private sector systems and VHA having similar challenges.[101] Today, VHA leads the nation in the provision of specialized geriatric care, with 45 FTE geriatric/palliative providers across the VA system.[102] At present, there is no health system with as many care teams, known in VHA as Geri-PACTS, dedicated to the geriatric population. Geri-PACTS can be established for any geriatric team that assumes responsibility for comprehensive, coordinated primary care and specialized geriatric care of an assigned panel of patients. It is important to note that geriatric services for Veterans in VHA are not limited to only those services provided by Geri-PACTs; however, few VHA geriatricians practice outside of Geri-PACTs. Geri-PACT teamlets typically have a panel of 642 patients and include 1.0 FTE geriatric PCP, 1.0 FTE registered nurse case manager, 1.0 FTE clinical associate (LPN/LVN/Health Tech), social worker, and clinical pharmacy specialist.[103] Discipline-specific team members, such as registered dieticians, geriatric psychiatrists, geriatric psychologist, hospice and palliative care provider, or physical medicine and rehabilitation services clinicians may also be part of the care team.[104]

Panel sizes for Geri-PACTS may not exceed two thirds of the PACT panel size at the site.[105] When assessing the productivity of providers in Geri-PACTs, it is important to note that there are several CPT® codes which do not have wRVU values (for example, S0250 – team assessment) that constitute the workload of Geri-PACTs. Another key aspect of geriatrics care is the purchased care program. Long term care support is supported by over 10,000 home health care workers at 2,500 community nursing homes, 130 VA CLCs and 130 State Veterans homes.[106] The Office of Geriatrics and Extended Care Services is making significant efforts to

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[98] Ibid.

[99] U.S. Department of Veterans Health Administration. VHA Handbook 1333.01. Health Care Services for Women Veterans. Retrieved from http://www.va.gov/vhapublications/ViewPublication.asp?pub_ID=2246

[100] Telephone Interview with the Office of Women's Health. (February 24, 2015). Patricia Hayes, Chief Consultant for the Women Veterans Health Strategic Health Care Group, and Assessment G site visit interviews.

[101] Telephone Interview with the Office of Geriatrics and Extended Care Services, (January 30, 2015) Richard Allman, Chief Consultant, Geriatrics and Extended Care Services.

[102] Ibid.

[103] U.S. Department of Veterans Affairs. Geriatrics and Extended Care: Geriatric Patient Aligned Care Team (Geri-Pact). Retrieved from http://www.va.gov/GERIATRICS/Geriatric_Patient_Aligned_Care_Team.asp

[104] Ibid.

[105] Telephone Interview with the Office of Geriatrics and Extended Care Services. (January 30, 2015). Richard Allman, Chief Consultant, Geriatrics and Extended Care Services.

[106] Ibid.

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better monitor whether community nursing home facilities meet eligibility requirements, provide high quality care, and do so in a cost effective manner.[107]

VHA recently initiated a special PACT model for Veteran patients with serious mental illnesses called SMI-PACTs. In a SMI-PACT, the Veteran's mental health care is planned and delivered by a team of mental health professionals, including psychiatrists/mental health advance practice nurses, psychologists, RNs, LPNs/Health Techs, therapists, and others. Because persons with SMI have premature mortality rates much higher than the general population, and may be more likely to have difficulty navigating the VA system, VHA is testing the SMI-PACT model. This project, led by a physician at the VA Greater Los Angeles Health care System, "will partner leadership at two medical centers to implement SMI-PACT, with the goal of improving health care and outcomes among people with SMI, while reducing unnecessary use of emergency and hospital services. Evidence-based quality improvement strategies will be used to reorganize processes of care. In a site-level controlled trial, this project will evaluate the effect, relative to usual care, of SMI-PACT implementation on (a) provision of appropriate preventive and medical treatments; (b) patient health-related quality of life and satisfaction with care; and (c) medical and mental health treatment utilization and costs."[108](Young, 2014). In most instances, the mental health team will not be providing the primary care services to the Veterans in SMI-PACTs, but incorporating providers with privileges and scopes of practice that include providing these services.[109] However, depending on the results of the study, which ends in 2018, VHA may move toward providing care to this population through more SMI-PACTs.

2.3.5.4 VHA facilities establish a maximum panel size for primary care providers (Finding 5)

In accordance with policy, VHA facilities establish a maximum panel size for each primary care provider which is often lower than the modeled panel size.

According to the Office of Primary Care, VHA central office calculates a modeled panel size (capacity) for a general primary care physician at each facility using the factors described above in Section 2.3.5.2. The Office of Primary Care issues the modeled panel size to each facility, along with guidance (the VHA PCMM handbook) on how the model may be modified by the facility. Each VHA facility has the flexibility to sets its own maximum capacity for its providers (physicians and APPs) based upon local situational factors and using the guidance in the PCMM handbook (such as, applying guidance to adjust for special PACT presence.) For example, a facility may set a lower maximum panel size for a new provider, or a panel serving a population with special needs, or in order to have capacity for new patients.

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[107] Ibid.

[108] Young, S.A., PACT to Improve Health Care in People with Serious Mental Illness. (January 2014- December 2018) Retrieved from project abstract, available at
http://www.hsrd.research.va.gov/research/abstracts.cfm?Project_ID=2141701880.

[109] U.S. Department of Veterans Affairs. (2014). VHA PACT Handbook. Retrieved from
http://www.va.gov/vhapublications/publications.cfm?pub=2.

As depicted in Figure 2-14, nationally, VHA's average modeled capacity is 1,306 patients per primary care general practice physician FTE. Whereas the average facility determined maximum capacity is 1,207 patients per general practice physician. Comparing them, the average facility maximum is 99 (8 percent) fewer patients per physician FTE than VHA's modeled panel size.

In Section A.3, we report the maximum and modeled capacity at each facility. The difference between the VHA-modeled capacity and the facility maximum can vary significantly. On the low side, we found a facility maximum capacity could be 462 patients fewer per physician FTE than the VHA-modeled capacity for the same facility. On the high side, we found a facility maximum could be 954 patients more per physician FTE than the VHA-modeled capacity for the same facility.

Figure 2-14. Summary of panel grouping
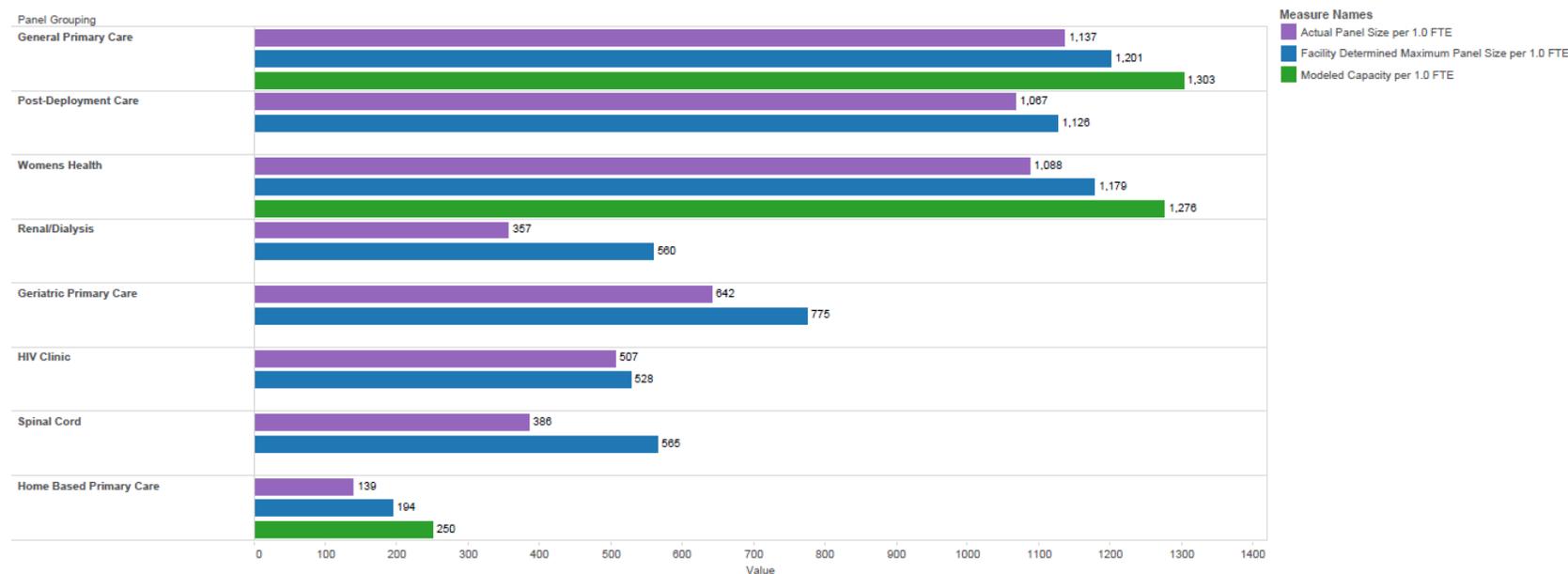
One consideration which facilities take into account in developing the facility maximum is the prevalence of special populations, which have different expectations for panel size (see VHA's PCMM Handbook). While 68.1 percent of PCP (physician) FTE are in general primary care PACTs, 27.4 percent are in WH-PACTs and 4.5 percent are in other special population PACTs. As depicted in Figure 2-14, the average facility maximum capacity per physician FTE is lower for all specialty population PACTs than the average VHA modeled capacity for general primary care providers.

Our team was further able to calculate the national modeled capacity for WH-PACTs and HBPC-PACTs using the recommended modifiers in VHA's PCMM Handbook. The modeled capacity for both WH-PACTs and HBPC-PACTs was higher than the facility reported maximums. The modeled capacity is depicted as a green bar in the graphic above and exists only for the WH-PACTS, HBPC-PACTS, and General Primary Care PACTs, since specific inputs for modifications to modeled panel size are not provided in the VHA PCMM or PACT Handbooks. Instead, either general guidelines are suggested or discretion is left to local leadership.

2.3.5.5 VHA's actual primary care panel size is lower than expected (Finding 6)

The actual panel size of VHA primary care providers is lower than internal and external benchmarks.

We completed our analysis of VHA PCP panel size by comparing it to the private sector using three approaches; first, we conducted research on panel sizing, and provide that information below for comparison. Second, we reviewed VHA's methodology for developing its panel sizing approach, and compared VHA's panel sizes to existing benchmarks (recognizing that some comparison sets operate very different models of care); and lastly, we used a formula to calculate ideal visits per year, and compared that to the current visits per year in primary care.

To summarize the research on appropriate panel sizes:

- A 2012 Annals of Family Medicine study by Altschuler, et al. reported the average US panel size was 2,300, but noted that this was too large to deliver quality care under a PCMH. Using peer reviewed sources regarding the number of hours per patient per year needed to perform preventive, chronic, and acute care, it also reported that panels can range from 983 to 1,947, dependent upon delegation of tasks to various non-physician members of a primary care team. It recommends that the low-overhead ideal medical practice have somewhat larger panel sizes (than a concierge medical practice with panel sizes of 200 to 600) but typically fewer than 1,000 patients.
  - Under a non-delegated model, and assuming primary care providers work 2,025 hours per year and provide an average of 2.06 hours of service per patient per year, primary care physicians can care for a panel of 983 patients.
  - On the opposite end of the spectrum, with the most ambitious assumption about the degree of delegation possible, a physician could reasonably care for a panel of 1,947 patients.[110]
  - It further noted that adjusting for the age and acuity of VHA's patient population supports VHA's panel size of 1,200 if work is delegated to non-clinicians.[111]
- A 2013 published blog by the Medical Group Management Association (MGMA) reported an unadjusted median panel size of 1,906 and average panel size of 2,184 patients per full time provider, sourcing from the 2012 MGMA Cost Survey for Primary Care Practice.[112] This number seems to be on the rise in single and multispecialty group practices with

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[110] U.S. Department of Veterans Affairs. (2009) VHA PCMM Handbook 1101.02. Retrieved from http://www.cobooks.net/d/vha-handbook-110102-primary-care-management-module-pcmm-579895/.

[111] Altschuler, J., Margolius, D., Bodenheimer, T., & Grumbach, K., (2012). Estimating a Reasonable Patient Panel Size for Primary Care Physicians with Team-Based Task Delegation. Annals of Family Medicine. Retrieved from http://www.annfammed.org/content/10/5/396.full.pdf+html.

[112] Define patient panels to improve practice flow, patient care. (2015, June 9). Retrieved from http://www.mgma.com/blog/define-patient-panels-to-improve-practice-flow-patient-care.

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primary care. The 2014 MGMA Cost Survey reports that primary care practices have 2,505 patients per FTE physician.[113]

- A 2013 presentation by RAND Health researchers on implications of new models of care on the primary care workforce observed that ideal panel sizes vary between 1,387 and 1,947, and that adopting the PCMH model may reduce panel size by 23 percent.[114] It also noted that medical homes, in general, appear to have smaller panel sizes.

- A 2012 *Health Affairs*[115] article cites a 2009 study from Duke University published in *Preventing Chronic Disease*[116] which states that a primary care physician with an average panel of 2,000 patients would spend 17.4 hours per day providing recommended acute, chronic, and preventive care. The *Health Affairs* article further stipulates that if a reasonable work day for a primary care practitioner is eight hours per weekday in direct patient contact – excluding paperwork and other responsibilities, then the appropriate panel size should be lower than 2,000.

- The Assessment G team compared VHA modeled panel sizes to a population health model system - Kaiser Permanente Medical Group Northern California (average), [117] the MGMA 2014 Compensation and Production Survey (median), and AMGA 2014 Medical Group Compensation and Financial Survey (median). Additionally, we calculated an "ideal" panel size benchmark for VHA using equations published by Murray et al in the *Family Practice Management.*[118] See Figure 2-15 for comparisons.

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[113] MGMA. (2014). MGMA Cost Survey: 2014 Report Based on 2013 Data; Key Findings Summary Report. Retrieved from http://www.mgma.com/Libraries/Assets/Key-Findings-CostSurvey-FINAL.pdf?source.

[114] Auerbach, D, & Friedberg, M. (n.d.) Primary Care Workforce Implications of New Models of Care. Rand Health. Retrieved from http://www.mass.gov/eohhs/docs/eohhs/graduate-medical-edu/gme-rand-presentation.pdf

[115] Bodenheimer T, & Pham, H. (2010).Primary Care: current problems and proposed solutions. *Health Aff* May 2010; 29(5): 799-805. doi: 10.1377/hlthaff.2010.0026 .

[116] Yarnall, K.S.H., Østbye, T., Krause, K.M., Pollak, K.I., Gradison, M., & Michener, J.L. (2009) Family physicians as team leaders: "time" to share the care. *Prev Chronic Dis* 2009;6(2):A59. Retrieved from http://www.cdc.gov/pcd/issues/2009/apr/08_0023.html

[117] As reported on site visit to Kaiser Permanente Medical Group Northern California on April 22, 2015.

[118] Murray, M., Davies, M. & Boushon, B. (2007). Panel Size: How Many Patients Can One Doctor Manage? *Fam Pract Manag*.2007; 14(4); 44-51. Retrieved from http://www.aafp.org/fpm/2007/0400/p44.html

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Figure 2-15. Panel sizes - VHA vs. benchmarks[119]
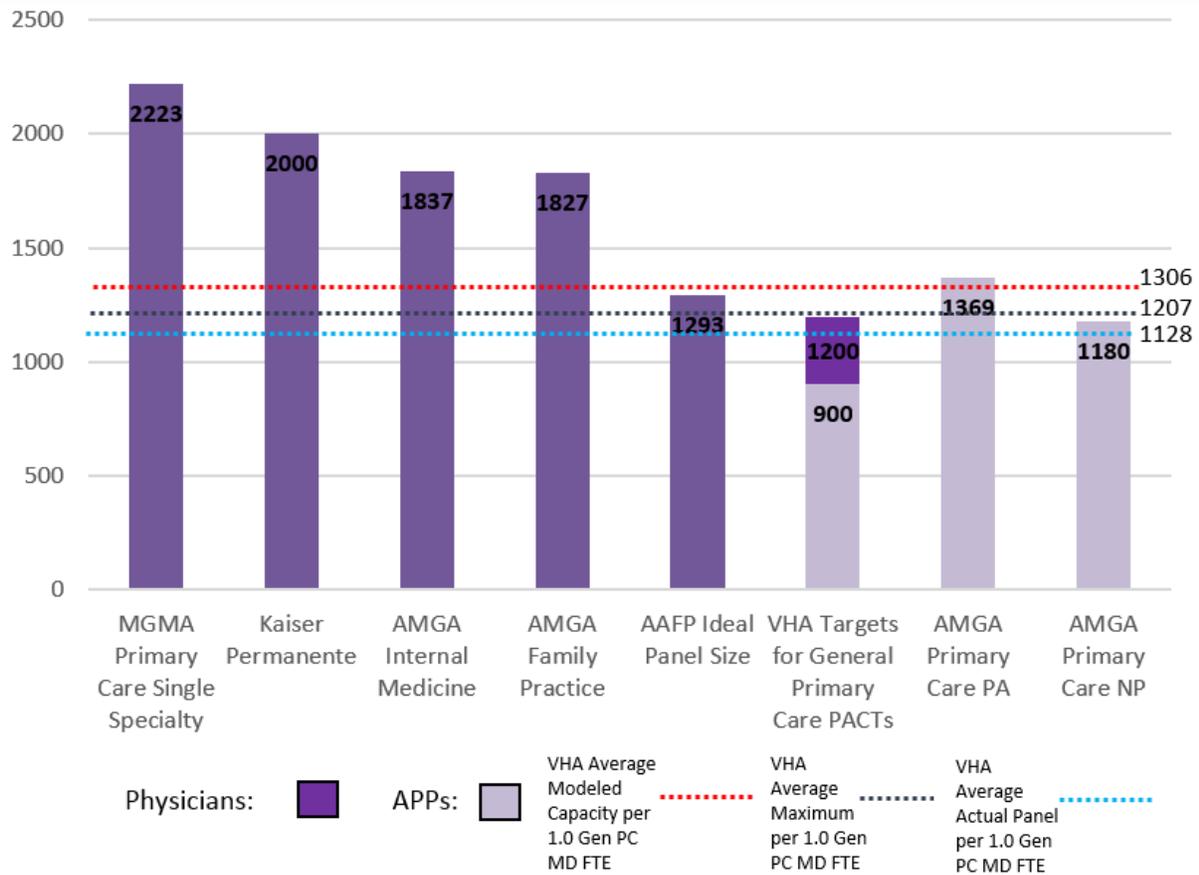
According to the AAFP, there are several additional variables which may be used to determine the ideal panel size:

Visits per patient per year: To increase the size of the panel that a provider can successfully care for, the number of visits per patient per year can be decreased by improving continuity (when patients see their own provider they require fewer visits),[120] lowering the visit return

[119] Assessment G benchmark analysis uses MGMA survey, data from Kaiser Permanente Northern California Group site visit, AMGA 2014 Medical Group Compensation and Financial Survey. (2015, June 9). Retrieved from https://www.amga.org/wcm/PI/Surveys/wcm/PI/SAT/PhysComp/participate_comp.aspx. Analysis of VHA data using AAFP equation of VHA expected baseline of expected panel size for physicians and APPs. U.S. Department of Veterans Affairs. (2009) VHA PCMM Handbook 1101.02. Retrieved from http://www.cobooks.net/d/vha-handbook-110102-primary-care-management-module-pcmm-579895/

[120] Raddish, M., Horn, S.D., & Sharkey, P.D. (1999). Continuity of care: is it cost effective? *Am J Manage Care*. 1999;5:727–734; Cited in Mark Murray, MD, MPA, Mike Davies, MD, Barbara Boushon, RN. *Fam Pract Manag*. 2007 Apr;14(4):44-51. Retrieved from http://www.aafp.org/fpm/2007/0400/p44.html

rate, such as the percentage of visits for which the provider requests a follow-up visit,[121] providing more services at each visit, increasing cohesion of care teams[122] teamwork, and using alternatives to traditional visits such as secure messaging, telephone care and other telehealth modalities, and group visits.[123]

Provider Visits per day: This variable can be increased by optimizing care delivery models, decreasing the no-show rate, offering more appropriate support staff so that providers can reduce individual visit length,[124] improving the workflow by reducing bottlenecks and providing more "just in time" support, optimizing the number of exam rooms,[125] and removing unnecessary work (escorting patients between the waiting and exam rooms, prepping rooms, or scheduling appointments), from the providers to allow them to maximize appointment supply.[126] The number of patients seen per day may also depend on such factors as: appointment length, clinic hours of operation, scheduling practices (for example, double booking, or no show), space, and the presence of residents, fellows, and/or APPs. Unfortunately, there is a lack of information on the leading best practice for the number of patients per day. Best practices may also not be applicable to the VHA patient population, which may differ from other health care systems, specifically around age, co-morbidities, and social determinants of health, for example, employment, and housing.

Provider days per year: This variable is determined by the number of days a provider's schedule was booked for patient visits per year. It can then be adjusted for changing expectations about the number of days that should be booked with appointments, as well as critical decisions about how provider time will be distributed, for example, shifting providers away from nonclinical duties in favor of clinical duties.[127]

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[121] Schectman, G., Barnas, G., Laud, P., et al. (2005). Prolonging the return visit interval in primary care. *Am J Med*. 2005;118(4):393–399; Cited in Mark Murray, MD, MPA, Mike Davies, MD, Barbara Boushon, RN. *Fam Pract Manag*. 2007 Apr;14(4):44-51. Retrieved from http://www.aafp.org/fpm/2007/0400/p44.html

[122] Grumbach, K., & Bodenheimer, T. (2004). Can health care teams improve PRIMARY CARE practice? JAMA. 2004;291:1246–1251; Cited in Mark Murray, MD, MPA, Mike Davies, MD, Barbara Boushon, RN. *Fam Pract Manag*. 2007 Apr;14(4):44-51. Retrieved from http://www.aafp.org/fpm/2007/0400/p44.html

[123] Bodenheimer, T. (2003). Innovations in primary care in the United States. BMJ. 2003;326:796–798; Cited in Murray, M., Davies, M., Boushon, B. (2007) *Fam Pract Manag*. 2007 Apr;14(4):44-51. Retrieved from http://www.aafp.org/fpm/2007/0400/p44.html

[124] Grumbach, K., & Bodenheimer, T. (2007) Can health care teams improve primary care practice? *JAMA*. 2004;291:1246–1251; Cited in Mark Murray, MD, MPA, Mike Davies, MD, Barbara Boushon, RN. Fam Pract Manag. 2007 Apr;14(4):44-51. Retrieved from http://www.aafp.org/fpm/2007/0400/p44.html

[125] Mayo-Smith M.F., & Dooley D. (2007). Primary care panels in the VA. Fed Pract. August2004:47–67; Cited in Mark Murray, MD, MPA, Mike Davies, MD, Barbara Boushon, RN. *Fam Pract Manag*. 2007 Apr;14 (4):44-51. Retrieved from http://www.aafp.org/fpm/2007/0400/p44.html

[126] Grumbach, K., & Bodenheimer, T. (2004). Can health care teams improve primary care practice? *JAMA*. 2004;291:1246–1251; Cited in Mark Murray, MD, MPA, Mike Davies, MD, Barbara Boushon, RN. Fam Pract Manag. 2007 Apr;14(4):44-51. Retrieved from http://www.aafp.org/fpm/2007/0400/p44.html

[127] Murray, M., Davies, M., & Boushon, B., (2007). Panel Size: How Many Patients Can One Doctor Manage? *Fam Pract Manag*. 2007 Apr;14(4):44-51. Retrieved from http://www.aafp.org/fpm/2007/0400/p44.html

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AAFP recommends using these variables to determine an "ideal" panel size, and further suggests performing age adjustment via adjusting the 'visits per patient per year' metric.[128] The ideal panel size is one in which supply and demand are balanced. The following equation can be used to derive ideal panel size based on the provider's historical level of productivity: Panel size × visits per patient per year (demand) = provider visits per day × provider days per year (supply). For the purposes of aligning VA demographics to outside benchmarks, the Assessment G team applied an adjustment for males aged 60 to 64 (based on VA median age and sex):

2.38 (current VA primary care outpatient visits per year) [129] **x 1.17** (AAFP adjustment factor based on VHA paneled member age and sex) [130] = **2.78** (calculated adjusted VHA visits per patient per year)

The Assessment G team made an additional adjustment to the 'provider visits per day' metric. Currently, VHA providers are expected to see between 10 and 12 patients per day.[131] In the typical fee-for-service care model in the private sector, it is common to plan for 24 visits per day (at least 3 patients per hour with 15 minute appointment times). Given the acuity, age, comorbidities, and overall disease state of VHA patients, the "ideal" does not reflect the true need of Veteran patients. Not surprisingly, VHA primary care appointments are more commonly 20-30 minutes in length.[132] Based on the assumption that appointments are typically 20-30 minutes, it is reasonable to assume that a VHA PCP would be able to see 15 patients per day (resulting in scheduling 2 patients per hour, with 8 hour clinical work days and time for additional administrative responsibilities). Table 2-4 shows the calculations and inputs for the "ideal" VHA metrics, based on the aforementioned methodology:

Table 2-4. Calculated ideal VHA metrics[133]

Metrics	VHA
Expected visits per patient per year	2.78
Potential provider visits per day	15.0
Provider days worked per year	240.0

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[128] Ibid.

[129] U.S. Department of Veterans Affairs Veterans Health Administration. (2013). VHA Facility Quality and Safety Report Fiscal Year 2012 Data. Retrieved from http://www.va.gov/HEALTH/docs/2013QSExecutiveSummary.pdf.

[130] Murray, M.D, Davies, M. & Boushon, B. (2007). Panel Size: How Many Patients Can One Doctor Manage? *Fam Pract Manag*.2007; 14(4); 44-51. Retrieved from http://www.aafp.org/fpm/2007/0400/p44.html#fpm20070400p44-bt2.

[131] Based on Assessment G site visit data gathered from primary care providers on 24 site visits.

[132] Ibid.

[133] Assessment G analysis of expected visits per year using equation from Murray, M.D, Davies, M. & Boushon, B. (2007). Panel Size: How Many Patients Can One Doctor Manage? *Fam Pract Manag*.2007; 14(4); 44-51. Retrieved from http://www.aafp.org/fpm/2007/0400/p44.html#fpm20070400p44-bt2

Metrics	VHA
Calculated ideal panel size for VHA providers	1,293
VHA's modeled panel size per general practice physician 1.0 FTE (Standard Deviation = 71.8)	1,306
VHA's average facility maximum panel size per general practice physician 1.0 FTE (Standard Deviation = 161.8)	1,207
VHA's average panel size per general practice physician 1.0 FTE (Standard Deviation = 165.8)	1,128

Nationally, VHA's average modeled panel size for general practice physicians is similar to the calculated ideal panel size, which is the external benchmark derived from the American Academy of Family Physicians. The maximum panel size established by VHA facilities is usually lower than VHA's modeled panel size for general practice physicians at the same facility (the internal benchmark) as well as the ideal panel size for VHA providers (the external benchmark).

The actual panel size for VHA general practice physicians is 13 percent below the VHA-modeled panel size, 12 percent below the external benchmark, and 5 percent below the facility maximum. This analysis is based upon September 30, 2014 data provided by VHA and panel sizes may have changed since this time. As discussed above, a range of factors should be considered when comparing the panel size of facilities, including: patient characteristics (including special populations) support staff and exam room ratios, the experience level of the physician in the clinic, as well as the utilization of APPs by the facility.

In Section A.3 we depict the actual versus modeled and maximum panel sizes per general practice physician 1.0 FTE at each facility.

We elaborate on some of the barriers that VHA faces in increasing the productivity of its primary care providers in Section 2.3.8, several of which parallel the levers noted by AAFP.

2.3.6 Specialty care

For specialty care, wRVUs, encounters and access are appropriate measures for comparing provider performance (productivity). To assess the provider productivity of VHA specialty care as compared with the private sector, we used industry accepted benchmark data sets: the Academic MGMA survey (which includes academic medical centers), and MGMA survey (which includes many smaller single or multispecialty group practices, but has a much larger sample size than the AMGMA survey). We compared the wRVUs and encounters generated by VHA providers in each major specialty with these industry benchmarks. We then benchmarked VHA specialty care providers from high, medium and low complexity facilities with the industry benchmarks to determine if providers in these different cohorts of VHA facilities compare differently to the private sector.

2.3.6.1 Summary of findings and analysis for specialty care

We have synthesized data and observations from benchmarking and site visits into the following findings. The sub-sections that follow describe the findings for specialty care in detail. Information on the some of the potential reasons for the differences between the productivity of VHA specialty care providers and the private sector are presented in Section 2.3.8.

- **Finding 7.** When compared to the private sector using wRVUs, there is a productivity gap in VHA specialty care. (See Section 2.3.6.3)

- **Finding 8.** When encounters or visits are used as a measure of productivity, the gap shrinks and VHA specialty care providers compare more favorably to the private sector. (See Section 2.3.6.5).

- **Finding 9.** VHA mental health providers are more productive than academic medical center (AMGMA) benchmarks, as measured by both wRVUs and encounters. (See Section 2.3.6.6).

- **Finding 10.** Overall, VHA specialty care providers are producing fewer wRVUs than private sector benchmarks; however, VHA specialty care providers at the highest complexity facilities are more productive than their peers. Further, the most productive VHA providers (those at the 75th percentile of VHA providers) are often more productive than the private sector. (See Section 2.3.6.7).

- **Finding 11.** Productivity and access are important measures in population based health models like VHA that focus on patient outcomes, rather than volume. VHA OPES reports on productivity and access offer tools for use by medical facilities. With some improvements to expedite adoption and regular use by medical centers, these tools could become key resources in optimizing productivity and maximizing access to care. (See Section 2.3.6.8).

2.3.6.2 Common productivity measures for specialists are wRVUs and encounters

Specialty care providers represent 46 percent of VHA providers (excluding social workers, dentists, and medical hospital specialists, such as radiologists and pathologists) in FY2014.[134] Please see Section 2.2 for additional detail.

Common indicators of specialty care provider productivity used by VHA and the private sector are wRVU production,[135] encounters per provider FTE, and patient access. The Assessment G team compared VHA provider encounters and wRVUs by specialty against industry accepted benchmark data sets: the Academic MGMA survey (which includes academic medical centers), and MGMA survey (which includes many smaller single or multispecialty group practices, but has a much larger sample size than the AMGMA survey). The AMGMA survey offers a more

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[134] Assessment G Team analysis of Provider Labor Detail provided by VHA OPES, April 9, 2015.

[135] MGMA (2009). *Lessons for Financial Success*. (Chapter 5: Productivity, Capacity, and Staffing, pp. 4-6). Retrieved from
http://www.mgma.com/Libraries/Assets/About/About%20MGMA/About%20Center%20for%20Research/Lessons-for-Financial-Success-Ch.-5-Productivity-Capacity-and-Staffing.pdf

appropriate comparison for VA's higher complexity (level 1 and 2) facilities, which tend to be affiliated with academic medical centers that have trainees and teaching programs, whereas the MGMA survey is more appropriate to compare to VA's lower complexity (level 3) facilities. However, the accuracy of benchmarking surveys is relative to the number of responses; it should be noted that there are VHA specialties in AMGMA with samples sizes that are too small to benchmark.

We benchmarked the productivity of each specialty practice at the individual provider level (each individual provider's workload). Only VHA providers were included; contract and fee-based (non-employee) providers were excluded, as were fellows and residents.[136] Several specialties, such as emergency department or urgent care, hospitalists (defined as family practice and internal medicine physicians without a designation as a primary care provider), critical care radiology and pathology, were separated from the benchmarking, since encounter and wRVU data for these specialties are difficult to accurately measure and tend to skew the productivity data. For the purposes of this report, we call these "Hospital Based Specialties" and we separate them out in the productivity benchmarks.

We compared encounters to both MGMA and AMGMA benchmarks. While MGMA has updated the encounter definition in its Physician Compensation and Production Survey to include Telehealth and e-consults in its most recent survey (2014), MGMA has not updated its definition as such in its Academic Practice Compensation and Production Survey (AMGMA). Our team was unable to distinguish Telehealth and e-consults in the encounter data set as CPT® level detail was not included. As such, we were unable to adjust when comparing to AMGMA. We were able to quantify the volume of Telehealth and e-consults to be about 2.7 percent of total wRVUs. These telehealth and e-consults may cause VHA providers to appear more productive than the AMGMA benchmark, though the impact does not appear to be significant.

2.3.6.3   A productivity gap exists between VHA specialists and the private sector (Finding 7)

When compared to the private sector using wRVUs, there is a productivity gap in VHA specialty care.

We compared wRVUs per VHA provider (using clinical, Worked FTE as basis) with AMGMA and MGMA benchmark surveys. The Assessment G team calculated the wRVUs based on VHA wRVU data from the same core data set used to calculate the staffing level and encounters of specialty care providers. The VHA wRVU data was adjusted to account for modifiers, gap (non-traditional CPT® codes) and imputed codes, to make the data more comparable to the benchmark data sets. However, the team was not able to adjust wRVU data to ensure encounters are not double counted for RVU credit; according to VHA OPES, this issue only affects 2.9 percent of encounters or 3.4 percent of total wRVUs produced (See Appendix A for additional detail).[137] Grant Thornton urges readers of this report to carefully consider the

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[136] Resident workload is attributed to attending physicians, both in VHA, and in the private sector.

[137] Analysis of multiple provider wRVUs by stop code, provided by Jim Campbell, VHA OPES, March 27, 2015.

limitations of the VHA provider productivity data, its comparability to these benchmarks, and to consider the findings detailed below that explain the differences between VHA provider productivity and private sector providers (limitations are further described in the methodology section). The wRVU productivity benchmark data for each aggregate specialty group is provided in Section A.1. The aggregate wRVU data for providers at each VAMC is presented in Section A.2. We grouped the specialties presented in Figure 2-15 into mental health, medicine specialties (non-hospital based), medicine specialties (hospital based) and surgery specialties. These specialty groupings are typical in health care and allowed us to understand general patterns in the productivity of VHA specialty providers. Nevertheless, this high level view may mask variations in productivity at the specialty and provider level.

Figure 2-16. External productivity rankings by wRVUs and specialty grouping[138]
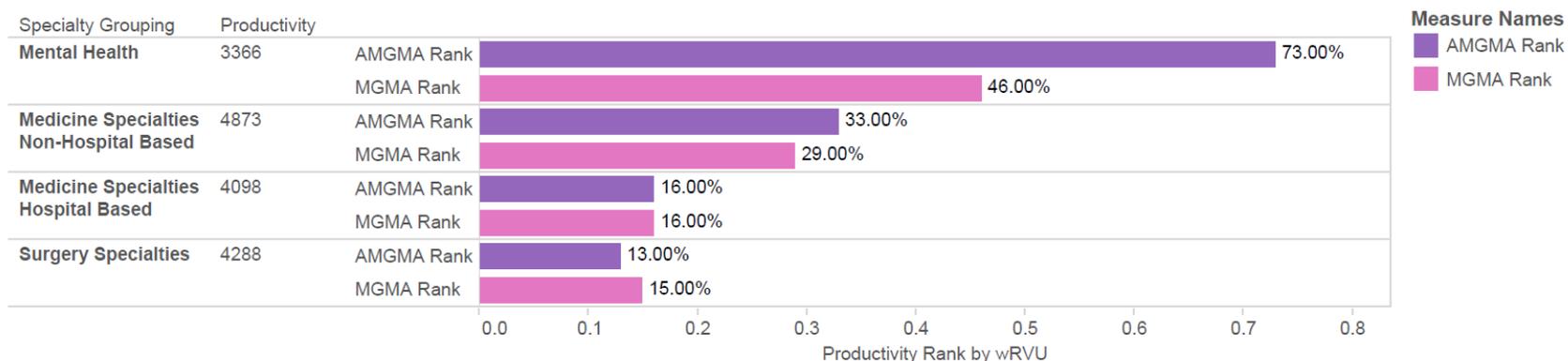
The Assessment G team found that VHA medical and surgical specialists are less productive than many providers in the private sector when comparing wRVU production to AMGMA and MGMA benchmarks. VHA medical specialists are less productive than the median of academic medical providers (AMGMA survey) and providers in the MGMA survey, producing wRVUs at 33rd and 29th percentiles of survey respondents, respectively. VHA surgical specialists are also less productive than the median of academic medical providers (AMGMA survey) and providers in the MGMA survey, producing wRVUs at the 13th and 15th percentiles of survey respondents, respectively. On the other hand, hospital-based specialties, for example, radiology and pathology, compare to the 16th percentiles of both the AMGMA and MGMA benchmarks.

The wRVU calculations for certain surgical specialties (in particular, the Thoracic, Neuro, and Orthopedic surgical specialties) may be affected by the methodology that the Assessment G team used to account for the number of surgical assists performed by non-resident/non-fellow physicians. The Assessment G team used a standard modifier used by Centers for Medicare and Medicaid, which discounts the wRVUs generated for a surgical procedure (for example, a bilateral knee replacement) when a second physician

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[138] Assessment G analysis of Provider Detail FY14 provided by VHA OPES, February 26, 2015; Provider Labor Detail FY14 provided by VHA OPES April 9, 2015; AMGMA survey 2014; and MGMA survey 2014.

assists. In the case of VHA, this may over-adjust the productivity of these specialties because the assist is more often performed by a resident or fellow, neither of whom will generate wRVUs for the encounter. While accounting for this difference would drive productivity higher in the surgical specialties, the team determined the overall impact on the percent rankings compared to benchmarks was minimal (generally in the bottom quartile across benchmark sources). For details on modifier adjustments and VHA's response, please see Appendix B.2.5.3.

VHA mental health providers are more productive than many providers in the private sector when comparing wRVU production to AMGMA and MGMA benchmarks. They are more productive than the median of academic medical providers (AMGMA survey) and as productive as the providers in the MGMA survey, producing wRVUs at 73rd and 46th percentiles of survey respondents, respectively.

2.3.6.4 The productivity gap is smaller when VHA specialists are compared on encounters (Finding 8)

When encounters or visits are used as a measure of productivity, the gap shrinks and VHA specialty care providers compare more favorably to the private sector.

The Assessment G team analyzed encounters per provider FTE (clinical time, worked) compared with AMGMA and MGMA benchmarks as one measure of specialists' productivity. The encounters per provider comparison is shown in aggregate per facility in Section A.2

Figure 2-17. External productivity rankings by encounters[139]

Specialty Grouping	Productivity		
Mental Health	1710	AMGMA Rank	100.00%
		MGMA Rank	72.00%
Medicine Specialties Non-Hospital Based	3145	AMGMA Rank	72.00%
		MGMA Rank	43.00%
Surgery Specialties	1867	AMGMA Rank	54.00%
		MGMA Rank	36.00%
Medicine Specialties Hospital Based	11644	AMGMA Rank	38.00%
		MGMA Rank	34.00%

Measure Names
AMGMA Rank
MGMA Rank

Productivity Rank by Encounter (axis: 0.0 to 1.1)

Overall, VHA medical and surgical specialties, excluding anesthesiology and hospital-based specialties for example, radiology and pathology, compare favorably to academic medical center (AMGMA) benchmarks. VHA specialists see more encounters per FTE than the median private sector academic medical providers (AMGMA). When compared to the MGMA benchmark, VHA specialists drop to the 43rd and 36th percentile for non-hospital medicine specialties and surgical specialties, respectively. On the other hand, hospital-based specialties compare to the 39th and 34th percentiles, respectively.

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[139] Assessment G analysis of Provider Detail FY14 provided by VHA OPES, February 26, 2015; Provider Labor Detail FY14 provided by VHA OPES April 9, 2015; AMGMA survey 2014; and MGMA survey 2014.

One reason for the variance between the non-hospital-based medicine and surgical specialties and the private sector may be VHA's PACT and population health focused care model. VHA's focus on the primary care medical home and the "gate keeper" role of the PCP as the key source of referrals may result in lower numbers of encounters downstream in specialty care which is reflected in the AMGMA survey and even more so in the MGMA benchmark, where specialists may operate more independently of primary care.

2.3.6.5   VHA mental health providers are more productive than industry (Finding 9)

VHA mental health providers are more productive than academic medical center (AMGMA) benchmarks, as measured by both wRVUs and encounters.

Similar to the wRVUs generated by VHA mental health providers, they see more encounters per FTE than almost all private sector academic medical providers. They are producing at the 100th and 72nd percentiles compared to AMGMA and MGMA surveys. Although some caution should be used when interpreting the AMGMA finding, since telephone encounters or "e-consults" were not included in the AMGMA survey, but account for an unknown proportion of VHA mental health encounters. One contributing factor to the higher number of VHA encounters may be the shift of VHA mental health providers to utilize more evidence based practices to increase access; this shift has resulted in more group therapy visits which increases the number of unique encounters compared to the private sector. Additionally, due to a higher incidence of psychological disorders, demand, and subsequently throughput, may also be higher for mental health specialists.

Overview of VHA telehealth encounters

VHA is a national leader in the use of telehealth. Its use has allowed VA facilities, especially rural hospitals and clinics, to address gaps in access to specialty care services; resulting in an increase in the number of encounters seen by providers. There are currently three distinct national telehealth platforms: Home Telehealth (HT), Clinical Video Telehealth (CVT), and Store-and-Forward Telehealth (SFT). These platforms are in place across 150 VAMCs and over 400 CBOCs. VHA's goal in FY15 is to provide elements of care to 1 million Veteran patients — 20 percent of its enrolled population — through telehealth services.[140] Since the PACT model was implemented in 2009, non-face to face care utilization has significantly increased. For example, while the total number of PACT patients has increased by approximately 10 percent, the number of telephone encounters has increased by over 10 times, and the number of secure messages has increased from just over 1,000 in 2010, to almost 600,000 in 2014.[141]

Tele-Ophthalmology and Tele-Dermatology are the two most used types of SFT. Tele-Ophthalmology takes an image of the back of eye or retina services and stores the image in the

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[140] Darkins, A. (2014). The Growth of Telehealth Services in the Veterans Health Administration Between 1994 and 2014: A study in the Diffusion of Innovation. *Telemed J.E. Health*. doi: 10.1089/tmj.2014.0143.

[141] Shear, J. Clinical Program Manager, VHA Office of Clinical Operations, VHA. (n.d.).VHA Transformation to a PCMH Model of Care Presentation. Retrieved from v.congresocronicos.org/documentos/ponencias/joanne-shear.pdf.

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patient's electronic health record (EHR). This allows a provider at another location to read the images and communicate findings and recommendations to the primary care provider. Similarly, Tele-Dermatology utilizes photo imaging of skin conditions and abnormalities, such as skin lesions or dermatitis, and sends the image via the patient's EHR to a specialist provider at another location. Telehealth service platforms of care such as those using SFT, increase access to care, providing Veterans with specialized services that may otherwise be unavailable (this is especially relevant for rural Veterans). With respect to HT services, there is initial evidence that the provision of HT services decreases mortality and reduces costs.[142,143]

> According to Darkins in the article, *"The Growth of Telehealth Services in the Veterans Health Administration Between 1994 and 2014,"* in FY 2013, 45 percent of Veteran patients whose care was supported by VHA telehealth lived in rural areas.

National patient satisfaction surveys conducted by VHA's National Telehealth Services Office[144] reflect high Veteran satisfaction with telehealth services. Additionally, although more studies need to be done in this area, there appears to be a correlation between telehealth and productivity; telehealth has the potential to positively impact productivity. For example, rather than hire a provider, a provider with extra capacity can care for the additional patients at satellite facilities (this is particularly applicable with SFT telehealth services, as providers can see SFT patients during any unscheduled downtime in between patients). To comprehensively assess the impact on productivity, VHA will need to work on standardizing coding policies for telehealth services and ensuring that all sites of care and their providers are aware of and understand these policies.[145]

The utilization of telehealth to address Veteran demands for care helps alleviate common access challenges due to geographic location (patient does not reside near a VAMC) and provider shortage issues that mostly afflict rural Veterans. For example, VA Montana HCS has two telehealth Outreach Clinics: Hamilton CBOC and Plentywood CBOC. Both are located in rural areas, with a population of less than 5,000 in Hamilton, MT, and less than 2,000 in Plentywood, MT. [146] As such, there is low demand for VA health care; yet, those Veterans who

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[142] Darkins, A., Kendall, S., Edmonson, E., Young, M., Stressel, P. (2015). Reduced cost and mortality using home telehealth to promote self-management of complex chronic conditions: a retrospective match cohort study of 4,999 Veteran patients. *Telemed J.E Health*. doi: 10.1089/tmj.2014.0067.

[143] VHA National Telehealth Services Offices. (May 13, 2015). Interview with MITRE and Grant Thornton. VHA Staffing Assessment.

[144] Darkins, A. (2014). The Growth of Telehealth Services in the Veterans Health Administration Between 1994 and 2014: A study in the Diffusion of Innovation. *Telemed J.E. Health*. doi: 10.1089/tmj.2014.0143.

[145] VHA National Telehealth Services Offices. (May 13, 2015). Interview with MITRE and Grant Thornton. VHA Staffing Assessment.

[146]U.S Census Bureau. (2014) Retrieved from http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=PEP_2014_PEPANNRES&proﬁType=table

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do live in the area are able to access care at these CBOCS. These clinics have limited hours of operation and are run by a small team (Registered Nurse [RN] and telehealth operators) and provide only telehealth visits.[147] This allows for Veterans to access their providers for episodic care (e.g. colds, consults) that does not require them to travel, in some cases, hundreds of miles to the main VAMC facility.

2.3.6.6 The most productive VHA specialists are often more productive than private sector benchmarks (Finding 10)

Overall, VHA specialty care providers are producing fewer wRVUs than private sector benchmarks; however, VHA specialty care providers at the highest complexity facilities are more productive than their peers. Further, the most productive VHA providers (those at the 75th percentile of VHA providers) are often more productive than the private sector.

VA medical facilities can vary widely in terms of their size and complexity of services offered, (VA groups its 151 medical facilities into highly complex - level 1a, 1b, and 1c, moderate complexity - level 2, and low complexity - level 3, facilities). More complex facilities tend to have academic affiliations, with teaching and research programs, whereas lower complexity level facilities may be located in more rural areas and do not have these programs. The larger, more complex facilities (1a complexity vs. 2 complexities) compare better using both encounters and wRVUs. One factor may be that these facilities simply have higher patient demand and consequently clinic throughput. This would tend to increase the number of encounters per provider. The larger facilities may treat patients with a wider variety of diseases and conditions simply due to the number of specialties offered, and tend also to have a larger number of providers who are dual appointees and have strong relationships with their affiliate institutions. Dual appointees may carry over certain behaviors such as chart closure within 24 hours, accurate charge capture, and physician involvement in denial management that encourages workload capture and consequently generates more wRVUs.

> A Service Chief stated that *"Part Time providers from [the affiliate] across the street know how to [code]....We need to get with the coders to [understand how to educate] providers on how to maximize documentation."*

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[147] As observed on Assessment G site visits.

> **_Promising Practice: John D. Dingell VAMC – Detroit_**
>
> At the John D. Dingell VAMC in Detroit, facility leaders found productivity within a specialty clinic was below the national median for VHA. They investigated and found that workload within the clinic was not being captured accurately. The Section Chief trained providers in better coding practices. The accuracy of productivity measurement, and consequently the clinic's ranking, increased.
>
> _Value_: The facility highlighted this success story to other clinics and as a result clinic leaders' awareness of the importance of accurate coding to measure productivity improved.

The Assessment G team compared the productivity of VHA specialties (measured in wRVUs) at Level 1a (high complexity) and level 3 (low complexity facilities) with external benchmarks (AMGMA and MGMA). A case study analysis of wRVUs per provider FTE (clinical, worked) is provided for three specialties (cardiovascular disease, ophthalmology, and orthopedic surgery) in Figure 2-18.

For Figure 2-18, Assessment G analysis Provider Detail FY14; provided by VHA OPES, February 26, 2015 and Provider Labor Detail FY14 provided by VHA OPES April, 9, 2015; AMGMA survey 2014; and MGMA survey 2014.

Figure 2-18. Benchmark case study - level 1a and level 3

Level 1a Complexity Facilities
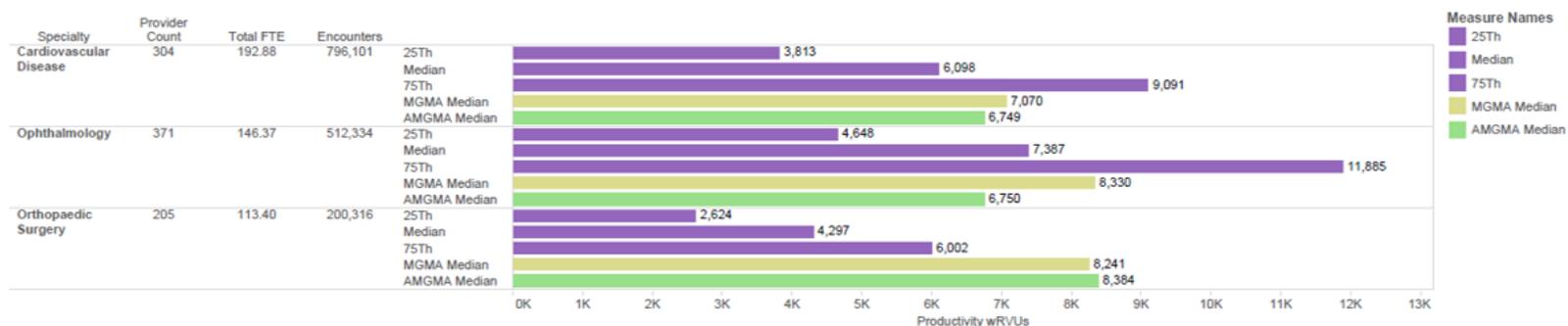
Level 3 Complexity Facilities
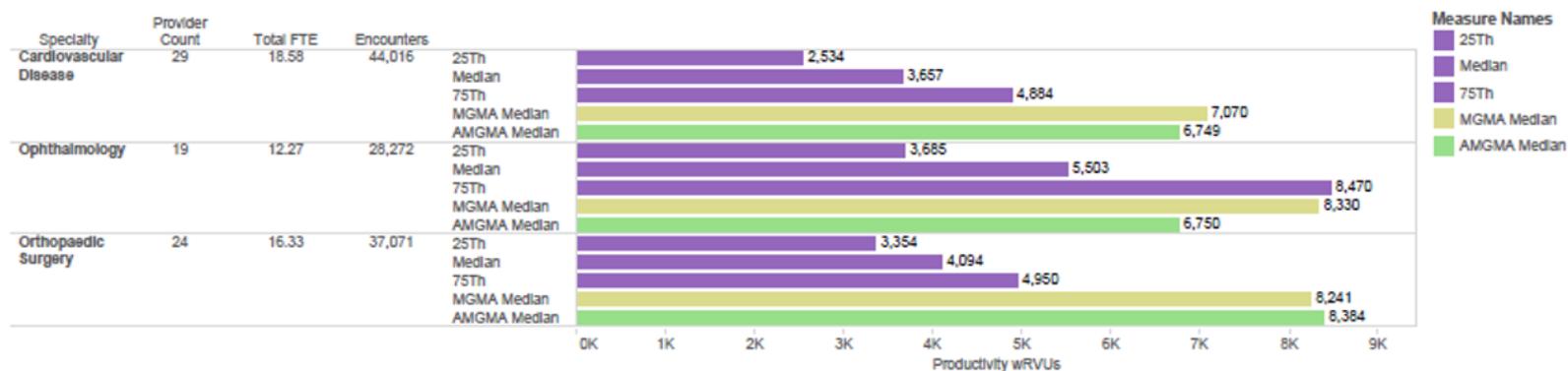
For cardiovascular disease, providers at VA complexity level 1a facilities are just as productive as the median of MGMA and AMGMA providers, for example 6,098 versus the median of 6,749 wRVUs for AMGMA providers. However, the providers at VA complexity level 1a facilities benchmarking above the median (75th percentile of VHA providers) produce significantly more wRVUs than the rest of the industry for example, 9,091 versus the median of 6,749 wRVUs for AMGMA providers. When comparing complexity level 1a facility providers using encounters as a measure of productivity, they have 1.7 percent more encounters than the median of MGMA providers and 26 percent more encounters than the median of AMGMA providers. One explanation for this result may be the care needs of a sicker Veteran patient population, with higher rates of cardiovascular disease and other co-morbidities (see Assessment A) which results in more referrals, follow-up visits and higher intensity visits to manage chronic heart conditions.

At VA complexity level 3 facilities, providers specializing in cardiovascular disease produce only half of the median production of MGMA and AMGMA providers. The median wRVUs of the most productive VHA providers (those at 75th percentile) at complexity level 3 facilities is closer to external benchmarks, for example, 4,884 versus the median of 6,749 wRVUs for AMGMA providers. When comparing complexity level 3 facility providers using encounters as a measure of productivity, they look more similar to industry: VHA providers produce encounters at 63 percent and 78 percent of MGMA and AMGMA providers, respectively (Note: encounter benchmark data is not shown).

For ophthalmology, a specialty that tends to be highly productive (when measured by wRVUs) due to the demand at VA facilities, providers at complexity level 1a complexity facilities compare favorably with industry benchmarks. At VA complexity level 1a facilities, providers specializing in ophthalmology are move productive than the median production of AMGMA providers and produce at the 89th percentile of MGMA providers. Similarly, providers at complexity level 1a facilities at the 75th percentile of VHA providers produce significantly more wRVUs than the rest of the industry, for example, 11,885 versus the median of 6,750 wRVUs for AMGMA providers and 8,330 wRVUs for MGMA providers.

At VA complexity level 3 facilities, the majority of providers specializing in ophthalmology produce only 81 percent and 66 percent of wRVUs produced at the median of AMGMA and MGMA providers, respectively. The most providers at VA complexity level 3 facilities at the 75th percentile of VHA providers are more productive than the rest of the industry, for example, 8,470 versus the median of 6,750 wRVUs for AMGMA providers and 8,330 for MGMA providers.

For orthopedic surgery, a specialty that tends to be highly productive due to the number of outpatient procedures performed in the private sector, providers at VA complexity level 1a and level 3 facilities produce approximately half of the wRVUs compared to the rest of the industry. The most productive providers (those at the 75th percentile of VHA providers) at VA complexity level 1a facilities are closer to the median external benchmarks; VHA providers at the 75th percentile are producing 72 and 73 percent of the wRVUs of the AMGMA and MGMA median benchmark. Comparing encounters, the median productivity of VHA providers at complexity level 1a facilities increases to 68 percent of the median of AMGMA providers. For VHA

providers at complexity level 3 facilities, productivity as measured by encounters increases to 82 percent of the median of AMGMA providers.

The differences from the private sector may be the result of lower utilization of elective procedures performed at VAMCs. Since VHA's population health focused model emphasizes management of chronic disease to prevent overutilization of services to improve patient outcomes, lower utilization of elective procedures would not be surprising. This finding is also observed in general surgery and otolaryngology. Surgical specialties that are highly utilized on an encounter per FTE basis in both the private sector and VA, include colorectal surgery, ophthalmology, hand surgery, and vascular surgery. Additionally, the shortage of specialty providers, such as orthopedic surgeons, in rural communities, may account for the higher numbers of encounters seen by complexity level 3 facility providers.

Additional detailed review of encounters is needed to better understand the relationship between encounters and Veteran access to care. Higher numbers of (than benchmark) encounters, but low patient access may be a result of inefficient scheduling processes, but would require an in depth analysis to confirm. Managing patient access requires a delicate balance between new and established or return patients. Too much of one or the other can decrease access to care. For example, if you increase the number of new patients from 2 to 4 seen by a provider in a given afternoon clinic which is traditionally 4 hours, there will be fewer appointments available for established patients as new patient appointments traditionally are longer, 30 minutes vs. 60 minutes respectively.

2.3.6.7 Productivity should be looked at in combination with access

Access is often considered as a key performance measure, along with productivity. Further, the ability to see more patients by increasing or improving access should result in higher RVU production. However, higher productivity is not necessarily associated with better access to care. Similar barriers might affect both access and productivity, such as: insufficient numbers of providers, insufficient numbers of clinical and/or administrative staff, and/or inconsistent clinic hours of operation and poor scheduling practices. Providers might be incentivized to focus on high wRVU procedures, at the expense of patients seeking access to care for simpler (lower wRVU) conditions.

High performing health care systems are increasingly looking at access in conjunction with productivity. By comparing these two measures, clinic leaders can better understand provider behavior and set targeted productivity goals or implement changes to improve access, such as: freeing up appointment slots for new patients, providing extended hours, or making changes to support staff mix.

Combined analysis of productivity and access is an important component in population health and/or value-based care models, which, like VHA, focus more on patient outcomes over volume. Minimum volume thresholds are still needed to maintain cost effectiveness and quality, as well as justify staffing ratios.

2.3.6.8 VHA's framework of productivity and access measures is a best practice (Finding 11)

Productivity and access are important measures in population based health models like VHA that focus on patient outcomes, rather than volume. VHA OPES reports on productivity and access offer tools for use by medical facilities. With some improvements to expedite adoption and regular use by medical centers, these tools could become key resources in optimizing productivity and maximizing access to care.

VHA OPES has developed a Relative Value Unit based modeling tool (SPARQ) to measure specialty provider group practice level based productivity, staffing and access. Assessment G used the SPARQ tool (see Figure 2-19) to assess the difference between a specialty group practice's productivity and access levels, and projected resource needs. The SPARQ tool combines practice-level productivity and access metrics into an Importance-Performance Analysis (IPA) framework, a two-dimensional Cartesian coordinate system divided by two axes that form four quadrants. Scores representing productivity are plotted on the vertical axis (y axis) and scores representing access on the horizontal axis (x axis). To understand how productive specialty practices are, the SPARQ tool uses probability distributions, a way of calculating the probability of a given productivity or access level occurring. The SPARQ tool makes the assumption that productivity and access are normally distributed by complexity group and specialty, or facility. Therefore, the SPARQ tool measures practices on the normalized scores referred to as the z-scores for productivity and access. The z-scores follow standard normal distribution and are calculated as practice productivity (or practice access, defined by one of five different measures) minus the mean productivity (or mean access), divided by the respective standard deviation.

Each specialty is categorized into a quadrant based on whether it has high or low access, and high or low productivity. However, neither productivity nor access alone tell the whole story.

Figure 2-19. SPARQ tool example[148]
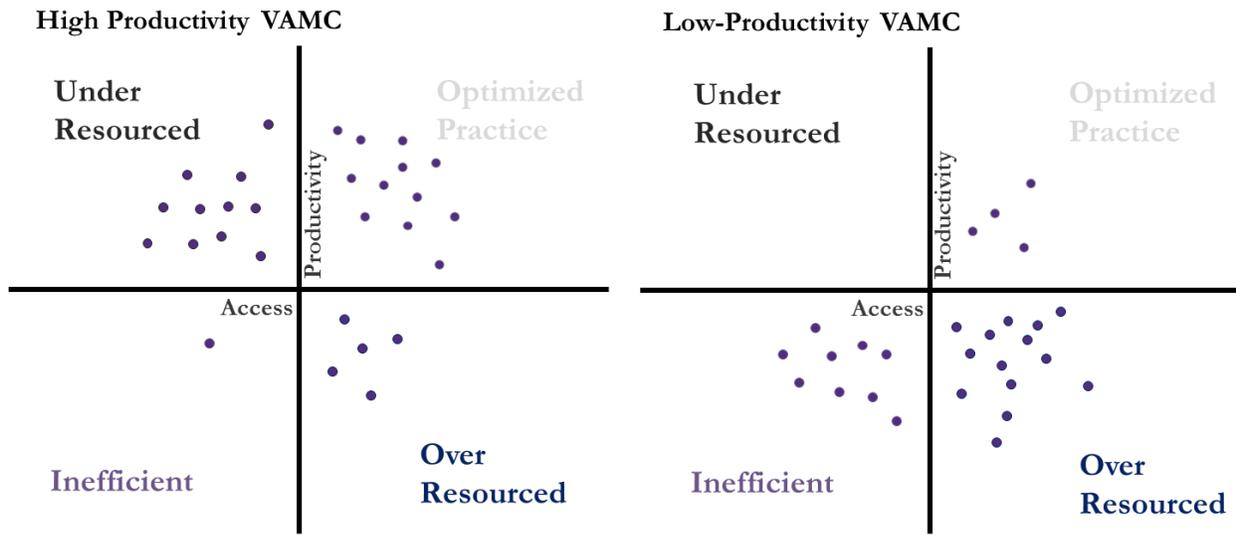
If we use dermatology as an example (see Figure 2-19), there are twelve facilities with high productivity, but decreased access to care (low proportion of patients seen within the 30 day access standard). These dermatologists see his/her full capacity of patients/day, but cannot meet patient demand. In this case, the SPARQ tool scores these facilities as potentially having insufficient resources. However, further examination may uncover operational inefficiencies such as truncated clinic hours, space issues, and/or insufficient clinical staff. Note that the example presented here for dermatology is not a direct extract from VHA's SPARQ tool but symbolizes a visual depiction of real data.

The Assessment G team also analyzed how access and productivity differ within specialties across all facilities and all complexities. Figure 2-20 compares the access metric, Patients Wait between 0- 30 Days[149] to wRVU Productivity (this is the wRVUs per clinical FTE) for cardiology. Of note, VHA cannot validate the reliability Patients Wait Between 0- 30 Days metric as it is a provided output of a SPARQ report; as such, this data must be considered carefully.[150]

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[148] Figures were created by the Assessment G team using VHA OPES SPARQ tool reports from two facilities.

[149] This measure is one of five available access measures available in OPES SPARQ reports, and is managed by VHA's Access and Clinic Administration Program. It indicates the percentage of all patients who are able to obtain an appointment within 30 days of request (effectively the percent who receive an appointment within VHA's access standard of 30 days).

[150] McKinsey & Co. (2015) Veterans Choice Act Assessment E Report

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Figure 2-20. Productivity vs. access analysis - cardiology[151]
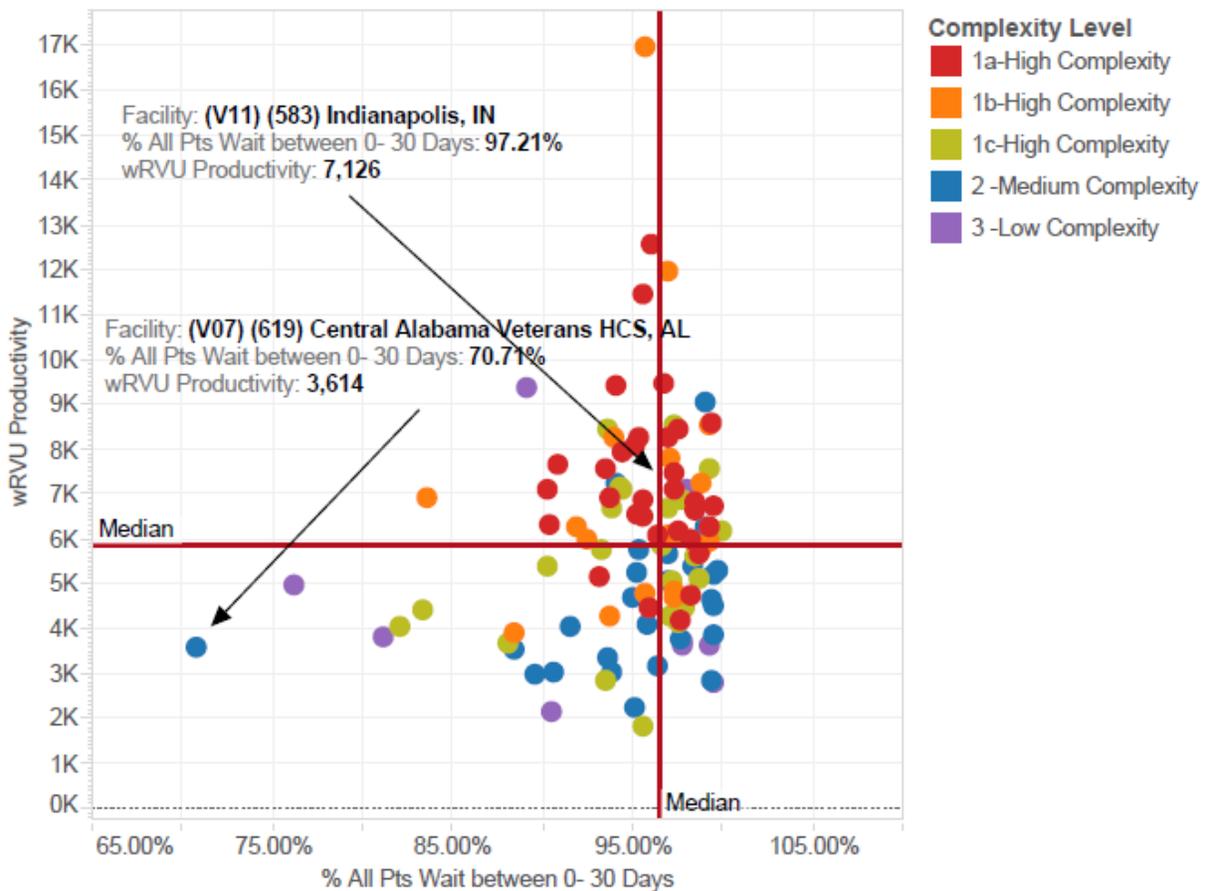
Facilities that fall toward the lower right quadrant of the graph exhibit lower productivity (below the median of VHA cardiology providers of 5,841 wRVUs) but generally good access (above the median, more than 96 percent of cardiology patients are seen within 30 days). This placement could be a result of low patient demand. For example, VA specialty funded or mandated clinics may implemented by facilities without consideration of demand. Additionally, our team recommends future analysis on the effect of a 40 hour work week on access and productivity. To increase access, some private sector health care systems have been increasing clinical contact hours from 32 to 40 hours a week. As a result of this private industry trend toward more clinical contact hours, hours worked is no longer a valid measure to assist in driving access or as a measure of productivity.

Facilities that fall in the upper left quadrant exhibit higher productivity (above the median of VHA cardiology providers) and poor patient access (below the median, less than 96 percent of

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cardiology patients are seen in 30 days). These facilities are productive but may need additional staff, space, or resources to open up slots for patient access. Facilities that fall in the upper right quadrant appear to have high access and high productivity. These facilities represent the highest performers. Further study of the unique characteristics of practice arrangements and service line operations within these facilities will allow VHA to identify replicable best practices.

Generally, facilities with lower complexity levels (Level 2 and Level 3, see blue and purple dots, respectively) appear less productive (above the median of VHA cardiology providers), but have good patient access (96 percent of cardiology patients seen within 30 days). Lower complexity facilities will typically have fewer highly complex, heavily procedural medical and surgical specialties which tend to generate more wRVUs. Good patient access may be a result of the implementation of local policies and procedures that open up slots for new and established patients.[152]

2.3.7   Dental Providers

For dental care, patient visits per year is an appropriate measure for comparing VHA dentists with industry providers. To assess the productivity of VHA dentists, we considered the ways in which VHA measures the performance of its dental providers. We found that VHA has developed an RVU metric, as well as metrics for procedures performed per year and average number of patient visits per year. We found that dental productivity measures do not typically exist in the private sector. We were able to obtain benchmarks from the American Dental Association for dental providers' average number of annual visits, which we compared to VHA dentists.

2.3.7.1   Summary of findings and analysis for dental

Data and observations from benchmarking and site visits yielded the following main finding. The sub-sections that follow describe the findings for dental providers in detail. Information on the factors that we believe to be the drivers of these findings are presented in Section 2.3.7.5.

Finding 12. VHA dentists see fewer patients on average than private sector benchmarks, but serve a population with special needs. The dentistry patient population of VHA generally has a compensable service-connected dental disability, is older, has more complex injuries, and may present for dental care following years of dental neglect. (See Section 2.3.7.4).

2.3.7.2   VHA has industry leading productivity measures

A total of 818 VHA dentists (based on FY14 Worked FTE figures) provide dental care for approximately 450,000 Veterans at VA medical facilities nationwide each year. There are 22 classifications of eligibility for dental care that can be grouped into five major scopes of care, with Class I, IIA, IIC, and IV designating eligibility for comprehensive, life-long dental benefits. VHA has industry leading productivity measures and tracking tools to inform and manage the performance of its dental providers. VHA has developed a set of productivity measures for its

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[152] New patients seeking care wait 30 days or less for an appointment.

dental providers that include wRVUs, procedures performed per year, and average number of patient visits per year. Dental productivity measures do not typically exist in the private sector.

2.3.7.3 Limited benchmarks exist for dental provider productivity

Unlike other health care specialties, where wRVUs and other productivity measures are widely available and used, productivity is not typically measured in the private sector for dental providers. As such, there were limited studies available for benchmarking. A study of 829 Oregon general dentists conducted in 2006 on hours worked, practice size, payment and patient mix, prices, dentist visits, and dentist characteristics, is one of the few studies available, separate of the ADA data.[153] However, the only available and nationally collected metric utilized (which comes from ADA) is visits per year. While VHA tracks procedures per year, there is no applicable external benchmark or industry performance metric to which comparisons can be made. Additionally, there is no dental relative value unit (RVU) scale managed by CMS, as is the case in other health care specialties.

VHA developed a method for assigning relative value units (RVUs) for dental work completed more than ten years ago, and has continually refined this method.[154] As an internal system, these RVUs have not been adopted by the general dental community and thus are only used to make comparisons on an internal system level. This represents an area where VHA is the leader in developing best practices for review methodology, and one that they utilize extensively to internally benchmark their providers and use as a tool to assess and manage productivity.

VHA developed its RVU scale and standards for facilities and VISNs after several meetings with VHA dental specialty leaders, and in 2011, conducted a comprehensive assessment of productivity across the system.[155] That study observed significant variation in dentist productivity between sites with residency programs and those without, and resulted in the creation of two models for dental programs; one for each group. The study also provided valuable insight into strategies for increasing productivity per provider, one of which involved increasing assistant to dentist ratios. For example, it noted that there is a significant increase in productivity when the ratio of assistants to dentists is at or greater than 1.75:1.[156]

At a national level, the office of the Assistant Under Secretary of Health for Dentistry actively monitors productivity of provider groups across VHA, and provides tools that facilities can use. They created an internal tool to identify outliers, particularly sites that may be at risk. This tool includes patient demand and RVUs over the last 12 months, comparing internal performance to non-VHA care (more specifically, the proportion of care being sent for non-VHA care).[157] Although we noted that productivity monitoring and decision tools for other specialties created

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[153] Conrad, D. A., Shuk-Yin Lee, R., Milgrom, P., & Huebner, C. E. (2010). Estimating Determinants of Dentist Productivity: New Evidence. Journal of Public Health Dentistry, 70(4). doi:10.1111/j.1752-7325.2010.00180.x

[154] Telephone interview with VHA Dental Program, December 30, 2014 and January 5, 2015.

[155] VHA Office of Dentistry (2012).Variables Affecting Dentist Productivity, Workforce Study, 2011, Published April 2012.

[156] Ibid.

[157] Telephone interview with VHA Dental Program, December 30, 2014 and January 5, 2015.

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by OPES have varied use (these were created much more recently), we frequently observed that dental service leaders at facilities are actively involved in monitoring their practice productivity using the tools provided by the dental leadership in VHA.

Providers are measured in RVUs per hour, and are actively involved in managing their own productivity. National leadership consults with facility leadership when headquarters observes outliers. We consistently noticed on site visits that dentists were aware of their productivity performance, and that dental service chiefs were actively monitoring the performance of their clinics, and taking steps to improve performance when it was out of range compared to national VHA dental productivity and peer facilities.[158]

2.3.7.4 VHA dentists see fewer patients than private sector benchmarks, but serve a population with special needs (Finding 12)

VHA dentists see fewer patients on average than private sector benchmarks, but serve a population with special needs. The dentistry patient population of VHA generally has a compensable service-connected disability, is older, has more complex injuries, and may present for dental care following years of dental neglect.

The majority of VHA dental providers' number of annual visits are comparable to industry when benchmarked to the 2010 American Dental Association Survey of Dental Practices. While variances exist between dental subspecialties, the majority of dental providers employed by VHA (75 percent) are classified in the "Generalist" category of dentists, and compare significantly more favorably (81 percent of the ADA benchmark average) compared to their specialist counterparts overall to industry peer productivity. The largest groupings of providers that lag behind expected visits per year (caseload) are the specialists, where there are fewer providers employed in the system (such as endodontics, with only 10 worked FTEs across the nation). The surgical subspecialties in particular lag industry visits per year, though significant differences in the delivery model and capabilities on-site are factors that must be considered when evaluating dental productivity. Additionally, the specialist benchmark for average patient visits per year is significantly higher (4,146 visits) compared to the benchmark for general practice dentists (2,224). With significant financial pressures in the private practice to see as many patients as possible for specialty care, direct comparisons to the VHA model of care delivery for similar specialties may not be as applicable. Table 2-5 shows VHA dental productivity and staffing compared to the benchmarks.

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[158] Assessment G Site Visits.

Table 2-5. VHA dental productivity and staffing (FY14)

VHA-Designated Specialty	VHA Total Worked FTEs	VHA Clinical FTEs (cFTE)	VHA wRVU/ cFTE	VHA RVU/cFTE Median	VHA Procedures /cFTE	VHA Visits/cFTE (FY 2014)	ADA Benchmark Visits/Year	% of ADA Benchmark Average
Dental Public Health	6	5	137,233	116,619	5,178	2,163	2224	97%
Endodontics	10	9	108,036	93,711	2,649	1,221	4146	29%
General Practice*	610	525	116,587	109,264	3,974	1,811	2224	81%
Oral and Maxillofacial Pathology	5	5	116,194	111,931	3,691	1,644	4146	40%
Oral and Maxillofacial Radiology	2	1	238,342	111,931	9,037	4,801	4146	116%
Oral and Maxillofacial Surgery	52	44	150,400	130,667	4,847	1,914	4146	46%
Orthodontics and Dentofacial Orthopedics	3	2	125,421	111,041	3,952	2,077	4146	50%
Periodontics	41	33	107,574	94,104	3,944	1,694	4146	41%
Prosthodontics	83	72	121,271	105,578	3,769	1,815	4146	44%
Oral and Maxillofacial Surgery – OMFS	6	5	116,857	123,800	3,913	1,904	4146	46%
Total	**818**	**701**	**118,962**	—	**4,000**	**1,810**	—	—

"Dentists – General Practice" and "Dentists – Not Specified" from our VHA data set were combined into a single "General Practice" category since they both represented non-specialty care Dentists. Table represents Assessment G analysis of VHA dental data, specifically Aggregate Dentist FY14, provided by VHA Office of Dentistry, April 13, 2015, and ADA survey data (2010). FTE Totals calculated from Worked Hours.

2.3.7.5 Several factors may contribute to the differences between VHA dentists and the private sector

Some of the key reasons for the differences between VHA dental providers' patient visits and the private sector relate to the characteristics of the patient population. There are 22 classifications of eligibility for VHA dental care, with Class 1 eligibility (full dental care coverage) requiring the Veteran to have a compensable service-connected dental disability.[159] Class IV eligibility (which covers all other medical disabilities) is the most common classification, representing approximately 70 percent of all patients who receive dental care.[160] As a result, the dentistry patient population of VHA is generally older, has more complex injuries, and may present for dental care following years of dental neglect.[161] In contrast, according to the 2010 ADA Dental Survey the majority of patients seen (64.9 percent) in the private sector are under the age of 55. In addition, the private sector population is 55.6 percent female, with only 6 percent of patients having public-assisted insurance (63.6 percent covered by private insurance and 29.4 percent covered by self-pay). Further, only 38.4 percent of private practice dental providers saw any patients who were covered through public assistance.[162] These are significant differences compared to the VHA population, especially those who qualify specifically for full Class 1 eligibility.

> *"The main difference between VHA dental care and a private setting is the fact that we do not sell dental services. For example, many private offices will push whitening and diagnostic procedures such as tongue scanning on their patients. Here at the VHA, there is no pressure to drive revenue, so we can practice dentistry and do what is needed for our patients."*
> *– VHA Dentist at a Level 1 Facility*

In addition to hearing about the major differences in dental patient population from VHA senior leadership, we consistently heard similar experiences from dentists and dental service line leaders during our site visits. These significant differences in prevalence of co-morbidities and physical debilitations can frequently make the delivery of care time consuming and challenging. The prevalence of mental health disorders amongst the population base also contributes to longer visit times. For example, one dentist reported that being exposed to a drill can evoke a significant amount of distress and discomfort tied to Post Traumatic Stress Syndrome and other disorders. Another dentist noted that procedures can sometimes take two-to-four times as long as the private sector for these types of reasons; the same provider noted that the dentist may sometimes have to consult the patient's primary care provider in the middle of the appointment, adding additional time to appointment length. One dental chief at a complexity

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[159] U.S. Department of Veterans Affairs. (2013) VHA Handbook 1130.01, Veterans Health Administration Dental Program. Retrieved from http://www.va.gov/VHAPUBLICATIONS/ViewPublication.asp?pub_ID=2867.

[160] Email correspondence with VHA Office of Strategic Planning and Analysis, July 22, 2015.

[161] Telephone interview with VHA Dental Program, December 30, 2014 and January 5, 2015.

[162] ADA. (2010). 2010 American Dental Association Survey of Dental Practices: Characteristics of Dentists in Their Private Practices and Their Patients. Retrieved from http://www.ada.org/en/publications

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level 1 facility specifically described how his productivity is hampered by certain aspects of the VHA patient population. He noted that he often spends time allowing some patients to relax in the dental chair while waiting for their blood pressure to go down before he can begin procedures.

2.3.8   Barriers to VHA providers' productivity

The Assessment G team conducted research to identify the factors that may impact the productivity of VHA providers and help explain why there are differences with private sector benchmarks of productivity. In doing so, we conducted:

- Literature reviews of VHA policy documentation and directives

- External literature reviews

- Participation in site visits to High Performing Health Care Systems

- Interviews with VHA central office leaders and subject matter experts

- VHA site visit observations at 24 VA medical centers and CBOCs

- Interviews with over 700 providers and facility leaders at VA medical centers and CBOCs

- More in-depth reviews of nurse staffing practices at seven VA medical centers

We conducted a root cause analysis exercise to determine those factors which contributed most to the differences between VHA provider productivity and external benchmarks. The key findings are summarized first, followed by a detailed discussion of our findings.

2.3.8.1   Summary of findings

We have synthesized the findings from our assessment to identify what may be the most important drivers of the productivity of VHA providers. These are listed here.

- **Finding 13.** Insufficient exam rooms and poor configuration of space limits providers' productivity, ability to maximize patient throughput and reduces patient access. (See Section 2.3.8.3)

- **Finding 14.** Clinical and administrative support staff ratios are insufficient and may limit provider productivity. (See Section 2.3.8.4).

- **Finding 15.** Insufficient clinical and administrative support staff results in providers and clinical support staff not working to the top of their licensure. (See Section 2.3.8.4.1).

- **Finding 16.** While there has been widespread implementation of the PACT model in primary care clinics and the National Nurse Staffing Methodology in many areas of inpatient care, there are no current VHA standards for staffing levels and/or mix in specialty clinics, with the exception of eye clinics. Furthermore, VHA OPES has developed state of the art tools for managing staffing and productivity, but these tools will require improvements for leaders to more effectively leverage them in resource decisions. (See Section 2.3.8.4.2)

- **Finding 17.** Organizational siloes and separate reporting lines exist for physicians, nurses and medical service administrators at a majority of VAMCs. As a result, service chiefs do

not have control over the resourcing and performance of their clinical support staff (nurses) or clerical and administrative support staff. (See Section 2.3.8.4.3)

- **Finding 18.** Many facilities do not have a centralized staffing office or nurse float pool to address daily staff variances or absences. (See Section 2.3.8.4.4)
- **Finding 19.** During site visits and interviews with VHA Central Office leaders, we consistently heard concerns that providers do not fully document and accurately code all of their clinical workload. (See Section 2.3.8.5).

2.3.8.2 Providers identified several barriers to optimizing productivity

The Assessment G team interviewed over 700 providers and facility leaders through the course of twenty four site visits to VA medical facilities. In doing so, we identified several barriers to optimizing productivity.

The following two figures illustrate the ten most common issues or barriers to optimizing productivity, as reported by providers, and by facility leaders, on our site visits. There was a high degree of consistency between the factors identified by providers and facility leaders.

Many of these barriers are not unique to VHA; in fact, private sector health care systems face the same barriers to provider productivity. It is also important to note that these barriers are in many cases, highly interdependent. As such, addressing one barrier, may not mitigate productivity challenges, and could even exacerbate another issue. For example, if a facility lacks adequate support staff, adding additional support staff may not increase productivity if there are not additional rooms for those support staff to use; for example, if a provider has one exam room in clinic, but no clinical support staff, he or she likely retrieves patients from the waiting room and checks vitals and take the patient's history himself/herself. If that provider was allocated a nurse, but no additional room; the provider still could not have a nurse preparing the patient while he/she was seeing another patient. Below we elaborate on each barrier, and the associated findings. Figure 2-21 and Figure 2-22 were created using Assessment G analysis of site visit data.

Figure 2-21. 10 Most common productivity issues or barriers according to providers
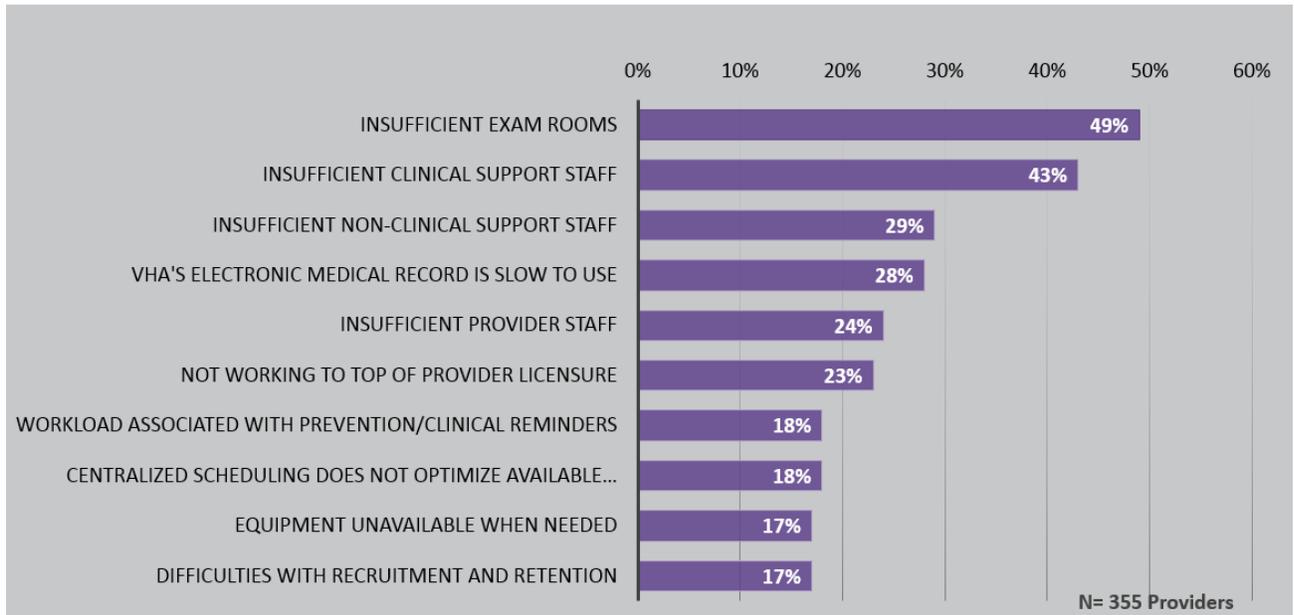
Figure 2-22. 10 Most common productivity issues or barriers according to facility leaders
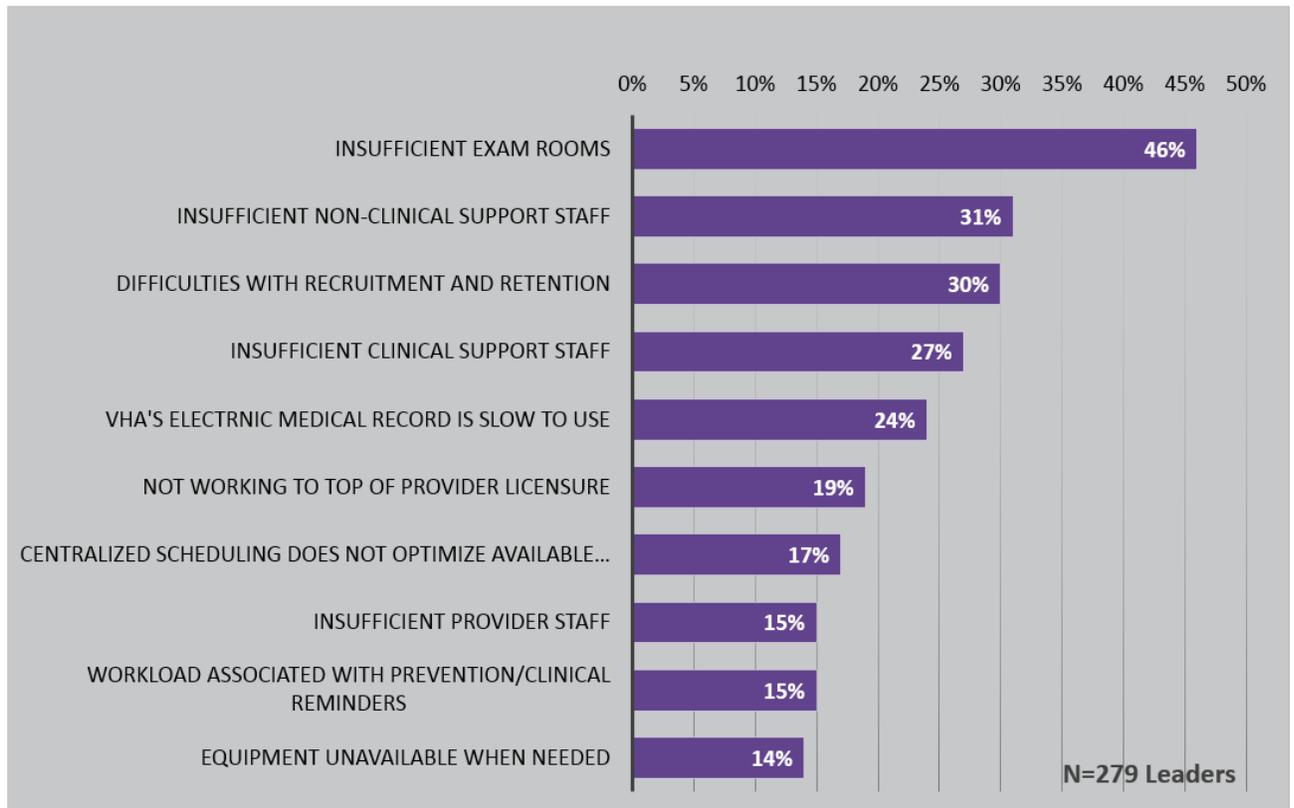
2.3.8.3 A shortage of exam rooms and poor configuration of space limits productivity (Finding 13)

Insufficient exam rooms and poor configuration of space limits providers' productivity, ability to maximize patient throughput and reduces patient access.

On our site visits we observed that although there are some similarities in facility design between hospitals built during the same time period (and most VAMCs were built in the 1950s post WWII era), no VAMC looks the same. Space is utilized differently between facilities and clinics, and there is variation in room ratios as well as equipment availability. Overall, we found that space is often limited in clinics or is not configured appropriately to optimize efficient patient throughput. Space limitations (insufficient number of exam rooms) was the factor most often identified by providers (49 percent) and facility leaders (46 percent) as a barrier to provider productivity. For example, a provider at a VAMC stated "there is only one exam room per physician; we are unable to put multiple patients in different rooms waiting to be seen at one time; there are therefore a lot of providers waiting for the patient to come to their office". Another provider at VAMC stated "the exam room often doubles as the provider office; there is also not a table present in the exam room, which makes it difficult to perform certain procedures as needed. Providers also frequently (17 percent) mentioned difficulty locating mobile equipment; for example, imaging equipment, medical instruments, furniture and computer hardware. We observed that necessary equipment was sometimes lacking in specialty clinics. Although our team received multiple anecdotal comments regarding the impact of equipment on provider productivity, further analysis is needed to determine the direct impact of this issue to productivity.

> *"How do you retrofit a hospital from the 1950s to function in a modern era without actually modernizing the building? The majority of VA facilities were built beginning as early as the 1930s and are trying to accommodate new era processes and technology. Space is consistently a limiting factor, but it is difficult to expand a footprint that does not exist."* – Chief of Medicine, Complexity Level 1 Facility

Insufficient exam rooms and ineffective space planning and configuration in specialty, mental health and primary care clinics limits patient throughput and may result in VHA providers waiting to see patients while an exam or procedure room is cleaned and prepared or a nurse conducts intake and vitals with a patient. During our site visit interviews, concerns about clinic space were more prevalent among specialty care providers than primary care providers (PCPs). This may be because space for primary care clinics is guided by the PACT model handbook which recommends 3 rooms per 1 FTE provider (with 2.17 support staff). Of note, primary care provider panel size is adjusted down when providers have fewer than three rooms available.[163]

In a separate study conducted in early 2015 for VHA, Grant Thornton assessed the ratio of rooms to providers for a sample of specialty outpatient clinics at 48 medical centers across the

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[163] U.S. Department of Veterans Affairs. (2009). VHA Handbook 1101.02 PCMM. Retrieved from http://www.va.gov/vhapublications/ViewPublication.asp?pub_ID=2017

country, with varying complexity levels. **Figure** 2-23 shows the ratio of rooms to providers from the sampled facilities (for all complexity groups). The figure illustrates both the ratios of rooms per provider (physicians and APPs) for a subset of sampled specialties (light purple bars) and the ratio of rooms per providers, fellows and residents combined (dark purple bars).

Figure 2-23. Provider room ratios[164]
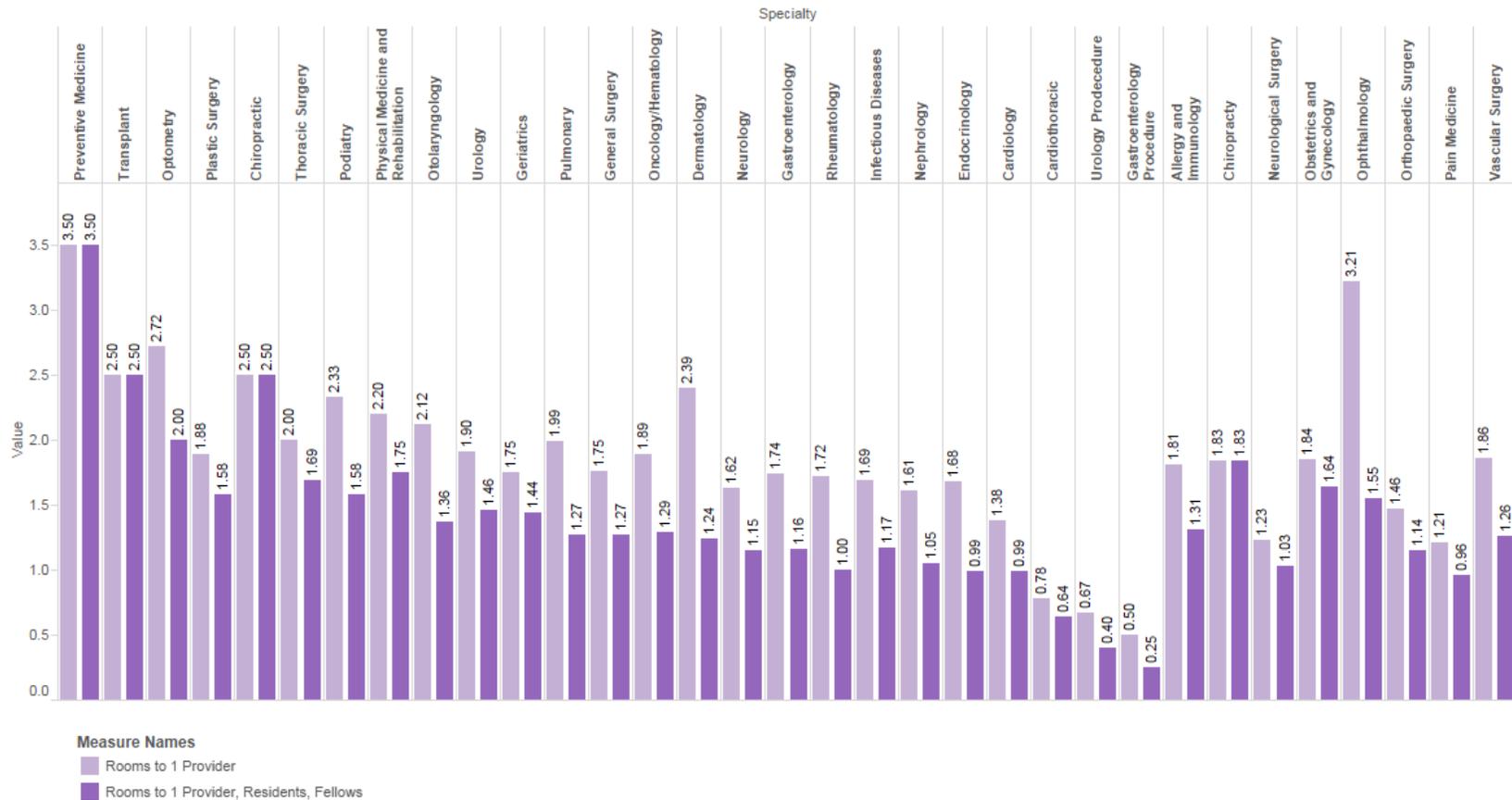
The results of the Specialty Care Services study, which are supported by evidence from the Assessment G team's interviews with providers during our 24 site visits, found the room to provider/fellow/resident ratio in VA clinics is typically, for the subset of sampled specialties, 1.28:1 (roughly one room for each provider), resident and fellow, and the ratio of rooms to providers only (without residents and fellows) is 1.87:1. At the higher volume and most complex facilities (level 1A facilities), the ratio of rooms to providers, residents and fellows falls to 1.05:1. This contrasts with room ratios in efficient external health care organizations of 3:1. In other words, for a no delay practice, the ratio of exam rooms should be one physician to three exam rooms.[165] Having multiple rooms enables the provider to see one patient while a nurse or health technician conducts intake with the next patient in another room.

> ***Promising Practice: Boston VA Health Care System***
>
> At the Boston VA Health Care System in Massachusetts, clinic space is at a premium. Exacerbating the space shortage is the age of the facility. An average room at the facility is 500 square feet, whereas the industry standard is 1,000 square feet. To work around the space shortage in its outpatient clinics, the Boston VA has expanded clinic hours to provide appointments in the evening and weekends, a strategy rarely used by VA medical facilities.
>
> ***Value***: This is highlighted as a promising practice because many VA facilities face a similar space shortage. Since VHA construction projects can take a prolonged amount of time to be planned, designed, and constructed, extending clinic hours is a feasible solution. This best practice can be leveraged across facilities, but successful implementation depends on providers' availability and willingness to take on non-traditional work hours, and flexibility of unions in allowing these practices.

2.3.8.3.1 Inefficient clinic workflows may exacerbate space shortages in VHA clinics

We observed on our site visits that clinic workflow in primary care and specialty care outpatient clinics was largely inefficient, resulting in negative impacts to productivity as well as a provider-centric, rather than patient centric workflow. In the primary care setting, it appears that this inefficient workflow may be exacerbating space shortages as a whole, as space is used inefficiently, limiting the space that could otherwise be used to see additional patients. In the specialty care setting, a lack of exam rooms and clinical support staff may contribute to inefficient clinic workflow, as providers are forced to bring patients back and forth between the exam room and the waiting room themselves, because, in many cases, they only have one room and do not have the support staff to bring the patients to the exam room. Below, we describe the observed current state and ideal future state of primary care clinic workflow in detail.

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[165] Applegate, M.S. (2008). Practice Efficiency. American College of Physicians. Retrieved from https://www.acponline.org/running_practice/practice_management/education/practice_efficiency.pdf

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Figure 2-24 shows current patient throughput in a primary care clinic as observed by the Assessment G team during site visits to VA medical centers. Per PACT guidelines, each clinician has his or her own room. Ideally, the patient is brought in from the waiting room by the RN to begin the patient workup for example, vitals, initial screening. Once completed, the patient returns to the waiting room until called by the provider (Medical Doctor or Nurse Practitioner) to begin the patient visit. Depending on the presence of resident or fellows and if a procedure is required, a patient could change rooms at least three or four times. This heavily provider-centric flow, in which the patient is brought from room to room, can be especially time consuming given the VHA patient population. Older patients take longer to dress and undress, causing a bottleneck in the provider room, extending wait times for scheduled patients and limiting the number of walk-ins that can be seen.

Figure 2-24. Current state primary care clinic flow
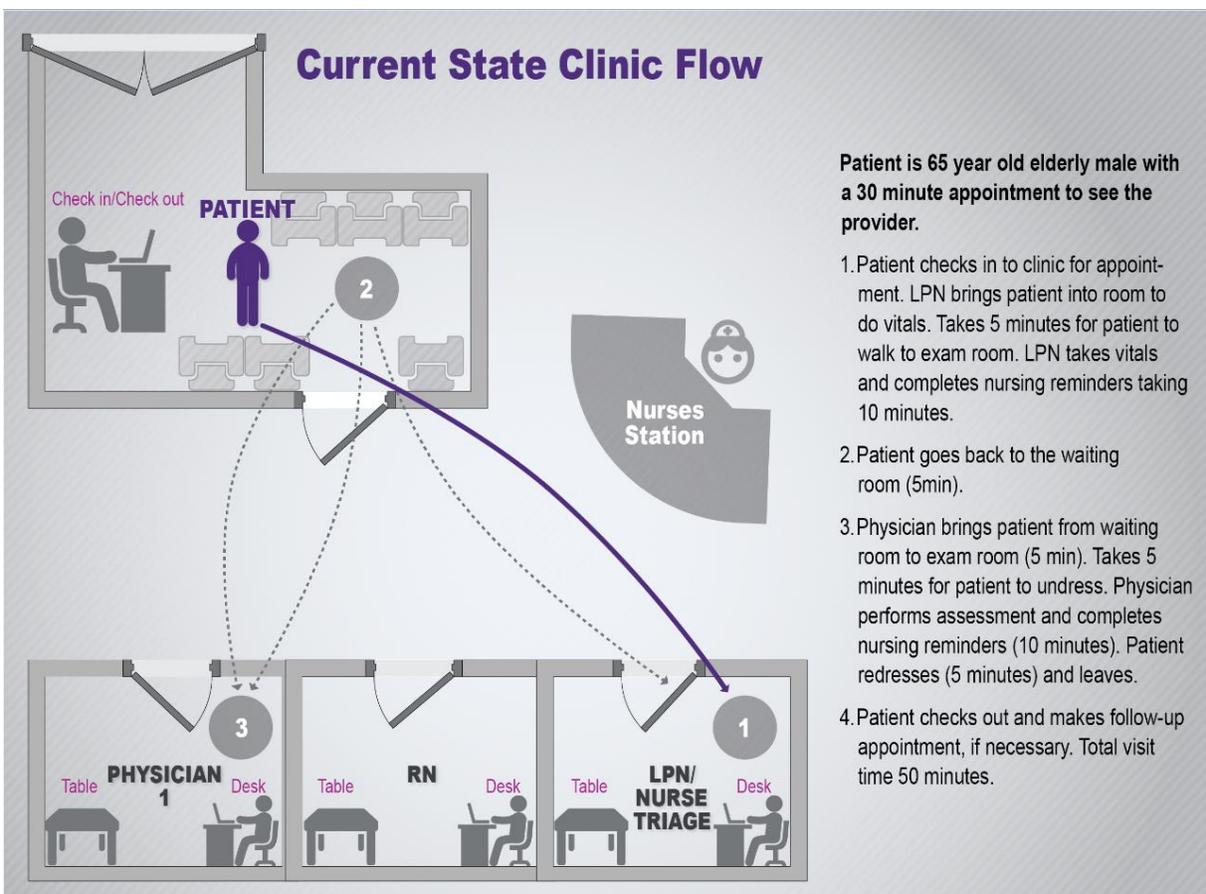
Alternatively, Figure 2-25 shows the recommended future state flow that is often seen in the private sector (figure compiled based on input from Assessment G subject matter experts). This best practice is patient-centric, with providers moving from room to room, instead of the patient, increasing patient throughput by untethering the provider from the room and allowing multiple patients to be worked up.

This flow works best when the exam rooms are only for patients and do not double as offices, and the EHR system has flexibility (Single Sign-On) and mobility (computers on wheels [COWs] or tablets).

Figure 2-25. Ideal future state primary care clinic flow
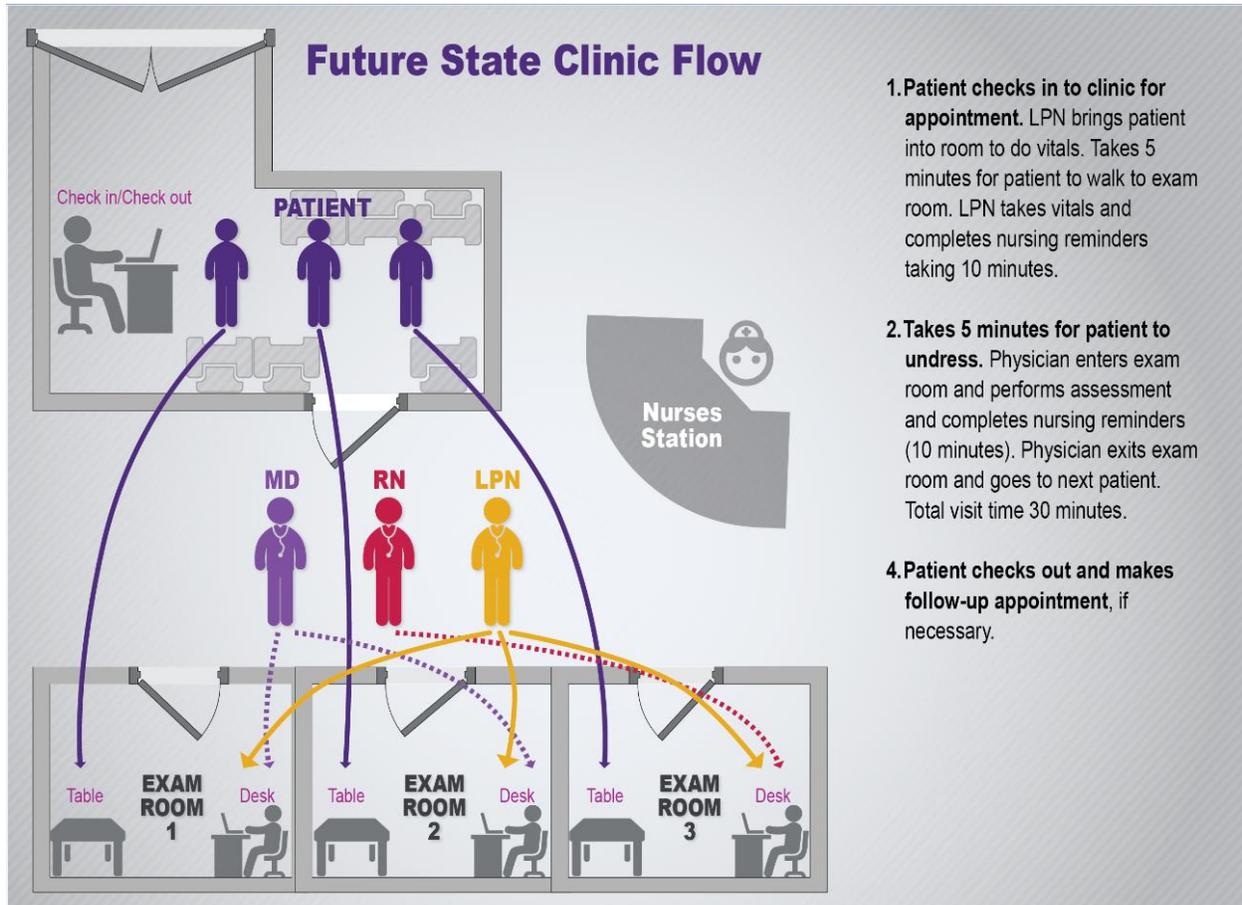
In many VA medical centers are aged, having been built in the post-World War II boom of the 1950s, with the average age of a medical facility approaching 60 years.[166] Initially focused heavily on inpatient care and as long term living spaces for providers, with amenities such as barber shops, bowling alleys, and recreational swimming pools, today VAMCs primarily provide outpatient care (more than 99 percent of care provided is in the outpatient setting).[167] Due to changing patient needs over time, these facilities are no-longer configured to meet modern day patient needs. As a result, many facilities are forced to repurpose space for new uses, without being able to modify that space to optimize patient throughput. Using square footage as a

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[166]GAO. (2013). GAO Report to the Chairman, Committee on Veterans' Affairs, House of Representatives. (2013, April). VA Construction: Additional Actions Needed to Decrease Delays and Lower Costs of Major Medical-Facility Projects. Retrieved from http://www.gao.gov/assets/660/653585.pdf

[167] Based on analysis of 2013 data from Selected Veterans Health Administration Characteristics: FY2002 to FY2013, retrieved from http://www.va.gov/vetdata/utilization.asp on May 13, 2015.

measure of available space does not offer a complete picture of available space to provide patient care, since many VAMCs still have some of the same amenities of an era in which facilities focused on long term care and domiciliary type care (it should be noted, however, that we observed on our site visits that these amenities are in fact still being utilized by Veterans – and may also contribute to the high patient satisfaction rates - particularly the Patriot Café (cafeteria) and Patriot Clips (barber shop). Often inpatient wards have been converted to outpatient clinics, so they may have bathrooms or other features typical of an inpatient room, making it appear that the provider has more space for patient care. We frequently observed in facilities, and heard from providers, that space was not configured properly for the type of care they were providing.

> ### Promising Practice: Mitigating Limited Space at Portland VAMC
>
> The Portland VA Medical Center established scheduling processes for outpatient specialty clinics to provide efficient delivery of different services in clinics with limited space and time. For example, the facility moved away from scheduling fixed day and time slots for each specialty to a compressed schedule that accommodated patient appointment preferences for the upcoming weeks.
>
> *Value*: Resulted in better utilization of available space and increased patient access.

2.3.8.3.2 Insufficient availability of equipment may limit provider productivity

The number of patients seen by a provider can be impacted by several different factors, one of which is equipment availability. Equipment is defined as imaging equipment, medical instruments, and furniture and computer hardware. Limited access to equipment such as X-rays and ultrasound machines, as well as lack of access to specialized equipment for specialty care, can cause bottlenecks in patient throughput, particularly on high-volume days. At one facility, 50 percent of dental clinic exam rooms were equipped with X-ray machines, resulting in frequent delays as patients had to wait if an X-ray was needed and they were in a room without an X-ray machine. During site visit interviews we heard that VA vendor contracting processes regarding ordering equipment valued at less than $3,000, for example, scalers for dentistry, can be confusing and lengthy, leading to shortages in equipment and delays in clinic as equipment is located. Delays in sterile processing was also indicated by providers as an issue pertaining to equipment availability.

In conjunction with exam room configuration, standardization of supplies and tools within exam rooms may increase efficiencies. Lack of day-to-day supplies due to clinic space sharing can cause delays in throughput when providers and/or clinic staff leave the exam room to obtain desired items.

Age of the plant and inefficient configuration of space requires VHA providers to utilize technology such as secure messaging (email and/or instant messaging) to efficiently communicate with each other during a patient visit. We observed varied utilization of real-time instant messaging between medical support assistants (MSAs), nurses, and providers during our

site visits. Technology should also include adjustable features for patient information sharing.[168] If a quick question can be sent to a team member using technology and that team member has an available resource, information can be shared with the patient in real time and care plans can be developed. The technology in place and patient satisfaction with how they "feel" in the room while in communication with their provider can greatly affect their perception of the visit.

In the recommendations section, we provide specific recommendations on how VHA can address space related issues (shortage of appropriately equipped exam rooms and inefficient use of available space). Our findings and recommendations are consistent with those of the Assessment K report, which studied facilities (construction, leasing and space) more comprehensively.

2.3.8.4   There is insufficient clinical and administrative support staff (Findings 14 -18)

Clinical and administrative support staff ratios are insufficient and may limit provider productivity.

The Assessment G team found that 43 percent of the 355 providers interviewed perceived insufficient clinical support staff (for example, nurses) to be a barrier to their productivity. A further 27 percent of the providers interviewed perceived insufficient non-clinical support staff (for example, clerks or schedulers) to be a barrier to their productivity. Many of the 279 facility leaders interviewed also shared these perceptions (29 percent and 31 percent, respectively).

The lack of clinical support staff (registered nurses, licensed practical nurses, medical technicians) and to some extent, not having the right skill mix and roles defined for these staff, can result in providers not using their time or skills (licensure) efficiently within the clinic. For example, providers may perform patient intake procedures themselves, or conduct routine patient care tasks more appropriately performed by a nurse, thereby reducing the efficiency of the clinic, and diminishing both productivity and patient access.

A cardiologist at a VA facility stated, "There is a need for additional support staff to allow providers to operate at the top of their licensure. Currently, in addition to providing patient care, the provider needs to schedule their own appointments, put in orders, and type notes into Computerized Patient Record System (CPRS)." A Hematologist/Oncologist at a VAMC stated "one of the biggest barriers is the shortage of clinical support staff. We would like to have at least one additional registered nurse that could alleviate the burden of administrative duties by triaging patients, making phone calls, and doing medicine reconciliation."

Such problems can be exacerbated by a shortage of non-clinical support staff (medical service administrators, clerks) creating inefficient patient management and clinic workflows in which

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[168] Anjali, J., Keller, A. & Gulwadi, G.B., (2009) Improving the Patient Experience: Best Practices for Safety-Net Clinic Redesign. p18. The Center for Health Design. Retrieved from http://www.chcf.org/publications/2009/03/improving-the-patient-experience-best-practices-for-safetynet-clinic-redesign

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nurses, and to some degree providers, perform administrative functions such as scheduling, patient check-in and check-out and room preparation.

A primary care provider at a VAMC stated, "More clerks are needed, especially to implement the PACT model. Providers could be more efficient if there were more staff to support physicians and enable them to avoid clerical work that impacts their productivity." An ophthalmologist at a VA facility stated, "The providers at this facility have little administrative support; this has directly led to the doctors having to perform secretarial work instead of focusing efforts on delivery of care." A Service Line Chief at a VAMC stated, "Nursing staff members are moved to more administrative duties when they underperform in their clinical duties, instead of allowing for attrition; this impacts the availability of clinical support staff."

In a separate study conducted in early 2015 for VHA, Grant Thornton assessed the ratio of support staff to providers for a sample of specialty outpatient clinics at 48 VA Medical Centers across the country, with varying complexity levels. Figure 2-26 depicts the total support staff (clinical and non-clinical) to provider ratio observed recently for 34 VHA medical and surgical specialties across 48 facilities. The average number of support staff (clinical and non-clinical) assigned to each provider at VHA was observed to be 1.28 support staff per provider across all specialties in the sample subset. When provider was defined to include providers, residents, and fellows the ratio was observed to be less than one (0.87). The ratio was even lower at the higher volume and most complex (level 1A) facilities, where the average ratio was 0.71 providers, residents and fellows to each support staff member. The figure below shows the support staff ratios observed from this study, including support staff per provider only (dark purple bars) and per providers, residents and fellows (light purple bars).This is significantly lower than the ratio of support staff to providers found in the private sector. For instance, the 2014 MGMA survey reported an average of 3.68 total support staff to each provider in multispecialty practices operated by hospitals or integrated delivery systems comparable to VHA.[169]

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[169] MGMA. (2013) Academic Practice Compensation and Production Survey for Faculty and Management: 2014 Report based on 2013 Data. Retrieved from http://www.mgma.com/Libraries/Assets/Store/Surveys/8743-2014-Key-Findings-Academic-Practice.pdf

Figure 2-26. VHA support staff ratios[170]
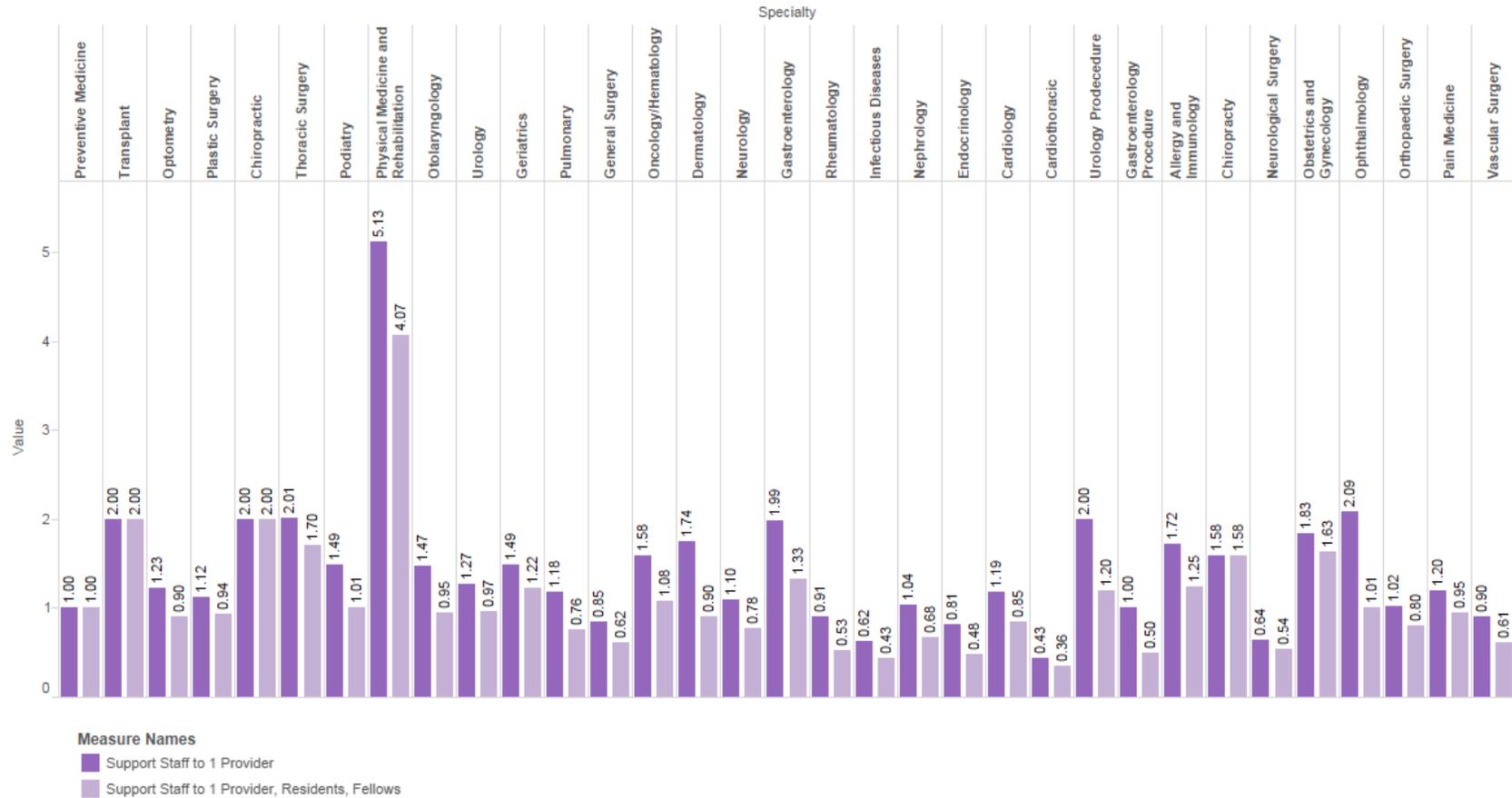
2.3.8.4.1 Insufficient support staff may prevent providers working to the top of their licensure (Finding 15)

Insufficient clinical and administrative support staff results in providers and clinical support staff not working to the top of their licensure.

Through the course of the team's root cause analysis, we identified that a lack of clinical and non-clinical support staff results in providers and nurses not being able to work at the top of their licensure. When VAMCs do not have adequate support staff for clinics, there is a cascade effect of staff not working to the top of their license and consequently limiting the productivity of providers. An Advisory Board study found that 36 percent of tasks routinely performed by nurses across the industry could be delegated to non-licensed staff, which then provides time for nurses to accept greater responsibilities and increase productivity. [171]

The Assessment G team observed numerous examples during site visits of VHA providers and clinical support staff performing tasks that might not reflect the highest and best use of their skills or license when compared to private sector practices. Table 2-6 lists tasks and their typical owner in the private sector versus the potential owner of these tasks at VHA facilities.

Table 2-6. Duties for private sector and VHA providers[172]

Task	Private Sector Responsible Person	VHA Responsible Person
Book appointment	Clerical	Clerical, LPN, RN, Nurse Practitioner (NP), Physician Assistant (PA), **MD**
Take incoming patient call	Clerical, LPN, RN	Clerical, LPN, RN, NP, PA, **MD**
Chart preparation	Clerical, LPN, RN	Clerical, LPN, RN
Room patient	LPN, RN	LPN, RN, NP, PA, **MD**
Prepare exam room	LPN, RN	LPN, RN, NP, PA, **MD**
Triage patient	RN, NP, PA, **MD**	RN, NP, PA, **MD**
Submit medication refill request	RN, NP, PA, **MD**	RN, NP, PA, **MD**

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[171] The Advisory Board Company. (2015). Adaptation; For Prospective Members: Achieving "Top-of-License" Nursing Practice. Retrieved from: http://www.advisory.com/research/nursing-executive-center/events/webconferences/complimentary-webconferences/achieving-top-of-license-nursing-practice.

[172] Assessment G team health care expertise and site visit observations.

The views, opinions, and/or findings contained in this report are those of Grant Thornton should not be construed as an official government position, policy, or decision.

Task	Private Sector Responsible Person	VHA Responsible Person
Check-in patient	Clerical	Clerical
Remove suture, change dressing, etc.	RN	RN, NP, PA, **MD**
Prescribe treatment	NP, PA, **MD**	NP, PA, **MD**
Administer vaccine and/or medication	RN	RN, NP, PA, **MD**
Perform physical exam and health history	RN, NP, PA, **MD**	RN, NP, PA, **MD**
Diagnose and treat patient	NP, PA, **MD**	NP, PA, **MD**
Provide health promotion, counseling and education	RN	RN, NP, PA, **MD**
Coordinate care	RN, NP, PA, **MD**	RN, NP, PA, **MD**

Promising Practice: Nurses defining optimal staffing mix at Fargo and Palo Alto VAMCs

Established process to define optimal staffing mix to promote nurses to work at the top of their licensure:

- Identify all tasks/patient care interventions conducted per unit/clinic based on patient population
- Map tasks to role (e.g. RN, LPN, Support staff) and calculate staff mix based on HPPD or task time
- Update job descriptions to include specific tasks
- Conduct education sessions to teach staff how to delegate.

Value: Optimizes nurse and support staff roles/responsibilities, clarifies delineation of tasks between licensed and non-licensed staff, reduces costs by hiring more support staff, and promotes nurses working at the top of their license, which results in increased provider productivity.

2.3.8.4.2   VHA lacks staffing models to forecast provider staffing needs (Finding 16)

While there has been widespread implementation of the PACT model in primary care clinics and the National Nurse Staffing Methodology in many areas of inpatient care, there are no

current VHA standards for staffing levels and/or mix in specialty clinics, with the exception of eye clinics.

Through the course of our root course analysis we identified that a lack of staffing models results in VAMCs being unable to predict, identify, and justify the need for resources. Although VHA has a data tool that VHA facilities can use to better understand resourcing and productivity, low confidence in the accuracy of the data results in low usage by facility leaders. Further, the lack of coordinated governance structures between clinical support staff, non-clinical support staff, and provider staff renders an inability to flex resources across service lines, and optimize coordination of care.

The Office of Nursing Service (ONS) recently developed staffing guidance for the Emergency Department, and the Office of Mental Health Services is testing various staffing models in mental health clinics, for example, the Behavioral Health Interdisciplinary Model (BHIP). Of the service chiefs we spoke with on our site visits, none reported that they had formulas for determining the optimal number and mix of providers and support staff for their clinics. Most interviewees said that these decisions were left to the facility, and were not VISN based or VA Central Office mandated. This lack of definitive guidance and requirements for staffing level and mix of providers, as well as clinical and non-clinical support staff, makes it difficult for service chiefs to understand how many and what kind of staff they need, and for them to make the business case for more resources. It can also result in clinics lacking the appropriate number of clinical support staff, non-clinical support staff, as well as providers and support staff not working to the top of their licensure or highest functional level.

VHA facility leaders are not universally leveraging data tools to support staffing decisions.

VHA OPES has established a suite of web-based tools for facility and service level leaders for managing clinic access, productivity, and efficiency. This suite includes the Specialty Productivity-Access Report and Quadrant (SPARQ) tool, and several workforce reports. The SPARQ tool allows a facility management team to compare one of their specialty practices to specialty peer groups, or to compare all facility specialties to facility peer groups to compare performance on productivity and access measures. The tool also calculated 39 measures of specialty practice workload, workforce, productivity, access, demand, physician compensation, fee care expenditures, and facility reliance on fee care. The reports available from OPES are industry leading tools; however, decision support and management reports such as these are only as good as the underlying data which feeds them and factors such as: business rules, roles and responsibilities, and training. These factors may affect facility management's perceptions about the reliability of data and consequently their reliance on these important tools.

VHA recently established productivity standards for each specialty provider group practice, by facility complexity level. Recently published VHA guidance defines VHA's policy for monitoring and assessing productivity and associated staffing.[173] The guidance dictates that each medical

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[173] U.S. Department of Veterans Affairs. (2015).VHA Directive 1065, and VHA Handbook 1065.01. Productivity and Staffing Guidance for Specialty Provider Group Practice. Retrieved from http://www.va.gov/vhapublications/ViewPublication.asp?pub_ID=3103

facility director monitor and assess specialty care provider group practice productivity on an annual basis, at a minimum, using standardized methods. Specialty provider group practices should achieve a yearly clinical productivity value higher that 1 standard deviation below the level of the mean specialty productivity level (current productivity levels are based on fiscal year 2013 data, as a baseline).[174] Facilities with specialties that fall below should develop a remediation plan.

These requirements represent early steps in a movement toward institutionalizing productivity as one measure of performance at the facility level and nationally. As such, VHA Central Office encourages facilities to use the tools developed by OPES to regularly monitor productivity, and to ensure labor mapping, VHA's cost accounting method of aligning provider time to clinical activities, is accurate, as this forms the denominator of provider productivity calculations. OPES also encourages VA medical center leaders to ensure that providers' person classification code is recorded accurately with credentialing and privileging, as inaccurate person class mapping will result in specialty practice wRVUs being misattributed to a specialty.

Despite these efforts, the Assessment G team received varied reports from facility leaders on whether they are using these tools. The team consistently heard from facility leaders that they are not regularly using these tools for decision support or day-to-day management of clinic staffing. There is a perception that the underlying data that feeds these tools can be unreliable. Some of the reasons given are: differences in the way data is captured by the facility, lack of staff to manage clinic productivity, limited understanding of how to use the tools, and an increased focus on making decisions based solely on access (if patients cannot be seen within 30 days, provide a referral for purchased care, rather than use as a justification for additional staff or need to improve productivity). It also appears that clinic business managers have limited bandwidth to support this type of data drive decision making and management. VHA recently began to implement a Clinic Group Practice Manager Model, which is modeled after a successful U.S. Air Force initiative. At present, it does not appear that VHA has tied additional funding for more resources to this initiative; as such, it is not clear how its success will be measured.

VHA is well ahead of the industry in the development of tools that facilities can use, but may have opportunities to improve the tools to better cater to the needs of facility leaders. A separate study by Grant Thornton in support of the Office of Specialty Care Services recently assessed the validity of the labor mapping data that feeds reports by the Managerial Cost Accounting Office (MCAO) and OPES, as well as how and if facilities are complying with the labor mapping guidance and using OPES tools. That study will include a report to OPES with strategies for improving OPES reporting tools.

2.3.8.4.3   Organizational siloes and separate reporting lines exist (Finding 17)

Organizational siloes and separate reporting lines exist for physicians, nurses and medical service administrators at a majority of VAMCs. As a result, service chiefs do not have control

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[174] Ibid.

over the resourcing and performance of their clinical support staff (nurses) or clerical and administrative support staff.

Through the course of our root course analysis we identified that organizational siloes and separate reporting lines result in clinical leaders not having sufficient visibility into clinic staffing and not having the span of control or authority needed to manage all of the staff in their clinics. The Assessment G team frequently observed a siloed management structure of providers and clinical and non-clinical support staff. The typical reporting structure has clerks and support staff reporting to medical administrative service (MAS), nurses (Licensed Practical Nurse [LPN]/Licensed Vocational Nurse [LVN] and Registered Nurses [RNs]) reporting to nursing service (led by the Chief Nursing Executive) and most providers reporting to (physician) service chiefs who report to the Chief of Staff. As a result, service chiefs do not have control over the resourcing and performance of their clinical support staff (nurses) or clerical and administrative support staff. Further, service chiefs may have limited influence over who is assigned to their unit and the continuity of those staff.

The lack of oversight of clinic staff by service chiefs can make it difficult for them to understand the complete staffing in a clinic and limit their ability to optimize staff roles and responsibilities. This can lead to issues such as:

- Inefficiencies in executing scheduling protocols and other administrative tasks commonly performed by non-clinical support staff
- Inefficient patient flow within the clinic
- Failure to flex resources across service lines or clinics to meet needs.

2.3.8.4.4 Daily staffing variances create staff shortages (Finding 18)

Many facilities do not have a centralized staffing office or nurse float pool to address daily staff variances or absences.

Through the course of the team's review of nurse staffing practices at VA medical centers, we identified that facilities do not have a centralized staffing office and rarely utilize a nurse float pool to address daily staffing variances. This results in shortages of clinic support staff, which can reduce the productivity of providers. Ineffective management of staff absences can disrupt patient care teams and cause stress for nursing staff who are pulled from their unit to cover short-staffed units with different team members, processes and unit layouts.

A neurologist at a VAMC stated "there are not enough clinical support staff and the number available is not reflective of the workload; there is no ability to flex up the number of nursing support staff depending on the number of patient encounters – the same number of nurses are available, regardless of demand."

A face-to-face survey of 1,791 clinical support staff conducted by Grant Thornton in early 2015 in support of VHA's Office of Specialty Care Services found that there were frequently no plans in place to manage daily staff absences. Figure 2-27 shows that 66 percent of surveyed clinical support staff in specialty care outpatient clinics reported that when they are absent, there is no one who covers for them.

Figure 2-27. Specialty clinic absence coverage for clinical support staff[175]
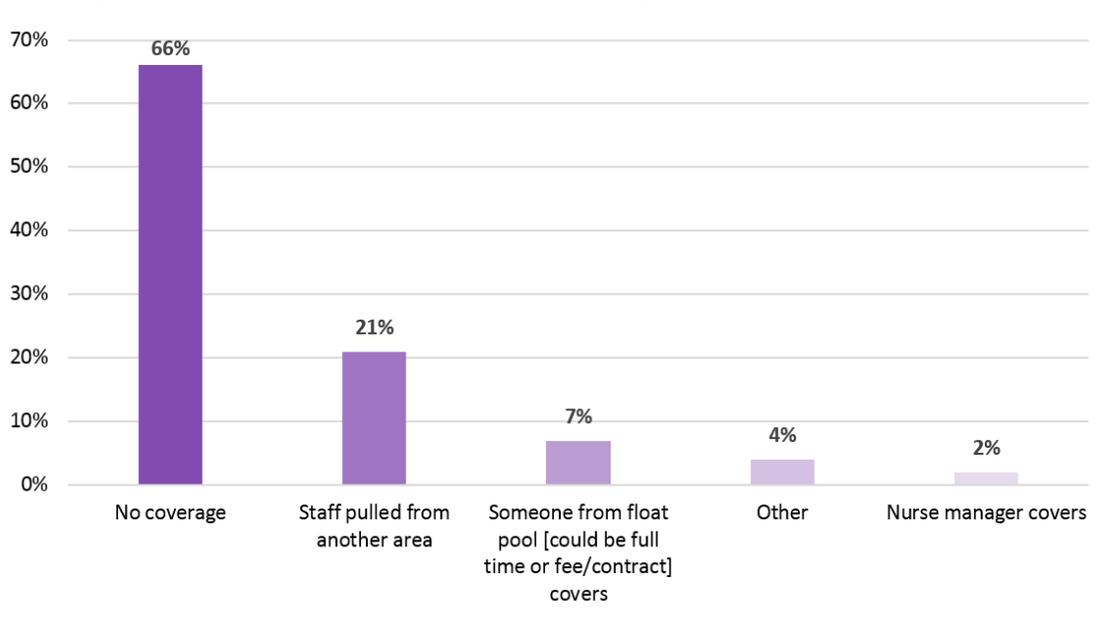
Daily staff variances appear to be an issue for both inpatient and outpatient clinic environments and do not appear to be addressed in current VHA staffing models. Our team observed that VHA's national nurse staffing methodology, the PACT model in primary care, nor any staffing method in specialty care clinics, had a replacement factor to address staffing variances.

With respect to inpatient care, the target nursing hours per patient day (NHPPD) produced by VHA's nurse staffing methodology is not tied to facility budgets. This leads to ineffective management of staff costs per day and staffing gaps. For example, at the medical surgery (Med-Surg) inpatient units we visited the nurse staffing methodology produced greater than expected target NHPPD variances among similar units. At one Med-Surg unit, the target NHPPD was as low as 6.6 hours, but a similar unit's NHPPD was 9 hours. When units were unable to meet their targeted NHPPD, they often used overtime or closed beds because they lacked a flexible workforce to fill staffing gaps.

Even when units meet their target HPPD, clinical leaders do not have good data with which to assess adequate staffing because overtime is included in their total hours. Overtime usage across VAMCs can vary significantly. Current national overtime rates for VHA are marginally higher than the rest of the health care sector (2.92 versus 2.86 percent), but can vary significantly by VA facility.[176] Figure 2-28 provides an example of the level of variation in the use

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[175] Grant Thornton analysis of staff coverage conducted on behalf of VHA's Office of Specialty Care Services, draft data, July 6, 2015.

[176] U.S. Department of Veterans Affairs, (2015) ProClarity Briefing Book. VANOD Administrative Indicators Briefing Book.bbk.

of overtime by VA facilities. Overtime ranged from less than 2 percent at the Fargo VAMC to almost 6 percent at the Baltimore VAMC.

Figure 2-28. Overtime rates for select VAMCs (March 2015)
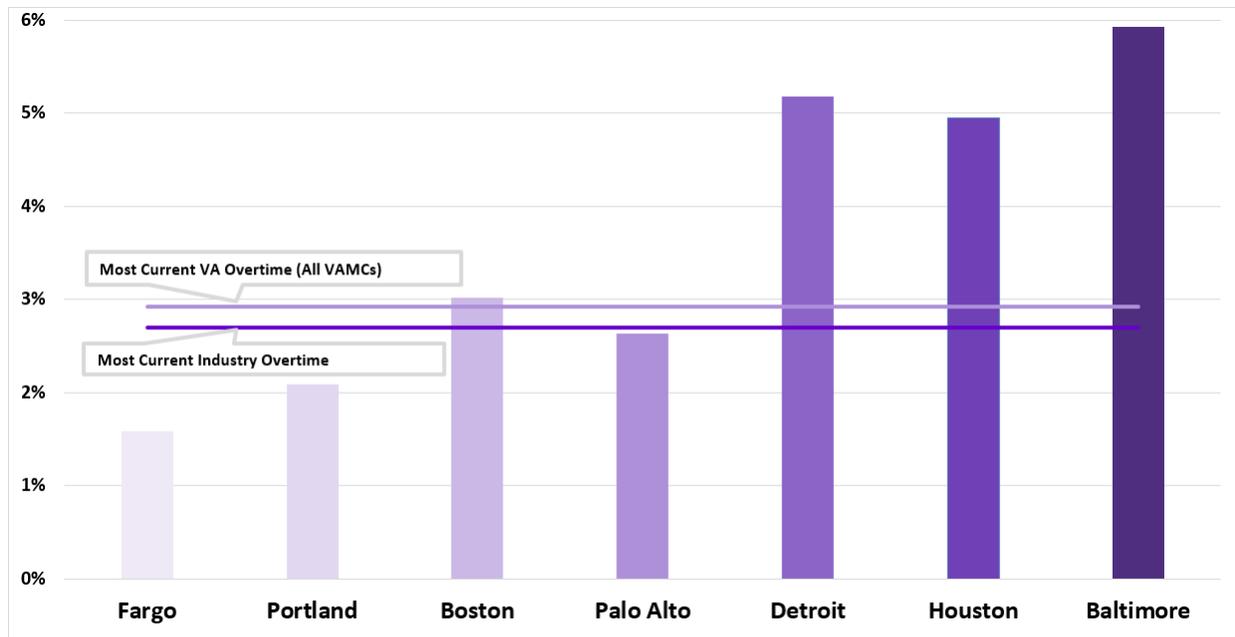
2.3.8.5 Providers may not be fully documenting their clinical workload (Finding 19)

During site visits and interviews with VHA Central Office leaders, we consistently heard concerns that providers do not fully document and accurately code all of their clinical workload.

These observations are similar to the results of Assessment F (Clinical Workflow). Failure to fully document clinical workload may impact the accuracy of wRVU productivity measurement and the ability of medical facilities to properly manage providers' availability. Coding accuracy is also important to measuring whether clinical pathways are being appropriately followed and understanding care outcomes. According to Assessment F, VHA has a Clinical Documentation Initiative (CDI), however only 46 percent of VA Medical Centers participate. Methods to determine nurse/support staff mix may not fully capture workload (Labor Management Institute [LMI] ratios may not cover continuous observation [CO] needs). VHA also lacks a local infrastructure to assist providers and nurses to accurately capture workload and coding.

Inaccurate workload capture was reported by many providers across virtually all medical centers visited by the Assessment G team. Interviewees gave many reasons for inaccurate workload capture, including a lack of understanding of the policies, preference to spend time treating patients, and a distrust in the data integrity. Additionally, some staff expressed displeasure in not knowing who views productivity data and what levels it is reported to. Limited provider training and lack of systems to assist providers in documenting comprehensively and accurately limits the accuracy of workload capture.

Other factors raised by providers during site visit interviews include: data such as charge capture reports and other wRVU-related measures are not relayed from the facility Business Office to the clinical service lines and back; reporting structures are disconnected between Business Office and clinical service lines where adequate feedback is not required from the Business Office to remediate potential coding errors; there is a lack of training in coding for providers; and there is a lack of tools to enhance coding and documentation, such as CAC programs, to assist providers in accurately coding, and processes such as charge tickets which group the most used ICD-9 or ICD-10 codes for imaging, procedures, and/or clinic visits are used sparingly at VHA.

2.3.8.6 VHA's electronic health record may limit provider productivity

VA first introduced its EHR – otherwise known as CPRS – across its facilities in 1997. Since then, CPRS has functioned as VHA's core EHR to house all patient- and care-related information. Although CPRS was developed in-house with the expertise of VHA providers and nurses, the system and supporting human resource and IT structures have not been updated consistently across facilities to sufficiently support providers' efficient care delivery. Additionally, providers have in some cases, not been adequately armed with the knowledge and skills to easily navigate the system to record patient information and optimally deliver personalized, proactive, patient-centered care. This, as a result, may impact providers' productivity levels across facilities. During site visit interviews with facility leaders and providers, the following issues with the CPRS were frequently raised:

Lengthy amount of time it takes to log-in to the IT system. Providers stated that it can take up to 15 minutes to log-in to CPRS. The system automatically logs out providers if it is not being used for ten or more minutes. This especially reduces provider productivity if they need to log back into CPRS multiple times over the course of a patient visit.

Speed of system further diminished when utilizing two or more modules simultaneously. Providers stated that if they have one or more applications open in addition to CPRS, then CPRS operates more slowly. For example, some facilities use the Dragon®NaturallySpeaking software to dictate notes into CPRS. While this software is designed to assist providers in capturing notes more efficiently, it has slowed CPRS because the IT system is not designed to support simultaneous module utilization.

Antiquated nature of the system. VHA's CPRS was released and implemented across its facilities in 1997. Although the EHR was designed in-house with the expertise of VHA providers and nurses, the system has not been updated to keep up with technological advances. Specifically, based on site visit observations and feedback, the user interface is not similar to private industry counterparts (e.g. EPIC, Cerner) and the time it takes for the software to log-in and log-out is prohibitive, in many cases, to efficiently using multiple rooms to see patients.

Lack of IT training for providers to manage view alerts and clinical reminders. Some providers stated that they can spend up to an hour or more on a daily basis going through their view alerts, but others stated that they can alter their filters so that they would not necessarily need to be alerted by low-priority messages. Although providers stated that they can spend a significant amount of time going through clinical reminders during each patient visit, many

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stated that they are necessarily to provide comprehensive chronic care management and preventative care. Primary care providers have comparably more clinical reminders than specialty care providers, and LPNs can also manage some reminders.

Many providers stated that they do not know how to efficiently manage and work through their view alerts and clinical reminders, and would like to have training to better be able to manage these responsibilities. However, the centralized governance structure for IT resources limits accountability for developing and providing training for providers, and triaging IT issues for efficient resolution.

Extensiveness of electronic documentation. CPRS requires providers to enter an extensive amount of patient notes. This heavy amount of documentation is often exacerbated when patient information does not transfer seamlessly between systems. Our team heard that there is no bi-directional feed between different electronic modules and that providers need to document notes in Caretracker and then copy and paste the information into CPRS. Another provider stated transferring reports between systems is too time-consuming.

2.3.8.7 Scheduling inefficiencies may limit provider productivity

Efficient scheduling processes, procedures, templates, and tools are essential for optimizing provider time by maximizing utilization and availability for patient care. Our team found that scheduling inefficiencies were a significant barrier to productivity, at many facilities, according to the providers that we interviewed. More specifically, in their opinions, the processes in place and infrastructure in support of VA's current scheduling system reduces the ability of clinics to make the best use of available provider time and thereby maximize the efficiency of clinics.

In our interviews, providers appeared to be less satisfied when scheduling functions were handled outside of the clinic or by a pool of staff who rotated through different clinics. Where call centers existed, the Assessment G Team, along with the Assessment E team, observed that these call centers supported different services and functions depending on the facility. The staff had different approaches to interacting with clinics and different degrees to which clinics had codified their business rules. Clinics reported that this could, at times, result in incorrect scheduling practices.

Another regular complaint by providers was the movement and/or reassignment of staff who provide scheduling support to clinics. Providers expressed a preference for having dedicated scheduling staff who understand their clinic scheduling needs and preferences. Alternatively, standardization in clinic profiles, templates, tools, and training of staff, might mitigate centralized scheduling woes, without the need for dedicated schedulers assigned to specific providers or a group of providers. Below we elaborate on two sub-areas that we observed; however, the Assessment G team defers to the findings and recommendations offered in more depth within the Assessment F team report.

2.3.8.8 Schedules are not developed to optimize providers' available time

This is amplified by limited visibility into the total supply of available appointments within the VistA scheduling system. The VistA scheduling system also inhibits the ability to vary

appointment length to match patient acuity, resulting in less than optimal use of available provider time within master scheduling templates. The inability to view access in aggregate may contribute to slow reactionary needs to Veteran demand, and VA's responsiveness to shifting open appointments.

VHA providers express particular frustration with the scheduling process and feel their ability to deliver care in an efficient and productive manner is reduced by VA scheduling practices relative to typical private sector scheduling processes.[177] Furthermore, according to McKinsey's Assessment E (provider availability section), only 56 percent of all providers believe schedulers are adequately trained. According to one provider, "the scheduling system restricts the ability to identify an appointment slot by patient acuity, which is specific to the Veteran population. The master scheduling template is not flexible." Less common in the private sector is the incidence of clinic cancellations, since cancelled clinics directly result in lost revenue in those settings. In VHA, the Assessment E team consistently noted that changes in provider availability and management of provider availability is a significant issue.[178] MSAs manage providers' schedules, and they may not have a strong working relationship with the clinic staff nor have a full understanding for the clinic culture because they report to the facility's business office. Providers cannot optimize their schedules to see as many patients as possible, which, as a result, negatively impacts their productivity

2.3.8.9 Patient follow up procedures are not in place to manage no-shows

When a patient fails to keep an appointment, in the private sector, it is termed a "no show." VHA refers to no shows as missed opportunities. No shows can result in underutilized provider time and poor patient access (as patients who could have had an appointment scheduled, do not). No shows present a constant challenge to providers' ability to manage their day-to-day schedules. Although no shows are a complaint across the industry, no show rates appear higher in VHA than in other systems across the nation. Even VHA's target missed opportunity rate is higher than national no show rates in the industry. In an Assessment E analysis of a sub-set of facilities and clinic environments, 35 percent of visits did not occur as scheduled, with half of those being no shows or 24 hour cancellations (for additional detail on this topic, see the assessment E Scheduling Process section for more detail).[179]

2.3.8.10 Nurse staffing shortages

Through the course of the team's root course analysis we identified a number of factors that may contribute to shortages of clinical support staff, which leads to lower productivity of providers:

- Incomplete implementation of VHA's Nurse Staffing Methodology
- Insufficient budgets to hire nursing staff

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[177] Assessment G site visit interviews.

[178] McKinsey & Co. (2015). Veterans Choice Act Assessment E Final Report.

[179] Ibid.

- Lengthy hiring processes for nurses

- Absenteeism and turnover of nurses

- The lack of a quality journey designation to attract nurses

- Diminishing continuing education opportunities for nurses

Our team conducted interviews with VHA nurse leaders at the national level, as well as site visits to examine nurse staffing practices at seven VA medical facilities, in order to explore these issues. Our findings are summarized below.

2.3.8.10.1 Implementation of VHA's Nurse Staffing Methodology is incomplete

VHA Directive 2010-034[180] mandates the development of nurse staffing plans by each facility. We reviewed the implementation of the nurse staffing methodology at seven VA facilities. During site visits, we consistently heard that budget constraints and cumbersome hiring processes resulted in the disapproval of FTE requests and unfilled positions for nurses. Facilities that had fully implemented the nurse staffing methodology continue to struggle to provide adequate nurse and support staff persisted. The national nurse staffing methodology mandate did not include the funding for the methodology, processes for developing a training plan, or continuous monitoring and oversight of the implementation.

VHA's ONS is deploying the Nurse Staffing Methodology (VHA Directive 2010-034) using a phased approach, with phase one implementing across inpatient units. Phase two expands the implementation to the operating room (OR), ED, ambulatory and specialty care areas. Phase three provides guidance to implement a fully-automated system to determine adequate nurse staffing for all points of care. The ONS explained that four years after the adoption of the directive by VHA, many medical centers have not fully implemented the nurse staffing methodology.

ONS recently conducted an evaluation of the VHA Nurse Staffing Methodology, (*Evaluating the VHA's Staffing Methodology Model: A Reliable Approach, 2015*). The study noted that facility compliance in meeting target staffing levels varied widely and fluctuated over time. It also noted that high turnover among VAMC nurse executives hindered the implementation of VHA Directive 2010-034. Further, a recent study found that VHA's nurse staffing methodology increased the absolute number of Nursing Hours per Patient Day (NHPPD) by a full hour, but did not necessarily result in actual increases of RN hours per patient day across all units and nursing personnel.[181]

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[180] U.S. Department of Veterans Affairs. (2010). VHA Directive 2010-034. Staffing Methodology for VHA Personnel. Retrieved from: http://www.va.gov/vhapublications/ViewPublication.asp?pub_ID=2274

[181] Taylor, B., Yankey, N., Robinson, C., Annis, A., Haddock, K., Alt-White, A., Krein, S., & Sales, A., 2015. Evaluating the Veteran's Health Affairs staffing methodology model: A reliable approach. *Nursing Economics$*. January-February, 2015, Vol. 33/No.1. Retrieved from http://www.medscape.com/viewarticle/840990_5

2.3.8.10.2   Insufficient budgets may contribute to shortages of support staff

Budget limitations may constrain facilities' ability to reach adequate support staff levels. Implementation of VHA Directive 2010-034 is resource dependent; yet, the mandate remains unfunded.[182] In the inpatient setting, medical centers we visited were following the VHA Staffing Methodology Directive and utilized the FTE calculator tools to determine their target HPPD and FTE needs per unit. However, the availability of sufficient budget for inpatient nurse staffing varied by facility. If VA medical centers cannot align their budgets with target FTE needs they will likely not achieve the benefits of the standardized nursing staffing methodology. Consequently, units will have inadequate clinical support staff, which may impact provider productivity.

Nurse executives we interviewed during site visits expressed fewer concerns about budget constraints in primary care. This is because, in contrast to the VHA nurse staffing methodology, the PACT model used in primary care, was a funded model when it was implemented. The Veterans Choice Act included funding for primary care and specialty care staffing which we expect will improve VA medical centers' ability to budget for clinical and non-clinical support staff.

2.3.8.10.3   Hiring processes may contribute to shortages of support staff

Lengthy recruiting, hiring, and onboarding processes and delays were a frequently reported barrier to adequate nurse staffing by facility nurse executives. Primary recruitment challenges that VHA faces include: limited nurse candidates (particularly in rural areas); steep competition for talent in urban academic centers; and non-competitive salaries. A nurse executive at one facility mentioned that managing the number of qualified Veteran applicants who applied for clinical support staff positions further delayed the hiring process due to declination rates as high as 90 percent. In FY 2014, VHA hired 6,688 nurses. The average speed of hire was 39 days.[183] The lengthy onboarding process caused delays, which result in a loss of qualified candidates. These challenges contribute to a high number of vacancies.

At a complexity Level 1 facility, we were told that a VHA surgeon technician's average salary was 30 percent lower than the salaries offered by local hospitals.

At another facility, we were told that nurses were offered $25,000 sign-on bonuses from local hospitals to recruit them because of their valuable VHA work experience. Nurse executive salaries can be $100,000 higher at local hospitals compared to VHA.

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[182] Interview with Office of Nursing Services, February 12, 2015.

[183] Certain data used in this study were supplied by Truven Health Analytics. Any analysis, interpretation, or conclusion based on this data is solely that of the authors, and not Truven Health Analytics. Data was obtained from Truven Health Analytics ActionOI®(2015) Facility Indicators All Beds Report, provided by FTI Consulting. Data not available to the public.

As of March 2015, the total number of nurse, practical nurse and nursing assistant vacancies across all VA medical centers was 16,676, which represents approximately 20 percent of VHA's nursing staff workforce.[184] Figure 2-29 depicts the number of nurse, practical nurse, and nursing assistant vacancies for seven of the VA medical centers we visited to examine nurse staffing practices. These high vacancy numbers make it difficult for VAMCs to adequately staff units and clinics.

Figure 2-29. VAMC vacancies for nurses, practical nurses, and nursing assistants
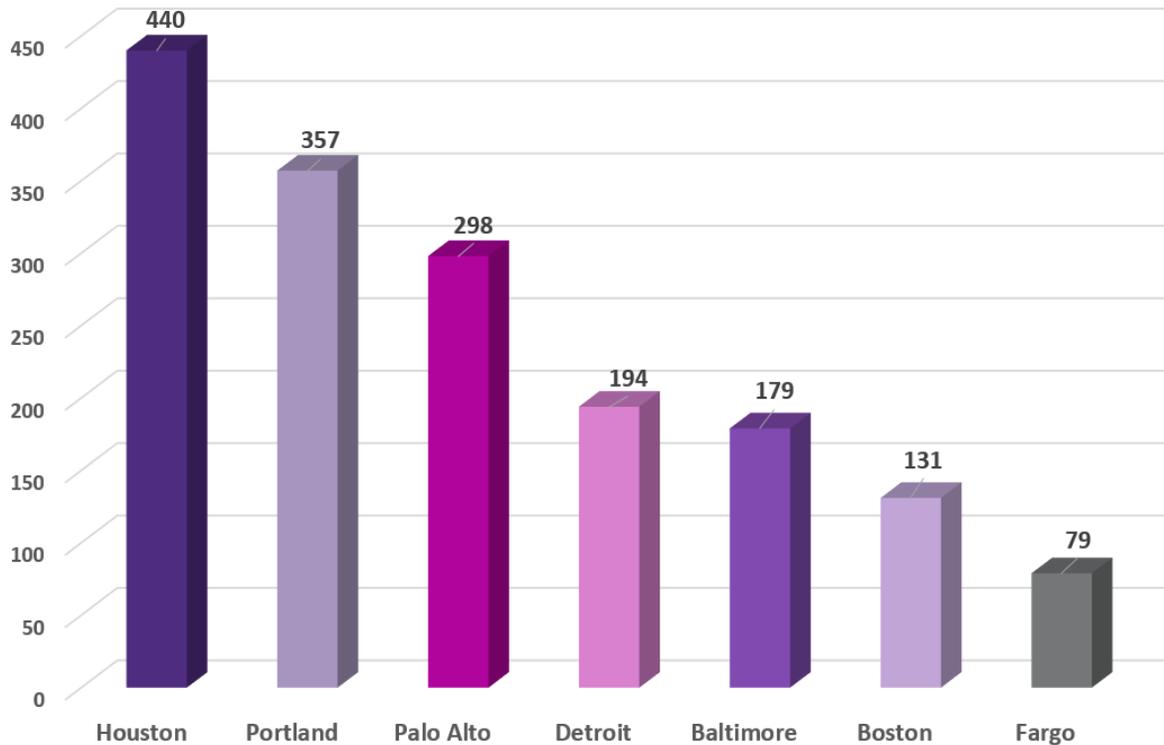
2.3.8.10.4 VHA nurse turnover is marginally higher than industry, but varies across VAMCs

Nurse turnover can be an important contributor to staff shortages. Figure 2-30 shows the national average nurse turnover rate for VHA as well as the turnover rate at seven of the VAMCs where we examined nurse staffing practices. VHA's national nurse turnover rate is marginally higher than industry (17 versus 14 percent) but varies across individual VAMCs. For example, nurse turnover was just over 8 percent at VHA's Boston Health Care System, but

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[184] U.S. Department of Veterans Affairs, (2015, March 17) VHA Talent Management. Onboard FTE Turnover by Facility FY14.xlsx

almost 20 percent at the Palo Alto VAMC.[185] According to nurse executives, the bulk of nursing staff losses are the result of an employee leaving VHA to take a role at another health care organization. The 2015 National Health care Retention and RN Staffing Report showed that the cost of RN turnover ranges from $36,900 to $57,300 per nurse, which results in an average $6.2M loss for hospitals. The cost of turnover can range up to two times annual salary for professional positions.[186] Turnover could represent a significant drain on a VAMC budget.

We were unable to quantify the absenteeism rate for VHA nurses. We recommend it be studied by VHA since it may also be an important contributor to shortages of clinical support staff. A higher incidence of unfilled shifts and overtime at some facilities is likely to contribute to higher workload for nursing staff. Workload is considered a source of occupational stress and has been linked to nurse burnout and absenteeism.[187] Other research has shown that nurses reported greater job dissatisfaction and emotional exhaustion when they were responsible for more patients than could safely care for.[188]

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[185] Nursing Solutions Inc. (2015). 2015 National healthcare retention & RN staffing report. p8. Retrieved from: http://www.nsinursingsolutions.com/Files/assets/library/retention-institute/NationalHealthcareRNRetentionReport2015.pdf

[186] Ibid.

[187] Iverson, R., Olekalns, M., Erwin, P. (1998). Affectivity, Organizational Stressors, and Absenteeism: A Causal Model of Burnout and its Consequences. *Journal of Vocational Behavior*. 02/1998; 52(1): 1-23.

[188] Aiken, L., Clark, S.P., Sloane, D.M. Sochalski, J. & Silber, J.H. (2002). Hospital Nurse Staffing and Patient Mortality, Nurse Burnout, and Job Dissatisfaction. *JAMA*. October 23/30, 2002,Vol. 288, No 16, 1987-1993. doi: 10.1001/jama.288.16.1987.

Figure 2-30. Nurse turnover rates for select VAMCs
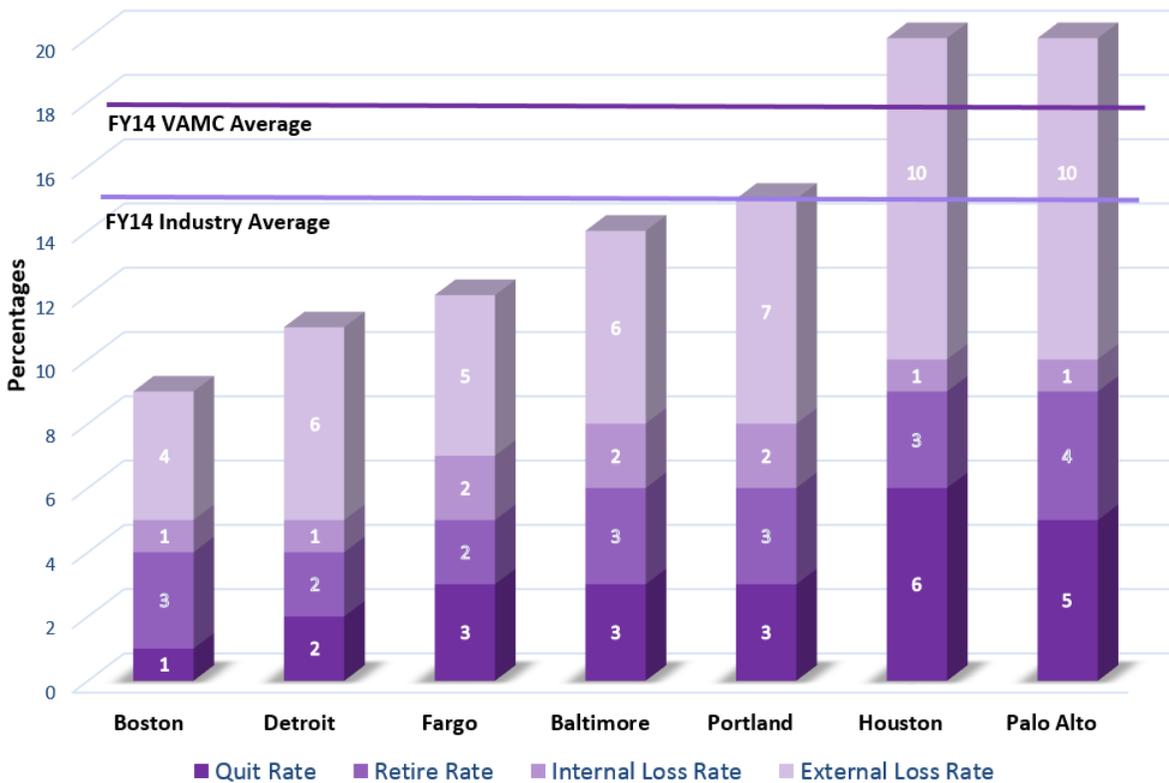
2.3.8.10.5 Too few VHA facilities have a Magnet status®

Our team found that only a small number of VHA facilities have a quality journey designation such as ANCC (American Nurses Credentialing Center) Magnet Status®, [189] or ANCC Pathway to Excellence®.[190] ANCC reports that over 400 hospitals hold this designation in the United States. However, according to VHA there are only three VA medical centers with a Magnet designation: Houston, Portland and Atlanta. Madison VAMC is pursuing Magnet status and Fargo VAMC is pursuing the ANCC Pathway to Excellence.

The Magnet program was developed by ANCC (American Nurses Credentialing Center) to recognize hospitals and health care organizations that provide nursing excellence. ANCC considers Magnet Recognition® to be the highest and most prestigious distinction a health care organization or hospital can receive for nursing excellence and outstanding patient care. According to ANCC, the Magnet Model focuses on five areas:

- Transformational leadership

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[189] American Nurses Credentialing Center. (2015, May). Magnet Recognition Program. Retrieved from http://www.nursecredentialing.org

[190] American Nurses Credentialing Center. (2015, May). Pathway to Excellence Program. Retrieved from http://www.nursecredentialing.org/pathway

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- Structural empowerment
- Exemplary professional practice
- New knowledge, innovations and improvements
- Empirical outcomes.

While we recognize that the Magnet journey is a resource intensive process, and may not always be appropriate for smaller facilities, it has benefits for patient care and can be an important factor in recruiting and retaining nurses. Consequently, it could play a valuable role in helping VHA facilities to address their support staffing shortages.

2.3.8.10.6 Continuing education opportunities for nurses have become more limited

As of May 2014, only 43 percent of RNs across all VAMCs have a BSN degree.[191] Facilities no-longer provide or have reduced nursing educational benefits (along with educational support for many other job positions). Although scholarships are available, the application process may be complex, re-imbursement for certifications or conferences has been eliminated at some facilities, and there is little access to systems training. Several facility leaders admitted that while they acknowledge high achievers, they are unable to support their efforts monetarily.

> Senior leadership at one facility identified that nurses funding is not made available for nurse education, even though providers are budgeted $1,000 per year for training.

Research has found that facilities with a higher proportion of nurses holding a baccalaureate degree had lower surgical mortality and failure-to-rescue (that is, death following the development of a complication).[192] A better educated nurse workforce will be able to accept additional responsibilities to fill a range of new roles in patient care, prevention, and care coordination. If VHA is to help achieve the Institute of Medicine's (IOM) recommendation that the proportion of nurses in the U.S. who hold at least a baccalaureate degree be increased to 80 percent by 2020, greater support of nurse education and advancement must be provided and championed.[193] Greater education and advancement opportunities would potentially improve morale, and subsequently, retention of nurses.

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[191] U.S. Department of Veterans Affairs, (2015) Workforce Management data. PAID data for occupation 0610. Nurse Managers with assign code of 87. BSN with education code G.

[192] Kutney-Lee, A., Aiken, L., & Sloane. (2013). An increase in the number of nurses with baccalaureate degrees is linked to lower rates of post-surgery mortality. *Health Affiliation Journal* (Millwood). 2013 March; 32(3): 579–586. doi:10.1377/hlthaff.2012.0504.

[193] The National Academies of Science. (2011). The Future of Nursing: Leading Change, Advancing Health. *The National Academies Press*. p12. Retrieved from http://www.nap.edu/catalog.php?record_id=12956

> ***Promising Practice: Benefits of BSN Educated Nurses at Houston, Atlanta, and Boston***
>
> Houston, one of VHA's Magnet® Designated facilities, achieved re-certification twice and reached its goal of 82 percent of its RNs holding a baccalaureate (BSN) degree. Atlanta VAMC is another Magnet recognized facility that reports their NSI data to NDNQI®. Atlanta's current education level of RN's with baccalaureate degrees is 85.7 percent and exceeds the goal of 80 percent compliance by 2020.
>
> Two BSN educated RNs at Boston identified a technological tool to improve provider-nurse communications through a lightweight, wearable, voice activated device used to communicate hands-free, which the entire facility now uses.
>
> ***Value:*** The benefits of having RNs with baccalaureate degrees is that for nurses to remaining current on cutting edge concepts, evidenced based practices, innovative technology, or new equipment in maintaining excellence in their practice. Nurses with BSNs and other degrees also prepares them for driving improvement initiatives and becoming leaders in the organization.

2.4   Provider Time Allocation (Objective 3)

This portion of our report covers our third objective to describe the relative time VHA providers spend on non-patient care activities. This responds to the Section 201(G) requirement for an assessment of provider time on non-case load activities, to include time at affiliate medical affiliates, research time, and time training and supervising others. To do so, we compared overall clinical and non-clinical time between VHA and the private sector using VHA's cost accounting (labor mapping) data and published data from the 2008 Health Tracking Physician Survey conducted by the Center for Studying Health System Change[194]. Our findings show that VHA physicians are generally meeting or are on par with the private sector on time spent and allocated to clinical or direct patient care. Additionally, our site visit research supports the finding that VAMCs affiliated with a medical school may have a competitive advantage for recruitment and retention (see case study later in this section for more detail), and that VA-funded research is a key provider retention tool.

Both our assessment and Assessment L (leadership) findings provide additional evidence that providers are often attracted to work at VHA due to work life balance opportunities not offered in the private sector. When providers are hired into VHA, they sign a contract, which includes the allocation of time they are expected to allocate to patient care, as well as research, education and administration activities. Because we heard that these non-patient care activities may be key attractors for a provider to come to VHA, we assess the time that providers spend

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[194].Center for Studying Health System Change. Health Tracking Physician Survey. (2008) ICPSR27202-v1. Ann Arbor, MI: Inter-university Consortium for Political and Social Research [distributor], 2010-02-16. http://doi.org/10.3886/ICPSR27202.v1

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on these types of activities (i.e. conducting research and training residents) by considering their contributions to attracting top talent. Of particular note:

- In considering the time providers spend on non-patient care activities, we describe the VHA research program in depth, and how it contributes to advancing state of the art Veteran care and serves as a recruitment and retention tool for VHA.

- We also review affiliate relationships and provider time mentoring and training students, residents and fellows in a clinical setting. In addition to the mission of serving Veterans and their families, VHA leads the nation in integrating medical affiliations with clinics to provide a well-rounded learning environment, which improves provider retention.

While the majority of a provider's time is dedicated to providing care to Veterans, provider satisfaction (and therefore retention) is often increased when there is an opportunity to conduct research and/or have a medical school affiliation. In this section, we report the time providers spend on these activities, and the potential impact of these opportunities.

VHA: Educating and Training the Nation's Future Clinicians

According to a VHA report, 70 percent of all VHA staff physicians have a dual appointment (for research, teaching, and/or clinical services) with an affiliate university. VHA's relationship with academic affiliates dates back to the post-World War II era. Today, VHA has over 8,000 agreements with affiliate institutions at more than 1,800 universities/institutions and supports the training of 120,000 trainees annually (VHA Procurement & Logistics Office, Affiliate Guide to VHA Contracting, retrieved from http://www.va.gov/oaa/sole_source_contracting.asp). These relationships serve as a recruitment tool for VHA. In fact, providers who complete a clinical traineeship with VHA are nearly 30 percent more likely to consider future employment with VHA.

2.4.1   Summary of time allocation findings and analysis

We have synthesized data and observations from our analysis into the following findings. The sub-sections that follow describe the findings for VHA provider time allocation in detail.

- **Finding 20.** VHA physicians spend a comparable proportion of total time devoted to clinical activities as private sector physicians. There is some potential difference in the definition of direct patient care used by the private sector, specifically with respect to training, teaching and research, but we believe this represents only a small proportion of a provider's time (See Section 2.4.2)

- **Finding 21.** Across all VHA providers, less than two percent of time is devoted to research. Since provider time spent devoted to clinical care activities is comparable to the private sector, it does not appear that research activities reduce providers' time spent treating patients. Despite the overall low proportion of time spent on research, the accomplishments of VHA's research program, and contributions to advancing care for Veterans, are numerous. (See Section 2.4.4)

2.4.2   VHA providers' clinical time is on par with the private sector (Finding 20)

VHA physicians spend a comparable proportion of total time devoted to clinical activities as private sector physicians. There is some potential difference in the definition of direct patient care used by the private sector, specifically with respect to training, teaching and research, but we believe this represents only a small proportion of a provider's direct patient care time.

To meet the Section 201(G) requirement to assess VHA provider time spent on activities other than their case load, we analyzed VHA's cost accounting (labor mapping) data and compared it to the 2008 Health Tracking Physician Survey of 4,720 physicians (survey excludes residents and fellows). The physician survey includes time spent on patient record-keeping and patient-related office work, but excludes time spent on training, teaching and research from its definition of direct patient care activities (See Table 2-7). In comparison, VHA's definition of direct patient care includes training and research activities where they have a direct relationship to patient care. Through the course of site visits to VAMCs and interviews with over 350 providers we concluded that training, teaching and research are activities that generally occur outside of patient care hours, and usually represent a relatively small portion of a provider's direct patient care time.

We also considered the amount of VHA providers' time that is devoted to administrative activities. Frequently on site visits, VHA providers reported that the time they devoted to direct patient care is consumed by activities which are administrative in nature (e.g., charting, taking patient calls or booking a patient's follow up appointment). These administrative activities reported by VHA providers are similar in nature to the patient-related office work and record keeping that the industry survey defines as direct patient care (See Table 2-7).

Figure 2-31 highlights the percentage of time VHA physicians spend in clinical activities, in addition to administrative, education and research activities, and compared to the private sector. VHA physicians spend, on average, 85 percent of their time doing clinical work, based on labor mapping data, compared to 83.40 percent of physician time spent in clinical activities in the private sector.[195] In other words, comparing VHA physicians to the private sector highlights that VHA providers are spending a similar or slightly higher proportion of their time on clinical duties. For the reasons noted above, we do not believe that differences in the definition of activities that are included in "direct patient care" or "clinical time" are a significant factor when comparing VHA with the industry survey. Survey data on the time allocation of private sector physicians to education and research isn't available, since the survey did not break out teaching and research from what it defined as "administrative time" that is "medically-related".

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[195] Woolhandler, S., & Himmelstein, D. (2014). *Int J Health Serv* October 2014 vol. 44 no. 4 635-642. doi: 10.2190/HS.44.4.a. Retrieved from http://joh.sagepub.com/content/44/4/635

Figure 2-31. Physician time allocation[196]
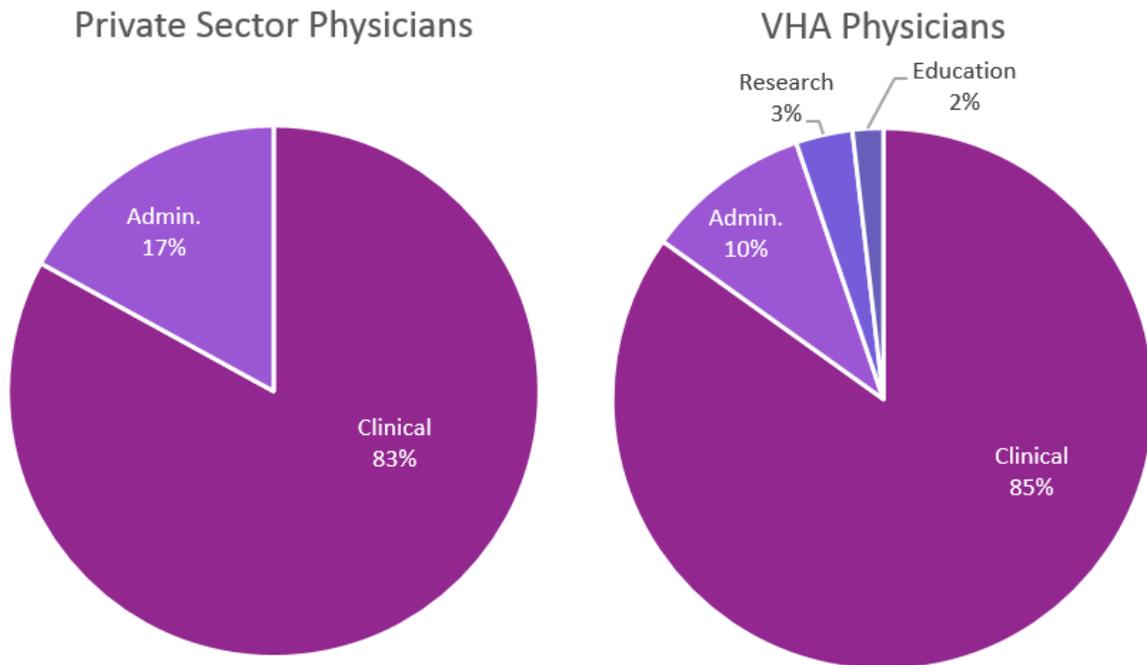
The proportion of VHA clinical or direct patient care time may be even higher when all VA providers are considered, as APPs tend to have a higher proportion of clinical time, and they represent 20 percent of the VHA providers. We did not include this comparison since APPs are not included in the private sector survey.

In VHA, "direct patient care" or "clinical" time (otherwise known as clinical FTE, cFTE) includes time overseeing residents, as well as completing "non-workload generating" tasks such as patient charting or making follow-up calls to patients. Administrative time includes tasks such as serving on hospital oversight committees, or completing required training. As noted above, some variance between provider clinical and administrative time in the private sector survey and VHA is due to the private sector survey not breaking out teaching and research time and differences in what VHA considers administrative time. Table 2-7 below displays the survey definition of direct patient care or clinical time and the VHA definition.

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[196] Assessment G analysis of VHA labor mapping data , Provider Labor Detail FY14, provided by VHA OPES April, 9, 2015 and Woolhandler, S., & Himmelstein, D. (2014). *Int J Health Serv* October 2014 vol. 44 no. 4 635-642. doi: 10.2190/HS.44.4.a.

Table 2-7. Time allocation definitions private sector vs. VHA

	Definition from Health Tracking Physician Survey[197]	VHA Definition[198]	Key Differences
Direct Patient Care or "Clinical Care"	Direct patient care includes seeing patients, performing surgery, and time spent on patient record-keeping, patient-related office work and travel time connected with seeing patients. It does not include time spent in training, teaching, or research, any hours on-call when not actually working, and travel between home and work at the beginning and end of the work day.	Includes time to prepare, provide, and follow-up on the clinical care needs of patients, and includes: • Time spent in reviewing patient data • Consulting about patient care with colleagues (includes telephone clinics or calls consulting with consultants or staff members) • Reviewing medical records, charting patient treatments, and ordering and reviewing patient tests and consultations • Reviewing medical literature • Providing patient care, or contacting the patient or caregivers to discuss their needs • Supervising house staff residents providing care in a clinical setting, or medical students, while providing patient care • Attending educational programs designed to maintain or improve clinical skills, or participating in staff meetings focused on patient care delivery.	Provider time attending educational programs designed to maintain or improve clinical skills is included in the VHA definition but not in the survey definition. Additionally, the survey definition includes travel time connected with seeing patients; however, the VHA definition does not.

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[197] Center for Studying Health System Change. Health Tracking Physician Survey. (2008) ICPSR27202-v1. Ann Arbor, MI: Inter-university Consortium for Political and Social Research [distributor], 2010-02-16.Retrieved from http://doi.org/10.3886/ICPSR27202.v1

[198] U.S. Department of Veterans Affairs. (2011). VHA Directive 2011-009 Physician and Dentist Labor Mapping. Retrieved from http://www.va.gov/vhapublications/ViewPublication.asp?pub_ID=2384

The views, opinions, and/or findings contained in this report are those of Grant Thornton should not be construed as an official government position, policy, or decision.

	Definition from Health Tracking Physician Survey[197]	VHA Definition[198]	Key Differences
Administrative	Time spent on administrative tasks and professional activities that are medically-related.	Time spent on managerial or administrative duties at the department, service, facility, VISN, or national level both within and outside of VA. These duties include: • Performance reviews and reporting requirements • Managing a program within a clinical department, service or hospital • Serving on state and national committees, advisory boards, or professional societies.	VHA definition is more explicit in excluding medically-related administrative tasks from the definition.
Teaching/ Education	Not defined.	Time spent providing formal didactic education, both preparation and actual classroom time. This includes conferences in the community or nationally and classroom time teaching medical school curriculum.	Not able to assess.
Research	Not defined.	Time spent performing formal, approved health care research, or in activities in direct support of approved research. This includes: • Working on research projects approved by VAMC Research and Development Committee which does not produce recorded patient care encounter workload • Working in a research laboratory or controlled setting that involves no direct patient care • Serving on a hospital or affiliate research committee • Supervising a trainee's non-clinical research • Writing for publications or grants • Attending meetings for research activities and/or presenting papers • Sitting on a national study or grant approving board.	Not able to assess.

VHA physicians have, on average, 81.2 percent of their work time devoted to clinical duties. Out of all physician labor mapped time, 85 percent is clinical. Figure 2-32 breaks out the average proportion of time allocated to clinical activities by specialty, for physicians (it does not include APPs).

Figure 2-32. Percentage of physician FTE devoted to clinical by aggregate specialty[199]
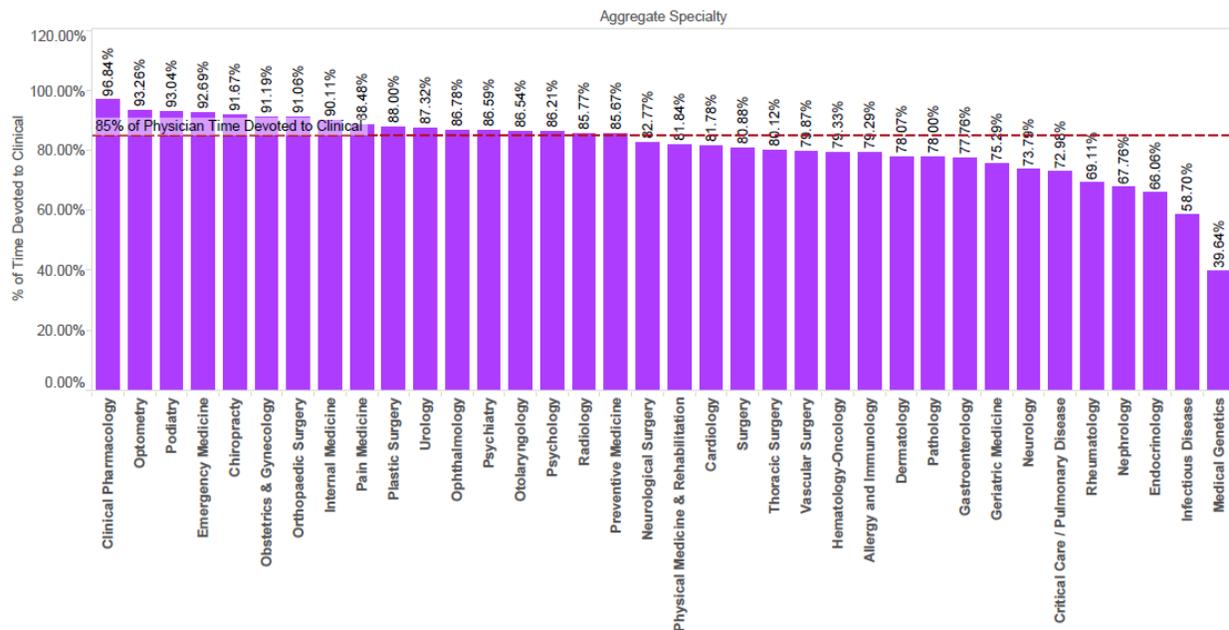
The average U.S. physician spends 8.7 hours per week doing administrative tasks in a typical 53 hour work week.[200] In comparison, the average VHA physician spends 3.42 hours of an average 40 hour work week doing administrative tasks.[201] The additional time spent on administrative tasks in the private sector would typically be spent conducting research or educational activities, such as giving didactic lecture, within VHA. Additional information about providers' time spent conducting research, engaging in educational activities, as well as time spent overseeing residents and trainees in clinic, is provided in subsequent sections, as specifically requested by the Veterans Choice Act, Section 201(G). In the immediate subsequent section, we review providers' relationships with and time commitment to affiliated academic medical centers.

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[199] Assessment G analysis of Provider Labor Detail FY14, provided by VHA OPES April, 9, 2015 and Woolhandler, S., & Himmelstein, D. (2014). *Int J Health Serv* October 2014 vol. 44 no. 4 635-642. doi: 10.2190/HS.44.4.a. Retrieved from http://joh.sagepub.com/content/44/4/635

[200] The Physician's Foundation. 2014. 2014 Physician Foundation Biennial Physician Survey Report. Merritt Hawkins. Retrieved from http://www.physiciansfoundation.org/uploads/default/2014_Physicians_Foundation_Biennial_Physician_Survey _Report.pdf

[201] Assessment G team analysis of Provider Labor Detail FY14, provided by VHA OPES April, 9, 2015.

2.4.3 VHA facilities leverage affiliate relationships to serve Veterans

Since the end of the Second World War, the mission of VA has been tied to developing our nation's health care provider workforce. Many VA facilities across the country have close ties to academic medical centers and training programs across virtually every specialty and level of licensure. VHA's relationship with academic affiliates is a mutually beneficial relationship for all parties: "the best level of health care is provided in an environment in which the spirit of inquiry and investigation exists in combination with teaching and learning."(VHA Manual M-8, p.2)[202] The policy memorandum for affiliate relationships from the 1940s has remained largely unchanged since the 1940s, with the exception of one addition in the 1980s.[203] With this comes a provider workforce that splits their professional time between academic and VHA facilities, with various degrees of financial remuneration. VA conducts the largest education effort for health care in the United States through clinical training programs in association with the nation's leading academic institutions.

Based on labor mapping data, we found that, of all VHA providers (physicians and APPs), 1.09 percent of their VHA labor mapped (working) time was devoted to education activities, as defined by VHA. The graph below shows the allocated time to education (or training) based on specialty grouping, and was determined by taking the education FTE per specialty divided by the total labor mapped time (clinical, administrative, research, and education FTE) and grouped by Primary Care, Medical Specialty (hospital based), Medical Specialty (non-hospital based), Surgical Specialty, Mental health, and Dental. The percentage of physician time devoted to education/training (conducting educational activities with trainees in the classroom, for example, giving didactic lecture or Grand Rounds) is shown in Figure 2-33. This does not include time spent overseeing residents in the clinical setting.

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[202] U.S. Department of Veterans Affairs Veterans Health Administration. (1980). *Manual M-8, Part 1, Chapter 2: Affiliations with Academic Institutions*. Retrieved from http://www.va.gov/vhapublications/publications.cfm?pub=4&order=asc&orderby=title

[203] Policy Memorandum No. 2, Policy in Association of Veteran's Hospitals with Medical Schools, January 30, 1946.

Figure 2-33. Percentage of provider time devoted to education[204]
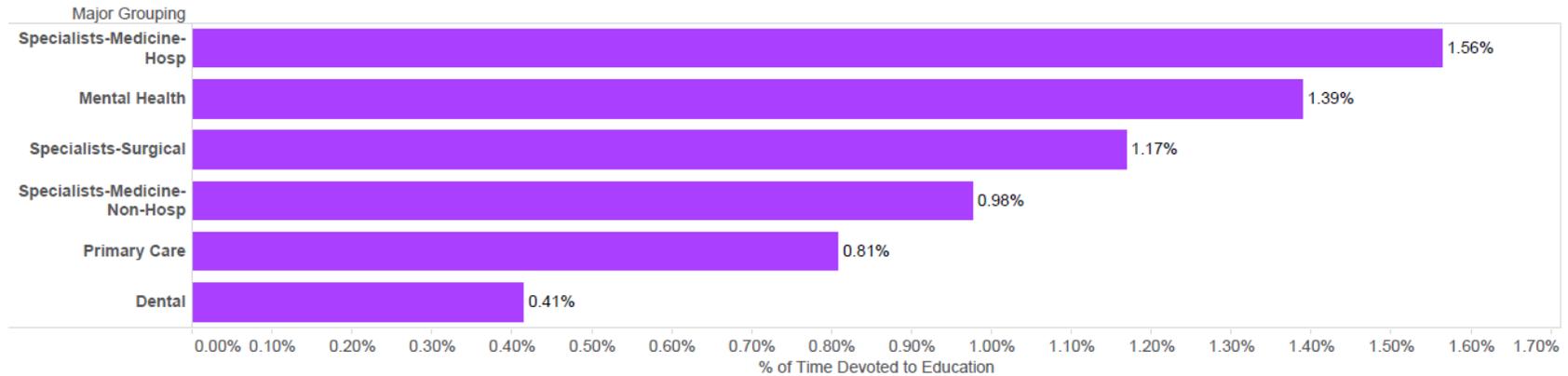
As of 2013, 124 hospitals and 3 independent outpatient clinics have academic affiliations with 130 of 141 allopathic medical schools, and 22 of 29 osteopathic medical schools.[205] Table 2-8 shows the total resources actively participating in VHA's education program across a 7 year span.[206]

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[204] Assessment G analysis of Provider Labor Detail FY14, provided by VHA OPES April, 9, 2015.

[205] U.S. Department of Veterans Affairs, Office of Academic Affiliations 2013 Statistics: Health Professions Trainees.

[206] Ibid.

Table 2-8. Total trainees actively participating in VHA education program – 7 year span[207]

	2007	2008	2009	2010	2011	2012	2013
Advanced Fellows	160	161	175	239	288	297	253
Associated Health	27,072	30,341	31,684	31,682	32,437	32,033	31,380
Dental Residents & Students	962	1,049	1,280	1,267	1,231	1,195	1,397
Physician Residents	33,843	34,075	36,410	36,745	36,816	37,809	40,420
Medical Students	18,135	20,755	20,245	20,516	21,502	20,218	21,451
Nursing Trainees	21,232	23,501	24,891	24,851	24,520	25,948	23,808
Grand Total	**101,404**	**109,882**	**114,685**	**115,300**	**116,794**	**117,500**	**118,709**

Although we requested data specifically identifying which providers held dual appointments with affiliated academic medical centers, and the proportion of time spent at each from each VAMC we visited, the data we received was sporadic and incomplete. We received data from our site visits from eight facilities; however, the most detailed information came from the Durham VAMC. We have compiled a case study detailing the Durham VAMCs affiliation relationships, which was selected primarily due to its historical relationships and breadth of affiliations with surrounding institutions.

Case Study: Leveraging Dual Affiliations at Durham VA Medical Center

Building on established relationships with Duke University Hospital and University of North Carolina at Chapel Hill and affiliations with multiple departments, the Durham VAMC leverages these relationships for recruitment and retention purposes. These affiliations are cited as a successful recruitment tool by producing positive care delivery, quality of care, and increases to provider productivity.

The Durham VAMC is a strongly affiliated VA facility serving Veterans in the Durham, North Carolina area. Located across the street from Duke University Hospital, numerous providers hold dual-appointments between the two facilities. The dental program is affiliated with the University of North Carolina at Chapel Hill (UNC). The Durham VAMC has academic affiliations for multiple departments, outside of medical residencies, including audiology and speech pathology, imaging, psychology, nursing (anesthesia and auxiliaries), optometry, pharmacy, and

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[207] Assessment G Data collected through pre-site visit data call to Durham VAMC, March 2015.

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rehabilitation. In total, there are 2,027 trainees currently practicing and/or rotating at the Durham VAMC. This includes 748 medical residents, 429 medical students, 300 nursing students, 115 pharmacy trainees, and 79 physician assistants in training.[208]

The following specialties shown in Table 2-9 provided data to inform this case study:

Table 2-9. Durham case study specialty and data elements used[209]

Specialty	Data Element
Anesthesia	− 12 out of 17 physicians hold dual appointments with Duke − Range from .125 FTE to .875 FTE employment at Duke
ED	− 7 out of 15 physicians hold dual appointments with Duke
Geriatric Research and Clinical Centers (GRECC)	− 8 out of 8 physicians hold dual appointments with Duke − Range from .25 FTE to 1.0 FTE at VA
Greenville CBOC	− 9 physicians on-site (specialties unclear) hold dual appointments with Duke
Mental Health Service Line (MHSL)	− 28 physicians hold dual appointments with Duke
Pathology	− 3 physicians hold dual appointments with Duke
Primary Care	− 24 out of 36 physicians in the department hold dual appointments, though only 1 was paid by Duke
Radiology	− 30 out of 34 providers in the department hold dual appointments − Range from .125 FTE to 1.0 FTE at VA
Surgical Services	− 29 out of 34 surgeons in the department hold dual appointments − Range from .125 FTE to 1.0 FTE at VA − 2 out of 34 in the department were 1.0 FTE

Through interviews with over 55 providers, the site visit team was able to gain valuable insight into the role that dual-affiliation (dual affiliation allows a provider to teach and/or practice at the affiliate institution) plays at the Durham VAMC. A majority of physicians who are employed at the Durham VAMC have dual-appointments, and indicated that the prestige and opportunities that arise from time practicing at both locations was essential to their job function. Our interviews with providers and facility leadership surfaced several themes regarding the impact of an academic affiliation on provider productivity, which included topical areas of recruitment and retention, teaching and education, research, and quality of care – all

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[208] Department of Veteran Affairs Office of Academic Affiliations, Health Service Training Major Code Summary for 2014 (Durham VAMC).

[209] Assessment G Data collected through pre-site visit data call to Durham VAMC, March 2015.

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of which were expressed with a positive perspective. Similar responses were echoed at many other facilities with dual affiliations as well.

A number of respondents indicated that the close affiliation with Duke University in particular was essential for recruitment and retention. In comparison with other facilities, the Durham VAMC does not experience difficulties in attracting qualified talent. The ability to have an active role in research opportunities and an affiliation with a nationally recognized medical institution, both for providers and nursing staff, were discussed as chief reasons for having a high volume of applicants. These themes were consistent across our site visits where there were academic affiliations.

Many respondents also viewed the affiliation with Duke to be tied into the unique mission of the VA, which calls not only to care for Veterans but to train the next generation of health care providers. While some respondents did cite that the heavy integration with residency programs can diminish productivity due to the length of time trainees can take to see patients, the majority felt it was a major positive in all aspects of care delivery. In particular, interviewees felt that having a robust residency program and ties to prominent medical training centers such as Duke and UNC led to boosts in recruiting, quality of care, productivity, and care delivery practices. Some response examples from facility leaders and providers include:[210]

Recruitment:
- "The proximity to Duke University has a very positive effect on the facility overall. The facility is able to recruit top-notch residents and there is enhanced collaboration between the two institutions."
- "The Duke affiliation is a huge boost to our recruiting – other VHA locations have a much more difficult time finding providers to hire. This is not just on the MD level, many NP/PAs and Nurses want to get Duke on their resume for experience. As a result, the Durham VAMC does very little recruitment for providers."
- "It is very easy for this VAMC to recruit physicians as there is an academic affiliation with Duke; the only issues that come with recruitment are due to natural attrition and turnover. By comparison, [VAMC without an affiliation] struggle due to the lack of an academic affiliation."

Care Delivery Model:
- "I am able to run a Telehealth clinic here at the VA which is not available at Duke."

Quality of Care:
- "The academic affiliation with Duke has been a major positive for quality of care. There are even volunteers from Duke who are world-renown for their work and research, which boosts the care delivered at the VHA as well as its profile nationally."
- "The affiliation with Duke is a major positive for quality of care and for attracting/recruiting providers."

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[210] Quotes from providers interviewed on site visit to Durham VAMC, March 2015.

Productivity:

- "The attending/resident relationship allows for great productivity in certain specialties."
- "The close relationship with the Academic program can take additional time, and supervision can detract from productivity."

2.4.4 VHA providers advance Veteran care through research (Finding 21)

Across all VHA providers, less than two percent of time is devoted to research. Since provider time spent devoted to clinical care activities is comparable to the private sector, it does not appear that research activities reduce providers' time spent treating patients. Despite the overall low proportion of time spent on research, the accomplishments of VHA's research program, and contributions to advancing care for Veterans, are numerous.

To meet the requirements of Section 201(G) with respect to providers' time spent on research activities, we analyzed VHA's cost accounting (labor mapping) data. VHA's labor mapping data identifies individual provider research Account Level Budgeter Cost Centers (ALBCCs); as such, individual provider time conducting research was calculated by the summation of individual provider research ALBCCs.

We found that across all VHA providers, 1.97 percent of their time was devoted to research, per VHA's definition of research time. Figure 2-34 shows a breakout of provider work time allocated to research by specialty grouping, which was determined by taking the research FTE per specialty divided by the total clinical, administrative, research and education FTE, and grouping that by primary care, medical specialty (hospital based), medical specialty (non-hospital based) surgical specialty, mental health, and dental.

Figure 2-34. Provider percentage of time devoted to research[211]
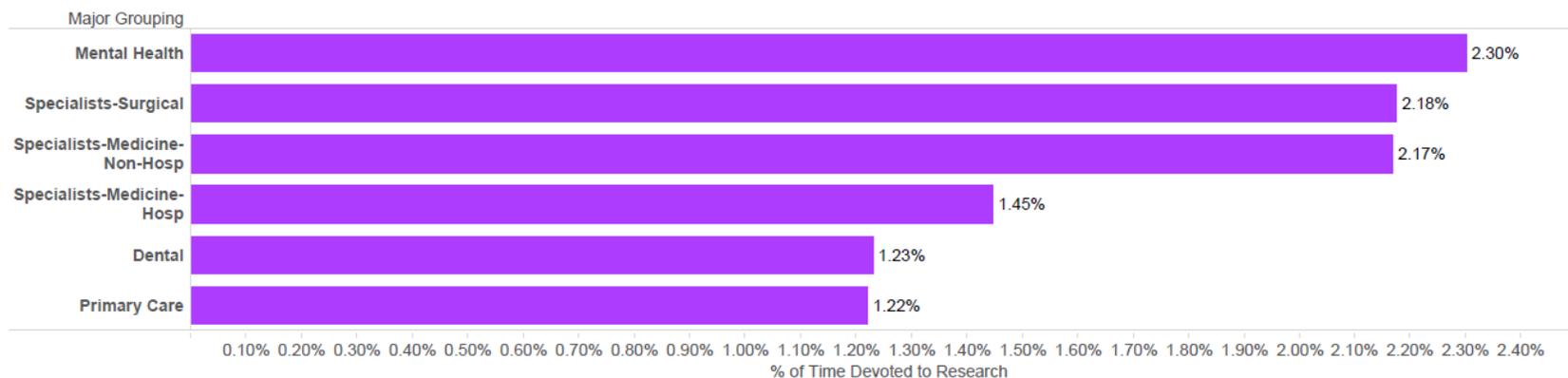
Despite an overall low proportion of labor mapped time spent to research, VHA providers support a myriad of research projects in support of Veterans' unique health care needs.[212] Mental health providers have the highest proportion of time devoted to research out of all major specialty groups.

There are over 19,000 ongoing funded research studies at VA Medical Centers across the country.

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[211] Assessment G analysis of Provider Labor Detail FY14, provided by VHA OPES April, 9, 2015.

[212] Clinically mapped time can include time spent conducting research, when research involves provision of care to patients (i.e. clinical trials).

In fiscal year 2015, VA will fund $600 million in research, with an additional $500 million provided through medical care support for research, and $700 million from other organizations ($500 million of which is from government entities, such as the National Institutes of Health [NIH]).[213] VHA and the Office of Research and Development (ORD)-funded research has grown from $581 million in fiscal year 2010, to an estimated $600 million in fiscal year 2016, an increase of 3.4 percent.[214, 215] There are currently 1,248 VA funded investigator clinicians, and an additional 972 VHA funded non-clinicians, for a total of 2,220 VHA funded investigators. This is an increase of approximately 11 percent from FY 2010.[216] An additional 1,091 funded investigators receive funding from NIH.[217] ORD estimated in 2010 that there were an additional 5,000 researchers not funded by ORD, but who use VA facilities, equipment, and the Veteran patient population to conduct their research.[218] Today, there are currently 19,406 ongoing funded research projects ongoing across VHA.[219] This research is ongoing at 104 VAMCs.

An evaluation of VHA's research portfolio conducted by Abt Associates in 2012 describes the impact of VHA's medical research and development (R&D) program. Specifically, Abt found that "in 2010 there were nearly 7,000 publications listing a VA address, which were cited almost 17,000 times. ORD-funded Principal Investigators (PIs) published, on average, 1.5 papers per year, a rate similar to NIH-funded investigators. The papers appeared in journals with high impact factors. Also in 2010, ORD received 10 patents and 169 licenses and filed 31 patent applications. The federal clinical trials database reported 28 Phase IV clinical trials conducted by VHA, of which 11 were marked as completed. It should be noted that this is not a definitive list of all clinical research funded by ORD." [220,] Figure 2-35 shows the research and development awards and advancements of VHA.

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[213] Telephone interview with Office of Health Services Research and Development, David Atkins, Director and Timothy O'Leary, Acting Director of Biomedical Laboratory Research & Development, February 25, 2015.

[214] Evaluation of the VA medical research program, Abt Associates, September 30, 2012, provided by VHA HSR&D.

[215] Telephone interview with Office of Health Services Research and Development, David Atkins, Director and Timothy O'Leary, Acting Director of Biomedical Laboratory Research & Development, February 25, 2015.

[216] Ibid.

[217] MD vs. PhD Data, FY14, provided by VHA HSR&D, February 25, 2015.

[218] Ibid.

[219] Research Projects Ongoing at VA, February 25, 2015, provided by VHA HSR&D, February 25, 2015.

[220] Evaluation of the VA medical research program, Abt Associates, September 30, 2012, provided by VHA HSR&D.

Figure 2-35. VHA research and development[221]

1940s
- Developed and tested **effective therapies for tuberculosis**
- Developed the **first rehabilitation program for blind persons** and standards for better-fitting, lighter artificial limbs

1950s
- Contributed to the development and **early use of the implantable cardiac pacemaker**
- **Linked smoking with cancer** of the respiratory tract and

1960s
- Performed the **first successful liver transplant** and developed anti-rejection techniques
- Pioneered concepts leading to the development of the CAT (CT) scan

1970s
- Identified **best treatments** for colon cancer, stable angina, high blood pressure, and other conditions
- **Nobel Prizes in Medicine** awarded to VA researchers Andrew Schally, Ph.D., and Rosalyn Yalow, Ph.D

1980s
- **Developed the nicotine patch** and other therapies to support smoking cessation
- Developed a computer-controlled ventilator system that improved patient outcomes
- **Developed the Seattle Foot**, a prosthesis that allows amputees to run and jump

1990s
- Found that the insulin pump is more effective than multiple daily injections for patients with diabetes
- **Identified genes for schizophrenia**, dementia, laryngeal cancer, Werner's syndrome, and Alzheimer's disease.
- **Developed an electrical stimulation system** that helps patients move paralyzed limbs
- **Nobel Prize in Medicine** awarded to former VA researcher Ferid Murad, M.D., Ph.D

2000s
- Showed the effectiveness of a new vaccine for shingles, a painful skin and nerve infection that affects older adults
- Identified a protein derivative that disrupts memory in an animal model of Alzheimer's disease and offers promise for developing early-detection tests or new drugs
- **Announced major funding initiatives for research on neuro-trauma**, chronic pain, and other health problems prevalent in combat-wounded Veterans returning from Afghanistan and Iraq
- Launched a multisite trial to **test robotic therapy for stroke rehabilitation**
- Demonstrated that a behavioral therapy called prolonged exposure is effective for treatment of PTSD
- **Developed high-performance prosthetic devices**, such as a bionic ankle that helps propel users forward
- Showed that implantable cardiac defibrillators decrease the risk of death in those with advanced chronic heart failure

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Research as a recruitment and retention tool:

- **78 percent** of VHA providers state that research was a factor in their decision to come to VA
- **92 percent** state that it is an important factor in their decision to remain at VA

Of particular importance to any evaluation of staffing within VHA health care delivery system is the impact of a strong research program on recruitment and retention. VHA's research program was established in the 1920s to attract academic clinicians to the VHA system. The Abt study found that the research program is indeed a powerful recruitment and retention tool. Specifically, "87 percent of respondents [to the Abt survey] believed that the program was important or very important to the recruitment and retention of talented clinicians to VHA. In

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[221] U.S. Department of Veterans Affairs, VHA Research Development. History of VA Research Accomplishments. Retrieved from http://www.research.va.gov/researchweek/press_packet/Accomplishments.pdf

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addition, the vast majority of researchers said that research was a factor in their decision to come to (78 percent) and to remain at (92 percent) VHA."[222]

2.4.5 VHA has a statutory mission to educate the nation's health professionals

VA has a statutory mission to "educate [health professionals] for VA and for the nation." This mission is codified in Title 38 U.S.C. Through its partnerships with affiliated academic institutions, VA conducts the largest education and training effort for health professionals in the nation.[223] Section 2.4.3 above details many benefits of this training program, particularly as tools for provider recruitment and retention. Because section 201(G) of the Veteran's Choice Act requests that we report on the time providers spend training health care professionals (i.e. residents), we report that 19 percent of providers spent some of their clinical time overseeing residents and trainees. For those providers, they spent 5 percent of their overall time training these health professionals.

It is difficult for providers and clinic business managers to quantify the amount of time that providers oversee residents, fellows, trainees, and clinical support staff as it is ingrained with other clinical duties. However, providers can be mapped within their clinical time to time spent training residents and trainees, using an ALBCC suffix which denotes clinical education (ED). We used this time as an estimation of time spent training and supervising other health care professionals of the department.

According to FY 2014 Worked Data (labor mapping), 19 percent of providers (physicians and APPs) spent clinical time dedicated to educating/training residents and other trainees. The time spent in a clinical training capacity totaled 5 percent of their allotted yearly time. We present in Figure 2-36 the total time spent overseeing residents and trainees in clinic, by provider, by specialty grouping (primary care, medical specialty (hospital based), medical specialty (non-hospital based), surgical specialty, mental health, and dental).

Figure 2-36. Provider oversight of residents and trainees in clinic by specialty grouping[224]
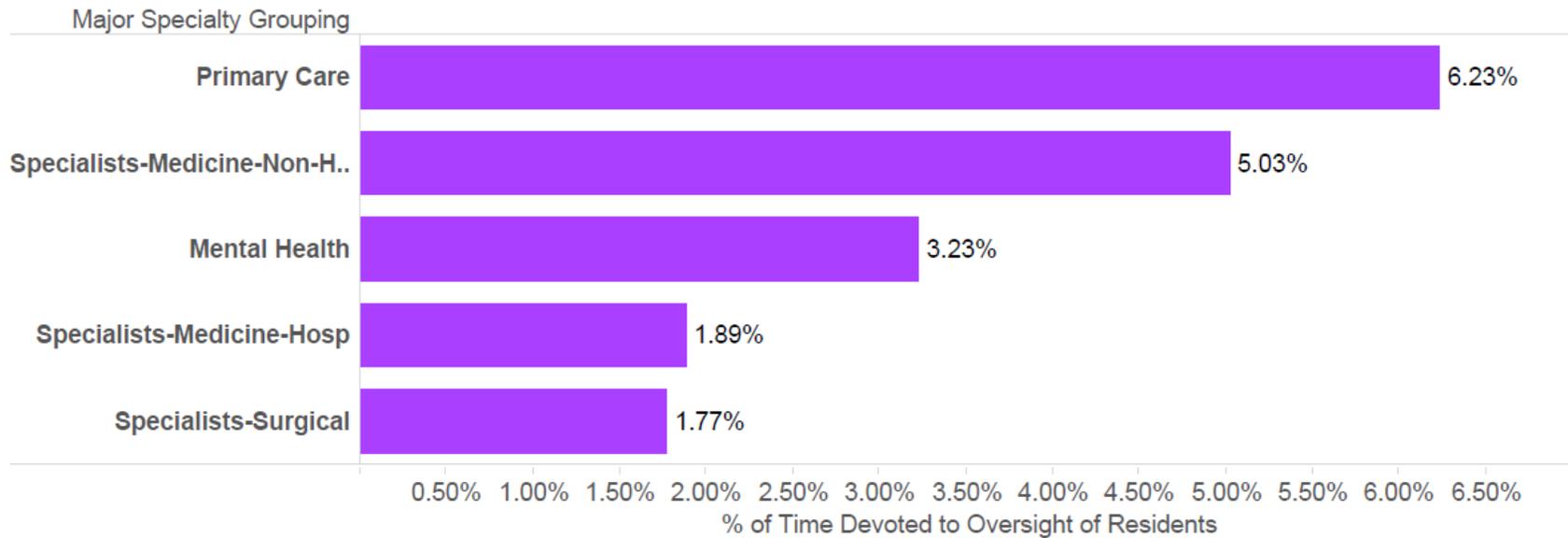
Major Specialty Grouping

	% of Time Devoted to Oversight of Residents
Primary Care	6.23%
Specialists-Medicine-Non-H..	5.03%
Mental Health	3.23%
Specialists-Medicine-Hosp	1.89%
Specialists-Surgical	1.77%

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[224] Assessment G analysis of Provider Labor Detail FY14, provided by VHA OPES.

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3 Recommendations

VHA's staffing and productivity practices have multiple stakeholders: congress and the executive branch, VA Central Office (VACO), VISN leadership, and VAMC leaders and staff. Reducing the barriers to provider staffing and productivity, encouraging innovation and addressing challenges, will require collaboration between all of these groups, and a commitment to making difficult, long-term change. The Assessment G recommendations should be considered in concert with the findings and recommendations of the other Veterans Choice Act Assessments (Assessments E-Scheduling, F-Clinical Workflow, and H-Technology).

By implementing these recommendations, along with the recommendations of the other Veterans Choice Act Assessments, VHA can evolve into a consistently high performing health system, enabling access to the high quality care in an efficient and cost effective manner.

3.1 Summary of Recommendations

We make five key recommendations for ways to reduce the barriers and address the challenges to provider staffing and productivity:

1. VHA should improve staffing models and performance measurement. (See Section 3.2)

2. VAMCs should create the role of clinic manager and drive more coordination and integration among providers and support staff. (See Section 3.3)

3. VAMCs should implement strategies for improving management of daily staff variances, and include a replacement factor for all specialties and PACT. (See Section 3.4)

4. VAMCs should implement local best practices to mitigate space shortages within specialty clinics. (See Section 3.5)

5. VHA should improve the accuracy of workload capture. (See Section 3.6)

In formulating these recommendations, our team considered the findings and recommendations of the other Veterans Choice Act Assessments, prior reports by VA's OIG, GAO and other government bodies, together with promising VHA practices identified in the course of our site visits and best practices from external health care organizations identified through the course of our literature review. For each recommendation, we identify the supporting evidence, relevant promising or best practices, and potential near-term actions or next steps.

To help VHA implement our recommendations, we have also included a discussion of cross-cutting implementation considerations that may be used to develop, enhance, or speed implementation.

3.2   VHA Should Improve Staffing Models and Performance Measurement

Insufficient use of staffing models and performance measurement tools (for example, SPARQ reports) limits VAMCs understanding of staffing and productivity gaps and the ability of medical centers to forecast staffing needs. To address this gap, VHA should evaluate its current staffing models and develop and implement outpatient specialty care staffing models, where few currently exist. Following this, VHA should improve performance measurement systems for productivity and staffing, incorporate fee-based providers in productivity measurement, refine and fully implement the nurse staffing methodology, and consider a work measurement study to confirm existing workload data. For future reporting, OPES should complete the development of the APP productivity cube, to include completion of business rules that would allow APPs to be mapped to a specialty designation and included in OPES specialty group practice and facility productivity reports to accurately reflect care teams' overall effort and present a combined provider (doctor of medicine [MD] and APP) productivity view.

3.2.1   Summary of supporting evidence

- **Finding 3.** VHA physician staffing levels per population are, in most specialties, lower than industry ratios. These ratios are not sufficient to establish whether VHA is staffed to meet demand. One factor to consider is that even industry physician supply is not sufficient to meet demand in many specialties. Another factor to consider is that VHA uses APPs extensively, but APPs are not included in industry ratios. (See Section 2.2.6)

- **Finding 6.** The actual panel size of VHA primary care providers is lower than internal and external benchmarks (See Section 2.3.5.5). Nationally, VHA's average modeled panel size for general practice physicians is similar to the calculated ideal panel size, which is the external benchmark derived from the American Academy of Family Physicians. The maximum panel size established by VHA facilities is usually lower than VHA's modeled panel size for general practice physicians at the same facility (the internal benchmark) as well as the ideal panel size for VHA providers (the external benchmark). The actual panel size for VHA general practice physicians is 13 percent below the VHA modeled panel size, 12 percent below the external benchmark, and 5 percent below the facility maximum.

- **Finding 16.** While there has been widespread implementation of the PACT model in primary care clinics and the National Nurse Staffing Methodology in many areas of inpatient care, there are no current VHA standards for staffing levels and/or mix in specialty clinics, with the exception of eye clinics. Furthermore, VHA OPES has developed state of the art tools for managing staffing and productivity, but these tools will require improvements for leaders to more effectively leverage them in resource decisions. Without staffing models or guidance (for most specialties), and tools that facilities will use, service chiefs do not have sufficient data to justify the number of resources needed to meet patient access standards.

- **Finding 14.** Clinical and administrative support staff ratios are insufficient and may limit provider productivity. (See Section 2.3.8.4). The ratio of support staff to VHA specialty

care providers is significantly lower than in the private sector (1.22:1 versus 2.5:1 in nonsurgical specialties and 3.68:1 in multispecialty practices) and the ratio is worse (1.16:1) in the larger and more complex level 1A VHA facilities. Further, the Assessment G team found that 43 percent of the 355 providers interviewed perceived insufficient clinical support staff (for example, nurses) to be a barrier to their productivity. This issue has persisted even with the implementation of the nurse staffing methodology.

- **Finding 15.** Insufficient clinical and administrative support staff results in providers and clinical support staff not working to the top of their licensure. (See Section 2.3.8.4.1). When VAMCs do not have adequate support staff, providers and nurses are unable to work at the top of their licensure, subsequently creating a cascade effect of staff not working to the top of their skill-level and ability and limiting productivity.

- **Finding 18.** Many facilities do not have a centralized staffing office or nurse float pool to address daily staff variances or absences. (See Section 2.3.8.4.4). Most VAMCs do not have effective strategies for addressing daily staff variances, resulting in breaks in the continuity of care, as staff are redeployed to cover absences, as well as higher use of mandated overtime, under or over staffing clinics, and over reliance on shared support staff across clinics. Sixty six percent of clinical staff surveyed in VHA specialty care outpatient clinics report that when they are absent, there is typically no one who covers for them.

- **Promising VA Practices** that were identified by the Assessment G team and are relevant to these recommendations are: the PACT II specialty care clinic model at the Southern Arizona VA Health Care System in Tucson, Arizona; the staffing model for specialty care clinics developed by the Portland VA Health Care System in Oregon; and the Magnet® recognized VA facility in Atlanta, Georgia, that tracks and reports Nursing Sensitive Indicators (NSI) data to VHA's National Database of Nursing Quality Indicators (NDNQI®). These practices are described in more detail in Appendix D.

- **External Leading Practices** that were identified by the Assessment G team and are relevant to these recommendations are: the PCMH model implemented by the Military Health System (MHS) and the measurement of the Primary Care Manager's (PCM's) continuity; the approaches to staffing models at Kaiser Permanente Medical Group Northern California and Mayo Clinic; and the quality journey designations used by health care organizations to drive organizational, staffing and quality improvements. These practices are described in more detail in Appendix D.

3.2.2 Potential near term actions

- Within 12 months, VACO should conduct an evaluation of the design and implementation of current VHA staffing models, such as PACT, BHIP, and PCMH, and the National Nurse Staffing Methodology, to determine the extent to which they are sufficient to meet the goals of VHA's population health focused model and access to care. Through this evaluation, identify whether gaps exist between policy directives and the implementation of these models. For example, identify whether the models have been implemented with:
  - o Adequate local data on patient demand, including special populations.

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- o Appropriate level and mix of clinical and non-clinical support staff.
- o Proper delineation of roles and responsibilities so that each team member performs to their highest functional level.
- o Sufficient clinic space and exam rooms.
- o Effective practices to ensure the continuity of staff and manage daily staffing variances.
- o Adequate training in the implementation of the staffing model.
- o Appropriate metrics to measure and monitor implementation and outcomes.

- Within 12 months, VACO should conduct a program review of the PACT program and the implementation of the PACT staffing model across facilities to identify the causes of the gaps between actual, facility maximum, modeled and external benchmarks, the impacts of these performance gaps on access to quality care, the appropriateness of current guidelines and performance standards, and determine areas for improvement.

- Within 12 months, VACO should develop and implement staffing models for outpatient specialty care services across VHA that can be used by medical centers to staff clinics efficiently to meet access standards. These models should be customized to meet the patient demand and care practices of different specialty clinic types. These models should by flexible, accurate, data driven, and scalable, as emphasized in VA's Section 301 report to Congress on March 9, 2015.

- Within 24 months, VISNs and VAMCs should improve existing performance measurement systems in order to realize the benefits of specialty care staffing models. For instance, increase the utilization of VHA's SPARQ reports by medical center leadership in staffing decisions by developing a performance management infrastructure around these tools. The performance management system should include: standard operating procedures, business rules, roles and accountabilities, data quality assurance and training.

- Within 24 months, VACO should assess the productivity of fee-based providers within VA clinics to properly reflect the staffing, productivity and capacity of VA clinics. Understanding the contribution of fee-based providers to the productivity of clinics will be important to determining the capacity of VA specialty clinics to meet VA's access standards. VACO should develop a tracking mechanism to regularly monitor the productivity and FTE level of these providers so that facilities can make appropriate make vs. buy decisions.

- Within 24 months, VACO should continue to refine and implement the National Nurse Staffing Methodology (VHA Directive 2010-034) across the Operating Room and Emergency Departments. We also recommend that the Office of Nursing Services continue to evaluate the implementation of the nurse staffing methodology throughout each implementation phase to: 1) assess the adoption rate of the methodology across VAMCs, 2) identify training/implementation support needs, and 3) identify lessons learned to further improve and enhance the staffing methodology deployment.
  - o To improve VHA's quality and performance measurement systems to realize the benefits of the Nurse Staffing Methodology, our team recommends VHA implement

the following actions: establish a target NHPPD range by level of care and service area; tie the NHPPD to facility budgeting and staff/workforce planning; mandate all VAMCs adopt, set targets and report NSIs to a national database such as NDNQI® in order to compare VHA's nurse quality and performance internally and externally; and pursue a quality journey designation, such as Magnet® or Baldridge, on order to drive improvements using National Nurse Staffing Methodology and nursing quality data.

o To improve the performance management systems to realize the benefits of the National Nurse Staffing Methodology, we recommend VHA continuously monitor actual FTE/HPPD to target FTE/HPPD variances, determine the VA national target HPPD range by reviewing external benchmarks (NDNQI®, LMI, Truven ActionOI®, etc.) by level of care and service area, and update the VHA Directive 2010-034 to align with the VHA national target HPPD range. In outpatient care, since there are currently no well-established nursing quality metrics reported or benchmarked in the industry, VHA should continue to conduct research and investigate how to develop appropriate nursing quality measures for outpatient care.

- Within 24 months, VACO should conduct a work measurement study (or confirm existing workload data) to determine the volume and distribution of workload annually to better match staffing requirements to demand. This will provide visibility in areas where core and surge resources may be needed and can inform the development of alternative staffing models. Understanding the workload distribution will also provide insights in how scheduling practices may be revised to maximize coverage.

3.3   VAMCs Should Create the Role of Clinic Manager and Drive More Coordination and Integration among Providers and Support Staff

Organizational siloes and separate reporting lines exist for physicians, nurses and medical service administrators at a majority of VAMCs. Additionally, there is frequently no dedicated manager responsible for the operations of VHA outpatient clinics. This makes it difficult for service chiefs and administrators to properly understand current clinic staffing and performance, coordinate daily staffing, and predict the future staffing needs of clinics. To address this gap, within 12 months VHA should create the role of clinic manager for specialty care clinics within each medical center. Under the general supervision of the physician leader, the clinic manager will be responsible for the supervision, direction, and coordination of the day-to-day operations of the clinic, including staffing and productivity.

To create more coordination and integration among providers, nursing staff, and medical service administrators, VAMCs could create multidisciplinary management teams for specialty clinics that include a physician leader, nurse leader, and business administrator. Alternatively, VAMCs could establish a single or dual reporting line and a service-line operating model (emphasizes groupings of specialties based on a care continuum, such as cardiac care) for providers and clinical and non-clinical staff, so that all members of the specialty clinic team have greater accountability to each other and to the service of the patient. The service chief could direct all staff in their daily patient care activities. The nurse executive position could be retained in the organizational structure to guide nursing staff in the scope of their practice. The

operating model should define: 1) span of control across the care continuum 2) the alignment of performance incentives 3) standardized roles and titles 4) standardized usage of data tools and metrics for clinics.

3.3.1   Summary of supporting evidence

- **Finding 17.** Organizational siloes and separate reporting lines exist for physicians, nurses and medical service administrators at a majority of VAMCs. As a result, service chiefs do not have control over the resourcing and performance of their clinical support staff (nurses) or clerical and administrative support staff. (See Section 2.3.8.4.3). This makes it difficult for service chiefs and administrators to properly understand current clinic staffing, coordinate daily staffing, and predict future staffing needs. Local clinical leaders reported that separate reporting lines make it more difficult to create a shared sense of accountability among clinical and non-clinical staff for the performance of clinics. Additionally, we observed that few clinics had a formal clinic manager who worked in partnership with the physician leader to manage the day-to-day operations of the clinic

- **Promising VA Practices** that were identified by the Assessment G team and are relevant to these recommendations are: the Fargo VA Health Care System in North Dakota realigned MSAs under the responsibility of a physician leader, the Service Line Chief; at the Huntington VA Medical Center in West Virginia, specialties were organized along service lines (groups of related specialty services provided by an interdisciplinary team of providers). These practices are described in more detail in Appendix D.

- **External Leading Practices** that were identified by the Assessment G team and are relevant to these recommendations are: the Walter Reed National Military Medical Center in Bethesda, Maryland, organizes clinical support staff and administrative staff for each specialty service under a physician service chief, or administrative officer that reports to the service chief, if the clinic is larger; at the Kaiser Permanente Medical Group Northern California Region, outpatient nursing and administrative staff are employed by the physician-owned Kaiser Permanent Medical Group, not the hospital, and report to the physician leader of each specialty clinic. These practices are described in more detail in Appendix D.

3.3.2   Potential near term actions

- Within 12 months, VACO should conduct a review of organization reporting structures within VAMCs and following the results of this exercise convene a meeting of clinical and administrative leaders from across the VISNs to develop agreed-upon options for implementing the clinic manager role and achieving greater coordination and integration between physicians, nursing and administrative staff at the clinic level.

- Within 12 months, VACO should develop and publish a directive which details the agreed-upon options for meeting the goals of coordination and integration.

- Within 12 months, VACO should develop a job description and staff classification for the role of clinic manager.

- Within 24 months, VAMCs should incorporate the role of clinic manager into budgets and develop a plan to recruit and staff this role.

3.4 VAMCs Should Implement Strategies for Improving Management of Staff Variances and Absences

Ineffective management of daily staff variances exacerbates staff shortages. We did not find facilities had a centralized staffing or nurse float pool to address daily staff variances or absences. Lack of such a strategy can result in breaks in the continuity of care, as staff are redeployed to cover absences, as well as higher use of mandated overtime, under or over staffing clinics, and over reliance on shared support staff across clinics. To address this gap, within 24 months, VHA should improve the management of daily staffing variances by implementing strategies that: assess the appropriate mix of staff for inpatient care based on census variation; implement a float pool; include a replacement factor in staffing models; and developing a consistent staffing approach for continued observation (CO).

3.4.1 Summary of supporting evidence

- **Finding 18.** Many facilities do not have a centralized staffing office or nurse float pool to address daily staff variances or absences. (See Section 2.3.8.4.4). Most VAMCs do not have effective strategies for addressing daily staff variances, resulting in breaks in the continuity of care, as staff are redeployed to cover absences, as well as higher use of mandated overtime, under or over staffing clinics, and over reliance on shared support staff across clinics. Sixty six percent of clinical staff surveyed in VHA specialty care outpatient clinics report that when they are absent, there is typically no one who covers for them.

- **Promising VA Practices** that were identified by the Assessment G team and are relevant to these recommendations are: the Fargo VA Health Care System in North Dakota, used several techniques, for example, float pools, to flex nursing staff to address daily staffing variances across inpatient units and outpatient clinics; the VA Medical Center in Houston, Texas, used CareWare®, a commercially available nurse staffing software to monitor and address daily staffing variances.

- **External Leading Practices** that were identified by the Assessment G team and are relevant to these recommendations are: Aultman Hospital, an 800+ bed Magnet® facility, implemented a central staffing office and a specialized float pool where financial incentives were provided for part-time nurses to pick up additional shifts; using a float pool has become a major strategy for health care organizations to help staff the facilities replacement factor for leaves for example, sick call-ins, vacations, or to cover high-volume needs.

3.4.2 Potential near term actions

- Within 12 months, VACO should assess the appropriate mix of full-time, part time, and intermittent staff for inpatient care based on census variation. Our team observed that

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VHA is already following some best practices to address daily variances such as conducting daily bed management meetings and cross-training staff to work in multiple units/clinics.

- Within 12 months, VAMCs should establish a central staffing office and float pool in the medical center that includes full-time, part-time, and intermittent staff to achieve the targeted HPPD.

- Within 12 months, VACO should include a replacement factor across all staffing methodologies/models. In the inpatient setting, consider funding the float pool with the replacement factor as identified in the National Nurse Staffing Methodology. In the outpatient setting, develop a replacement factor methodology (the PACT model does not include a replacement factor).

- Within 24 months, VACO should evaluate CO (continual observation) utilization based on historical usage, estimating potential reduction in those hours based on protocol development and develop a flexible staffing methodology to address CO needs (include CO workload into the float pool).

3.5   VAMCs Should Implement Best Practices to Mitigate Space Shortages in Specialty Clinics

A shortage of exam rooms and poor configuration of space may limit provider productivity. Insufficient exam rooms and poor configuration of space limits provider productivity and their ability to maximize patient throughput while reducing patient access. To address this gap, within 24 months, VAMCs should develop and implement strategies to mitigate the impact of space shortages within specialty clinics. VAMCs should consider strategies such as: 1) Expanded clinic hours of operation; 2) Standardized schedule templates to optimize the use of exam rooms; 3) System redesign initiatives to improve patient flow within the clinic; 4) Increased use of non-face-to-face encounters in specialty care for follow-up consults; 5) Evaluating the changing of return visit interval when appropriate and/or change mode of return visit, for example, alternatives to face-to-face visit, such as telephone or secure messaging; 6) Developing exam room ratios to meet the needs of staffing models.

3.5.1   Summary of supporting evidence

- **Finding 13.** Insufficient exam rooms and poor configuration of space limits providers' productivity, ability to maximize patient throughput and reduces patient access. (See Section 2.3.8.3).

- **Promising VA Practices** that were identified by the Assessment G team and are relevant to these recommendations are: the Boston VA Health care System in Massachusetts, in order to work around space shortages, expanded clinic hours to provide care in the evening and weekends

- **External Leading Practices** that were identified by the Assessment G team and are relevant to these recommendations are: at the Kaiser Permanente Northern California Region, outpatient specialty clinics have implemented care models that use multiple

modes to deliver patient care for example, group visit, individual office visit, telephonic and video consultations, and secure email. These multiple modes are important to make the most efficient use of clinic space and to maximize access to face-to-face appointments for first-time patients. The Mayo Clinic in Rochester, Minnesota has addressed space utilization by moving away from standard room ratios to a utilization standard (percentage of the day that a clinic uses a room). Based upon the utilization metric, rooms can be given to a clinic and taken away based on this standard.

3.5.2   Potential near term actions

- Within 12 months, VACO should conduct a review of clinic space configuration, with particular emphasis on specialty care. Following the results of this assessment, VACO should convene a meeting of VISN clinical, administrative, and facilities engineering and space planning leaders to review the findings and develop national standards for clinic space configuration.

- Within 12 months, VACO should assess alternate strategies to optimize existing space and alleviate the demand on clinic space. This study should examine internal and external best practices for strategies such as: 1) Expanded clinic hours of operation; 2) Standardized schedule templates to optimize the use of exam rooms; 3) System redesign initiatives to improve patient flow within the clinic; 4) Increased use of non-face-to-face encounters in specialty care for follow-up consults; 5) Evaluating the changing of return visit interval when appropriate and/or change mode of return visit, for example, alternatives to face-to-face visit, such as telephone or secure messaging; 6) Developing exam room ratios to meet the needs of staffing models.

- Within 24 months, VACO should develop a directive with national guidance for optimizing existing clinic space and alleviating demand on clinic space.

- Within 24 months, VAMCs should review the directive and customize and implement the recommended strategies for optimizing their existing space and alleviating the demand on clinic space.

3.6   VHA Should Improve the Accuracy of Workload Capture

Providers may not be fully documenting their clinical workload. This may impact the accuracy of wRVU productivity measurement and the ability of medical facilities to properly manage providers' availability. It is also important to measuring whether clinical pathways are being appropriately followed and understanding care outcomes. To address this gap, VHA should conduct an audit of medical record documentation and CPT® coding and diagnosis accuracy/reliability to validate physician productivity measurement. Further, VHA should evaluate the ability of commercially available CAC applications to assist providers, or professional coders, with coding.

3.6.1 Summary of supporting evidence

- **Finding 19.** During site visits and interviews with VHA Central Office leaders, we consistently heard concerns that providers do not fully document and accurately code all of their clinical workload. (See Section 2.3.8.5).

- **Promising VA Practices** that were identified by the Assessment G team and are relevant to these recommendations are: at the VAMC in Detroit, Michigan, facility leaders found productivity (wRVUs) within the Nephrology clinic was 12 percent off the national median. They investigated and found that workload within the Nephrology clinic was not being captured accurately. The Section Chief worked with the providers to address the coding issue and productivity increased from 12 to 94 percent. The facility highlighted this success and other clinics, as a result, became more aware of the importance of accurate coding.

- **External Leading Practices** that were identified by the Assessment G team and are relevant to these recommendations are: Coding Assistance Applications (otherwise known as computer assisted coding, or CAC) are increasingly being used by the private sector to improve coding consistency and reduce errors; at the Kaiser Permanente Northern California Region, coding is not used for the purposes of billing. The principle purpose of coding is to create a database of discrete, specific, and identifiable clinical activities. For clinicians, the goal of coding is to measure and understand clinical demand, the specific care activities provided and to track clinical outcomes for specific groups of patients. Additional uses are for the appropriate regulatory, business and financial needs of Kaiser Permanente.

3.6.2 Potential near term actions

- Within 12 months, VACO should conduct an audit of medical record documentation and CPT® coding and diagnosis accuracy/reliability. It should use the results of this assessment to further validate physician productivity measurement.

- Within 12 months, VACO should evaluate national and facility-level coding policies and procedures. VHA should use the results of these studies to improve provider training in coding and develop improved and standardized procedures for workload capture and validation across the VHA system.

- Within 12 months, VACO should evaluate the ability of commercially available CAC applications to assist providers, or professional coders, with coding.

- Within 24 months, VACO should work with VAMCs to procure and implement CAC applications in medical facilities.

3.7   Implementation Considerations

As previously noted and in alignment with Section 201 of the Choice Act, the assessments, findings and recommendations were developed independently. We therefore expect the recommendations for Assessment G will need to be refined and integrated by VHA leadership into ongoing change efforts (for example, MyVA). There are a number of cross-cutting

implementation considerations for the successful adoption of the recommendations described in Section 3.6. These implementation considerations may be used to develop, enhance, or speed implementation. They are described here:

3.7.1 Understand the systemic nature of the issues and the solutions needed to address them

Current approaches to dealing with staffing and productivity challenges typically prompt leaders to initiate a series of discrete change initiatives with specific technical and tactical interventions. These discrete initiatives may result in new roles and responsibilities, training, or a national policy or mandate for medical facilities to follow. Experience shows that these initiatives will have varying degrees of success because they frequently do not address the underlying problems of "whole systems". To enhance the chances of success for the recommendations outlined in this assessment, we recommend that VHA leaders adopt a "whole systems" perspective and engage those involved in the problems or issues (facility leaders, physician leaders, providers, clinical support staff, administrative support staff,) in co-creating the solutions to these issues. The solutions to these issues are best when they emerge from the interactions of divergent points of view in service of an overarching goal.

3.7.2 Seize the opportunity to bring stakeholders together to co-create solutions

Co-creation has been increasingly embraced by government as an opportunity to solve complex challenges and transform government. For example, the White House Open Government Initiative has involved more than 42,000 citizens in more than 300 challenge competitions to help solve some of the most challenging and important problems facing the nation. The NASA Center of Excellence for Collaborative Innovation uses public participation through competitions to help NASA extend and accelerate innovation, increase its problem solving capacity, generate ideas, and solve vexing problems. VA's Center for Innovation (VACI) has since 2010 worked to identify, test and evaluate new approaches to the agency's most pressing challenges. VACI holds employee competitions each year which target innovations for health care and VA business processes and practices.

Many leaders assume, incorrectly, that solutions to problems proposed by a limited set of players can be propagated throughout the agency. They label people with dissenting points of view, who may hold insights into how the changes can be improved, as obstacles to change. The co-creation approach on the other hand recognizes that everyone who is involved in the problem must be involved in the solution.

3.7.3 Understand the resource implications of new and existing mandates

It is critical that leaders understand the resource implications for medical facilities of new directives and initiatives from central office. Unfunded mandates were seen as a significant challenge by leaders and staff at the VAMCs we visited. For example, the Assessment F team found that mandated clinical staff positions for primary care PACT were reported by providers to have been filled by pulling clinical staff from other programs and from the inpatient setting.

Similarly, the implementation of the national nurse staffing methodology was undermined by the failure to fund this mandate. While these are only two examples from interviews on site visits, it is clear that facilities are feeling challenged in their ability to execute against multiple mandates. In any instance where targeted new initiatives and mandates, such as those recommendations above, are being contemplated, congress and VACO should strongly consider whether additional resources are required and provide them as needed.

Appendix A   Supplemental Provider Productivity Data

This appendix contains additional content, tables, and figures used to inform findings.

A.1   Productivity (wRVU) by Specialty

Figure A-1 provides additional detail in support of Section 2.3.6, Specialty Care. The graphs illustrate wRVU productivity internal and external benchmarks for all providers, by specialty, at complexity level 1A facilities. It also includes, for each specialty: total headcount of providers, total paid FTE (includes non-working compensated time), and total encounters generated during FY 2014. It depicts the internal percentiles of wRVU productivity, alongside the median performance in MGMA and AMGMA survey benchmark data sets. These graphs highlight instances in which a particular specialty may have lower median productivity than benchmark data sets, yet have higher productivity at the 75th percentile relative to the benchmark medians. Of note, since APPs cannot be mapped to an individual specialty, they are excluded from this analysis, both in the VHA data and in the benchmarks. Primary care providers have been removed from this data set; as such, the internal medicine category would include primarily hospitalists or other internal medicine providers not working in a primary care setting.

Following, Figure A-2 shows the same data for complexity level 3 facilities.

Figure A-1 and Figure A-2 show the results of an Assessment G analysis which used Provider Detail FY14 provided by VHA OPES, February 26, 2015, and Provider Labor Detail FY14 provided by VHA OPES, April, 9, 2015, as well as the 2014 AMGMA and MGMA surveys for benchmarking.

Figure A-1. Internal and external productivity benchmarks by wRVUs, complexity level 1A facilities

Specialty	Provider Count	Total FTE	Encounters			Measure Names
Addiction Psychiatry	52	37.22	45,409	25Th	1,528	25Th
				Median	2,553	Median
				75Th	4,533	75Th
				MGMA Median	3,574	MGMA Median
				AMGMA Median	1,929	AMGMA Median
Allergy and Immunology	32	10.92	19,888	25Th	1,726	
				Median	2,619	
				75Th	3,513	
				MGMA Median	4,272	
				AMGMA Median	4,318	
Cardiovascular Disease	304	190.71	788,594	25Th	3,830	
				Median	6,101	
				75Th	9,100	
				MGMA Median	7,070	
				AMGMA Median	6,749	
Child and Adolescent Psychiatry	3	1.97	1,582	25Th	1,319	
				Median	1,479	
				75Th	1,870	
				MGMA Median	3,048	
				AMGMA Median	2,643	
Clinical Cardiac Electrophysiology	40	29.57	115,501	25Th	6,073	
				Median	6,899	
				75Th	9,761	
				MGMA Median	8,690	
				AMGMA Median	9,474	
Clinical Neurophysiology	17	10.86	10,815	25Th	2,213	
				Median	4,111	
				75Th	8,938	
				MGMA Median	4,514	
				AMGMA Median	6,706	
Colon and Rectal Surgery	14	9.18	12,038	25Th	1,900	
				Median	4,398	
				75Th	5,900	
				MGMA Median	7,768	
				AMGMA Median	8,848	
Critical Care Medicine	45	27.92	36,332	25Th	168	
				Median	3,627	
				75Th	8,800	
				MGMA Median	5,439	
				AMGMA Median	6,694	
Dermatology	194	83.47	263,489	25Th	4,591	
				Median	7,140	
				75Th	11,687	
				MGMA Median	7,784	
				AMGMA Median	5,729	
Dermatopathology	20	4.64	18,679	25Th	7,316	
				Median	9,948	
				75Th	12,705	
				MGMA Median	7,784	
				AMGMA Median	5,729	
Diagnostic Radiology	2	1.97	10,288	25Th	3,723	
				Median	4,966	
				75Th	6,209	
				MGMA Median	8,814	
				AMGMA Median	8,043	

Productivity wRVUs (0K, 2K, 4K, 6K, 8K, 10K, 12K, 14K)

Specialty	Provider Count	Total FTE	Encounters		Productivity wRVUs
Emergency Medicine	346	214.45	385,031	25Th	2,649
				Median	3,876
				75Th	5,240
				MGMA Median	6,752
				AMGMA Median	8,388
Endocrinology/ Diabetes and Metabolism	168	94.37	101,742	25Th	2,003
				Median	3,048
				75Th	4,343
				MGMA Median	4,495
				AMGMA Median	4,486
Family Practice	412	39.94	47,036	25Th	936
				Median	1,968
				75Th	3,125
				MGMA Median	4,763
				AMGMA Median	4,925
Gastroenterology	306	207.08	295,546	25Th	4,509
				Median	6,631
				75Th	9,031
				MGMA Median	8,728
				AMGMA Median	8,632
Geriatric Medicine	316	104.48	36,217	25Th	0
				Median	657
				75Th	2,135
				MGMA Median	3,532
				AMGMA Median	3,109
Hematology	192	126.97	222,977	25Th	2,242
				Median	3,709
				75Th	5,749
				MGMA Median	4,234
				AMGMA Median	5,568
Infectious Disease	178	74.08	39,807	25Th	877
				Median	1,921
				75Th	3,668
				MGMA Median	4,483
				AMGMA Median	4,600
Internal Medicine	2549	672.60	460,806	25Th	0
				Median	856
				75Th	2,982
				MGMA Median	4,581
				AMGMA Median	4,601
Interventional Cardiology	92	59.44	163,169	25Th	3,857
				Median	6,651
				75Th	9,549
				MGMA Median	8,680
				AMGMA Median	9,770
Medical Oncology	46	28.67	41,598	25Th	2,296
				Median	3,127
				75Th	4,684
				MGMA Median	6,316
				AMGMA Median	4,950
Nephrology	209	122.68	235,318	25Th	2,057
				Median	4,832
				75Th	9,590
				MGMA Median	6,873
				AMGMA Median	7,081

Measure Names
- 25Th
- Median
- 75Th
- MGMA Median
- AMGMA Median

Productivity wRVUs (axis: 0K, 2K, 4K, 6K, 8K, 10K, 12K, 14K)

The views, opinions, and/or findings contained in this report are those of Grant Thornton and should not be construed as an official government position, policy, or decision.

Specialty	Provider Count	Total FTE	Encounters		Productivity wRVUs
Neurological Surgery	70	41.83	34,608	25Th	2,394
				Median	3,444
				75Th	6,486
				MGMA Median	9,368
				AMGMA Median	9,977
Neurology	361	219.39	218,835	25Th	1,990
				Median	3,193
				75Th	4,523
				MGMA Median	4,514
				AMGMA Median	4,711
Neuroradiology	38	23.45	124,150	25Th	6,138
				Median	8,358
				75Th	9,883
				MGMA Median	12,209
				AMGMA Median	11,003
Nuclear Medicine	56	41.87	107,023	25Th	2,987
				Median	4,097
				75Th	6,073
				MGMA Median	7,909
				AMGMA Median	5,741
Nuclear Radiology	22	14.86	34,425	25Th	2,766
				Median	3,594
				75Th	4,753
				MGMA Median	7,909
				AMGMA Median	5,741
Obstetrics and Gynecology	65	33.49	36,832	25Th	1,798
				Median	2,463
				75Th	3,238
				MGMA Median	6,547
				AMGMA Median	7,061
Ophthalmology	371	146.37	512,334	25Th	4,648
				Median	7,387
				75Th	11,885
				MGMA Median	8,330
				AMGMA Median	6,750
Orthopaedic Surgery	205	113.40	200,316	25Th	2,624
				Median	4,297
				75Th	6,002
				MGMA Median	8,241
				AMGMA Median	8,384
Otolaryngology	158	65.68	118,555	25Th	3,355
				Median	4,406
				75Th	6,553
				MGMA Median	6,743
				AMGMA Median	7,643
Pathology	234	185.79	7,893,921	25Th	2,002
				Median	3,881
				75Th	5,783
				MGMA Median	6,196
				AMGMA Median	5,918
Pediatric Infectious Diseases	1	0.05	2	25Th	55
				Median	55
				75Th	55
				MGMA Median	1,387
				AMGMA Median	3,303

Measure Names
- 25Th
- Median
- 75Th
- MGMA Median
- AMGMA Median

Productivity wRVUs

Specialty	Provider Count	Total FTE	Encounters	Measure	Productivity wRVUs
Physical Medicine and Rehabilitation	247	183.53	202,220	25Th	2,006
				Median	2,965
				75Th	4,590
				MGMA Median	4,472
				AMGMA Median	5,348
Plastic Surgery	83	40.51	48,058	25Th	2,146
				Median	3,778
				75Th	5,663
				MGMA Median	6,463
				AMGMA Median	8,775
Psychiatry	1356	998.30	1,420,249	25Th	1,904
				Median	3,059
				75Th	4,506
				MGMA Median	3,574
				AMGMA Median	1,929
Psychology	1978	1,516.95	1,740,034	25Th	1,053
				Median	1,915
				75Th	2,785
				MGMA Median	2,467
				AMGMA Median	1,775
Public Health and General Preventive Medicine	57	36.75	21,514	25Th	471
				Median	861
				75Th	1,192
				MGMA Median	4,581
				AMGMA Median	4,601
Pulmonary Disease	242	165.04	274,722	25Th	2,441
				Median	4,271
				75Th	8,218
				MGMA Median	6,232
				AMGMA Median	4,907
Radiation Oncology	40	33.33	72,987	25Th	2,188
				Median	4,155
				75Th	6,462
				MGMA Median	7,746
				AMGMA Median	9,581
Radiology	439	318.15	1,896,938	25Th	4,448
				Median	5,896
				75Th	7,557
				MGMA Median	8,814
				AMGMA Median	8,043
Radium Therapy	3	2.70	2,568	25Th	925
				Median	2,310
				75Th	2,783
				MGMA Median	7,746
				AMGMA Median	9,581
Rheumatology	126	70.21	94,239	25Th	2,538
				Median	3,619
				75Th	5,019
				MGMA Median	4,652
				AMGMA Median	4,299
Spinal Cord Injury Medicine	98	31.67	19,515	25Th	518
				Median	2,579
				75Th	8,688
				MGMA Median	4,472
				AMGMA Median	5,348

Measure Names
- 25Th
- Median
- 75Th
- MGMA Median
- AMGMA Median

Specialty	Provider Count	Total FTE	Encounters		Productivity wRVUs
Surgery	298	169.96	147,081	25Th	1,843
				Median	3,448
				75Th	4,963
				MGMA Median	6,712
				AMGMA Median	7,525
Surgery of the Hand	19	7.72	16,687	25Th	2,450
				Median	3,862
				75Th	7,245
				MGMA Median	8,098
				AMGMA Median	8,974
Surgical Critical Care	24	13.83	6,437	25Th	0
				Median	0
				75Th	3,226
				MGMA Median	4,399
				AMGMA Median	6,304
Thoracic Surgery	89	57.11	23,521	25Th	2,319
				Median	3,689
				75Th	5,824
				MGMA Median	7,121
				AMGMA Median	8,156
Urology	200	110.39	228,166	25Th	3,167
				Median	4,826
				75Th	7,625
				MGMA Median	7,518
				AMGMA Median	8,531
Vascular Surgery	107	65.62	121,740	25Th	2,855
				Median	4,717
				75Th	7,324
				MGMA Median	8,838
				AMGMA Median	9,980

Measure Names
- 25Th
- Median
- 75Th
- MGMA Median
- AMGMA Median

Figure A-2.Internal and external productivity benchmarks by wRVUs, complexity level 3 facilities

Specialty	Provider Count	Total FTE	Encounters	Measure	Productivity wRVUs
Addiction Psychiatry	14	8.02	11,251	25Th	2,036
				Median	3,352
				75Th	5,051
				MGMA Median	3,574
				AMGMA Median	1,929
Allergy and Immunology	1	0.09	160	25Th	4,151
				Median	4,151
				75Th	4,151
				MGMA Median	4,272
				AMGMA Median	4,318
Cardiovascular Disease	29	18.58	44,016	25Th	2,534
				Median	3,657
				75Th	4,884
				MGMA Median	7,070
				AMGMA Median	6,749
Clinical Cardiac Electrophysiology	3	2.58	9,130	25Th	4,526
				Median	4,604
				75Th	8,778
				MGMA Median	8,690
				AMGMA Median	9,474
Clinical Neurophysiology	2	1.94	3,199	25Th	2,075
				Median	2,822
				75Th	3,568
				MGMA Median	4,514
				AMGMA Median	6,706
Colon and Rectal Surgery	3	1.81	2,149	25Th	2,678
				Median	2,807
				75Th	6,235
				MGMA Median	7,768
				AMGMA Median	8,848
Dermatology	18	7.81	21,989	25Th	3,777
				Median	5,051
				75Th	11,154
				MGMA Median	7,784
				AMGMA Median	5,729
Dermatopathology	1	0.40	1,551	25Th	7,002
				Median	7,002
				75Th	7,002
				MGMA Median	7,784
				AMGMA Median	5,729
Diagnostic Radiology	4	1.14	12,644	25Th	4,871
				Median	6,020
				75Th	6,683
				MGMA Median	8,814
				AMGMA Median	8,043
Emergency Medicine	43	25.49	28,027	25Th	1,367
				Median	2,191
				75Th	2,945
				MGMA Median	6,752
				AMGMA Median	8,388
Endocrinology/ Diabetes and Metabolism	8	5.41	10,253	25Th	1,908
				Median	2,240
				75Th	3,831
				MGMA Median	4,495

Measure Names: 25Th, Median, 75Th, MGMA Median, AMGMA Median

Specialty	Provider Count	Total FTE	Encounters	Measure	Productivity wRVUs
Metabolism	8	5.41	10,253	AMGMA Median	4,486
Family Practice	206	44.05	31,701	25Th	624
				Median	1,218
				75Th	2,395
				MGMA Median	4,763
				AMGMA Median	4,925
Forensic Psychiatry	1	0.79	841	25Th	2,416
				Median	2,416
				75Th	2,416
				MGMA Median	3,574
				AMGMA Median	1,929
Gastroenterology	18	14.28	24,824	25Th	3,473
				Median	5,096
				75Th	5,697
				MGMA Median	8,728
				AMGMA Median	8,632
Geriatric Medicine	57	20.03	5,388	25Th	0
				Median	255
				75Th	4,450
				MGMA Median	3,532
				AMGMA Median	3,109
Hematology	11	8.62	17,972	25Th	1,975
				Median	2,680
				75Th	3,417
				MGMA Median	4,234
				AMGMA Median	5,568
Infectious Disease	9	5.10	6,863	25Th	1,219
				Median	2,895
				75Th	4,169
				MGMA Median	4,483
				AMGMA Median	4,600
Internal Medicine	574	142.03	112,077	25Th	183
				Median	1,240
				75Th	2,400
				MGMA Median	4,581
				AMGMA Median	4,601
Interventional Cardiology	1	0.99	1,416	25Th	1,847
				Median	1,847
				75Th	1,847
				MGMA Median	8,680
				AMGMA Median	9,770
Medical Oncology	2	0.80	2,395	25Th	2,669
				Median	3,469
				75Th	4,269
				MGMA Median	6,316
				AMGMA Median	4,950
Nephrology	8	4.06	9,462	25Th	2,576
				Median	2,697
				75Th	5,102
				MGMA Median	6,873
				AMGMA Median	7,081
Neurological Surgery	2	0.75	1,058	25Th	1,930
				Median	2,551
				75Th	3,172

Measure Names:
- 25Th
- Median
- 75Th
- MGMA Median
- AMGMA Median

Specialty	Provider Count	Total FTE	Encounters	Measure	Productivity wRVUs
Neurological Surgery	2	0.75	1,058	MGMA Median	9,368
				AMGMA Median	9,977
Neurology	35	20.48	27,826	25Th	1,675
				Median	2,808
				75Th	3,936
				MGMA Median	4,514
				AMGMA Median	4,711
Neurology with Special Qualifications in Child Neurology	1	0.99	1,620	25Th	2,758
				Median	2,758
				75Th	2,758
				MGMA Median	4,423
				AMGMA Median	4,427
Neuroradiology	1	0.99	11,585	25Th	8,238
				Median	8,238
				75Th	8,238
				MGMA Median	12,209
				AMGMA Median	11,003
Nuclear Medicine	2	1.97	2,047	25Th	866
				Median	967
				75Th	1,067
				MGMA Median	7,909
				AMGMA Median	5,741
Obstetrics and Gynecology	4	1.29	937	25Th	477
				Median	900
				75Th	4,513
				MGMA Median	6,547
				AMGMA Median	7,061
Ophthalmology	19	12.27	28,272	25Th	3,685
				Median	5,503
				75Th	8,470
				MGMA Median	8,330
				AMGMA Median	6,750
Orthopaedic Surgery	24	16.33	37,071	25Th	3,354
				Median	4,094
				75Th	4,950
				MGMA Median	8,241
				AMGMA Median	8,384
Otolaryngology	8	3.82	7,034	25Th	3,392
				Median	4,498
				75Th	5,479
				MGMA Median	6,743
				AMGMA Median	7,643
Pathology	17	11.22	681,615	25Th	731
				Median	1,865
				75Th	2,638
				MGMA Median	6,196
				AMGMA Median	5,918
Pediatrics	1	0.98	242	25Th	533
				Median	533
				75Th	533
				MGMA Median	5,024
				AMGMA Median	4,348
Physical Medicine and Rehabilitation	49	34.41	45,311	25Th	1,373
				Median	1,832

Measure Names: 25Th, Median, 75Th, MGMA Median, AMGMA Median

Specialty	Provider Count	Total FTE	Encounters	Measure	Productivity wRVUs
Physical Medicine and Rehabilitation	49	34.41	45,311	75Th	2,623
				MGMA Median	4,472
				AMGMA Median	5,348
Plastic Surgery	2	0.84	1,791	25Th	4,636
				Median	4,640
				75Th	4,644
				MGMA Median	6,463
				AMGMA Median	8,775
Psychiatry	286	221.54	314,869	25Th	1,786
				Median	2,762
				75Th	3,949
				MGMA Median	3,574
				AMGMA Median	1,929
Psychology	578	441.54	471,084	25Th	1,159
				Median	1,905
				75Th	2,767
				MGMA Median	2,467
				AMGMA Median	1,775
Public Health and General Preventive Medicine	9	4.50	2,403	25Th	0
				Median	67
				75Th	720
				MGMA Median	4,581
				AMGMA Median	4,601
Pulmonary Disease	18	12.43	24,183	25Th	3,001
				Median	3,583
				75Th	4,926
				MGMA Median	6,232
				AMGMA Median	4,907
Radiology	60	41.23	276,171	25Th	3,737
				Median	4,809
				75Th	6,047
				MGMA Median	8,814
				AMGMA Median	8,043
Rheumatology	6	3.02	3,176	25Th	2,587
				Median	3,254
				75Th	3,528
				MGMA Median	4,652
				AMGMA Median	4,299
Spinal Cord Injury Medicine	4	1.44	3,222	25Th	1,339
				Median	2,977
				75Th	13,435
				MGMA Median	4,472
				AMGMA Median	5,348
Surgery	50	29.65	36,384	25Th	2,638
				Median	3,685
				75Th	6,276
				MGMA Median	6,712
				AMGMA Median	7,525
Surgical Critical Care	1	0.50	515	25Th	3,224
				Median	3,224
				75Th	3,224
				MGMA Median	4,399
				AMGMA Median	6,304
Urology	27	19.69	44,554	25Th	2,501

Measure Names
- 25Th
- Median
- 75Th
- MGMA Median
- AMGMA Median

Figure A-2 provides additional detail in support of Section 2.3.6, Specialty Care. The graphs illustrate wRVU productivity internal and external benchmarks for all providers, by specialty, at complexity level 3 facilities. It also includes, for each specialty: total headcount of providers, total paid FTE (includes non-working compensated time), and total encounters generated during FY 2014. It depicts the internal percentiles of wRVU productivity, alongside the median performance in MGMA and AMGMA survey benchmark data sets. These graphs highlight instances in which a particular specialty may have lower median productivity than benchmark data sets, yet have much higher productivity at the 75th percentile relative to the benchmark medians.

A.2 Productivity (wRVU and encounters) by facility

The productivity graphs below depict the total productivity generated at each facility sorted by facility complexity level (this includes physicians and APPs, as well as all specialties, and primary care). Productivity was calculated both using encounter and wRVU totals. Productivity by Encounters is calculated using the total encounters per facility divided by the total adjusted clinical FTE. Similarly, the Productivity by wRVU is calculated using the total adjusted worked RVUs divided by the adjusted clinical FTE. The productivity levels increase according to the complexity level of the facility however productivity does not rise as dramatically as overall FTE levels per facility.

Figure A-3. Productivity by wRVU for level 1a facilities

Facility	Facility	Productivity by Encounter
(V09) (614) Memphis, TN	317.37	3,288
(V08) (672) San Juan, PR	467.96	3,167
(V08) (673) Tampa, FL	683.4	3,099
(V18) (501) New Mexico HCS	313.16	2,958
(V08) (516) Bay Pines, FL	539.52	2,866
(V17) (549) Dallas, TX	622.88	2,860
(V03) (630) New York Harbor HCS, NY	441.62	2,829
(V04) (646) Pittsburgh, PA	369.41	2,796
(V19) (554) Denver, CO	459.37	2,785
(V10) (541) Cleveland, OH	618.55	2,757
(V22) (664) San Diego, CA	472.65	2,757
(V16) (580) Houston, TX	650.11	2,742
(V01) (689) VA Connecticut HCS, CT	408.37	2,742
(V22) (691) Greater Los Angeles HCS	723.17	2,690
(V17) (671) San Antonio, TX	487.08	2,657
(V23) (618) Minneapolis, MN	514.49	2,598
(V07) (508) Atlanta, GA	642.18	2,577
(V08) (573) Gainesville, FL	807.74	2,567
(V09) (626) Middle Tennessee HCS, TN	499.19	2,521
(V18) (678) Southern Arizona HCS	327.24	2,502
(V07) (521) Birmingham, AL	359.26	2,397
(V20) (663) VA Puget Sound, WA	575.88	2,388
(V01) (523) VA Boston HCS, MA	430.9	2,384
(V11) (583) Indianapolis, IN	334.68	2,384
(V20) (648) Portland, OR	516.07	2,339
(V06) (558) Durham, NC	431.2	2,212
(V06) (652) Richmond, VA	405.68	2,158
(V15) (657) St. Louis, MO	318.54	2,069
(V12) (578) Hines, IL	433.32	2,011
(V21) (640) Palo Alto, CA	583.78	1,918
(V12) (695) Milwaukee, WI	409.04	1,890
(V21) (662) San Francisco, CA	414.72	1,870

Productivity by Encounter

Figure A-4. Productivity by wRVU for level 1b facilities

Facility	FTE By Facility	Productivity by Encounter
(V22) (600) Long Beach, CA	297.47	3,700
(V05) (688) Washington, DC	334.12	3,449
(V22) (605) Loma Linda, CA	314.48	3,183
(V08) (546) Miami, FL	378.15	3,018
(V12) (537) Jesse Brown VAMC (Chicago),...	346.5	2,890
(V16) (635) Oklahoma City, OK	296.42	2,875
(V16) (598) Little Rock, AR	439.29	2,857
(V11) (553) Detroit, MI	291.87	2,853
(V11) (506) Ann Arbor, MI	329.08	2,683
(V07) (534) Charleston, SC	324.93	2,682
(V07) (509) Augusta, GA	242.31	2,651
(V16) (586) Jackson, MS	275.78	2,639
(V04) (642) Philadelphia, PA	388.59	2,425
(V10) (539) Cincinnati, OH	359.16	2,294
(V19) (660) Salt Lake City, UT	354.02	1,786
(V12) (607) Madison, WI	229.54	1,673
(V05) (512) Baltimore HCS, MD	408.3	1,562

Figures A-3 through Figure A-12 present Assessment G team analysis which used Provider Detail FY14 provided by VHA OPES, February 26, 2015, and Provider Labor Detail FY14 provided by VHA OPES, April, 9, 2015, as well as the 2014 AMGMA and MGMA surveys for benchmarking.

Figure A-5. Productivity by wRVU for level 1c facilities

Facility	FTE By Facility	Productivity by Encounter
(V09) (621) Mountain Home, TN	302.03	3,172
(V08) (548) West Palm Beach, FL	323.29	2,985
(V07) (544) Columbia, SC	323.65	2,951
(V23) (636) Nebraska-W Iowa, NE	235.44	2,919
(V02) (528) Albany, NY	225.1	2,908
(V03) (632) Northport, NY	238.96	2,795
(V03) (526) Bronx, NY	253.26	2,776
(V17) (674) Temple, TX	513.02	2,737
(V02) (528) Western New York, NY	249.4	2,731
(V18) (644) Phoenix, AZ	401.46	2,724
(V06) (659) Salisbury, NC	416.42	2,713
(V06) (658) Salem, VA	257.43	2,701
(V16) (667) Shreveport, LA	234.38	2,687
(V16) (520) Gulf Coast HCS, MS	293.55	2,632
(V15) (589) Columbia, MO	199.6	2,624
(V02) (528) Syracuse, NY	207.63	2,594
(V09) (596) Lexington, KY	239.3	2,575
(V21) (612) N. California, CA	427.29	2,502
(V06) (637) Asheville, NC	259.21	2,435
(V15) (589) Kansas City, MO	225.81	2,382
(V10) (552) Dayton, OH	258.41	2,308
(V03) (561) New Jersey HCS, NJ	363.44	2,297
(V15) (589) Eastern KS HCS, KS	217.67	2,230
(V23) (636) Iowa City, IA	219.34	2,162
(V09) (603) Louisville, KY	289.19	2,114

Figure A-6. Productivity by wRVU for level 2 facilities

Facility	FTE By Facility	Productivity by Encounter
(V15) (657) Marion, IL	232.56	3,631
(V21) (570) Fresno, CA	152.52	3,159
(V04) (693) Wilkes-Barre, PA	173.19	3,135
(V04) (540) Clarksburg, WV	109.21	3,071
(V09) (581) Huntington, WV	178.7	3,003
(V05) (613) Martinsburg, WV	197.85	2,984
(V16) (564) Fayetteville, AR	205.27	2,916
(V15) (589) Wichita, KS	166.78	2,834
(V16) (629) New Orleans, LA	207.75	2,815
(V21) (654) Reno, NV	182.54	2,780
(V18) (504) Amarillo, TX	118.53	2,761
(V22) (593) Las Vegas, NV	314.98	2,676
(V08) (675) Orlando, FL	470.4	2,611
(V04) (595) Lebanon, PA	196.31	2,570
(V01) (650) Providence, RI	223.3	2,548
(V01) (402) Togus, ME	212.33	2,444
(V19) (436) Montana HCS	164.99	2,431
(V07) (619) Central Alabama Veterans HC..	190.45	2,374
(V11) (610) Northern Indiana HCS, IN	174.45	2,311
(V20) (531) Boise, ID	185.39	2,265
(V06) (590) Hampton, VA	250.78	2,220
(V04) (460) Wilmington, DE	138.95	2,210
(V19) (442) Cheyenne, WY	91.94	2,154
(V23) (437) Fargo, ND	147.51	2,139
(V16) (623) Muskogee, OK	189.34	2,066
(V01) (405) White River Junction, VT	150.45	1,829
(V06) (565) Fayetteville, NC	245.64	1,689
(V23) (636) Central Iowa, IA	193	1,684
(V19) (575) Grand Junction, CO	78.93	1,675
(V11) (550) Danville, IL	177.19	1,649
(V10) (538) Chillicothe, OH	164.63	1,524
(V23) (438) Sioux Falls, SD	131.69	1,438

Figure A-7. Productivity by wRVU for level 3 facilities

Facility	FTE By Facility	Productivity by Encounter
(V04) (562) Erie, PA	92.53	2,857
(V02) (528) Bath, NY	83.8	2,768
(V07) (557) Dublin, GA	138.41	2,730
(V15) (657) Poplar Bluff, MO	93.14	2,647
(V03) (620) VA Hudson Valley HCS, NY	171.24	2,645
(V04) (503) Altoona, PA	89.15	2,558
(V10) (757) Columbus, OH	196.28	2,544
(V20) (653) Roseburg, OR	88.09	2,196
(V20) (463) Anchorage, AK	84.39	2,187
(V16) (502) Alexandria, LA	168.02	2,097
(V20) (668) Spokane, WA	123.28	2,011
(V23) (656) St. Cloud, MN	156.21	1,984
(V01) (608) Manchester, NH	108.76	1,984
(V18) (649) Northern Arizona HCS	130.14	1,833
(V18) (519) Big Spring, TX	49.15	1,817
(V04) (529) Butler, PA	61.86	1,803
(V11) (515) Battle Creek, MI	191.17	1,797
(V20) (687) Walla Walla, WA	62.2	1,761
(V19) (666) Sheridan, WY	57.42	1,748
(V01) (631) VA Central Western Massachu..	126.92	1,722
(V12) (676) Tomah, WI	104.05	1,676
(V06) (517) Beckley, WV	96.96	1,642
(V23) (568) Black Hills HCS, SD	102.72	1,627
(V20) (692) White City, OR	85.8	1,619
(V11) (655) Saginaw, MI	150.06	1,597
(V18) (756) El Paso, TX	146.61	1,565
(V12) (585) Iron Mountain, MI	81.28	1,546
(V02) (528) Canandaigua, NY	79.44	1,452
(V07) (679) Tuscaloosa, AL	113.04	1,443
(V01) (518) Bedford, MA	144.04	1,436
(V21) (459) Honolulu, HI	173.89	1,416
(V04) (542) Coatesville, PA	144.36	1,395

Figure A-8. Productivity by encounter for level 1a facilities

Facility	Productivity by Encounter
(V09) (614) Memphis, TN	3,288
(V08) (672) San Juan, PR	3,167
(V08) (673) Tampa, FL	3,099
(V18) (501) New Mexico HCS	2,958
(V08) (516) Bay Pines, FL	2,866
(V17) (549) Dallas, TX	2,860
(V03) (630) New York Harbor HCS, NY	2,829
(V04) (646) Pittsburgh, PA	2,796
(V19) (554) Denver, CO	2,785
(V10) (541) Cleveland, OH	2,757
(V22) (664) San Diego, CA	2,757
(V16) (580) Houston, TX	2,742
(V01) (689) VA Connecticut HCS, CT	2,742
(V22) (691) Greater Los Angeles HCS	2,690
(V17) (671) San Antonio, TX	2,657
(V23) (618) Minneapolis, MN	2,598
(V07) (508) Atlanta, GA	2,577
(V08) (573) Gainesville, FL	2,567
(V09) (626) Middle Tennessee HCS, TN	2,521
(V18) (678) Southern Arizona HCS	2,502
(V07) (521) Birmingham, AL	2,397
(V20) (663) VA Puget Sound, WA	2,388
(V01) (523) VA Boston HCS, MA	2,384
(V11) (583) Indianapolis, IN	2,384
(V20) (648) Portland, OR	2,339
(V06) (558) Durham, NC	2,212
(V06) (652) Richmond, VA	2,158
(V15) (657) St. Louis, MO	2,069
(V12) (578) Hines, IL	2,011
(V21) (640) Palo Alto, CA	1,918
(V12) (695) Milwaukee, WI	1,890
(V21) (662) San Francisco, CA	1,870

Productivity by Encounter

The views, opinions, and/or findings contained in this report are those of Grant Thornton and should not be construed as an official government position, policy, or decision.

Figure A-9. Productivity by encounter for level 1b facilities
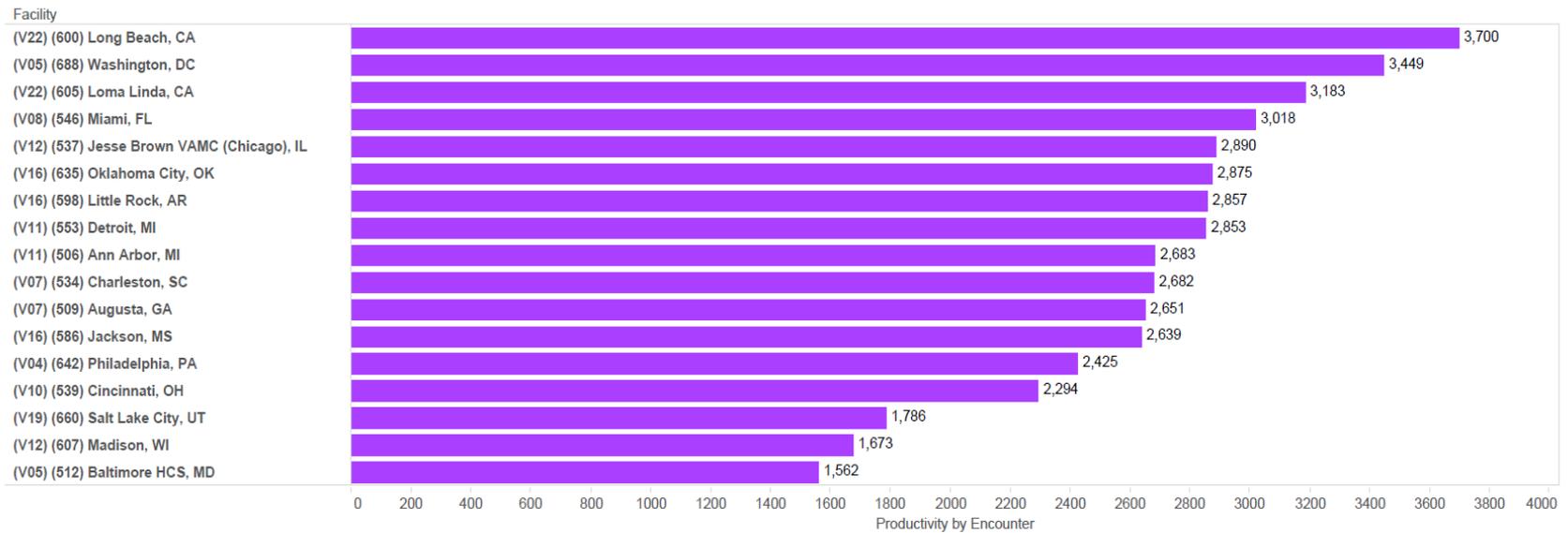
Figure A-10. Productivity by encounter for level 1c facilities
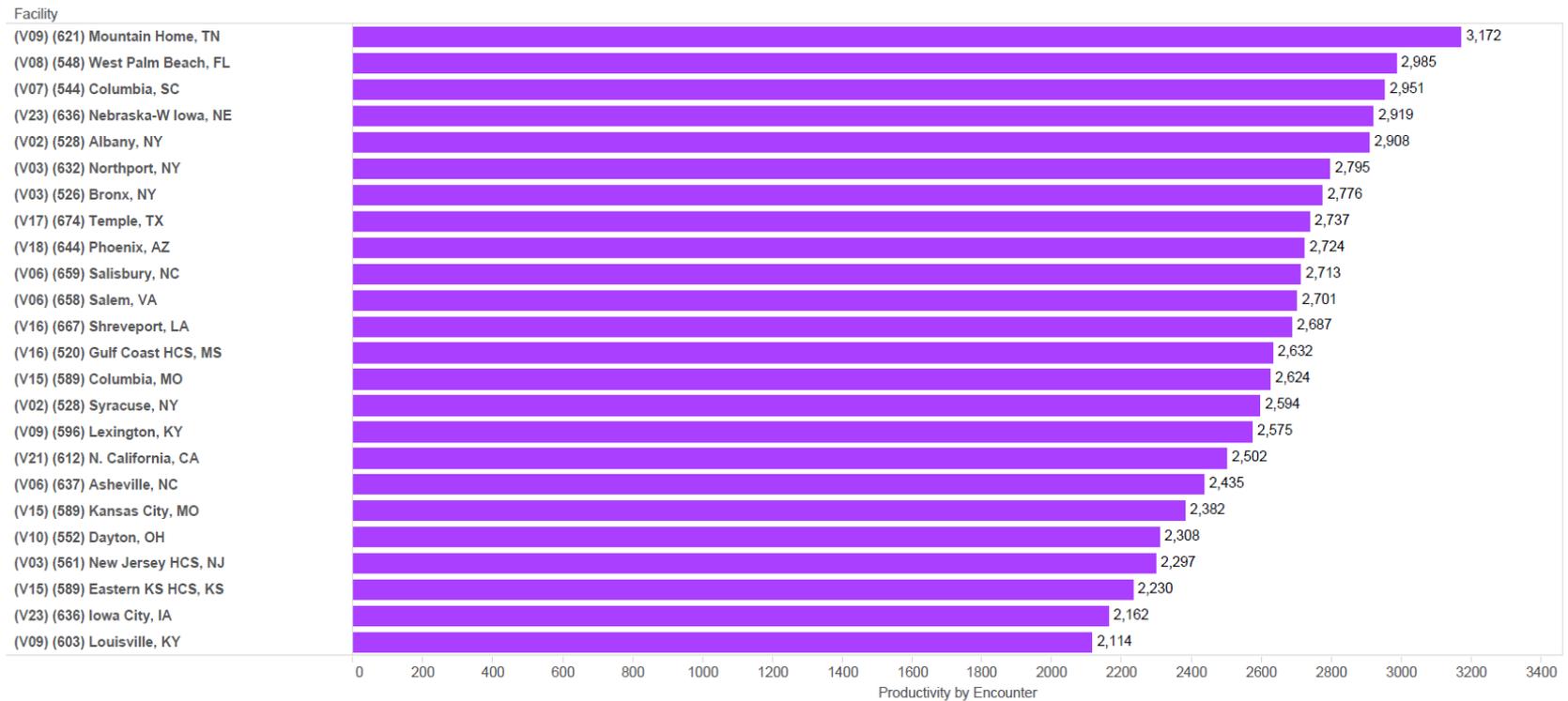
Facility

Facility	Productivity by Encounter
(V09) (621) Mountain Home, TN	3,172
(V08) (548) West Palm Beach, FL	2,985
(V07) (544) Columbia, SC	2,951
(V23) (636) Nebraska-W Iowa, NE	2,919
(V02) (528) Albany, NY	2,908
(V03) (632) Northport, NY	2,795
(V03) (526) Bronx, NY	2,776
(V17) (674) Temple, TX	2,737
(V18) (644) Phoenix, AZ	2,724
(V06) (659) Salisbury, NC	2,713
(V06) (658) Salem, VA	2,701
(V16) (667) Shreveport, LA	2,687
(V16) (520) Gulf Coast HCS, MS	2,632
(V15) (589) Columbia, MO	2,624
(V02) (528) Syracuse, NY	2,594
(V09) (596) Lexington, KY	2,575
(V21) (612) N. California, CA	2,502
(V06) (637) Asheville, NC	2,435
(V15) (589) Kansas City, MO	2,382
(V10) (552) Dayton, OH	2,308
(V03) (561) New Jersey HCS, NJ	2,297
(V15) (589) Eastern KS HCS, KS	2,230
(V23) (636) Iowa City, IA	2,162
(V09) (603) Louisville, KY	2,114

Productivity by Encounter

Figure A-11. Productivity by encounter for level 2 facilities

Facility

Facility	Productivity by Encounter
(V15) (657) Marion, IL	3,631
(V21) (570) Fresno, CA	3,159
(V04) (693) Wilkes-Barre, PA	3,135
(V04) (540) Clarksburg, WV	3,071
(V09) (581) Huntington, WV	3,003
(V05) (613) Martinsburg, WV	2,984
(V16) (564) Fayetteville, AR	2,916
(V15) (589) Wichita, KS	2,834
(V16) (629) New Orleans, LA	2,815
(V21) (654) Reno, NV	2,780
(V18) (504) Amarillo, TX	2,761
(V22) (593) Las Vegas, NV	2,676
(V08) (675) Orlando, FL	2,611
(V04) (595) Lebanon, PA	2,570
(V01) (650) Providence, RI	2,548
(V01) (402) Togus, ME	2,444
(V19) (436) Montana HCS	2,431
(V07) (619) Central Alabama Veterans HCS, AL	2,374
(V11) (610) Northern Indiana HCS, IN	2,311
(V20) (531) Boise, ID	2,265
(V06) (590) Hampton, VA	2,220
(V04) (460) Wilmington, DE	2,210
(V19) (442) Cheyenne, WY	2,154
(V23) (437) Fargo, ND	2,139
(V16) (623) Muskogee, OK	2,066
(V01) (405) White River Junction, VT	1,829
(V06) (565) Fayetteville, NC	1,689
(V23) (636) Central Iowa, IA	1,684
(V19) (575) Grand Junction, CO	1,675
(V11) (550) Danville, IL	1,649
(V10) (538) Chillicothe, OH	1,524
(V23) (438) Sioux Falls, SD	1,438

Productivity by Encounter

Figure A-12. Productivity by encounter for level 3 facilities

Facility

Facility	Productivity by Encounter
(V04) (562) Erie, PA	2,857
(V02) (528) Bath, NY	2,768
(V07) (557) Dublin, GA	2,730
(V15) (657) Poplar Bluff, MO	2,647
(V03) (620) VA Hudson Valley HCS, NY	2,645
(V04) (503) Altoona, PA	2,558
(V10) (757) Columbus, OH	2,544
(V20) (653) Roseburg, OR	2,196
(V20) (463) Anchorage, AK	2,187
(V16) (502) Alexandria, LA	2,097
(V20) (668) Spokane, WA	2,011
(V23) (656) St. Cloud, MN	1,984
(V01) (608) Manchester, NH	1,984
(V18) (649) Northern Arizona HCS	1,833
(V18) (519) Big Spring, TX	1,817
(V04) (529) Butler, PA	1,803
(V11) (515) Battle Creek, MI	1,797
(V20) (687) Walla Walla, WA	1,761
(V19) (666) Sheridan, WY	1,748
(V01) (631) VA Central Western Massachusetts H..	1,722
(V12) (676) Tomah, WI	1,676
(V06) (517) Beckley, WV	1,642
(V23) (568) Black Hills HCS, SD	1,627
(V20) (692) White City, OR	1,619
(V11) (655) Saginaw, MI	1,597
(V18) (756) El Paso, TX	1,565
(V12) (585) Iron Mountain, MI	1,546
(V02) (528) Canandaigua, NY	1,452
(V07) (679) Tuscaloosa, AL	1,443
(V01) (518) Bedford, MA	1,436
(V21) (459) Honolulu, HI	1,416
(V04) (542) Coatesville, PA	1,395

Productivity by Encounter

A.3   Primary care panel size by facility

The following figures show the panel size comparison by facility, grouped in VISN. Figures present the actual panel size, the facility determined maximum panel size, and the modeled panel size (recommended by VHA's PCMM tool) per 1.0 FTE, as of September 30, 2014.

Figure A-13. Facility average panel size and modeled panel size per FTE

Measure Names
- Actual Panel Size per 1.0 FTE
- Facility Determined Maximum per 1.0 FTE
- Modeled Panel per 1.0 FTE

Location	Panel - Modeled	Total FTEs	Actual	Facility Max	Modeled
(V01) (402) Togus, ME	-260.77	15.92	1,057	1,185	1,318
(V01) (405) White River Junction, VT	-223.89	7.35	1,032	1,026	1,256
(V01) (518) Bedford, MA	-324.55	6.16	987	1,118	1,312
(V01) (523) VA Boston HCS, MA	-235.70	16.51	1,052	1,289	1,288
(V01) (608) Manchester, NH	-186.64	10.27	1,097	1,195	1,283
(V01) (631) VA Central Western Massachusetts HCS	-119.89	7.6	1,199	1,236	1,319
(V01) (650) Providence, RI	-7.71	14.4	1,285	1,343	1,293
(V01) (689) VA Connecticut HCS, CT	-166.86	25.6	1,084	1,175	1,250
(V02) (528) Western New York, NY	-159.44	45.7	1,080	1,238	1,239
(V03) (526) Bronx, NY	-264.37	11.1	1,067	1,185	1,332
(V03) (561) New Jersey HCS, NJ	-256.50	26.3	957	1,195	1,214
(V03) (620) VA Hudson Valley HCS, NY	-390.03	7	970	1,186	1,360
(V03) (630) New York Harbor HCS, NY	-226.15	22.74	1,060	1,040	1,286
(V03) (632) Northport, NY	-327.22	15.1	1,018	1,214	1,345
(V04) (460) Wilmington, DE	-227.12	12.3	1,062	1,219	1,289
(V04) (503) Altoona, PA	-210.21	7.6	1,124	1,361	1,334

			Value
(V04) (529) Butler, PA	-386.88	9.6	1,053 / 1,327 / 1,440
(V04) (540) Clarksburg, WV	-84.76	11.31	1,028 / 1,202 / 1,112
(V04) (542) Coatesville, PA	-259.83	5.9	1,095 / 1,181 / 1,355
(V04) (562) Erie, PA	-274.19	4.49	1,024 / 1,249 / 1,298
(V04) (595) Lebanon, PA	-212.51	19	1,133 / 1,159 / 1,346
(V04) (642) Philadelphia, PA	227.63	17.63	1,439 / 1,418 / 1,211
(V04) (646) Pittsburgh, PA	-146.56	11.44	1,164 / 1,278 / 1,311
(V04) (693) Wilkes-Barre, PA	-95.34	21.85	1,197 / 1,192 / 1,293
(V05) (512) Baltimore HCS, MD	-402.07	33.31	988 / 1,113 / 1,391
(V05) (613) Martinsburg, WV	542.54	12.2	1,895 / 2,306 / 1,352
(V05) (688) Washington, DC	-55.57	25.05	1,038 / 1,080 / 1,093
(V06) (517) Beckley, WV	-317.71	7	1,096 / 1,257 / 1,413
(V06) (558) Durham, NC	-188.56	21.99	1,137 / 1,134 / 1,325
(V06) (565) Fayetteville, NC	-119.71	24	1,130 / 1,187 / 1,250
(V06) (590) Hampton, VA	-249.52	25	1,157 / 1,200 / 1,406
(V06) (637) Asheville, NC	-148.29	7	1,175 / 1,114 / 1,323

Measure Names
- Actual Panel Size per 1.0 FTE
- Facility Determined Maximum per 1.0 FTE
- Modeled Panel per 1.0 FTE

Location	Panel - Modeled	Total FTEs	Actual Panel Size per 1.0 FTE	Facility Determined Maximum per 1.0 FTE	Modeled Panel per 1.0 FTE
(V06) (652) Richmond, VA	-147.44	30.88	1,124	1,034	1,271
(V06) (658) Salem, VA	-115.52	12.94	1,294	1,154	1,410
(V06) (659) Salisbury, NC	-183.33	46.49	1,190	1,215	1,374
(V07) (508) Atlanta, GA	-65.15	49.88	1,298	1,370	1,363
(V07) (509) Augusta, GA	-283.84	18.75	1,181	1,261	1,464
(V07) (521) Birmingham, AL	41.85	21.67	1,282	1,304	1,240
(V07) (534) Charleston, SC	-374.71	35.14	1,021	1,133	1,396
(V07) (544) Columbia, SC	-225.36	39.89	1,145	1,112	1,370
(V07) (557) Dublin, GA	179.58	17.3	1,424	1,151	1,245
(V07) (619) Central Alabama Veterans HCS, AL	-330.43	23	982	1,188	1,313
(V07) (679) Tuscaloosa, AL	-220.16	6.08	1,112	1,184	1,332
(V08) (516) Bay Pines, FL	-37.90	54.94	1,250	1,223	1,288
(V08) (546) Miami, FL	22.80	16.5	1,220	986	1,198
(V08) (548) West Palm Beach, FL	-117.39	26.77	1,204	1,365	1,321
(V08) (573) Gainesville, FL	-198.17	77.29	1,090	1,228	1,288
(V08) (672) San Juan, PR	-156.24	37.4	995	1,204	1,151

(V08) (673) Tampa, FL	-185.89	53.31	1,053 / 1,105 / 1,238
(V08) (675) Orlando, FL	-3.27	65.41	1,187 / 1,270 / 1,191
(V09) (581) Huntington, WV	128.63	14.62	1,311 / 1,278 / 1,182
(V09) (596) Lexington, KY	-285.49	20.24	1,121 / 1,230 / 1,406
(V09) (603) Louisville, KY	-87.21	17.06	1,189 / 1,189 / 1,276
(V09) (621) Mountain Home, TN	-150.84	27.3	1,164 / 1,300 / 1,314
(V09) (626) Middle Tennessee HCS, TN	-204.84	29.24	1,140 / 1,217 / 1,345
(V10) (538) Chillicothe, OH	-425.01	6.57	983 / 1,070 / 1,408
(V10) (539) Cincinnati, OH	-219.04	14.63	1,192 / 1,273 / 1,411
(V10) (541) Cleveland, OH	75.60	48.04	1,331 / 1,378 / 1,256
(V10) (552) Dayton, OH	-188.97	9.03	1,128 / 1,199 / 1,317
(V10) (757) Columbus, OH	-155.38	21.97	1,102 / 1,170 / 1,258
(V11) (506) Ann Arbor, MI	602.17	2.3	1,871 / 1,257 / 1,269
(V11) (515) Battle Creek, MI	-171.20	5	1,193 / 1,240 / 1,364
(V11) (550) Danville, IL	-300.99	12.35	995 / 1,205 / 1,296
(V11) (553) Detroit, MI	-345.13	19.01	1,059 / 1,415 / 1,404

Value

Measure Names
- Actual Panel Size per 1.0 FTE
- Facility Determined Maximum per 1.0 FTE
- Modeled Panel per 1.0 FTE

Location	Panel - Modeled	Total FTEs	Actual Panel Size per 1.0 FTE	Facility Determined Maximum per 1.0 FTE	Modeled Panel per 1.0 FTE
(V11) (583) Indianapolis, IN	-219.33	16.57	1,071	1,156	1,290
(V11) (610) Northern Indiana HCS, IN	-348.42	10.43	878	1,200	1,227
(V11) (655) Saginaw, MI	-114.40	5	1,206	1,200	1,320
(V12) (537) Jesse Brown VAMC (Chicago), IL	-180.91	25.53	1,154	1,376	1,335
(V12) (556) Captain James A Lovell FHCC	-490.28	12.3	897	1,111	1,387
(V12) (578) Hines, IL	-118.39	22.83	1,046	930	1,164
(V12) (585) Iron Mountain, MI	298.10	4.53	1,618	2,046	1,320
(V12) (607) Madison, WI	-51.95	6.48	1,348	1,185	1,399
(V12) (676) Tomah, WI	-254.90	4.9	1,144	1,200	1,399
(V12) (695) Milwaukee, WI	-282.18	21.57	1,010	1,091	1,292
(V15) (589) Kansas City, MO	-217.30	47.65	1,120	1,230	1,337
(V15) (657) Marion, IL	-362.78	55	955	1,145	1,318
(V16) (502) Alexandria, LA	-222.64	8.65	1,148	1,272	1,370
(V16) (520) Gulf Coast HCS, MS	-35.44	34.5	1,346	1,369	1,382
(V16) (564) Fayetteville, AR	-341.37	36.15	1,071	1,174	1,412
(V16) (580) Houston, TX	-96.15	4.84	1,134	1,147	1,230

Facility	Value 1	Value 2	Blue	Green	Red
(V16) (586) Jackson, MS	-124.13	8	1,217	1,309	1,341
(V16) (598) Little Rock, AR	-147.37	16.1	1,170	1,378	1,318
(V16) (623) Muskogee, OK	-341.48	23	1,006	1,107	1,348
(V16) (629) New Orleans, LA	-308.07	22.03	1,071	1,133	1,379
(V16) (635) Oklahoma City, OK	-72.51	15.85	1,307	1,308	1,379
(V16) (667) Shreveport, LA	-212.14	14.48	1,085	1,075	1,297
(V17) (549) Dallas, TX	105.21	54.21	1,329	1,177	1,224
(V17) (671) San Antonio, TX	135.12	17.1	1,388	1,259	1,253
(V17) (674) Temple, TX	-18.53	50.87	1,184	1,181	1,203
(V17) (740) VA Texas Valley Coastal Bend HCS	-152.10	17.22	1,143	1,088	1,295
(V18) (501) New Mexico HCS	-234.62	24.44	980	1,128	1,214
(V18) (504) Amarillo, TX	13.06	11.52	1,302	1,510	1,289
(V18) (519) Big Spring, TX	-236.00	5	1,106	1,338	1,342
(V18) (644) Phoenix, AZ	-95.70	27.53	1,266	1,310	1,362
(V18) (649) Northern Arizona HCS	-146.17	6	1,230	1,278	1,376
(V18) (678) Southern Arizona HCS	-525.97	12.8	876	1,072	1,402

Measure Names
- Actual Panel Size per 1.0 FTE
- Facility Determined Maximum per 1.0 FTE
- Modeled Panel per 1.0 FTE

Location	Panel - Modeled	Total FTEs			
(V18) (756) El Paso, TX	-166.95	17.2	1,202	1,285	1,369
(V19) (436) Montana HCS	-446.98	6.3	806	1,010	1,253
(V19) (442) Cheyenne, WY	-433.43	3.5	865	1,200	1,299
(V19) (554) Denver, CO	-404.16	8.52	862	960	1,266
(V19) (575) Grand Junction, CO	-302.00	2	952	1,000	1,254
(V19) (660) Salt Lake City, UT	-46.97	11.24	1,320	1,084	1,367
(V19) (666) Sheridan, WY	-554.99	1.61	780	1,109	1,334
(V20) (463) Anchorage, AK	-591.75	4	796	1,175	1,388
(V20) (531) Boise, ID	-54.74	10.57	1,017	1,153	1,072
(V20) (648) Portland, OR	-320.72	38.98	989	848	1,309
(V20) (653) Roseburg, OR	-146.13	7.9	1,209	1,199	1,356
(V20) (663) VA Puget Sound, WA	-139.15	30.98	1,115	1,235	1,255
(V20) (668) Spokane, WA	-201.02	12.97	1,069	1,128	1,270
(V20) (687) Walla Walla, WA	-262.62	4.2	967	1,171	1,230
(V20) (692) White City, OR	-441.78	6.76	846	1,050	1,288
(V21) (459) Honolulu, HI	-159.68	16.12	1,134	1,286	1,293

(V21) (570) Fresno, CA	-128.02	18.52
(V21) (640) Palo Alto, CA	-431.07	20.34
(V21) (654) Reno, NV	-299.20	23.35
(V21) (662) San Francisco, CA	-127.03	14.61
(V22) (593) Las Vegas, NV	-38.23	22.8
(V22) (600) Long Beach, CA	-182.60	13.1
(V22) (605) Loma Linda, CA	-115.05	33.68
(V22) (664) San Diego, CA	-219.46	26.8
(V22) (691) Greater Los Angeles HCS	-69.95	40.82
(V23) (437) Fargo, ND	-232.16	10.58
(V23) (438) Sioux Falls, SD	-106.93	7.51
(V23) (568) Black Hills HCS, SD	-265.01	9.24
(V23) (618) Minneapolis, MN	-104.93	26.18
(V23) (636) Central Iowa, IA	-231.35	44.46
(V23) (656) St. Cloud, MN	-82.22	14.03

Bar chart values by facility:

Facility	Blue	Green	Red
Fresno, CA	1,087	1,137	1,215
Palo Alto, CA	914	1,098	1,345
Reno, NV	1,054	1,123	1,353
San Francisco, CA	1,114	1,054	1,241
Las Vegas, NV	1,202	1,258	1,240
Long Beach, CA	1,145	1,107	1,327
Loma Linda, CA	1,210	1,187	1,325
San Diego, CA	1,170	1,227	1,389
Greater Los Angeles HCS	1,114	1,035	1,184
Fargo, ND	1,058	1,141	1,290
Sioux Falls, SD	1,164	1,203	1,271
Black Hills HCS, SD	1,015	1,331	1,280
Minneapolis, MN	1,165	1,143	1,270
Central Iowa, IA	1,182	1,141	1,413
St. Cloud, MN	1,219	1,242	1,302

Value (x-axis): 0 200 400 600 800 1000 1200 1400 1600 1800 2000 2200 2400

Appendix B   Methodology

B.1   Overview

The Assessment G team used a combination of quantitative and qualitative methods to address the objectives and research questions of the report.

Our quantitative calculations are derived from a variety of VHA sources: site visits, VHA labor mapping encounters, wRVU and FTE data, site visits data and data reported in prior VHA reports. We obtained benchmark data published from sources such as MGMA and AMGMA, among others. In working with our data sets, our team calculated time allocation of VHA providers, FTE totals, and productivity of providers by encounters and wRVU industry benchmark rankings, and comparison of salary ranges and salary percentiles using benchmark surveys. Prior to our calculations, our team cleaned/defined our data sources, determined appropriate aggregate and major groupings of specialties and applied relevant adjustments to VHA workload data for comparability to industry (modifiers, gap and imputed codes, and duplication of workload credit to multiple providers).

Qualitative methods used by the team include: a literature review of relevant VHA policies and directives related to staffing and productivity, a literature review of relevant best practices across external health care industry organizations, interviews with VHA national policy and operations leaders and staffing and productivity subject matter experts and site visits which included interviews with VA medical facility leaders, health care providers, space, content analysis of the interview results and a root cause analysis of identified barriers.

Our team developed objectives and research questions for our overarching study, as well as for a separate sub-study of nursing staff.

Figure B-1 depicts the relationship between the Assessment G objectives and research questions, and the quantitative and qualitative methods employed in the study.

Figure B-1. Methodology Overview

OBJECTIVE:

Describe the current state of VA provider staffing levels, as compared to industry standards, benchmarks, and metrics.

Identify and analyze the provider productivity within VHA as it relates to specialty and provider specific metrics.

Describe the relative time spent by providers on non-patient care activities.

QUESTION

Is provider staffing similar to the private sector relative to the number of patients served?

If provider staffing and productivity levels differ from the private sector, what are the unique characteristics of VA and the patient population it serves that contribute to these differences?

Are VA providers as productive as similar providers in the private sector?

What is the relative proportion of time that provider staff spend on activities other than direct patient care in a VA medical facility and how does this compare to health care industry performance metrics?

How does the unique mission of VA or other factors explain the time spent on activities other than direct patient care within a VA medical center?

DATA

Conduct benchmark study of VA salaried providers compared to MGMA, AMGMA, AMGA, other industry accepted benchmark data sets

Compare ratios of physician supply per population to benchmark data sets

Using benchmark study, assess what percentile VA providers fall in relative to the private sector. (Providers compared by specialty of practice)

Using VA cost accounting system data find proportion of time providers spend on activities not related to patient care, and compare to benchmark data sets

DOCUMENT

Literature review of VHA policies/directives

Review of external best practices

Interviews w/ national, facility-level leadership, providers, and support staff

Conduct Root Cause Analyses of productivity barriers identified in interviews

marketing/deliverables/choiceact/assessmentG-04

Our assessment of overall staffing and productivity included analyses of the methodology, metrics, data sources, and decision-making processes that are utilized by VA medical facilities to determine staffing levels and budget allocations for nursing support both in inpatient and outpatient clinical areas. Our team paid special attention to decision drivers for nursing support because clinical support staff were found to be important influences of provider productivity. Nursing objectives and developed research questions are shown in Table B-1.

Table B-1. Nurse staffing objectives and developed research questions

Objective	Research Questions
Assess the methodology, types of data and decision making processes used by Medical Centers to allocate budgets and determine staffing levels for inpatient and outpatient nurse[225] staff.	What is VHA's methodology for nurse staffing of inpatient and outpatient clinics (primary and specialty care)?
	What directives, policies, and management reports govern safe and effective inpatient and outpatient nurse staffing decision making?
Describe the unique factors which impact VA budget allocation decisions and inpatient and outpatient nurse staffing decisions.	What nursing-sensitive indicators, care paths, and evidence based practices does VA develop that, in turn, drive nurse staffing processes?
	What are the nursing-sensitive quality measures that align with national performance measures to ensure adequate nurse staffing?

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[225] **_Definition_**: _VHA nurses, for the purposes of this assessment, are defined in nurse staffing categories that include: Assistant Nurse Manager (while performing direct patient care), Charge Nurses, Clinical Nurse Leaders, staff registered nurses (RNs), graduate nurses (not yet licensed), Licensed practical nurses (LPNs) or vocational nurses (LVNs), Nursing Assistants (NAs) or Certified Nursing Assistants (CNA); excluding Nurse Managers, Assistant Nurse Managers (while performing administrative activities), Advanced Practice Nurses (Nurse Practitioners, Clinical Nurse Specialists) unit secretaries/clerks, monitor technicians, sitters, escorts, students (who are fulfilling educational requirements), and therapy assistants. Nurses are licensed by National Council Licensure Examination (NCLEX) examination and licensed in their resident state or by Nurse Licensure Compact (NLC), which allows RN nurses and licensed practical/vocation nurses (LPN/VN) to have one multistate license providing them with the ability to practice in both their home state and other NLC states. Nursing practice is described as the protection, promotion, and optimization of health and abilities, prevention of illness and injury, alleviation of suffering through the diagnosis and treatment of human response, and advocacy in the care of individuals, families, communities, and populations. VHA nurses are employed full-time by VA and some are employed on a contract basis._

Objective	Research Questions
	What best practices and challenges has VHA encountered in adopting the VHA Directive 2010-034 nurse staffing methodology and other nurse staffing methodologies for outpatient settings (i.e., specialty and primary care)?
Describe and compare VA's methodology and decision-making processes for staffing allocations and determining inpatient and outpatient nurse staff ratios with private sector best practices.	What industry best practices align with the VHA nurse staffing methodology?
	How have external health care organizations addressed similar challenges and barriers in their nurse staffing methodology?
Identify potential opportunities for enhancements.	How can strategies developed by external health care organizations be applied by VHA to address its nurse staffing challenges and barriers?

The remainder of Appendix B is organized around the core assessment objectives. Each section describes the data definitions, sources of data, data quality, assumptions, and approach to analyzing data, for that objective. Following, we articulate our approach to selecting and executing site visits and analyzing data from the site visits.

B.2 Provider staffing levels (Objective 1)

Section 201(G) of the Veterans Choice Act requests "the staffing level at each medical facility of the Department and the productivity of each health care provider at such medical facility, compared with health care industry performance metrics…" The Assessment G team broke this into two separate requirements – staffing levels and productivity. The methodology for determining staffing levels of providers at each medical facility of the Department is included in this section. The methodology for determining provider productivity, compared to industry performance metrics, is included in the subsequent section. Staffing levels analyses include the total paid FTE, by specialty, groupings of specialties, and by facility, and a comparison to industry population based staffing ratios. In addition to assessing staffing levels, we also assessed several barriers to appropriate staffing levels. One potential barriers to reaching adequate staffing levels is salary for providers. To compare salary of VHA providers to industry, we conducted a separate analysis, which is also described in this section.

B.2.1   Definitions

Staffing level is defined as the sum of VA *paid* FTE (employees) who meet the definition of provider. This excludes fee-based providers under contract to provide care within VA facilities, (as they are not employees and there is no FTE information available on them), as well as non-VHA providers serving Veterans under contract in the community or at medical affiliates. One FTE equates to 2,080 hours per year, and includes paid benefit time (for example, paid vacation and holiday time). The staffing level calculations aggregate all FTEs, meaning all full and part time employees are totaled. For all calculations, we report average staffing levels over FY 2014.

Provider is defined as an independent licensed practitioner (Physician Assistants [PA], Nurse Practitioners [NP], Doctor of Medicine [MD], Physical Therapists, Psychologists, Optometrists, Dentists, Podiatrists, Social Workers) as noted in the glossary of Appendix G. Although contract and fee providers are, in some facilities, a significant proportion of care delivery teams (for example, an acute, complexity level 3 facility with a low demand for a service may be staffed in a particular specialty with only one fee-based provider who works only part time), they are deemed out of the scope of this assessment, due to the inability to quantify staffing levels (Worked FTE), or hours worked, as VA does not track this information.

Paid FTE is defined as the total number of hours for which a provider is paid by VHA. The paid FTE includes provider leave hours taken during FY 2014

Major Specialty Groupings: are categories for each specialty in VHA. Primary care is considered one of the Major Specialty Groupings but it was grouped and analyzed separately after each primary care provider was flagged in the data file. Table B-2 defines which specialties are included in which major grouping:

Table B-2. Specialties in major grouping

Specialty	Specialty Grouping
Addiction Psychiatry	Mental Health
Adolescent Medicine	Specialists-Medicine-Non-Hosp
Allergy and Immunology	Specialists-Medicine-Non-Hosp
Blood Banking	Specialists-Medicine-Non-Hosp
Cardiovascular Disease	Specialists-Medicine-Non-Hosp
Child and Adolescent Psychiatry	Mental Health

Specialty	Specialty Grouping
Chiropracty	Specialists-Medicine-Non-Hosp
Clinical and Laboratory Immunology	Specialists-Medicine-Non-Hosp
Clinical Cardiac Electrophysiology	Specialists-Medicine-Non-Hosp
Clinical Genetics	Specialists-Medicine-Non-Hosp
Clinical Neurophysiology	Specialists-Medicine-Non-Hosp
Clinical Pharmacology	Specialists-Medicine-Non-Hosp
Colon and Rectal Surgery	Specialists-Surgical
Critical Care Medicine	Specialists-Medicine-Hosp
Dermatological Immunology/Diagnostic and Lab Immunology	Specialists-Medicine-Non-Hosp
Dermatology	Specialists-Medicine-Non-Hosp
Dermatopathology	Specialists-Medicine-Non-Hosp
Diagnostic Radiology	Specialists-Medicine-Non-Hosp
Emergency Medicine	Specialists-Medicine-Hosp
Endocrinology/Diabetes and Metabolism	Specialists-Medicine-Non-Hosp
Family Practice	Specialists-Medicine-Hosp

Specialty	Specialty Grouping
Forensic Psychiatry	Mental Health
Gastroenterology	Specialists-Medicine-Non-Hosp
Geriatric Medicine	Specialists-Medicine-Non-Hosp
Geriatric Psychiatry	Mental Health
Hematology	Specialists-Medicine-Non-Hosp
Infectious Disease	Specialists-Medicine-Non-Hosp
Internal Medicine	Specialists-Medicine-Hosp
Interventional Cardiology	Specialists-Surgical
Medical Oncology	Specialists-Medicine-Non-Hosp
Medical Toxicology	Specialists-Medicine-Non-Hosp
Nephrology	Specialists-Medicine-Non-Hosp
Neurological Surgery	Specialists-Surgical
Neurology	Specialists-Medicine-Non-Hosp
Neurology with Special Qualifications in Child Neurology	Specialists-Medicine-Non-Hosp
Neuroradiology	Specialists-Medicine-Non-Hosp
Nuclear Medicine	Specialists-Medicine-Non-Hosp

Specialty	Specialty Grouping
Nuclear Radiology	Specialists-Medicine-Hosp
Nurse Anesthetist, Certified Registered (100500)	Specialists-Surgical
Nurse Practitioner (100600)	Specialists-Medicine-Non-Hosp
Nurse Practitioner Acute Care (100601)	Specialists-Medicine-Non-Hosp
Nurse Practitioner Adult Health (100602)	Specialists-Medicine-Non-Hosp
Nurse Practitioner Community Health (100603)	Specialists-Medicine-Non-Hosp
Nurse Practitioner Critical Care Medicine (100604)	Specialists-Medicine-Non-Hosp
Nurse Practitioner Family (100605)	Specialists-Medicine-Non-Hosp
Nurse Practitioner Gerontology (100606)	Specialists-Medicine-Non-Hosp
Nurse Practitioner Obstetrics & Gynecology (100609)	Specialists-Surgical
Nurse Practitioner Occupational Health (100610)	Specialists-Medicine-Non-Hosp
Nurse Practitioner Pediatrics: Critical Care (100613)	Specialists-Medicine-Non-Hosp
Nurse Practitioner Perinatal (100614)	Specialists-Medicine-Non-Hosp
Nurse Practitioner Primary Care (100615)	Specialists-Medicine-Non-Hosp
Nurse Practitioner Psychiatric/Mental Health (100616)	Mental Health

Specialty	Specialty Grouping
Nurse Practitioner School (100617)	Specialists-Medicine-Non-Hosp
Nurse Practitioner Women's Health (100618)	Specialists-Medicine-Non-Hosp
Obstetrics and Gynecology	Specialists-Surgical
Ophthalmology	Specialists-Medicine-Non-Hosp
Optometry	Specialists-Medicine-Non-Hosp
Orthopedic Surgery	Specialists-Surgical
Otolaryngology	Specialists-Medicine-Non-Hosp
Pain Medicine	Specialists-Medicine-Non-Hosp
Pathology	Specialists-Medicine-Hosp
Pediatric Infectious Diseases	Specialists-Medicine-Non-Hosp
Pediatric Radiology	Specialists-Medicine-Non-Hosp
Pediatric Surgery	Specialists-Surgical
Pediatrics	Specialists-Medicine-Non-Hosp
Physical Medicine and Rehabilitation	Specialists-Medicine-Non-Hosp
Physician Assistant (100000)	Specialists-Medicine-Non-Hosp

Specialty	Specialty Grouping
Physician Assistant Medical (100100)	Specialists-Medicine-Non-Hosp
Physician Assistant Surgical (100200)	Specialists-Surgical
Plastic Surgery	Specialists-Surgical
Podiatry	Specialists-Medicine-Non-Hosp
Psychiatry	Mental Health
Psychology	Mental Health
Public Health and General Preventive Medicine	Specialists-Medicine-Non-Hosp
Pulmonary Disease	Specialists-Medicine-Non-Hosp
Radiation Oncology	Specialists-Surgical
Radiological Physics	Specialists-Medicine-Non-Hosp
Radiology	Specialists-Medicine-Hosp
Radium Therapy	Specialists-Medicine-Non-Hosp
Reproductive Endocrinology and Infertility	Specialists-Medicine-Non-Hosp
Rheumatology	Specialists-Medicine-Non-Hosp
Social Worker (010600)	Specialists-Medicine-Non-Hosp
Social Worker, Clinical (010100)	Specialists-Medicine-Non-Hosp

Specialty	Specialty Grouping
Social Worker, School (010500)	Specialists-Medicine-Non-Hosp
Spinal Cord Injury Medicine	Specialists-Medicine-Non-Hosp
Surgery	Specialists-Surgical
Surgery of the Hand	Specialists-Surgical
Surgical Critical Care	Specialists-Surgical
Thoracic Surgery	Specialists-Surgical
Urology	Specialists-Medicine-Non-Hosp
Vascular Surgery	Specialists-Surgical

List developed based on internal Assessment G expertise of common industry groupings.

B.2.2 Data sources

For the staffing level analyses, to include FTE analyses and fee-based provider wRVU analyses, we used three key data sources:

- VHA OPES Labor Mapping Data File run for pay periods corresponding with FY2014, entitled, "Provider Labor Detail FY14"This file includes the individual cost accounting codes and allocation of hours to each for each provider. A data definitions sheet accompanied this file.

- VHA OPES Productivity Data File for FY2014, entitled "Provider Detail FY14". This file includes information on wRVUs, encounters, specialties and FTEs. This file also included an accompanying data definitions file.

- Dental FTE calculations used the de-identified dental hourly and productivity data from the OPES Decision Support Extract File, entitled "201G FY14 Aggregate Dentist" and an associated file, "Dental Data Dictionary."

We reviewed and considered:

- The Graduate Medical Education National Advisory Committee (GMENAC) Study: Conducted in 1980 at the behest of Congress to determine the number of physicians needed per 100,000 population. [226]

- Journal of the American Medical Association publication from 1996: The Goodman ratio is derived from Dr. David Goodman's 1996 published findings in the Journal of the American Medical Association on the providers needed for a national fee-for-service community. [227]

- Journal of Health Care Management 1989 publication: The Hicks and Glenn ratio comes from a 1989 publication in the Journal of Health Care Management where Dr. Hicks and Dr. Glenn studied physician per population needs based on the current rate of patient visits to specialists as determined by the Department of Health and Human Services. [228]

- Thomson Health Care Study: The Solucient ratio is generated from a 2003 health care consulting firm study called Solucient (later acquired by Thomson) which assessed patient to physician visits using National Ambulatory Care Administration and Medical Group Management Association data.

- Truven Health Analytics: Truven has calculated ratios using 2014 data on the supply of physicians across the United States from internal Truven physician FTE databases and population data sourced from The Nielsen Company. Because the Truven data was the most recent ratio, we elected to use this ratio, though the others were analyzed initially, but excluded from the final report.

We assessed how VHA salary ranges compare to the private sector. For this analysis, we used:

- VA Salary data used the Final Approved Pay Ranges for Physician and Dentists effective January 11th, 2015[229]

- Industry Salary Data used the most recent AMGMA compensation and production survey entitled[230]

B.2.3 Assumptions and limitations

FTE calculations: The staffing level data does not include fee-based providers because FTE cannot be calculated without collecting extensive amount of data from querying individual medical centers across the Department, which would not be feasible given the time allotted.

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[226] Merritt Hawkins. (n.d.). A Review of Physician to Population Ratios. 1-2. Retrieved from http://www.merritthawkins.com/pdf/a-review-of-physician-to-population-ratios.pdf

[227] Ibid.

[228] Ibid.

[229] U.S. Department of Veterans Affairs. Retrieved from http://www.va.gov/OHRM/Pay/PhysicianDentist/FinalAnnualPayRanges_20150111.pdf

[230] AMGMA Academic Practice Compensation and Production Survey for Faculty and Management: 2014 Report Based on 2013 Data.

The staffing levels aggregates specialties into major specialty groups and exclude clinical nurse specialists. The crosswalk of Major Specialty Groupings is listed in the definitions sections.

Comparing VHA Staffing to Industry: The comparison of VHA staffing levels to industry ratios used the physician FTEs relative to the 2014 VHA medical care enrollee population of 9,111,955.[231] Some VHA specialties were excluded because our team limited our comparison to the specialties with comparison data available. All VHA specialties that had at least one industry specialty represented in the Truven Study are included. Physician supply per 100,000 population ratios are commonly used by hospitals and health care systems as one input to identify staffing needs, and for community health needs assessments required for not-for-profit health systems under the Affordable Care Act. Typically, physician-to-population ratios are considered an indicator of physician need, but not a definitive benchmark, because they do not factor in demand. To more comprehensively understand need and to develop complete medical staffing plans, health care organizations should make projections at a local/community level, with a comprehensive assessment of local/geographic patient needs such as disease incidence and patient demographics, and demand for services, as well as physician demographics and practice styles, payment systems and other unique market factors.[232, 233]

B.2.4   Approach

Staffing Levels (FTE) Analysis: Our team analyzed the total FTEs by major specialty grouping by summing the VA-paid FTEs. We developed six major specialty groupings. We first mapped providers to a specialty using VHA's person classification codes, which denote a specialty or category of provider (i.e. Physician Assistant) for each provider. This information was provided to us by VHA along with data definitions. Using that mapping, we mapped specialists to the major grouping categories we created. We excluded clinical nurse specialists since they are not licensed independent providers. We separated social workers (normally grouped with APPs) from any of the major specialty groupings and depicted them in their own group. We also distinguished physician FTEs from APP FTEs.

Fee-based Provider Analysis: In Figure 2 2. Proportion of Total Workload Generated by Non-employed Providers, our team calculated the percentage of overall time that fee-based and others not otherwise accounted for in our provider data contribute to total RVUs. We displayed our findings by facility complexity. In Figure 2-2, our team determined the proportion of total wRVUs generated by fee-based providers (and other providers without a labor mapping). We highlighted the specialties with the highest proportion of wRVUs generated by these providers.

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[231] Bagalman, Erin. (2014) The Number of Veterans That Use VA Health Care Services: A Fact Sheet. P3. Congressional Research Service. Retrieved from https://www.fas.org/sgp/crs/misc/R43579.pdf

[232] Moody, J. (2003) Demonstrating Community Need for Physicians. 1-4. Retrieved from http://www.amerimedconsulting.com/wp-content/uploads/2011/08/Demonstrating-Community-Need-for-Physicians.pdf

[233] Merritt Hawkins. (n.d.). A Review of Physician to Population Ratios. 1-2. Retrieved from http://www.merritthawkins.com/pdf/a-review-of-physician-to-population-ratios.pdf

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In order to display these findings at the aggregate specialty level, our team mapped VHA specialties to aggregate specialties and summed wRVUs.

To calculate FTE levels for dental providers, the Assessment G team used de-identified dental hourly and productivity data compiled from a labor map extract provided by VHA and compared it to transactional procedural information from the Dental Reporting and Analytics System (based on data from the Corporate Data Warehouse (CDW) dental domain. This data was presented on a pay period level of detail. Providers who had productivity indicators (such as RVUs, Visits, or Procedures) but 0 hours recorded for a pay period were removed from the analysis. The pay periods were then rolled up into FY 2014 totals for every provider to establish total hours worked for the year. These figures were then divided by a standard of 2,080 hours (assuming a normal workweek of 40 hours per week, 52 weeks per year) to establish FTE counts. FTE counts were established on a specialty basis, and Total FTE, Clinical FTE, Administrative FTE, and Research FTE counts were all calculated based on the provided data.

Physician Staffing Supply to Industry Comparisons: To depict the difference in physician staffing between VHA and industry standards, our team used the Truven ratio (the most recent of the available industry benchmarks) and compared VHA's current FTE levels per enrollee population to the Truven calculated FY14 supply of physicians per population. Our team applied the Truven ratio to the 9,111,955 enrollees and subtracted this quantity from the current VA FTE levels. In instances where the Truven ratio volume exceeded current VHA FTE levels, a negative value is displayed in red hues. In instances where the Truven ratio proposed volume was less than current VHA FTE levels, a positive value is displayed in blue hues.

Salary Comparisons: Our team compared compensation between VHA providers and industry by focusing on existing VHA salary requirements and 2013 AMGMA surveyed salary data. In Figure 2-7 the values in light pink represent the difference between VHA Tier 1 and AMGMA salary at the 10th percentile. The values in dark purple represent the difference between VHA Tier 3 and AMGMA salary at the 90th percentile. Negative values indicate that AMGMA salaries at the 10th or 90th percentile exceed VHA physician salaries at either the 1st or 3rd tier respectively.

B.2.5   Provider productivity (Objective 2)

Section 201(G) of the Veterans Choice Act requests "the staffing level at each medical facility of the Department and the productivity of each health care provider at such medical facility, compared with health care industry performance metrics…" The Assessment G team compared VHA provider productivity to industry performance benchmarks. This included measurement of caseload or panel size, encounters, and wRVUs for primary care and specialty care. We also assessed dental provider productivity primarily using visit data. Below we provide a brief review of key information to consider in conducting provider productivity analyses which informed the basis of our approach.

Measuring Provider Productivity

There are a variety of ways to measure productivity of physicians and APPs. Common measures used by health care delivery systems include: visits/encounters, charges, collections, procedures, ambulatory/hospital encounters, patient panel size, and wRVU values. Utilizing multiple indicators can provide a robust picture; however, in most cases the industry standard for benchmarking productivity remains wRVU values. The RVU system was developed as part of the RBRVS and is currently used as the Medicare physician reimbursement formula (most commercial and Medicaid systems follow as a methodology). The RVU system assigns weightings for each clinical activity which a provider performs based on time and complexity. Furthermore, RVUs offer the only non-financial method of quantification that takes into account time and complexity of the clinical activity of the provider.

In private industry, monitoring provider productivity can be one element in tracking a practice's financial health and is becoming the basis for provider compensation or bonuses.[234] Providers are typically measured by aggregation of annual wRVU totals for all procedures on an annual basis, as a measure which informs both total compensation and bonuses. Although VHA does not measure its providers individually on productivity or provider performance bonuses based on productivity, this widely accepted measure of productivity provides a medium for a meaningful comparison between the productivity of VA staff providers to productivity of providers practicing in the same areas of medicine and health care in private industry. As wRVU is the most common industry standard for comparison, the Assessment G team used wRVU as one measure of productivity, particularly for specialty care providers. (The RVU system is further described below in the definition section).

Work RVUs as a measure have some drawbacks. Specifically wRVUs may undervalue the medical decision-making component of a visit or service and may not account adequately for other cognitive activities such as care coordination and team care models of practice.[235] Given VHA's population focused care model, this is a particular concern of VHA's Office of Primary Care and a key reason why that office does not measure its primary care providers using wRVUs. Any potential undervaluation should be reflected in comparison benchmark data from industry standards because the same relative valuation of clinical productivity will be utilized, if coding and documentation is comprehensive and accurate. Since wRVUs are dependent on accurate and thorough coding and documentation practices, and the vast majority of VHA encounters are not audited or checked for accuracy, it cannot be determined whether wRVUs accurately reflect VHA provider workload. For this reason, we have included both encounters and wRVUs for specialty care. Primary care providers are measured by panel size, which is, by many definitions, roughly equivalent to caseload for primary care providers.

Industry Productivity Performance Metrics

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[234] Rodegero, J. A. (1999). Benchmarking Physicians' Practices: Trends toward the Millennium. *Journal of Health Care Finance*. 25 (4), pp. 15-37.

[235] D'Alessandri R. M., Albertsen, P., Atkinson, B.F., Dickler R.M., Jones, R. F., Kirch, D.G.,… Longnecker, D.E., Zuza K.L., (2000) Measuring contributions to the clinical mission of medical schools and teaching hospitals. *Academic Medicine*. 75(12) p1231-1237.

As noted above, the Assessment G team used two well-known benchmark data sets to compare productivity (encounters and wRVUs) for specialists and primary care providers. These include the Medical Group Management Association (MGMA) Physician Compensation and Production Survey, MGMA Academic Practice Compensation and Production Survey (commonly known as "AMGMA"). Additionally, primary care providers were also compared (by panel size) to these surveys, as well as Kaiser Permanente Northern California Medical Group, and a calculated panel size using a formula from AAFP. We did initially compare to the AMGA Medical Group Compensation and Financial Survey; however, due to lack of permission to share this benchmark data externally, we did not include the specialty comparison in the report. We do include AMGA benchmarks for primary care. Additional information on these benchmark surveys is provided below in the definitions section. In addition to these large national surveys, certain specialties have their own trade groups that generate their own benchmarking information. These benchmarks typically have a much smaller sample size and often have a similar distribution; as such, we elected to use the aforementioned surveys to compare groups exclusively. Because dentists are not included in these benchmark data sets, we did benchmark them separately against 2010 data provided by a survey from the American Dental Association.

B.2.5.1   Definitions

Physician specialty: Physician Specialty is determined by aggregating the Health Care Provider Taxonomy, which is linked to each provider's National Provider Identifier (NPI) in a separate field.[236] Each physician "person class" from the VHA Person Class file is mapped to a specialty that is defined by the American Board of Medical Specialties. OPES aggregates minor classifications into broader categories, known as aggregate specialty, for reporting. In this assessment, we mapped providers to determine aggregate specialty FTE and productivity levels.

Encounter: VHA defines an encounter as "a professional contact between a patient and a practitioner vested with responsibility for diagnosing, evaluating, and treating the patient's condition. Encounters occur in both the outpatient and inpatient setting."[237] VHA further defines an encounter by the environments in which it can occur, specifically, "Encounters occur in outpatient and inpatient settings (including Residential Rehab Treatment centers). (1) Contact can include face-to-face interactions or those accomplished via telecommunications technology. (2) Contact can be through Secure Messaging which is available through the My HealtheVet (MHV) personal health record (PHR). These non-urgent communications must meet the definition of an encounter. A review of the health record is done by the physician or qualified non-physician and clinical decision making is performed at some level. The care plan is communicated with the patient electronically. (The Secure Message that is related to a visit within the last 7 days cannot be captured as workload as it is considered part of the actual face-to-face visit.) (3) Encounters are neither occasions of service nor activities incidental to an encounter for a provider visit. For example, the following activities are considered part of the encounter itself and do not constitute encounters on their own: taking vital signs, documenting

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[236] National Uniform Claim Committee (NUCC) maintains the Health Care Provider Taxonomy.

[237] U.S. Department of Veterans Affairs. (2013). VHA Site Classifications and Definitions, *VHA Handbook 1006.02*, Retrieved from http://www.va.gov/vhapublications/ViewPublication.asp?pub_ID=2970

chief complaint, giving injections, pulse oximetry, administering medications, etc. (4) A telephone contact between a provider and a patient is only considered an encounter if the telephone contact is documented and that documentation include the appropriate elements of a face-to-face encounter, namely history and clinical decision-making. Telephone encounters must be associated with a clinic assigned to one of the DSS Identifier telephone codes and are to be designated as count clinics. *NOTE: Count refers to workload that meets the definition of an encounter or an occasion of service. The American Medical Association (AMA) changed the definition of the 2008 CPT® Telephone Call codes. Many of VHA's performance monitors require follow-up care delivered by telephone, therefore, the 2008 CPT® telephone codes are to be used as previously defined."*[238] This is consistent with MGMA's encounter definition (however, the Academic MGMA survey does not include telephone encounters).

Workload relative value unit (wRVU): In 1988, Hsiao et al. detailed a RBRVS that is now the basis for reimbursement by third-party payers in the U.S.[239] The unit of measurement, RVU, has three categories that inform the price for health care services: physician work (denoted as work RVU, or, wRVU), practice expense, and malpractice insurance. Since VHA providers do not hold individual or corporate liability for malpractice insurance or practice infrastructure, the malpractice and practice overhead RVU components are not relevant. WRVU encompasses the relative amount of time, skill, and intensity required to complete a given procedure. This sub-component of the RVU accounts for 52 percent of the total value. To account for changes in practice patterns and medical technology the Relative Value Update Committee, a group of physicians sponsored by the American Medical Association, recommends updates to RVU values to CMS every year.

Medical Group Management Association (MGMA): MGMA is an industry group that provides publications, seminars, conferences and surveys/benchmarks to physician practices on practice operations, cost containment, revenue cycle, provider productivity and compensation. On an annual basis, MGMA issues the Physician Compensation and Production Survey (inclusive of non-physician providers such as PA, NP, CRNA, etc.) as well as the Academic Practice Compensation and Production Survey.

MGMA Physician Compensation and Production Survey:[240] Includes 4,197 medical groups and 66,299 providers. Across primary care and specialty care and a wide range of geographies. This survey is the most commonly used survey of all existing physician performance and compensation benchmarking options.

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[238] U.S. Department of Veterans Affairs. (2015). VHA Directive 1082. Patient Care Data Capture. Retrieved from http://www.va.gov/vhapublications/ViewPublication.asp?pub_ID=3091

[239] Hsiao W.C., Braun, P., Yntema, D., Becker, E.R. (1988). Estimating physicians' work for a resource-based relative-value scale. *N. Engl. J. Med.* 319 (13): 835–41.

[240] MGMA. (2013). *Physician Compensation and Production Survey: 2014 Report Based on 2013 Data*. Retrieved from http://www.mgma.com/Libraries/Assets/Key-Findings-PhysComp_FINAL-with-copyright.pdf

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<u>MGMA Academic Practice Compensation and Production Survey:</u>[241] MGMA's Academic survey includes 20,876 providers and 1,996 administrative staff. This survey includes multi-mission providers who have clinical, research and teaching time. This survey is valuable to understanding the relationship between clinical production and additional responsibilities held by academicians, such as research and teaching.

<u>American Medical Group Management Association (AMGA)</u>: The AMGA is the industry group that most large health systems and medical groups belong to. AMGA offers a forum to connect providers with each other and to make them aware of best practices and to spread information nationally. Only providers can be members, though other industry professionals can purchase access to the information AMGA providers.

<u>AMGA Medical Group Compensation and Financial Survey:</u>[242] AMGA's annual survey includes responses from 289 medical groups including 73,700 providers for an average group size of 255. This survey has been conducted since 1986, and includes a wide range of organizational structures and geographies. Respondents tend to be larger organizations. Unlike the other two benchmark sets, data is published demonstrating quartiles, rather than as individual provider percentiles. We did compare to the AMGA survey; however, we were not able to publish the results for specialty care.

<u>Panel</u>: A panel is the set of patients assigned to a specific primary care provider or care team. Panels are typically used in health maintenance organizations (HMOs) and health care systems implementing a Patient Centered Medical Home (PCMH) model.

B.2.5.2 Data sources

To calculate FTE levels needed for measuring productivity by provider adjusted clinical FTE (cFTE), the Assessment G team used the labor mapping data provided within the VHA OPES Productivity Data File (Provider Detail FY14) and the VHA OPES Labor Mapping Data File (Provider Labor Detail FY14). Each provider's productivity calculation (whether based on encounters or wRVUs), used clinical Worked FTE as the denominator, which excludes vacation and holidays and other non-direct patient care time. It also excludes bed days of care (inpatient rounding time) for some specialties. Using clinical FTE (cFTE) differs from the staffing levels FTE calculation described above, as only worked hours in the clinical environment (direct patent care hours, in accordance with VHA's labor mapping definitions) are included in productivity calculation.

To calculate the total VHA cFTE providers, the Assessment G team used the labor mapping for each provider as contained within the VHA OPES Productivity Data File and the VHA OPES Labor Mapping Data File. The labor mapping file was extracted by VHA OPES from the Decision Support System (DSS) within VHA's CDW that contained labor mapping hourly details. Within

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[241] MGMA. (2013) *Academic Practice Compensation and Production Survey for Faculty and Management: 2014 Report based on 2013 Data.* Retrieved from http://www.mgma.com/Libraries/Assets/Store/Surveys/8743-2014-Key-Findings-Academic-Practice.pdf

[242] AMGA (2014) *2014 Medical Group Compensation and Financial Survey: 2014 Report Based on 2013 Data*. Alexandria, VA, American Medical Group Association.

DSS, all costs (measured in time per resource) including physician and dentist labor are mapped into ALBCCs. Labor ALBCCs are mapped to the Direct Patient Care or Indirect Administration, Education, or Research account codes that represent production units for related work activities. All time spent by all full and part-time VHA-employed physicians, APPs and dentists (except Without Compensation providers who do not have a labor mapping) is categorized into Direct Patient Care, Administration, Research, and/or Education. The percentage of time for each physician, APP and dentist spent in each of these categories is captured in combined ALBCC hours.[243]

The VHA OPES Labor Mapping Data File included pay periods 13-26 (September 22, 2013) through 14-25 (September 20, 2014) and were sorted on a pay period level. This time period corresponds roughly to Fiscal Year 2014; however, the dates do not align exactly due to a difference in when the pay period closed from the fiscal year. The pay periods were aggregated into FY 2014 totals for every provider's productivity calculations. Table B-3 shows the data fields provided for all APPs and physicians.

To calculate dental productivity, our team used the de-identified Dental Hourly and Productivity Data File (201G_AggregateDentistFY14.xls) from the OPES Decision Support Extract as well as the 2010 ADA Survey of Dental Practice: Characteristics of Dentists in Private Practice and their Patients (for benchmarking). The data fields within the Dental Hourly and Productivity Data File are shown in Table B-4.

In assessment productivity of Primary Care Providers, our team used a file of Division Modeled Capacity extracted from the Primary Care Management Module (PCMM). OPES also provided our team a file of actual and facility determined maximum panel sizes by provider. This file identified characteristics such as location, team type, self-reported FTEs and a Physician or APP designation.

Table B-3. APPs and physician data fields within VHA OPES labor mapping data file[244]

Data Field	Definition
PhysicianID	De-identified provider social security number, as noted on VHA encounters with CPT® codes

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[243] U.S. Department of Veterans Affairs (2011) VHA Directive 2011-009 Physician and Dentist Labor Mapping. Retrieved from http://www.va.gov/vhapublications/ViewPublication.asp?pub_ID=2384

[244] Data definitions provided by VHA OPES, April 9, 2015

Data Field	Definition
Sta3n	The raw "3 digit" parent station numbers on the encounter record. In general, the 3 digit station number will identify the 'administrative parent facility'. Exceptions are VISN 2, VISN 15, and VISN 23.
Sta6a	6-digit station number used within VHA to identify point of service. One 'administrative parent' may have several of these.
PayPeriodStart	This is a date field that represents the first day of the pay period.
BudgetObjectCode	Budget Object Classification (BOC) codes are used to report VA's personal services, supplies or services. Any cost center/budget object code combination is acceptable, unless specifically identified in the Unique Cost Center/Budget Object Code Combination Table. (Reference: VA Handbook 4671.2).
ALBCostCenter	The DSS ALBCC Code is composed of three parts: ▪ The three-character prefix is the 2nd through 4th characters of the VA Cost Center (VACC) (omitting the leading "8") indicating the clinical service that manages the Production Unit. ▪ The two-character DSS Production Unit Code reflects the work unit nationally and identifies the clinical activity. ▪ The division suffix which can be one or two characters, as needed, to reflect the division of the main station (VA medical facility) number.

Data Field	Definition
Albcc_h	FY14 worked hours allocated to the ALBCC from linking DSS Labor mapped percentage of time to pay period hours. Leave and annual leave are not included within this measure.
ALBCC_Normal_h	FY14 normal paid hours allocated to the ALBCC from linking DSS labor mapped percentage of time to pay period hours.
ALBCC_Regular_h	FY14 paid additional hours allocated to the ALBCC from linking DSS labor mapped percentage of time to pay period hours. This measure contains additional hours worked by part time employees beyond their typical (normal) hours.
PctALBCostCenter	Percent of hours allocated to the ALBCC.

Table B-4. Dental Productivity Data Fields and Definitions from Dental Hourly and Productivity Data File[245]

Data Field	Definition
VISNSID	The VISN number where care was provided and workload recorded.
FCDMAdminParent	The administrative parent facility where care was provided and workload recorded.
PersonClass	The predominant person class specialty during pay period.
PersonClassSpecialty	The predominant person class specialty (i.e. Dentist – General, Dentist – Endodontics, etc.) during that pay period.
DentalLvl1	First level dimension hierarchy (Dentist, OMFs).

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[245] Data summary used MITRE 201G Team: Dentists Data Definitions, provided by VHA Office of Dentistry, March 17, 2015.

Data Field	Definition
DentalLvl2	Second level dimension hierarchy (i.e. Dentist, Orthodontist, etc.).
UniqueDentalStaffID	A de-identified key integer representing the provider at that administrative parent site.
PPStart	The starting data of the two week pay period.
TotalHours	The total number of aggregated labor mapped hours for the pay period.
ClinicalHours	The aggregated number of labor mapped hours in clinical product units for the pay period.
AdministrativeHours	The aggregated number of labor mapped hours in administrative product units for the pay period.
EducationHours	The aggregated number of labor mapped hours in education product units for the pay period.
ResearchHours	The aggregated number of labor mapped hours in research product units for the pay period.
PersonClassCode	The VA person class code standardized in VistA.
SumRVUs	The aggregated sum of RVUs applicable to the procedures performed and/or personally supervised by the attending dentist for the pay period.
SumProcedures	The aggregated sum of CPT® codes applicable to the procedures performed and/or personally supervised by the attending dentist for the pay period.
SumVisits	The aggregated sum of patient visits performed and/or personally supervised by the attending dentist for the pay period. Each patient counted no more than once per day per site even if additional encounters.

Data Field	Definition
Grouping	General grouping categorization of pay period activity. When there is clinical activity with no clinical mapping, generally this is attributable to care provided by an on-site contract/fee provider.
Total FTE (FTE)	Actual <u>worked</u> hours are converted into FTE. Annual FTE is calculated by taking the actual worked hours of the provider divided by 2080, where 2080 is the available hours to work for the fiscal year (26 pay periods *80 hours).
Clinical FTE (FTEc)	Actual clinical <u>worked</u> hours are converted into FTEc. Annual FTEc is calculated by taking the labor mapped clinical worked hours of the provider divided by 2080, where 2080 is the available hours to work for the fiscal year (26 pay periods *80 hours).
Admin FTE (FTEa)	Actual administrative <u>worked</u> hours are converted into FTEa. Annual FTEa is calculated by taking the labor mapped administrative worked hours of the provider divided by 2080, where 2080 is the available hours to work for the fiscal year (26 pay periods *80 hours).
Education FTE (FTEe)	Actual education <u>worked</u> hours are converted into FTEe. Annual FTEe is calculated by taking the labor mapped education worked hours of the provider divided by 2080, where 2080 is the available hours to work for the fiscal year (26 pay periods *80 hours).
Research FTE (FTEr)	Actual research <u>worked</u> hours are converted into FTEr. Annual FTEr is calculated by taking the labor mapped research worked hours of the provider divided by 2080, where 2080 is the available hours to work for the fiscal year (26 pay periods *80 hours).

To calculate cFTE levels for providers, the Assessment G team used the APP and physicians FTE data from the VHA OPES Labor Mapping Data File as well as FTE data from VHA OPES Productivity Data File. The FTEs reported from the Productivity extract reflected worked FTEs. By applying leave factors (percentages which allowed worked hours to be converted to paid hours) derived from the Labor data extract (by physician), the PAID FTE amounts were calculated. In addition, some other FTE refinement occurred for providers that were listed more than once within the Productivity extract. This refinement was done to ensure that the total FTE for any given provider was presented accurately. After these steps were taken, the FTE data was extracted from the Productivity data. For auditing purposes, the VHA OPES Productivity Data File FTE totals were compared to the VHA OPES Labor Mapping Data File, specifically the FTE hours and FTE categories. A basic validation was completed and the labor hours and classifications were determined to be closely correlated with the VHA OPES Productivity Data File FTE information.

The productivity extract data file was matched to the labor mapping file (using the same provider de-identifiers) and included the following fields shown in Table B-5.[246]

Table B-5. Productivity data fields and definitions; from VHA OPES productivity data file

Data Field	Definition
PhysicianID	De-identified provider social security number, as noted on VHA encounters with CPT® codes.
NPIFlag	Provides a yes/no indicating whether the provider had an NPI number listed in the data warehouse.
ProviderType	Provides a category for the provider workload as one of the following: ▪ Resident Only = no VA 'attending' provider on encounter but has a resident. ▪ VA = If not "Resident Only" AND matches with DSS created Labor Map file in CDW. ▪ Fee = If not "Resident Only" AND no match with DSS Labor Map file but find provider in Fee files. ▪ Other = does not meet any of logic above.

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[246] Productivity data definitions "Data Definitions-Physician Detail RVU, Encounter and FTE" VHA OPES, February 26, 2015.

Data Field	Definition
Sta3n	The raw "3 digit" parent station numbers on the encounter record. In general, the 3 digit station number will identify the 'administrative parent facility'. Exceptions are VISN 2, VISN 15, and VISN 23.
LegacySta3N	The 3 digit station number used to identify the legacy administrative parent facility.
AggregateSpecialty	Maps the minor specialty, based on the provider's person classification/taxonomy into one of 38 specialties.
Specialty	Extrapolated from the person classification, this is the specialty of the provider. There are 77 specialties.
PersonClass	Provides the 'person class' code associated with the providers on the encounter, from the CDW. The Person Class Mapping is the relevant reference file for this data point.
RVUSum	Sum of FY14 wRVUs based on CPT® codes and applicable RVU on each encounter.
NumEncountersRVU	Sum of encounter counts when the encounter has a CPT® that has an RVU value greater than zero per CMS, INGNEX Gap, or Imputed RVU schedules. Encounter sum is by unique provider.
NumEncountersNoRVU	Sum of encounter counts when the encounter does not have a CPT® with no RVU value per CMS, INGNEX Gap, or Imputed RVU schedules. Encounter sum is by unique provider.

Data Field	Definition
Total_FTE	The sum of Clinical FTE+ Admin FTE +Education FTE+ Research FTE +Other FTE. Actual <u>worked</u> hours are converted into FTE. Annual FTE is calculated by taking the actual worked hours of the provider divided by 2080, where 2080 is the available hours to work for the fiscal year (26 pay periods *80 hours) , thus the field represents the sum of worked FTE from DSS created Labor Map file in CDW per ALBCC logic.
Clinical_FTE	Direct patient care time to prepare, provide for, and follow-up on the clinical care needs of patients. (Note: clinical FTE includes bedday FTE). Actual worked hours are converted into FTE. Annual FTE is calculated by taking the actual worked hours of the provider divided by 2080, where 2080 is the available hours to work for the fiscal year (26 pay periods *80 hours).
BedDay_FTE	Time spent for inpatient bedside attending rounds. Actual worked hours are converted into FTE. Actual <u>worked</u> hours are converted into FTE. Annual FTE is calculated by taking the actual worked hours of the provider divided by 2080, where 2080 is the available hours to work for the fiscal year (26 pay periods *80 hours).

Data Field	Definition
AdjClinical_FTE	This field adjusts the Clinical_FTE for specialties that do or do not capture inpatient CPT® codes. It represents the Clinical MD FTE (C) that excludes Bedday FTE for Medicine & Mental Health Specialty areas and the Surgery Surgical Critical Care (183104) person class code. Actual <u>worked</u> hours are converted into FTE. Annual FTE is calculated by taking the actual worked hours of the provider divided by 2080, where 2080 is the available hours to work for the fiscal year (26 pay periods *80 hours).
Admin_FTE	Administrative time includes time spent on managerial or administrative duties, generally at the level of the department, service, medical center, network, or nationally, both within and outside VA. Actual <u>worked</u> hours are converted into FTE. Annual FTE is calculated by taking the actual worked hours of the provider divided by 2080, where 2080 is the available hours to work for the fiscal year (26 pay periods *80 hours).
Education_FTE	Education is defined as time spent providing formal training (didactic education). Actual <u>worked</u> hours are converted into FTE. Annual FTE is calculated by taking the actual worked hours of the provider divided by 2080, where 2080 is the available hours to work for the fiscal year (26 pay periods *80 hours).

Data Field	Definition
Research_FTE	Research is defined as time spent performing formal, approved health care research, or in activities in direct support of approved research. Actual <u>worked</u> hours are converted into FTE. Annual FTE is calculated by taking the actual worked hours of the provider divided by 2080, where 2080 is the available hours to work for the fiscal year (26 pay periods *80 hours).

A CPT® details data file ("VHA OPES CPT® Details Data File") was also provided by VHA. This allowed the team to validate the wRVU calculations within the VHA OPES Productivity Data File. The file also allowed the team to assess modifier adjustments (addressed below) and assess the impact of gap and imputed code based wRVU values. The fields submitted within the VHA OPES CPT® Details Data File are included Table B-6.

Table B-6. VHA OPES CPT® details data file[247]

Data Field	Definition
ProviderID	De-identified provider social security number, as noted on VHA encounters with Current Procedural Technology [CPT®] codes).
PersonClass	Provides the 'person class' code associated with the providers on the encounter, from the CDW. The Person Class Mapping is the relevant reference file for this data point.
Sta3n	The raw "3 digit" parent station numbers on the encounter record. In general, the 3 digit station number will identify the 'administrative parent facility'. Exceptions are VISN 2, VISN 15, and VISN 23.
LegacySta3N	The 3 digit station number used to identify the legacy administrative parent facility.
VisitCalendarYear	Calendar year of the visit

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[247] Productivity data definitions "Data Definitions-Physician Detail RVU, Encounter and FTE" VHA OPES, February 26, 2015.

Data Field	Definition
CPT® Code	The procedure code relating to the record.
RVUType	Indicates the source of the wRVU value; "Gap", "Imputed" or "CMS".
WorkRVU	The wRVU Amount related to the CPT® Code.
CPTCnt	The Count of CPT® Codes.
RVUSum	The WorkRVU Times The CPTCnt.

For the productivity benchmarking comparison, the Assessment G team used the following industry data sets/reports:

- 2014 Physician Compensation and Production Survey, MGMA
- 2014 Academic Practice Compensation and Production Survey for Faculty and Management, MGMA
- 2010 Survey of Dental Practice: Characteristics of Dentists in Private Practice and Their Patients, American Dental Association

B.2.5.3 Assumptions and Limitations

The data sets for VHA productivity and the data sets for industry benchmarks exhibited significant differences. At an overarching level, comparing a population health oriented delivery system to benchmarks which primarily represent a fee for service model presents comparability issues. To increase comparability of the two data sets, our team applied several adjustments. We adjusted for the use of modifiers, gap codes/imputed wRVU values, and adjusted for duplication of workload credit. However, VHA productivity data extracts do not include modifiers, so we could not make modifier-related wRVU adjustments. Instead, we have applied CMS-based adjustments (described below) which primarily affect surgical specialties, but account for some of these differences.

Adjusting for provider workload double crediting

In the benchmark data sets, if multiple providers are associated with an encounter, only one provider receives workload credit. In the VHA data set, multiple providers can receive workload credit. As the Assessment G team could not fully adjust for the instances in which credit was given to multiple providers to make a direct comparison to the benchmark data set, the team asked OPES to analyze this data and provide an explanation that summarizes the potential impact to the data. OPES provided the following explanation:

> OPES uses the Corporate Data Warehouse to pull encounter-level data for physicians. OPES generates an encounter record for each physician on the encounter and assigns the sum of all relative value units (RVUs) to each physician. In fiscal year 2014, there were 63,220,165 unique encounters with at least one physician on the encounter. Of these encounters, 17,104,029 (27.1 percent) encounters had more than one physician on the encounter. Consistent

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with OPES cube business rules (Providers are not given RVU credit for encounters when any of the following are true: (1) the primary stop code for the encounter is pathology; however, the provider's person class is not pathology; (2) the primary stop code for the encounter is radiology; however, the provider is not coded as the "doing" provider; (3) the primary stop code for the encounter is surgery and the provider's person class is pathology or radiology) the providers who were believed to be on the encounter as solely the ordering provider were removed and this number was reduced to 1,852,811 (2.9 percent). To assess the magnitude of assigning the total RVU sum to all physicians on the encounter, the sum of total RVUs associated with each unique encounter (62,376,746.36) was compared to the sum of total RVUs generated when each physician on the encounter gets credit for the total sum of RVUs (64,545,139.05). This resulted in a difference of 2,168,393 total RVUs, or a potential 3.4 percent increase in total RVUs.[248] (VHA OPES, 2015)

Adjusting for lack of modifier usage

Upon review, the Assessment G team uncovered three issues with the manner in which VHA captures physician work product and calculates that into wRVU values, which result in the VHA data not being comparable to the benchmarks. CMS utilizes a variety of modifiers typically utilized during the billing process to identify additional information on either the site of service or the role a provider may play in the provision of care. At this time, VHA **does not** capture, nor document, any modifier usage in its productivity reporting.[249] The benchmark surveys require adjustment of modifiers to maximize comparability; as such, the lack of modifier usage by VHA could have significant implications to the interpretation of the data. Depending on the type of service or the role, a provider may have a different wRVU value. The following two examples illustrate this:

- A modifier 50 is utilized to denote a bi-lateral procedure when two knee procedures are performed. While one CPT® code is utilized to denote the procedure, the bi-lateral modifier is used to assign a factor of 1.5 to the wRVU value. This relates to the efficiency that comes from providing the second procedure while already performing the first.

- The 80 series of modifiers denotes the use of a surgical assistant; either a physician or an APP. In the private sector, the provider generally will bill CMS under the same CPT® code; however, the provider will utilize an 85 modifier to denote that the activity was for an assist and not as a primary surgeon. This reduces the CPT® code by 85 percent and awards only .15 of the primary surgery CPT® code.

The lack of modifiers generally impacts surgical specialties more than non-surgical specialties. With acknowledgment of OPES and VHA that this information could not be provided to the Assessment G team, the Assessment G team developed a methodology to adjust for this data anomaly. CMS publishes a complete billing data set by code along with the frequency of

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[248] Campbell, J. OPES (2015, March 9).Multiple Provider Analysis. Received via email communication.

[249] Choice Act 201G – OPES Data Discussions Continued, Notes and Action Items – Call March 9, 2015

modifier application by CPT® code. In the absence of modifiers, the team utilized the CMS Medicare 2013 utilization by CPT® code to adjust for the frequency by which codes were awarded to all providers at 100 percent value. Given a standard of care that is generally followed nationally, the CMS utilization rates were deemed appropriate for comparison purposes. The Assessment G team utilized the weighted average of the surgical assist codes by CPT® code to adjust for the wRVU value. An example follows in Figure B-2.

Figure B-2. CMS actual[250]

Code	Description					
27137	Revise Hip Joint Replacement					

Provider Type	VA RVUw	CMS RVUw w/ Modifier usage	MS Frequency		Weighting	
Primary Surgeon	22.700	22.700	4,974	64.78%	14.706	
Assistant Surgeon	22.700	3.405	2,704	35.22%	1.199	
		Total	**7,678**	**100.00%**	15.905	Weighted Average RVUw

The first row in the example represents the primary surgeon and the second row represents the assisting surgeon. VHA business rules dictate that wRVU credit be applied in the same amount of 22.7 for both the primary surgeon and assisting surgeon. This is inconsistent with business rules for the benchmark data sets used in this study. To make the data comparable, the Assessment G team applied the following modification approach to adjust the data received from OPES:

1. The wRVU for the assisting surgeon is modified to 3.045 (22.7 x .15).
2. A weighted average wRVU is calculated by applying the relative number of cases performed by primary surgeons (65 percent) and assisting surgeons (35 percent), yielding an overall weighted average wRVU of 15.90.
3. The weighted average wRVU (15.90) is applied to each CPT® code in the data set, thereby adjusting wRVU credit.

While this method has limitations on an individual provider basis (for example, there is no way to tell which provider is the assistant vs. the primary surgeon), it offers the most valid approach for overall comparisons by specialty, given the lack of data on modifiers in the VHA data set. See Figure B-3.

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[250] Assessment G analysis which used CPT Detail FY14, provided by VHA OPES, March 5, 2015.

Figure B-3. wRVU with modified wRVU and percent of original[251]

Specialty	Original RVUw Total	Modified RVUw Total	% of Original RVUw
Thoracic Surgery	359,714	277,528	77.15%
Neurological Surgery	244,253	203,601	83.36%
Orthopaedic Surgery	1,197,013	1,055,807	88.20%
Clinical Genetics	2,130	1,888	88.63%
Colon and Rectal Surgery	99,289	91,140	91.79%
Vascular Surgery	601,644	554,807	92.22%
Surgery	1,404,862	1,313,468	93.49%
Surgical Critical Care	52,028	48,876	93.94%
Reproductive Endocrinology and Infertility	300	283	94.06%
Pediatric Surgery	1,796	1,731	96.38%
Urology	1,073,797	1,039,618	96.82%
Obstetrics and Gynecology	182,574	177,101	97.00%
Nurse Anesthetist CRNA	194,714	190,895	98.04%
Surgery of the Hand	61,539	60,448	98.23%
Plastic Surgery	269,187	264,809	98.37%
Otolaryngology	631,279	621,921	98.52%
Other (61 Specialties)	66,671,386	66,640,169	99.95%
Total	**73,047,504**	**72,544,090**	**99.31%**

VHA OPES later noted that due to the unique nature of their care delivery model, residents and fellows are more frequently utilized to perform these assist roles than physicians and APPs when compared to other health care systems, and provided additional detail containing the number of procedures completed in FY14 with a second physician serving as an assistant in surgery. Because residents and fellows are not assigned their own wRVU credit, and in the private sector, do not bill CMS for their services, VHA OPES conveyed that the Assessment G methodology utilized may over-represent the number of physician-performed surgical assists, which could lead to over-discounting of relative work value units for these surgical services may "over-discount" the true productivity of VHA providers. Of specific attention was the fact that Assessment Team G methodology resulted in a reduction of 22.9 percent of wRVUs for Thoracic Surgery, 16.7 percent for Neurological Surgery, and 11.8 percent for Orthopedic Surgery. VHA's internal methodology (based on stop codes) estimated that the wRVU discount applied to these service lines should instead be 5.9 percent, 1.5 percent, and 1.6 percent, respectively.

The Assessment G team applied these new discounts to the original wRVU data to determine the impact on our findings. Overall, the adjustments did not materially affect the findings or recommendations put forth in this report. We estimate that the average productivity of physicians in the associated surgical service lines would increase by approximately 500-800

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[251] Assessment G analysis which used CPT Detail FY14, provided by VHA OPES, March 5, 2015.

wRVUs per year per Worked cFTE. However, the benchmarked percent ranks of these updated productivity figures would still fall below 27th percentile in both the MGMA and AMGMA comparison sets for all three specialties, with many falling in the 15th percentile rank and below. In all three specialties, average productivity per clinical FTE would result between 47 percent and 62 percent of MGMA or AMGMA medians. Details for the three specialties can be found in Table B-7.

Table B-7. Comparison of assessment G productivity benchmark methodology and application of OPES suggested methodology for benchmarking[252]

Specialty	Original wRVU Productivity Calculation	New wRVU Productivity Calculation	MGMA wRVU Median	Original MGMA Percent Rank	New MGMA Percent Rank	AMGMA Median	Original AMGMA Percent Rank	New AMGMA Percent Rank
Thoracic Surgery	3,629	4,428	7,121	14%	15%	8,156	10%	26%
Neurological Surgery	4,002	4,731	9,368	10%	14%	9,977	10%	15%
Orthopedic Surgery	4,385	4,894	8,241	10%	13%	8,384	14%	23%

VHA OPES also provided the Assessment G team with additional discount estimates for all specialties. While Assessment Team G acknowledges that the original methodology may over represent surgical assists by physicians, we determined that re-running all of the analysis to adjust for these discount factors would not result in material changes. This is based on the fact that the remaining specialties were not originally discounted to the same degree as the three surgical specialties outlined above (with many specialties not being discounted at all), and consequently the variances in discount percentages were not significant. Any changes in percent ranks compared to benchmarks would thus be minimal.

Application of Gap and Imputed Codes

VHA developed a series of CPT® codes to capture clinical work effort not otherwise captured or quantified by CMS. Furthermore, VHA engaged Cambridge Health Economics Group, a private firm that was acquired by Ingenix (now Optum) to calculate and establish RVU values for these GAP codes and utilize these codes in assessing provider productivity. Additionally, OPES has developed a wRVU value for Compensation and Pension (C&P) examinations, and selected Autopsy CPT® codes which are not weighted by CMS. OPES assigns a level 3 Office Consultation wRVU value of 1.88 for CPT® Codes 99455 and 99456-Disability Examinations (C&P) which currently have a CMS wRVU= 0.00. The Autopsy weights were developed by the VHA Pathology

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[252] Analysis of Assessment G Benchmarking Exercise and Information provided by VHA OPES, Choice Act 201G Section – Data Validation Follow-Up, OPES Deliverables from Conference Call, July 27, 2015

Productivity Workgroup and are based on a study conducted by the Autopsy Committee of the College of American Pathologists (Accounting for the Professional Work of Pathologists Performing Autopsies, John H. Sinard, MD, PhD, for the Autopsy Committee of the College of American Pathologists, Arch Pathol Lab Med—Vol 137, February 2013, Autopsy RVUs—Sinard et al). The utilization of these GAP codes yield a net 2.4 percent variation to overall productivity with specialty specific breakdowns as follows in Figure B-4:

Figure B-4. CMS gap imputed, total, and gap imputed percent[253]

Specialty	CMS RVUw	Gap RVUw	Total	Gap %
Internal Medicine	8,440,368	263,225	8,703,594	3.02%
Psychology	6,147,099	255,782	6,402,880	3.99%
Psychiatry	6,096,483	43,999	6,140,481	0.72%
Radiology	3,363,881	63,455	3,427,337	1.85%
Optometry	2,728,225	29,317	2,757,541	1.06%
Family Practice	2,203,837	65,616	2,269,453	2.89%
Ophthalmology	2,029,684	9,931	2,039,615	0.49%
Gastroenterology	1,975,685	9,969	1,985,654	0.50%
Emergency Medicine	1,680,289	6,332	1,686,622	0.38%
Cardiovascular Disease	1,647,470	21,519	1,668,989	1.29%
Surgery	1,350,152	54,710	1,404,862	3.89%
Podiatry	1,355,448	3,197	1,358,644	0.24%
Pathology	1,083,682	178,243	1,261,925	14.12%
Orthopaedic Surgery	1,190,184	6,829	1,197,013	0.57%
Urology	1,069,616	4,181	1,073,797	0.39%
Neurology	923,032	40,648	963,680	4.22%
Other (55 Specialties)	11,155,816	266,896	11,422,713	2.34%
Total	**54,440,950**	**1,323,848**	**55,764,798**	**2.37%**

[253] Assessment G analysis which used CPT Detail FY14, provided by VHA OPES, March 5, 2015.

Although benchmark comparison generally excludes the use of Gap codes, we elected to utilize the appropriate values assigned by Ingenix in our data set given the unique care models required to support Veterans, nature of the services performed and lack of an alternative.

The Assessment G team believes that through utilization of the OPES business rules in addition to the approach to accounting for the lack of modifiers, the benchmarking data is comparable to the VHA data set.

B.2.5.4 Approach

Below we describe our approach to making productivity comparisons for primary care, specialty care, and dental.

Primary Care – Panel Size

For primary care providers, we measured productivity by comparing panel sizes to industry benchmarks from Kaiser Permanente Medical Group Northern California (average),[254] MGMA 2014 Compensation and Production Survey (median), and American Medical Group Association (AMGA) 2014 Medical Group Compensation and Financial Survey (median).

VHA targeted panel sizes of 1200 and 900 (for physicians and APPs respectively) are outlined by VHA Handbook 1101.02,[255] assuming optimal staffing and resource levels. It is noted that actual panel sizes may fluctuate. The calculated VHA average panel size (inclusive of APPs and Physicians) was estimated by taking VHA-provided average panel sizes per "Sta6" facility and calculating a weighted average based on total unique patients.

Our team calculated "ideal" panel size based on an equation published by the American Academy of Family Physicians. For VHA panel size, we used the average panel size by VISN as a means for comparison. The equation is: panel size × visits per patient per year (demand) = provider visits per day × provider days per year (supply).[256] The equation solves for the ideal panel size based on the provider's historical level of productivity. For the purposes of aligning to the general VA demographic, the Assessment G team applied an adjustment for males aged 60 to 64 (based on VA median age and sex). The Assessment G team made an additional adjustment to the 'provider visits per day'. VHA providers are expected to see between 10 and 12 patients per day[257] but based on literature review, the ideal number in a typical setting is

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[254] As reported on site visit to Kaiser Permanente Medical Group Northern California on April 22, 2015.

[255] U.S. Department of Veterans Affairs. (2009). *VHA Handbook. PCMM*. Retrieved from http://www.va.gov/vhapublications/ViewPublication.asp?pub_ID=2017

[256] Murray, M.D, Davies, M. & Boushon, B. (2007). Panel Size: How Many Patients Can One Doctor Manage? *Fam Pract Manag*.2007; 14(4); 44-51. Retrieved from http://www.aafp.org/fpm/2007/0400/p44.html#fpm20070400p44-bt2.

[257] Based on Assessment G site visit data gathered from primary care providers on 24 site visits

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approximately 15 patients per day.[258]

Calculation:

2.38 *(current VHA primary care outpatient visits per year[259])* ***x 1.17*** *(AAFP adjustment factor based on VHA paneled member age and sex)[260] =* ***2.78*** *(calculated adjusted VHA visits per patient per year)*

The Assessment G team validated panel sizes using benchmarks published in the *Annals of Family Medicine* which provide insight into four models of care for primary care, dependent upon delegation of tasks to various non-physician members of a primary care team. The critical input of delegation assumptions estimates panel sizes ranging from 983 to 1,947, breaking out delegation tasks between preventive care, chronic care, and acute care.[261] It recommends that the low-overhead Ideal Medical Practice have somewhat larger panel sizes (than a concierge medical practice with panel sizes of 200 to 600) but typically fewer than 1,000 patients. According to the analysis, with an assumption of 2,025 work hours per year per primary care physician and an age-sex distribution of the patient panel similar to an analysis of the Duke University health system (0.71 hours, 0.99 hours, and 0.36 hours, respectively, for a total of 2.06 hours of service per year per patient), yields a physician ability to care for a patient panel of 983 patients under a non-delegated primary care model. With the most ambitious assumption about the degree of delegation possible, a physician could reasonably care for a panel of 1,947 patients.[262]

Primary Care – Panel Size Actuals, Maximum, and Modeled

In addition to comparing primary care panel sizes externally to benchmarks, the Assessment G team completed an internal analysis examining the PCMM computed DivisionModeled Capacity panel sizes assigned to providers at the facility level and compared that target to both actual panel sizes per provider and the facility-assigned maximum panel size targets. To do this, team G leveraged data provided by VHA's office of Primary Care via the Office of Productivity, Efficiency, and Staffing. OPES provided Assessment G the Modeled Division Capacity PCMM output for all facilities at the Sta6a level for September 2014 as well as a file containing actual and facility determined maximums at the provider level, by month. Data field and definitions are outlined below:

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[258] Altschuler, J., Margolius, D., Bodenheimer, T., Grumbach, K., (2012). Estimating a Reasonable Patient Panel Size for Primary Care Physicians with Team-Based Task Delegation. *Annals of Family Medicine*. Retrieved from http://www.annfammed.org/content/10/5/396.full.pdf+html

[259] U.S. Department of Veterans Affairs Veterans Health Administration. (2013). VHA Facility Quality and Safety Report Fiscal Year 2012 Data. Retrieved from http://www.va.gov/HEALTH/docs/2013QSExecutiveSummary.pdf

[260] Murray, M.D, Davies, M. & Boushon, B. (2007). Panel Size: How Many Patients Can One Doctor Manage? *Fam Pract Manag*.2007; 14(4); 44-51. Retrieved from http://www.aafp.org/fpm/2007/0400/p44.html#fpm20070400p44-bt2

[261] Altschuler, J., Margolius, D., Bodenheimer, T., & Grumbach, K., (2012). Estimating a Reasonable Patient Panel Size for Primary Care Physicians with Team-Based Task Delegation. *Annals of Family Medicine*. Retrieved from http://www.annfammed.org/content/10/5/396.full.pdf+html

[262] Ibid.

Table B-8. Data fields and definitions for primary care [263]

Data Field	Definition
FY	Fiscal Year (FY14)
FP	Fiscal Period starting with 1 = October and 12 = September
ProvCat	Designation of the category of provider either as a physician or a non-physician licensed provider acting as a primary care provider (APP).
TeamType	The type of special population the primary care team addresses. There are eight team types: General Primary Care, Home Based Primary Care, Women's Health, HIV Clinic, Post-Deployment Care, Renal/Dialysis, Geriatric Primary Care, Spinal Cord.
FTESummed	The amount of FTE that the individual provider was mapped to work in his/her primary care role and recorded in VISTA Legacy PCMM application. Because a provider can have more than one PCM Team, the amount of the individual's FTE would need to be summed. The FTE is manually entered into PCMM and is not pulled from DSS labor mapping.
PanelCountSummed	The number of patients actually assigned to a provider on the last day of the fiscal period. Because a provider can have more than one PCMM Teams, the amount of assignments to all teams is summed to a single record for the individual provider.
MaxCapacity	The numerical value entered in PCMM that represents the maximum number of patients that the team position for the primary care provider can have assigned to it. It is summed by ProvSSN and Fiscal Period same as the FTE and PanelCount.
ModeledCapacity	The number of patients modeled to a panel size for a particular facility at the Sta6n level via PCMM. Target for 1.0 FTE MD is 1200, and 1.0 APP is 900. This is then adjusted up or down based on various factors, specifically the number of exam rooms, support staff, and division intensity.
ProviderID	Unique identifier for the provider. OPES completed de-identification of "ProviderID" to allow link with other files provided for the assessment. One provider can have multiple records if assigned more than one panel team type.

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[263] Data Definitions sourced from Data Definitions – Provider Panel Size Data (version 3), Primary Care Data Sets to Choice Act 201 MITRE Teams, provided by VHA OPES, August 4, 2015

In order to keep data fields consistent and ensure an accurate comparison between actual panel sizes and division modeled capacity targets, our team limited the scope of the provider actual and maximum data to Fiscal Period (FP) 12 of Financial Year 14 (FY14), which corresponded to September of 2014. The filtered data included actual panel sizes at the provider level of detail, with flags for Physicians and APPs in addition to the separation of General Primary Care panels and Special Population Care Panels via the "Team Type" field. All providers are mapped to Sta3n and Sta6a levels.

Actual panel sizes, Total FTEs (which were self-reported FTE figures provided by the Office of Primary Care), and 'Maximum Capacity' size targets were rolled up to the Sta3n level of detail. Actual Panel sizes per 1.0 FTE were then calculated by taking the sum of all providers Actual Panels and dividing by the Sum of Total FTEs for each Sta3n. This calculation was completed for both MDs and APPs separately, for each of the 8 "Team Types" represented in the data set.

Similarly, the facility-set 'Maximum Capacity' was summed up the Sta3n level, and divided by the Sum of Total FTEs to set the Maximum Capacity per 1.0 Total FTE for MDs and APPs for each Team Type.

'Modeled Capacity' was the only figure not available at the provider level. Modeled capacity is a measure that remains at the Sta6a level of detail by Central Office. In order to compare actual panel sizes to PCMM division modeled capacity, our team calculated a weighted average for the Sta3n by weighing each Sta3n modeled capacity figure by the number of Total FTEs in each subsidiary Sta6n to their parent Sta3n. Our output was the weighted average Modeled Capacity for each 1.0 MD FTE for General Primary Care panels. To calculate APP Modeled Capacity, the team applied a 25 percent discount per VHA OPES guidance to account for APPs.

To estimate Modeled Capacity for the Women's Health panel teams, Assessment Team G referred to Directive 1330.01 which stipulates that any designated Women's Health panel be discounted by 20 percent of the number of women on the panel. To be considered a Women's Health panel, at least 10 percent of the panel must consist of female patients. While not provided the actual number of females on each panel, the team estimated that the minimum 10 percent of total modeled panel size was composed of women, considering only 6percent of all patients are female. The net result was that each modeled panel size was discounted by approximately 2 percent to account for this adjustment. For APPs assigned to a Women's Health panel, this figure was then discounted 25 percent further.

Modeled Capacity was set at 250 for Home-Based healthcare based on Directive 1140.07, with APPs Modeled Capacity set at 75 percent of that (187.5). Modeled Division Capacity was not calculated for the other Specialty PACTs due to the lack of specific inputs and calculations provided by VACO, as facilities are given leeway to set these panel sizes for their special populations.

In the main body of the report, Assessment G reported aggregate statistics relating to the analysis of Primary Care panels. Our team limited our aggregate findings specifically to General Practice Primary Care Physicians. Specifically, our team's actual and maximum panel size are the sum of the actual and maximum panels of General Practice Primary Care Physicians divide by the General Practice Primary Care Physicians FTE sum. The national modeled panel size is the

mean of the modeled capacity by facility. The standard deviation is calculated through the variance of the actual, maximum and modeled panel size for General Practice Primary Care Physicians by facility. The percentage break downs of each team type of panel is calculated by Physician FTE assigned to each.

Specialty Care Productivity – Encounters and wRVUs

For specialties other than primary care, we measured productivity using both encounters and wRVUs. The approach to these analyses is detailed below. Of note, the detail in the Appendix (Section A.2), which includes facility encounter and wRVU production, does include primary care providers. The specialty benchmarking in the productivity section of the document, however, does not include primary care providers.

Work RVU and Encounter Productivity Comparison

Work RVU values within VHA are calculated utilizing both CMS wRVU values for all services included within the CMS wRVU weighting schedule for 2013/2014 and additional homegrown codes called "imputed/gap" codes. These codes provide wRVU credit for clinical activity that is not otherwise captured and reimbursed under the CMS wRVU schedule. Each provider has an aggregate wRVU value based on his/her entire clinical work product, regardless of clinical work environment, for the fiscal year. The Assessment G team compared this wRVU amount to the three benchmark data sets (AMGMA, MGMA, AMGA), based upon the adjusted Worked cFTE. Each specialty and facility were compared in aggregate (to benchmarks) as well as by provider. As part of this comparison, our team calculated (described below) internal percentile ranks or benchmarks, comparing the productivity (either by wRVU or encounter) to other VHA specialties. To calculate the productivity of providers in the VHA data set, we:

1. Matched the VHA OPES Productivity Data File to cross-reference files provided by OPES (included within Data Definitions documents presented along with the data files) to determine Facilities, VISNs, and Complexity levels.

6. Removed duplication issues that occurred in the VHA OPES Productivity Data File when FTE information was compiled from the labor data. The VHA OPES Productivity Data File was delivered with the duplication issues stated above.

7. Matched Labor Detail Files, Productivity Files and CPT® Detail Files (as provided via the VHA OPES CPT® Details Data File). The CPT® Detail file enabled our team to map to the VHA OPES Productivity Data File, which enabled all the CPT® related activity to be analyzed, by provider.

8. Validated clinical FTE levels of all providers and summarized them at the Aggregate Specialty Level, for comparison to a Summary Report from VHA ProClarity Productivity Cubes. This validation was also performed for the Administrative, Research, and Teaching FTE summaries.

9. Additional clinical FTE validations were done at the VISN and STA3N levels. All validations were within a tolerance of 3 percent, indicating that the VHA OPES

Productivity Data File FTE information closely correlated with the FTE information within the Summary Report.

10. Validated wRVUs from the VHA OPES Productivity Data File by matching CPT® codes and comparing the reported wRVU amounts to CMS wRVU amounts for the appropriate years. This validation was performed by linking the VHA OPES Productivity Data File to the VHA OPES CPT® Details Data File.

11. Applied modifier adjustments to the data set by modeling CPT® and Modifier level CMS data, using approach described in prior section.

12. Applied leave factors to the Productivity data by matching the productivity data to the labor data by physician and then compiling leave factor percentages. This allowed FTE values to be converted from the Worked values reported within the VHA OPES Productivity Data File to Paid values which were used for other purposes outlined within this appendix.

13. Calculated Internal Benchmarks for all levels of analysis, including Complexity Level and Specialty. Internal Benchmarks include 25th Percentile, Median, 75th Percentile, Mean, and Standard Deviation. These Internal Benchmarks were created for both wRVU productivity and Encounter Productivity measurements.

14. Calculated Percentile Rankings at provider levels and all aggregate levels (including Facility, Complexity and Specialty) of analysis. Percentile Rankings were calculated for MGMA and MGMA Academic 2014 benchmarks. These Percentile Rankings were created for both wRVU productivity and Encounter Productivity measurements. (Reference to Figures 2-11 and 2-12).

15. Applied reference files (from the Data Definitions document provided by OPES) to the source data to flag Primary Care Physicians, Associate Providers and to create Specialties for Associate Providers.

16. Produced Data Marts with all variations of data and calculations (by complexity, facility, specialty, aggregate specialty) mentioned above at Primary Care, Specialty Care and All Care levels.

In instances where our team graphically displayed wRVU and encounters, we summed either wRVUs or encounters up the level of aggregation. For example, total encounters in the aggregate are presented in Section 2.3.6.4. The Assessment G team did not modify the VHA encounter data to exclude telephone encounters; The MGMA 2014 survey specifically includes telehealth and e-consults in its definition of encounters, whereas the Academic MGMA (AMGMA) survey definition has not yet been updated and consequently there is a potential margin of error with the benchmark finding, when compared to the AMGMA survey.

Figure 2-17 depicts the sum of encounters after our team mapped encounters at the specialty level to the major specialty grouping. In instances where percentile rank was depicted in aggregated form (Figure 2-11 and Figure 2-12), percentile rankings were recalculated at the major specialty grouping level and the MGMA and AMGMA benchmarks were mapped to the major specialty grouping level using weighted averages.

Encounter Methodology

The VHA OPES Productivity Data File was provided with encounter measures. There were two fields that contained encounter information ([NumEncountersRVU] and [NumEncountersNoRVU]).These fields provided encounter totals by physician for FY2014. By combining these two fields for each provider, total encounters were calculated. OPES provided these fields to allow us to distinguish between CMS wRVU and Non-CMS wRVU activity. However our team ultimately used a CPT® Details file provided by OPES to accomplish this task. Our team used the calculated total encounters (as aforementioned) to key our productivity measurements.

OPES did not provide our team any further means to validate encounter totals. We ensured that encounters aggregated by employing the same methodology as FTEs and wRVUs (which did tie to OPES validation reports). No adjustments (such as modifier adjustments used for wRVUs) were made to encounter totals from the point of delivery until the final analysis point. For MGMA and AMGMA benchmarking purposes, total encounters were divided by adjusted cFTEs (as described above) to provide a normalized basis for measuring productivity.

Encounters were compared to both MGMA and AMGMA benchmarks. It should be noted that while MGMA has updated the encounter definition in its Physician Compensation and Production Survey to include Telehealth and e-consults in its most recent survey (2014), MGMA has not updated its definition as such in its Academic Practice Compensation and Production Survey (AMGMA). Our team was unable to distinguish Telehealth and e-consults in the encounter data set as CPT® level detail was not included. As such, we were unable to adjust when comparing to AMGMA. Telehealth and e-consults may cause VHA providers to appear more productive (when using encounters) relative to the AMGMA benchmark, although the size of this impact is unknown.

The other steps for compiling encounter information are contained within the "Work RVU and Encounter Productivity Comparison" section above.

Please note that from the data provided, our team was not able to distinguish which CPT® codes were related to [NumEncountersRVU] and which were related to [NumEncountersNoRVU].

Comparison of High and Low Complexity

Using the approach detailed above under "Work RVU and Encounter Productivity Comparison," our team analyzed the internal and external productivity benchmarks at a variety of levels. In Figure 2-18, our team highlighted a three specialties at the most complex (1A) and least complex (3) facility levels. Our team ranked each aggregate specialty by productivity as calculated by wRVU (as opposed to encounter) and displayed provider count, total FTE and encounters for reference.

Dental Productivity Analysis

Using the same Dental Hourly and Productivity Data File and the 2010 ADA Survey of Dental Practice: Characteristics of Dentists in Private Practice and their Patients files, our team

analyzed dental productivity by analyzing visits per provider. Dental data was sorted by per site visits which included the Worked FTE totals and number of visits. The patients' visits per provider per year were summed to the dental specialty level. Our team summed all provider visits within each specialty and divided all visits by the number of clinical FTE per specialty to determine the visits per provider. We then calculated the average patient visits per clinical FTE by dental specialty and compared these to the ADA benchmarks.

Productivity and Access Analysis

Our team analyzed the relationship of productivity and access by plotting the productivity (measured using wRVUs) against the proportion of patients able to obtain an appointment within 30 days of requesting it. In our case study, facilities of different complexity were identified by color. The wait time data was obtained from FY14 SPARQ report data and compared to our internal productivity calculation described above. Because each facility had its access value, no aggregation or calculation was performed on the access data. As previously described, the productivity calculation required the aggregation of wRVUs and cFTEs by facility. In Figure 2-20 Productivity versus Access Analysis – Cardiology, each dot represents a facility and the color of each dot represents a facility of a particular complexity level.

Unlike the productivity data, our team did not receive scheduling data and was unable to validate the access data. Our team understands there are several issues regarding the accuracy of the FY14 access data. We did not validate the accuracy, nor do we present this data as a means to draw conclusive findings; rather, we present it to illustrate the importance of considering access in conjunction with productivity.

Space and Support Staff Ratio Analyses

Assessment G included preliminary findings on space and support staff from a separate study conducted in 2015 for VHA assessing the ratio of providers to rooms and support staff for a sample of specialty outpatient clinics at 48 medical centers across the country, with varying complexity levels. This data was collected on behalf of VHA Office of Specialty Care Services, by Grant Thornton and is currently in draft form. In reporting space ratios by aggregate specialty, Grant Thornton received space quantities from nurse managers at the visited facilities and physically confirmed the space quantities. The ratio considers the number of physicians, APPs, residents and fellows that each specialty clinic reported as having against the number of rooms. The total number of providers (physician, APP, fellow, resident) for each specialty was divided by the total room quantities. The full analysis also reports these space ratios at the facility level and up to the complexity level.

In reporting support staff quantities, Grant Thornton interviewed nurse managers at the selected facilities and inquired about the levels of dedicated staff at that clinic. The site visit teams confirmed the quantity of dedicated support staff they observed on that day. The ratio considers LPNs, RNs, Clerks, Technicians, occupational therapists, and PTs as support staff and physicians and APPs as providers. We also present administrative and clinical support staff separately. The site visit teams specifically asked for dedicated support staff as delineated from shared support staff. The ratios were calculated as the total dedicated support staff divided by

the total providers for each specialty. The full analysis also reports these support staff ratios at the facility level and up to the complexity level.

B.2.6   Non-clinical provider time

Section 201(G) of the Veterans Choice Act requests an assessment of "…the time spent by such health care provider on matters other than the case load of such health care provider, including time spent by such health care provider as follows:

(I)   At a medical facility that is affiliated with the department
(II)   Conducting research
(III)   Training or supervising other health care professionals of the Department."

In response, we used data from VHA's cost accounting system, DSS, which is maintained by the MCAO, to report non-clinical provider time. DSS is a managerial workload and cost accounting system that connects labor hours to activity to estimate the cost of providing services. Labor mapping is the method by which labor hours, and the associated labor costs, are assigned to ALBCCs. All physician, APP and dentist time is allocated to ALBCCs classified as Direct Patient Care, Indirect Administration, Research, or Education. Local DSS teams at VAMCs provide self-reported labor mapping data into DSS. We use this data to report the research and training/supervision time.

VHA does not keep central data on the time which VHA providers (who also have appointments at affiliate institutions) spend at those institutions, as these providers are generally paid by the affiliates during this time. In the absence of such data, the Assessment G team surveyed the facilities which it conducted site visits to. We selected one facility as an example to analyze and present this facility as a case study.

B.2.6.1   Definition

Labor Mapping: The method by which VHA labor hours, and the associated labor costs, are assigned to an ALBCC. Each ALBCC is broken into one of the following categories: direct patient care, administration, research, or education. In accordance with VHA Directive 2011-009,[264] those are defined as:

Direct Patient Care time: time to prepare, to provide for, and follow-up on the clinical care needs of patients and includes: time spent in reviewing patient data, consulting about patient care with colleagues, reviewing medical literature, contacting the patient or caregivers to discuss their needs, and the labor hours provided by a physician or dentist who is supervising house staff residents providing care in a clinical setting.

Administration time: Administrative time includes time spent on managerial or administrative duties, generally at the level of the department, service, medical facility, VISN, or nationally, both within and outside VHA. This time for professional staff is

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[264] U.S. Department of Veterans Affairs Health Administration (2011) VHA Directive 2011-009 Physician and Dentist Labor Mapping. Retrieved from http://www.va.gov/vhapublications/ViewPublication.asp?pub_ID=2384

allocated as administrative time. Administration examples are time spent: in support of service-wide administrative activities, such as completing performance reviews, and medical center and VA Central Office reporting requirements; managing a program within a clinical department, service, or hospital; working on service or hospital-wide committees; and serving on state and national committees, advisory boards, or professional societies.

Education time: Education is defined as time spent providing formal training (didactic education). This includes preparation as well as actual classroom or lecture time for educators or presenters. Examples of education time spent are giving conferences in the community or nationally; in a classroom teaching medical school curriculum; in a classroom teaching residents and fellows; in managing a resident, fellow, or other type of student teaching program; and working on medical school committees.

Research time: Research time is defined as time spent performing formal, approved health care research, or in activities in direct support of approved research. Formal, approved research is research that is approved through the hospital's research review process. Support activities include time spent by the investigator in direct support of research activities. Research can be laboratory, clinical, or health services research. However, direct VHA patient care research time must be mapped as direct patient care time when workload is recorded in VistA as an encounter. Examples of Research time spent are working on research projects that have been approved by the local VA medical center Research and Development Committee which does not produce recorded patient care encounter workload in VistA; working in an actual research laboratory or in a controlled setting that involves no direct patient care or treatment; serving on hospital or affiliate research committees; supervising a student's, resident's, or fellow's non-clinical research; writing for publications or grants; attending meetings explicitly related to research activities; presenting papers at research meetings; and sitting on a national study section or grant approving board.

Affiliate: An affiliate refers to an institution with which a VAMC has an affiliation with. Per VHA Directive 2004-066,[265] an affiliation is a relationship between VHA and an educational institution or other health care facility for the purposes of enhanced patient care and education. It may also involve research. VHA and the affiliated educational institution have a shared responsibility for the academic enterprise.

Non-Clinical Time: For purposes of this assessment, this is reported as the overall portion of time VHA providers have labor mapped to all ALBCCs other than direct patient care (administration, research, and education). This includes only working time; it does not include paid time off. It should be noted that there is "non-productive" (non-workload generating) time captured in these ALBCCs; as such, the Assessment G team also qualitatively assessed factors that impact productivity.

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[265] U.S. Department of Veterans Affairs Health Department. (2004) VHA Directive 2004-066 Education Affiliation Agreements. Retrieved from http://www.va.gov/vhapublications/ViewPublication.asp?pub_ID=1198

<u>Time spent at a medical facility that is affiliated with the Department</u>: For purposes of this study, this is reported as the average portion of an FTE that each part time VA provider, from the sampled facility, who has a dual appointment with an affiliate, represents. This data is not statistically significant and therefore not generalizable to the VA provider population.

<u>Time spent conducting research</u>: For purposes of this study, this is reported as the overall portion of that providers have labor mapped to research ALBCCs.

<u>Time spent training or supervising other health care professionals of the Department</u>: For purposes of this study, this is reported as the overall portion of time that providers have clinical time labor mapped to an ALBCC that is designated as education (meaning oversight of residents). While there is a comprehensive and quantitative way to determine provider time spent performing clinical, educational, research and administrative tasks (as defined by VHA), it is difficult to directly calculate the time spent by each provider "training or supervising other health care professionals of the department." According to the Accreditation Council for Graduate Medical Education (ACGME), clinical supervision is defined as "a required faculty activity involving the oversight and direction of patient care activities that are provided by residents/fellows."[266] For the purposes of this assessment, we have assumed this definition of supervision, and have analyzed provider time dedicated to overseeing residents and trainees in clinic, which would be considered part of direct patient care time per VHA's definition.

B.2.6.2   Data Sources

To calculate other non-clinical time, the Assessment G team used the labor mapping data provided by FTE, which is described in the Staffing Levels Methodology section.

B.2.6.3   Assumptions and limitations

One limitation is that the patient care ALBCC time includes several non-workload generating (non-productive) hours which are not spent directly with a patient, such as time completing patient documentation or following up with the laboratory or diagnostics unit for test results. As such, this time cannot be quantified.

The accuracy of VHA's labor mapping and person classification codes (taxonomy), data is currently under study by VHA's Office of Specialty Care Services. This assessment did not study the accuracy of the data and cannot comment on the quality or accuracy of it.

B.2.6.4   Approach

To calculate time allocation proportions, the Assessment G team did the following:

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[266] Accreditation Council for Graduate Medical Education (2013). *Glossary of Terms*. Retrieved at
   https://acgme.org/acgmeweb/Portals/0/PFAssets/ProgramRequirements/ab_ACGMEglossary.pdf

Clinical Time, Administration Time, Research Time, and Supervision Time:

1. From the VHA OPES Labor Mapping Data File, all ALBCCs were categorized into clinical, education, research, or administration categories based on extracting the production unit from the ALBCC. Hours were the basis for these categories.

2. From the VHA OPES Productivity Data File, the FTEs were provided, already split out into the categories listed above. The VHA OPES Productivity Data File FTE information was based on FTEs (not hours).

3. For auditing purposes, the information from the VHA OPES Labor Mapping Data File was matched up to each physician in the VHA OPES Productivity Data File and the hours were converted to FTEs.

4. A basic validation was completed and the labor hours and classifications were determined to be closely correlating with the VHA OPES Productivity Data File FTE information.

5. The FTE Categories and FTE Totals were then multiplied by a leave factor (determined by provider, within the VHA OPES Labor Mapping Data File) to convert from Worked FTEs (as reported in the VHA OPES Productivity Data File) to Paid FTEs.

6. The Paid FTE categories and totals from the above step were then utilized for this time reporting process.

In Figure 2-32, our team calculated the percentage of clinical physician and APP (provider) time out of total paid FTE. The reference line addresses the average of all percentages across the aggregate specialties. Similarly, our team also calculated time devoted to education and research using the same approach as used for clinical time reporting. However, rather than reporting up to the aggregate level, our team reported education findings at the major specialty grouping level (refers to Figure 2-33).

We also analyzed the percent of time spent training or supervising other health care professionals. This analysis is outlined in Figure 2-36. To calculate this metric, our team used the VHA OPES Labor Mapping Data File to identify ALBCCs ending with an "ED" suffix. The suffix indicates a provider is training or supervising time of other health care professionals during direct patient care time. Our team compiled the worked hour totals of the ALBCCs with instances of the ED suffix. We sorted this category of paid hours by physician and location and mapped it to our VHA OPES Productivity Data File In applying this mapping, some clean-up of provider records, primarily relating to duplication was required. Once we had the paid hours corresponding to training or supervising other health care professionals, we divided them by 2080 as our data sets are for a year to determine the Oversight of Residents FTE. The Oversight of Residents per year was grouped into the major specialty groupings and divided by the total FTE for the major specialty groupings. The resulting percentages speak to the percentage of time devoted to the oversight of residents.

Medical Affiliate time:

Following a data call as part of our site visits, we reviewed files received from several sites which were requested to include de-identified paid dual appointees, and their fractional FTE at

VA as well as the affiliate. Upon doing so, it was determined that the data was not in an analyzable or comparable format for most sites. We identified one site, the Durham VAMC, with high quality data, and determined that we could instead use this data as a case study. For the case study, we followed these steps:

1. Converted FTE fractions into hours.

2. Summed hours for VA time.

3. Summed hours for affiliate time.

4. Calculated total hours in data set (sum of all hours).

5. Calculated proportion of VA time and affiliate time, by dividing VA hours by total hours, and affiliate hours by total hours.

6. Calculated total FTE at medical centers included in the data set, using staffing levels data set.

7. Calculated proportion of FTE that are dual appointees (divide VA hours by total hours for the medical centers included in the analysis).

B.2.7 Site Visit Methodology

The Assessment G team conducted site visits to VAMCs and CBOCs to identify VHA best practices, contributing factors and root causes of the differences between VHA provider staffing and productivity and the private sector. Specifically, the site visits addressed two of the five research questions for this assessment:

- If provider staffing and productivity levels differ from the private sector, what are the unique characteristics of VA and the patient population it serves that contribute to these differences?

- How does the unique mission of VA or other factors explain the time spent on activities other than direct patient care within a VA medical facility?

Seven site visits also addressed the supplemental more focused study of nursing staffing practices.

B.2.7.1 Site Visit Selection

VA medical facilities selected for site visits were identified using the following steps and resulted in a sample of 50 facilities:

1. A preliminary random stratification of inpatient facilities, with Veterans Integrated Service Network (VISN) as strata.

2. Random selection of VISNs performed thereafter to further reduce the sample size of the initial output.

3. Chi-square testing on each of the identified variables, in an effort to solidify an equitable distribution of sites to include VISN, urban vs. rural, adjusted admissions, VHA

complexity rating, adjusted length of stay, adjusted patient satisfaction, cumulative access score, and facility age.

4. A review of the subsequent list with internal and external subject matter experts.

5. The team further refined and balanced its site selection to 20 VAMCs, 7 CBOCs, and 2 Community Living Centers (CLCs) based on VHA's three complexity groups. (VHA classifies each medical center into a complexity level from 1A - most complex - to 3 - least complex, based on seven variables: number of patients; case-mix; intensive care unit level; referral center status, such as cardiac surgery center; research capacity; number of medical residents; and breadth of specialty training programs.)

6. We additionally selected seven VAMCs to conduct a more detailed review of nurse staffing practices. The selected facilities included two VA hospitals with Magnet recognition from the American Nurses Credentialing Center (ANCC). We identified these facilities based on a magnet-status, complexity grouping, and presence of inpatient nursing units that were included in the earlier GAO pilot study[267]OR, ED, SCI unit, and Med-Surg.). The purpose of these site visits was to understand best practices and challenges VHA has encountered in adopting VHA Directive 2010-034 Staffing Methodology for VHA Nursing Personnel.

B.2.7.2 Specialty Selection Methodology

The Assessment G team used VHA management reports of provider productivity from the Office of Productivity Efficiency and Staffing (OPES) to identify trends and outliers across each of the specialty groups (e.g., facilities with specialty groups that reported productivity, access, or allocation of provider time well outside VA national averages). Specialty groups identified as outliers were selected for interviews during site visits. Using this approach the Assessment G team interviewed service leaders and providers from highly productive specialties, low productivity specialties, specialties with good Veteran access to care, and poor Veteran access to care. Specialties were selected based on the following criteria and are listed in priority order:

1. (SPARQ) Score

2. Productivity (highest to lowest)

3. Unique Patient Volume (volume of unique patients, meaning the number of individual patients who visited that facility within the most recent fiscal year)

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[267] Government Accountability Office. (2008). VA health care: Improved staffing methods and greater availability of alternate and flexible work schedules could enhance the recruitment and retention of inpatient nurses. (No. GAO-09-17). Washington, DC: Government Accountability Office. Retrieved from http://www.gao.gov/new.items/d0917.pdf

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4. Percentage of All Patients Wait Between 0- 30 Days (proportion of patients who are able to obtain an appointment within 30 days of scheduling)

The number of selected specialties was determined by the facility complexity. For all Complexity 1 facilities, two specialties within each SPARQ score were chosen. Utilizing SPARQ and Capacity data, the Assessment G team selected the specialties and interviewed providers, Service Chiefs, and Administrative Officers. To obtain an understanding of the unique challenges and productivity drivers in a range of settings and resource arrangements, the Assessment G team randomly selected up to one specialty from each SPARQ quadrant (see Figure B-6 and Figure B-7) to obtain a comprehensive understanding of unique challenges and productivity drivers in a range of settings and resource arrangements, allowing the team to speak with optimized practices, under resourced practices, over resourced practices, etc. Collectively, the team sampled a sufficient number of specialties, as well as a sufficient number of optimized practices, potentially under resourced practices, potentially over staffed practices, and inefficient practices. Additional detail about the interview questions is in Appendix C.

Figure B-5. SPARQ quadrant
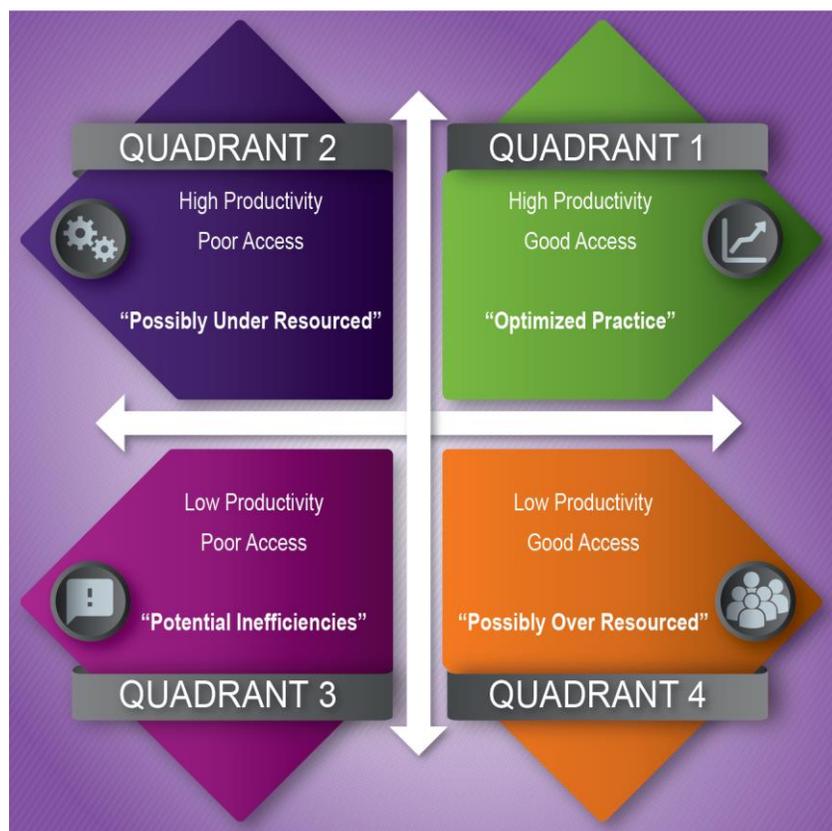
The views, opinions, and/or findings contained in this report are those of Grant Thornton and should not be construed as an official government position, policy, or decision.

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Figure B-6. SPARQ quadrant plot graph
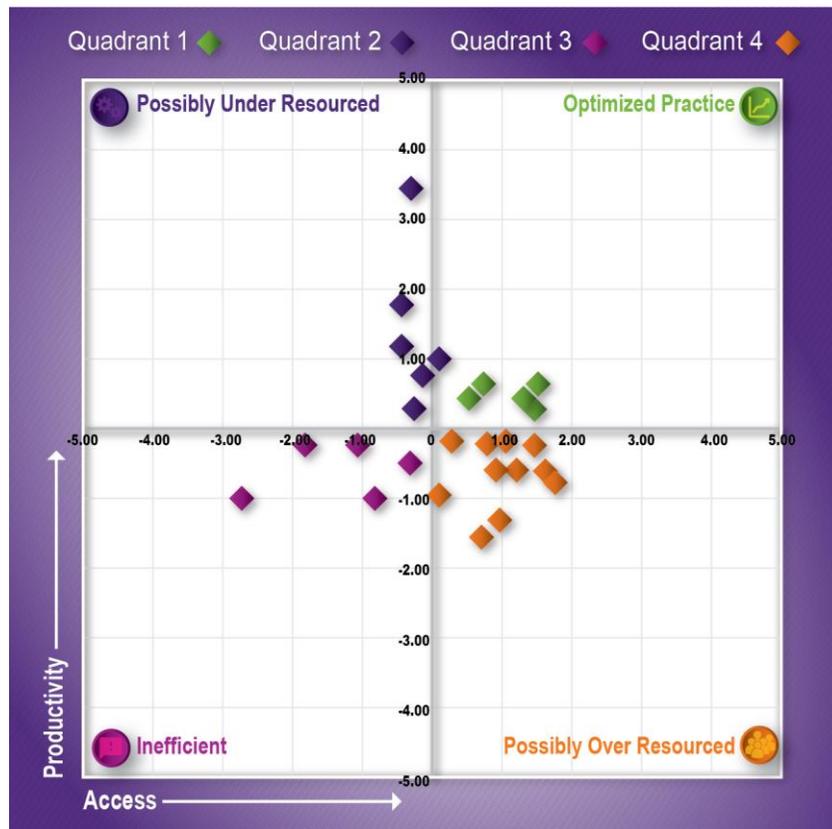
Figure B-7 shows the specialty providers interviewed at each site visit selected. Service leaders and providers from Mental Health, Primary Care, Dentistry, and Physical Medicine and Rehabilitation were interviewed at all VAMCs due to their unique care models and productivity measures.

Figure B-7. Specialty interviews chosen by facility complexity

Site Visit Start Date	VISN	Official Station Name	Complexity	Surgery	PM&R	Internal Medicine	Psychology	Psychiatry	Dentistry	Allergy and Immunology	Cardiology	Chiropracty	Critical Care	Dermatology	Emergency Medicine	Endocrinology	Gastroenterology	Hem/Onc	Nephrology	Neurology	Neurological Surgery	OB/GYN	Ophthalmology	Optometry	Orthopedic Surgery	Otolaryngology	Pathology	Pain Medicine	Podiatry	Plastic Surgery	Rheumatology	Thoracic Surgery	Urology	Vascular Surgery
3-Feb	9	PILOT - Lexington VA	1c-High	✓	✓	✓	✓	✓	✓		✓								✓	✓													✓	
10-Feb	7	Central Alabama VA – Tuskegee	2 -Medium	✓	✓	✓	✓	✓	✓		✓								✓								✓			✓					
10-Feb	16	G. V. (Sonny) Montgomery VA	1b-High	✓	✓	✓	✓	✓	✓		✓		✓			✓	✓			✓							✓							✓	
18-Feb	17	Central Texas VA – Olin E. Teague	1c-High	✓	✓	✓	✓	✓	✓							✓	✓	✓	✓	✓					✓									✓	✓
18-Feb	8	Malcom Randall VA	1a-High	✓	✓	✓	✓	✓	✓		✓		✓			✓								✓		✓			✓					✓	
3-Mar	22	Long Beach VA	1b-High	✓	✓	✓	✓	✓	✓		✓		✓			✓				✓					✓		✓					✓	✓		
10-Mar	18	New Mexico VA – Raymond G. Murphy	1a-High	✓	✓	✓	✓	✓	✓								✓	✓			✓					✓	✓			✓			✓	✓	
11-Mar	6	Durham VA	1a-High	✓	✓	✓	✓	✓	✓		✓						✓	✓	✓				✓		✓							✓		✓	
17-Mar	2	Canandaigua VA	3 -Low	✓	✓	✓	✓	✓	✓			✓								✓							✓	✓							
25-Mar	1	Boston VA – Brockton	1a-High	✓	✓	✓	✓	✓	✓		✓		✓						✓	✓			✓				✓					✓			
25-Mar	3	Northport VA	1c-High	✓	✓	✓	✓	✓	✓		✓		✓	✓					✓	✓	✓									✓					✓
31-Mar	4	Coatesville VA	3 -Low	✓	✓	✓	✓	✓	✓					✓					✓											✓				✓	
7-Apr	11	John D. Dingell VA	1b-High	✓	✓	✓	✓	✓	✓	✓			✓			✓		✓	✓			✓										✓			✓
14-Apr	19	Montana VA – Fort Harrison	2 -Medium	✓	✓	✓	✓	✓	✓				✓			✓											✓					✓			
21-Apr	12	Oscar G. Johnson VA	3 -Low	✓	✓	✓	✓	✓	✓							✓		✓							✓	✓									
21-Apr	23	Fargo VA	2 -Medium	✓	✓	✓	✓	✓	✓							✓	✓	✓											✓						
18-Apr	21	Palo Alto VA	1a-High	✓	✓	✓	✓	✓	✓		✓					✓			✓			✓							✓	✓	✓				✓

Source: SPARQ and Capacity for VISN23.xls provided by MITRE.
Site Visit Team assumes Productivity and Access metrics are accurate and complete for all VISNs. Specialties not reported in the SPARQ report
 (e.g. Specialties with a score of NULL) were excluded from the selection methodology above. Specialties are subject to change as additional data is reviewed.

B.2.7.3   Interview Framework and Strategy

The Assessment G team conducted role-based interviews at VA medical facilities with senior leadership, section chiefs, administrative officers, service chiefs, and providers. The framework for the interviews (See Figure B-8) covered a range of attributes organized into three domains (mission and patient population, practice arrangements, and policy). Interviews with senior leadership were used to understand mission-related factors, productivity drivers, and methods and management reports used to manage staffing and provider productivity across the facility. Interviews with section chiefs, administrative officers, service chiefs, and providers were used to understand unique mission-related factors, patient-related factors, and productivity drivers within their patient care environments. Interviews with senior leadership and other clinic leaders averaged 30 minutes. Interviews with providers averaged 10 minutes. Specific interview questions can be viewed in Appendix C.

Figure B-8. Assessment G site visit framework
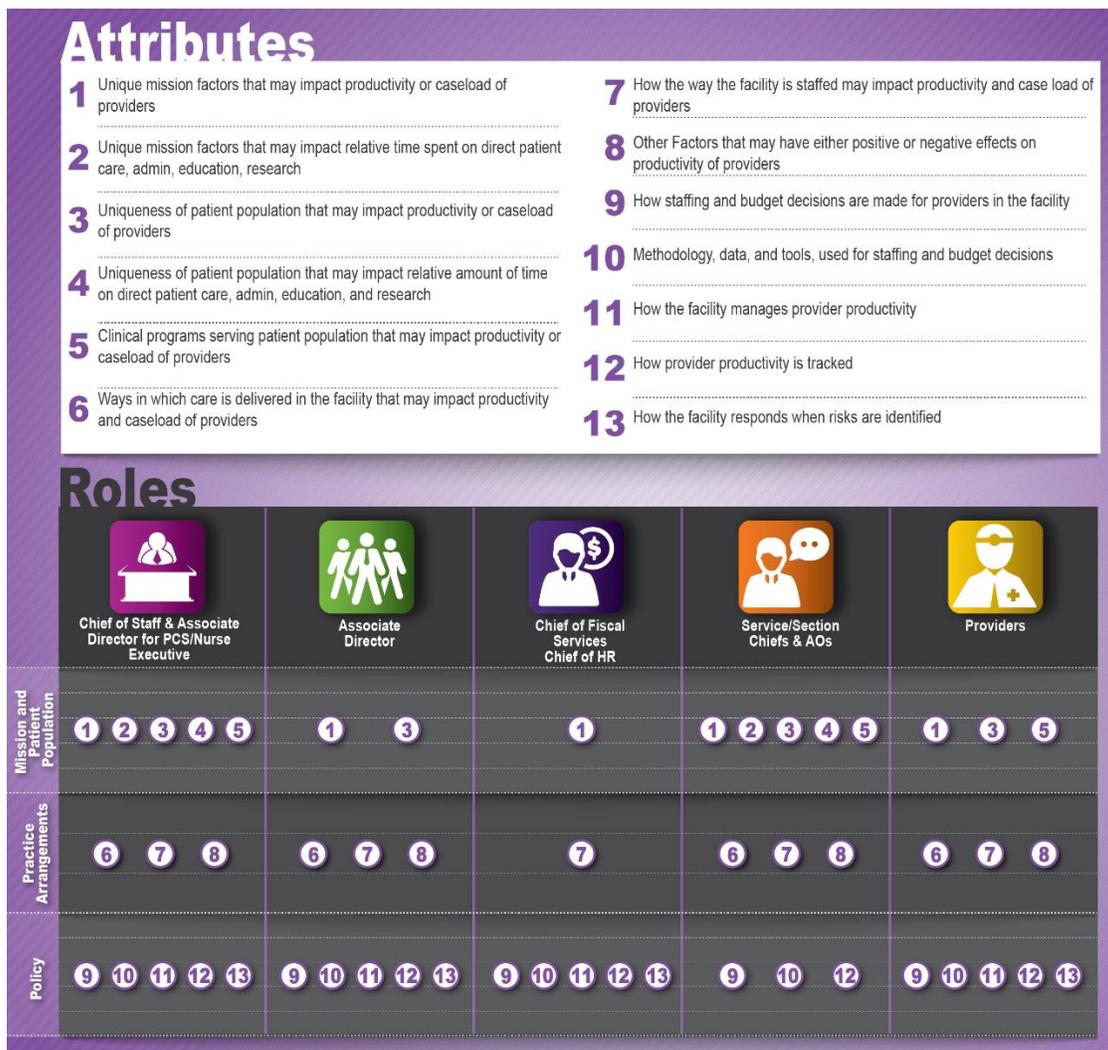
In addition, our nursing practices focused study visited seven VAMCs to understand best practices and challenges VHA has encountered in adopting the VHA Directive 2010-034 nurse staffing methodology, and to identify other nurse staffing methodologies utilized in the inpatient and outpatient settings. Intended interviews at the VAMC facility level included the facility's Chief Financial Office, and the Chief Nursing Executive (CNE) or the Associate Director for Patient Care Services. Interviews for a sample of unit level management were conducted to discover the methodology used and how it was implemented for each nursing unit. Inpatient and outpatient unit level leadership were interviewed during the VAMC site visit.

B.2.7.4   Root Cause Analysis

The Assessment G team used the root cause analysis technique to introduce systems-based thinking into our analysis of potential factors that may explain the differences between VA provider productivity and the private sector. Root cause analysis is a rigorous, systematic approach widely used in health care settings and by The Joint Commission. It is used to develop an in-depth understanding of an issue, problem, or event being investigated and to reach those fundamental reasons why a problem or issue has occurred. It asks a series of "why" questions about a sequence of events or factors involved in a problem until the root causes and contributing factors are identified.

The Assessment G team used the interview results from the site visits to identify those factors that facility leaders and providers believed impacted (either positively or negatively) the productivity of providers. We analyzed the frequency with which these issues were raised by leaders and providers at facilities. We categorized these findings into best practices or potential causal areas to focus on in the root cause analysis. We used these findings to inform our initial understanding of the "who, what, where, how and why" of provider productivity gaps and to develop a preliminary fishbone diagram of the factors impacting provider productivity.

The Assessment G team used the potential causal areas and its preliminary fishbone diagram to identify additional questions to ask facility leaders and providers regarding possible contributing factors, examples and supporting evidence. The team used the "five whys" technique in facility interviews to check the team's logic, eliminate potential causes, refine its understanding of cause-effect relationships, and pinpoint potential root causes.

B.2.7.5   Site Visit Process and Procedures

Each site visit was conducted with the same processes and procedures. The Assessment G team followed pre, daily, and post site visit checklists to ensure that interviews were conducted in a consistent manner throughout the site visit. Interview documentation was uploaded to a SharePoint document platform during the site visit.

B.2.7.6   Pre-Visit Processes and Procedures

Site visits were coordinated through MITRE established channels and in accordance with MITRE site visit planning policies. Several documents, policies, and procedures were established to govern the planning and execution of site visits as part of the Grant Thornton independent assessment. The authoritative source for all site visit planning was the MITRE Veterans Choice

Act Collaboration site, Site Visits page. Documents at this site were continually updated to provide team members with the latest site visit guides and planning calendars.

B.2.7.7   Site Visit Execution

Site visit execution included onsite coordination, interviews, documentation, and debriefs with VAMC and MITRE point of contacts.

B.2.7.8   Post-Visit Distillation of Findings

At the end of each site visit week, the Assessment G team participated in a debrief meeting with MITRE site visit coordinators. This meeting discussed lessons learned and follow-up actions.

The Assessment G team used interview guides and a template to aggregate and categorize interview responses and examples.

Two specific questions were used for creating and indexing categories of potential causal factors. The following question was selected as a primary source for determining priority enablers and inhibitors for productivity and staffing: '*what three things would enable you to be more productive?'* The second question that was selected as a secondary source was: *'what other factors have either positive or negative effects on productivity compared to non-VA health systems?'* The interviewee's response to these questions were indexed into the categories listed in the figures below and subsequently marked with a numeric '+1' or '-1'; the numeric positive or negative sign indicates whether the identified category enabled the provider to be more productive (negative sign), or if the identified category was a current enabler of productivity (positive sign). Qualitative data was indexed to generate analytical categories linked to the private sector.

Grids were developed to track identified categories from each interview. These grids were delineated by management and providers, and were populated by facility, for each interviewee. Team debriefs that transpired for each site visit required a designated analyst to collate all findings for the respective visit, review the data for any inconsistencies, and subsequently finalize the category matrix. The designated analyst was responsible for complete oversight of the category matrix; centralizing this role minimize the number of touches and subjective impact on objective, qualitative findings. Lastly, a final count of each category across the site visit was totaled, in effort to determine trends across each site visit as well as in totality across all site visits. The embedded excel file shows the observational categories from management interviews and shows the observational categories from the provider interviews. Also included in the file are the aggregate results of the provider interviews.

ObservationalCatego rieswithAggregateRes

Appendix C   Interviews, Lists, Questions, Teams

Appendix C provides information surrounding Assessment G interviews, including stakeholder interviews, site visit interviews, and site visit teams. The following interviews were conducted between the dates of December 30, 2014 – May 13, 2015 to support the qualitative data collection of the Assessment G Staffing and Productivity report.

C.1   VHA Stakeholders

Table C-1. List of Assessment G VHA interviewees

Name of Interviewee	Title
Dentistry: *Interview Dates 12-30-2014 and 01-05-2015*	
Patricia Arola, DDS	Assistant Under Secretary for Health for Dentistry
Susan Bestgen, DDS	Director of Operations
Terry O'Toole, DDS	Director, Dental Informatics and Analytics
Greg Smith, DDS	Associate Director, Dental Informatics and Analytics
Mental Health: *Interview Date 01-05-2015*	
Dean Krahn, MD	Director, Office of Mental Health Operations
Jodie Trafton, PhD	Director, VA Program Evaluation and Resource Center
David Carroll, PhD	National Mental Health Director, Program Integration – Acting Director of Operations
DSS: *Interview Date 01-06-2015*	
Eric Burgess	Director, Managerial Cost Accounting Office
Larry Nedzbala	DSS Technical Support Staff
Roger Tillson	VHA MCAO
Primary Care: *Interview Date 01-07-2015*	
Joanne Shear, MS, FNP-BC	Clinical Program Manager
Lisa Skomra	Primary Care Operations Specialist/National
Betsy Lancaster	VSSC Mgmt. & Program Analyst
Freddy Kirkland	Program Analyst

Name of Interviewee	Title
Richard Stark	Executive Director for Primary Care Operations
Gordon Schectman, MD	Chief Consultant, Primary Care Services
Physician Productivity –Specialty Care Services: *Interview Date 01-09-2015*	
Eileen Moran	Director, OPES
Imran Ahmed	CBI NAM Accountant
Lori McDonald	HIM Specialist
Eric Burgess	Director, MCA Office
Michael Doukas, MD	Chief Consultant, Specialty Care Services
Leonard Pogach, MD	Specialty Care Services
Omar Cardenas	Specialty Care Services
Office of Academic Affiliations: *Interview Date 01-12-2915*	
Robert Jesse, MD, PhD	Chief Academic Affiliations Officer
Karen Sanders	Deputy Chief Academic Affiliations Officer
Sheila Jackson	Management Analyst, Academic Affairs Officer
Surgery: *Interview Date 01-12-2015*	
William Gunnar, MD	National Director of Surgery
Geriatrics: *Interview Date 01-30-2015*	
Richard M. Allman, MD	Chief Consultant, Geriatrics & Extended Care Service
Physical Medicine & Rehabilitation: *Interview Date 02-02-2015*	
Lucille Beck, MD	Chief Consultant for Rehabilitation Services
Office of Women's Health: *Interview Date 02-24-2015*	
Patricia Hayes, PhD	Chief Consultant for the Women Veterans Health Strategic Health Care Group
Health Services Research & Development: *Interview Date 02-25-2015*	
David Atkins, MD	Director of Health Services Research & Development
Office of Nursing Services: *Interview Dates 02-12-2015, 03-17-2015*	
Donna Gage	Chief Nursing Officer, ONS
Office of Nursing Services: *Interview Dates: 03-10-2015, 03-31-2015*	
Beth Taylor	ONS Director of Workforce and Leadership

Name of Interviewee	Title
VHA Office of Workforce Management: *Interview Date: 05-07-2015*	
Elias Hernandez	Chief Officer of Workforce and Management and Consulting
VHA Office of Research and Development: *Interview Date 04-10-2015*	
Kathlyn Sue Haddock, RN, PhD	VHA ACOS for Research
VHA VISN Leadership: *Interview Dates 04-07-2015,04-08-2015*	
Amy Smith	Chief Nursing Officer of VISN 16
Judy Finley	Chief Nursing Officer of VISN 7
Portland VAMC Leadership: *Interview Dates 02-27-2015*, *04-22-2015*	
Kathleen Chapman	Chief Nurse Executive at Portland VAMC
Christy Locke	Portland VAMC Data Coordinator
Office of Telehealth: *Interview Date 05-13-2015*	
Carla Anderson, Pamela Stressel	VHA VACO Telehealth Team

C.1.1 Interview Questions for VHA Stakeholders

Table C-2. Questions for VHA stakeholders

Dentistry	Mental Health	Managerial Cost Accounting Office	Primary Care	Physician Productivity - OPES	Office of Academic Affiliations
Please provide a summary profile of VA dentistry providers: FTE, type of providers, locations, FT/PT, staff/contract and fee	What staffing models are currently in place for mental health? Is there a standard staffing model across all facilities? Are any staffing models being tested or piloted?	Can you provide an overview of the MCA system and how it documents and measures time allocation for providers?	How is panel size determined?	What are some of the key challenges in optimizing productivity and staffing?	VA conducts the largest education and training effort for health professionals in the nation. How does VA affiliate with academic institutions? ▪ What are the models for those partnerships? ▪ Is there any standard MOU language used for academic affiliations?
How does VA measure the case load and productivity of VA dentistry providers?	How are mental health services organized at medical centers and clinics?	Does MCA account for variable labor costs and fixed labor costs?	What are the current optimum levels of support staff per PCP and rooms per PCP?	Do you have data on how much time VHA providers spent per patient?	What percentage of VA medical centers have academic affiliations?
Is there any standardized staffing model used for dentistry in VA?	How is productivity measured/calculated for mental health? ▪ How is this monitored?	What changes did the 2013 directive on productivity have on labor mapping? ▪ Are there concerns about the variations in documenting administrative and clinical time?	What are the key challenges associated with optimizing staffing in the field?	Do you have data to support quality measures?	The academic mission of VA is very strong. We understand that every year, over 100,000 residents, fellows, and associated health students receive clinical training in VA facilities. As potential future VHA providers, what are

Dentistry	Mental Health	Managerial Cost Accounting Office	Primary Care	Physician Productivity - OPES	Office of Academic Affiliations
					students/trainees taught so that they are prepared to care for the Veteran population? ■ How are they being prepared to treat Veterans/patients under new care models?
What are the key metrics and performance reports? Please provide us with copies of these reports.	What are the core data streams used to calculate productivity?	How do facilities look at or use MCA data to make resourcing decisions?	Have you compared VA staffing, case load and productivity with the private sector? What were the results?	Have you compared VA staffing, case load and productivity with the private sector? ■ What were the results?	What are the benefits to VA, Veterans, and the community for having strong academic affiliations?
How is each productivity metric calculated?	What are the key challenges with implementing new productivity standards?	Is MCA involved in the operational or functional side of time allocation management? Does MCA analyze or trend time allocation by provider of by facility?	What key elements or factors should we consider in making these kinds of comparisons? ■ What is unique about VA care delivery models/structures?	What key elements or factors should we consider in making these kinds of comparisons? ■ What is unique about VA care delivery models/structures?	Could you tell us about dual appointment providers? ■ How many are there? ■ What do we need to know about dual appointment providers in looking at productivity, case load, and overall staffing in the medical centers?
Where is the productivity data for VA dentistry providers sourced from?	What are the key challenges associated with optimizing staffing in the field?	What are the problems with labor mapping for VHA?	What factors unique to VA impact the staffing, case load, and productivity of VHA providers when compared to the private sector? These factors may	Have you done any comparisons with other government agencies?	How does OAA ensure that residents/fellows are trained to identify the appropriate attending on encounters/notes?

Dentistry	Mental Health	Managerial Cost Accounting Office	Primary Care	Physician Productivity - OPES	Office of Academic Affiliations
			include: mission, policies and directives, patient population served, models of care, practice arrangements, number of support staff, number of exam rooms, clinic configuration, etc.		
Have you compared VA dentistry staffing, case load and productivity with the private sector? What were the results?	Have you compared VA staffing, case load and productivity with the private sector? What were the results?	What are the factors unique to VHA that impact labor mapping or time allocation?	Are there VA medical facilities that are especially good examples of these unique factors?	Care coordination is a big focus. What is your hypothesis about whether this coordination affects productivity?	How does working in a facility with an academic partnership change/affect the provider's day-to-day operations? ▪ How much time, on average, does this take away from direct patient care on a regular basis? ▪ Do you find that providers' productivity is significantly hampered by time spent supervising residents?
What factors unique to VA impact the staffing, case load, and productivity of VA dentistry providers when compared to the private sector? These factors may include: mission, policies and directives, patient	What key elements or factors should we consider in making these kinds of comparisons?	We understand that MCA performs periodic audits of labor mapping in the field. What do these audits entail and what have they revealed?	Can you walk us through the functionality of PCMM? How is PCMM data used at the national or program level?	Does VA have a risk adjusted model that they use?	Are there any, if known, differences in operations or staffing models for facilities with academic affiliations?

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Dentistry	Mental Health	Managerial Cost Accounting Office	Primary Care	Physician Productivity - OPES	Office of Academic Affiliations
population served, models of care, practice arrangements, number of support staff, number of exam rooms, clinic configuration, etc.					
Are there VA medical facilities that are especially good exemplars of these unique factors?	What is unique about VA care delivery models/structures?	Is MCA able to determine if providers have administrative or research funding associated with them?	Contract providers are also tracked in PCMM correct? Are contract CBOCs held to the same panel size standards?	Why not hire more coders?	Have any studies been conducted to compare facilities with academic affiliations to those without academic affiliations?
Are there any specialties that do not perform any general work?	What factors unique to VA impact the staffing, case load, and productivity of VHA providers when compared to the private sector? These factors may include: mission, policies and directives, patient population served, models of care, practice arrangements, number of support staff, number of exam rooms, clinic configuration, etc.	How are support staff accounted for in MCA?	What factors affect the quality of data and performance metrics for VA Primary Care?		Can you provide examples of VA medical facilities with especially strong or unique academic affiliations? ▪ What makes these relationships strong or unique?
Is there a long waiting list for dental care?	Are there VA medical facilities that are especially good exemplars of these unique factors?	Would you like to expand upon the recent hypothesis submitted to MITRE about the reasonable models for measuring productivity?	How is productivity measured/calculated for primary care?		Could you please provide us with a list of facilities that have academic affiliations and any key information about those programs?

Dentistry	Mental Health	Managerial Cost Accounting Office	Primary Care	Physician Productivity - OPES	Office of Academic Affiliations
Do you have the staffing ratios and the number of rooms per provider housed in a general database?		Has MCA conducted any external benchmarking studies on time allocation?			Is there anything we did not address that you would like to share?
Can you send us the slides/reports discussed in today's meeting?		Does MCA data undergo any transformation or enter the CDW before being used in the OPES productivity cubes?			
You created a system that isn't based on CMS. How is the system constructed, and what is the data source?					
How data is captured from a clinician's perspective?					
Do you perform similar studies into large variances in productivity, not just coding?					
Are these reports discussed at national level to address any anomalies?					
When calculating productivity, are you only counting the RVU done directly? Or those which done while overseeing a resident?					

Dentistry	Mental Health	Managerial Cost Accounting Office	Primary Care	Physician Productivity - OPES	Office of Academic Affiliations
Brief demo on how/why some facilities may not show high productivity					
Is there a lot of turn-over among dentists?					

Continued VHA Stakeholder questions.

Surgery	Geriatrics-Palliative	Physical Medicine & Rehabilitation	Office of Women's Health	Health Services Research & Development
If you could give us a history of staffing models in surgery overview and what work is currently underway to standardize staffing models for surgery?	How are geriatrics and extended care services organized at medical centers and associated clinics?	How are PM&R services organized at medical centers and associated clinics? We understand that PM&R can include preventive, rehabilitation, adjustment, and maintenance care through inpatient, residential, and outpatient services.	Women are the fastest growing group within the Veteran population. The number of women Veterans seeking VA care continues to increase. Can you describe the range of services offered to the women Veteran population? ▪ Do these services vary across facility complexity levels? ▪ Vary between facilities and their associated CBOCs?	Is VA required to spend a specific amount of time doing research or are there specific research projects that are mandated? ▪ Are there requirements for (or limits on) the amount research medical centers can conduct?

Surgery	Geriatrics-Palliative	Physical Medicine & Rehabilitation	Office of Women's Health	Health Services Research & Development
What are key challenges associated with optimizing staffing in the field?	We understand that GEC encompasses a number of services, categorized as home and community based services, and those services occurring in the nursing home (e.g., CLC) and residential settings. How does the range of GEC services offered differ across facility complexity levels?	How does the range of PM&R services offered differ across facility complexity levels?	What are the legislative or other requirements for care provision to Women Veterans within VA?	At the provider level, are there limits on the amount of time providers can spend doing research?
Can you name some key challenges to optimizing productivity and staffing?	What are the optimum levels of support staff per geriatrician? ■ Can you explain the Geri-PACT model?	What are the optimum levels of support staff per PM&R provider? Are there any care models specific to PM&R?	Can you describe the optimum levels of support staff per women's health provider to deliver comprehensive primary care services? ■ We understand that this is delivered by a designated women's health primary care provider, who manages a panel of patients.	Do the HRS&D Center annual reports and project final reports have metrics for time spent on research activities? ■ Do you use any particular metrics or data streams to look at staffing and productivity in relation to research activity?
What are key challenges with implementing new productivity standards?	If a geriatrician does not work within a Geri-PACT, how is his/her level of support staff determined. How is caseload determined?	Are panel sizes or teams used in PM&R?	Are target panel sizes per WH PCP established at the local level?	Are there any, if known, differences in operations or staffing models for facilities with research programs?

Surgery	Geriatrics-Palliative	Physical Medicine & Rehabilitation	Office of Women's Health	Health Services Research & Development
Comparison to the private sector: Comparison of VA staffing, case load and productivity with the private sector. If analyses have been conducted, what were the results?	Are panel sizes used in geriatrics beyond Geri-PACTs?	What are the key challenges associated with measuring productivity in PM&R?	What percentage of VA medical centers have Women's Health Centers (WHC)? ■ Can you provide us with a list of facilities with WHC's? ■ Are there metrics that compare care for women Veterans at facilities with WHCs to non-WHC facilities? ■ Are there any, if known, differences in operations or staffing models for facilities with WHCs? ■ Are there certain space requirements for configuring WHCs and other women-focused health care areas?	Have any studies been conducted to compare facilities near HRS&D Centers of Innovation to facilities that do not have local access to these centers?

Surgery	Geriatrics-Palliative	Physical Medicine & Rehabilitation	Office of Women's Health	Health Services Research & Development
Were there factors unique to VA impact the staffing, case load, and productivity of VHA providers when compared to the private sector? ■ These factors may include: mission, policies and directives, patient population served, models of care, practice arrangements, number of support staff, number of exam rooms, clinic configuration, etc. ■ Are there VA medical facilities that are especially good exemplars of these unique factors?	What are the key challenges associated with measuring productivity among geriatricians?	What are the key challenges associated with optimizing PM&R staffing in the field?	"All enrolled women Veterans need to receive comprehensive primary care from a designated women's health primary care provider, irrespective of where they are seen (freestanding medical centers, primary facilities, CBOCs, and independent clinics)." (VHA HANDBOOK 1330.01) ■ Does this impede the ability to get enrolled women health care?	Can you provide examples of VA medical facilities with especially strong or unique research programs? ■ What makes them strong or unique?

Surgery	Geriatrics-Palliative	Physical Medicine & Rehabilitation	Office of Women's Health	Health Services Research & Development
Are there factors affecting the quality of data and performance metrics for VA surgery staffing?	What are the key challenges associated with optimizing GEC staffing in the field?	Have you compared VA staffing, case load and productivity with the private sector? ▪ What were the results?	"A female chaperone must be in the examination room during examinations, procedures, or treatments involving the breast and genitalia, regardless of the gender of the provider." Female chaperones can be health technicians, nurse's aides, Licensed Practical Nurses or a "Female Volunteers". (VHA HANDBOOK 1330.01) ▪ Do "Female Volunteers" usually serve as the chaperones or is it often done by a health tech, nurse aide, or LPN? ▪ Does this impede productivity within medical facilities? ▪ Do optimum support staff levels differ for women's health care providers as a result of this requirement?	There are three main types of HSR&D programs which include: programs that directly support scientific research and development, programs that build health services research capacity within VA, and programs that strengthen VA's health services research infrastructure. Do facilities tend to focus on specific types of research over others? Is the encouragement to pursue one type over another?
Is the use of OPES or SPARQ data used operationally to inform staffing/hiring decisions?	Have you compared VA staffing, case load and productivity with the private sector? ▪ What were the results?	Have you compared VA staffing, case load and productivity with the private sector? ▪ What were the results?	Can you provide examples of VA medical facilities with particularly strong women's health programs? ▪ What makes them strong?	How are research programs organized at medical centers and associated clinics?

Surgery	Geriatrics-Palliative	Physical Medicine & Rehabilitation	Office of Women's Health	Health Services Research & Development
Does surgery use any other internal data sets to measure staffing and productivity?	What are the unique factors of VA (e.g., mission, policies and directives, demographics/population served, number of support staff, number of exam rooms, delivery models/structures) that need to be considered when making these comparisons?	Have you compared VA staffing, case load and productivity with the private sector? ▪ What were the results?	What are the key challenges associated with measuring the productivity of women Veteran health care providers? ▪ Are there requirements or statutes that would either hamper or increase productivity of these providers?	Is there a Field Facility R&D Officer at all facilities with research programs? Can you provide us with the contact information for the officers at the sites we are visiting?
	Our site visit teams will be traveling to a number of facilities, to include VAMCs, CBOCs, and CLCs. Are there particular CLCs that are especially good examples of these unique factors?	Do you use any particular metrics or data streams to look at staffing and productivity at a national level?	What have we not asked that you feel is important for us to know/address?	Most HSR&D Centers have academic affiliations, which tend to indicate higher facility complexity levels. How else do the range of research programs differ across facility complexity levels?
	Do you use any particular metrics or data streams to look at staffing and productivity at a national level?	How is time allocated for PM&R providers to spend time on administrative, research, and training tasks? ▪ How does this impact productivity?		Have you compared the time that VHA providers spend on research activities to providers in the private sector? ▪ What were the results?
	How is time allocated for geriatricians to spend time on administrative, research, and training tasks? How does this impact productivity?	What have we not asked that you feel is important for us to know/address?		Our site visit teams will be traveling to a number of facilities over the next several months. Are there particular examples of HSR&D Centers that we should visit?

Surgery	Geriatrics-Palliative	Physical Medicine & Rehabilitation	Office of Women's Health	Health Services Research & Development
	What have we not asked that you feel is important for us to know/address?			What have we not asked that you feel is important for us to know/address, given the scope of our study?

C.2   Selected Facility Type and Location

Table C-3 shows a list of the selected facilities for Assessment G.

Table C-3. Selected facility type and location

VISN	Official Station Name	City	State	Facility Type
1	Boston VA – Brockton	Brockton	MA	VAMC
1	Causeway VA Clinic	Boston	MA	CBOC
2	Canandaigua VA	Canandaigua	NY	VAMC
2	Rochester VA Clinic	Rochester	NY	CBOC
3	Northport VA	Northport	NY	VAMC
3	Bay Shore VA Clinic	Bay Shore	NY	CBOC
4	Coatesville VA	Coatesville	PA	VAMC
5	VA Maryland Health Care System	Baltimore	MD	VAMC
6	Durham VA	Durham	NC	VAMC
6	Raleigh VA Clinic	Raleigh	NC	CBOC
7	Central Alabama VA – Tuskegee	Tuskegee	AL	VAMC
8	Malcom Randall VA	Gainesville	FL	VAMC
9	Lexington VA – Cooper*	Lexington	KY	VAMC
9	VA Berea Clinic	Berea	KY	CBOC
11	John D. Dingell VA	Detroit	MI	VAMC
11	Pontiac VA Clinic	Pontiac	MI	CBOC
12	Oscar G. Johnson VA	Iron Mountain	MI	VAMC
12	Oscar G, Johnson Community Living Center	Iron Mountain	MI	CLC
16	G. V. (Sonny) Montgomery VA	Jackson	MS	VAMC
16	Michael E. DeBakey VA	Houston	TX	VAMC
17	Central Texas VA – Olin E. Teague	Temple	TX	VAMC
18	New Mexico VA – Raymond G. Murphy	Albuquerque	NM	VAMC
19	Montana VA – Fort Harrison	Fort Harrison	MT	VAMC
20	VA Portland Health Care System	Portland	OR	VAMC
21	Palo Alto VA	Palo Alto	CA	VAMC
21	Palo Alto Community Living Center	Palo Alto	CA	CLC
22	Long Beach VA	Long Beach	CA	VAMC
22	Cabrillo VA Clinic	Long Beach	CA	CBOC
23	Fargo VA	Fargo	ND	VAMC

*indicates pilot site.

C.2.1   Interview Questions for VAMC or CBOC Leadership

The following questions were asked during the onsite visits at VA medical centers. Interviews ranged from twenty minutes to one hour depending on the availability and scheduling constraints of the facility.

Table C-4. Interview questions for VAMC or CBOC leadership

Associate Director	Chief of Staff	Chief of Human Resources	Chief of Fiscal Services	Associate Director for Patient Care Services (Nurse Executive)
What is unique about the mission of VA that may impact productivity of providers relative to non-VA health systems?	What is unique about the mission of VA that may impact productivity of providers relative to non-VA health systems?	What is unique about the mission of VA that may impact productivity of providers relative to non-VA health systems?	What is unique about the mission of VA that may impact productivity of providers relative to non-VA health systems?	How are staffing decisions made by this facility for determining staffing levels for nursing (inpatient, specialty, and primary care)?
What is unique about the patient population served by this VA Medical Center that may impact productivity of providers compared to non-VA health systems?	What is unique about the patient population served by this VA Medical Center that may impact the productivity of providers compared to non-VA health systems?	How does the way this facility/service is staffed impact provider productivity compared to the private sector?	How does the way this facility/service is staffed impact provider productivity, compared to non-VA health systems?	Does your facility use the national nurse staffing model (expert based unit panel) for nursing staffing decisions?
How does the way care is delivered in this facility impact productivity of providers, compared to the private sector?	How does the way care is delivered in this facility impact the productivity of providers, compared to non-VA health systems?	How are staffing and budget decisions made for providers in this facility?	How does the way this facility/service is staffed impact the performance of this facility in meeting the access standard?	How does this facility compare to the staffing indicated by the nurse staffing model?
How does the way this facility/service is staffed impact provider productivity compared to the private sector?	How does the way this facility/service is staffed impact provider productivity, compared to non-VA health systems?	What methodology, data, and tools are used?	Does this facility have an affiliate relationship with an academic teaching hospital and if so, how does this relationship impact the productivity of providers, compared to non-VA health systems?	What are barriers in achieving the nurse staffing levels indicated by the model?

Associate Director	Chief of Staff	Chief of Human Resources	Chief of Fiscal Services	Associate Director for Patient Care Services (Nurse Executive)
What other factors have either positive or negative effects on productivity compared to the private sector?	How does the way this facility/service is staffed impact the performance of this facility in meeting the access standard?	Do you have issues recruiting, hiring, and/or retaining qualified providers at this facility? ▪ Why?	How does the process for purchasing care in the community enable or serve as a barrier to achieving the access to care standards?	What would you change in the model to make it a better tool?
How are staffing and budget decisions made for providers in this facility?	What other factors have either positive or negative effects on productivity compared to non-VA health systems?	Can you provide us the list of providers who are VA employees with a dual appointment?	How are staffing and budget decisions made for providers in this facility?	How does budget allocation at this facility impact the implementation of the national nurse staffing model?
What methodology, data, and tools are used?	How are staffing and budget decisions made for providers in this facility?		What methodology, data, and tools are used?	
How does this facility manage and track provider productivity?	What methodology, data, and tools are used?		How are these decisions made for nursing staff (inpatient, specialty, and primary care)?	
How does the facility respond when productivity issues or inefficiencies are identified?	How are these decisions made for nursing staff (inpatient, specialty, and primary care)?		How does this facility manage and track provider productivity?	
	How does this facility manage and track provider productivity?			
	How does this facility respond when productivity issues or inefficiencies are identified?			
	Can you provide us the list of providers who are VA employees with a dual appointment?			

C.2.2 Interview Questions for VA Providers, Service Chiefs and Section Chiefs

Assessment G team asked the following questions to VAMC providers; Chiefs of Medicine, surgery, primary care, mental health, and dentistry; section chiefs, and AOs during the onsite visits to VAMCs. (Table C-5). Interviews with providers were kept short, between five to seven minutes, to avoid disruption to patient care. Pre-scheduled interviews with Service and Section Leadership were up to thirty minutes in length.

Table C-5. Interview questions for VHA providers, service chiefs, and section chiefs

Providers	Service Chiefs and Section Chiefs
What three things would enable you to be more productive?	What is unique about the mission of VA that may impact productivity of providers relative to non-VA health systems?
How many patients do you see in an average week?	What is unique about the patient population served by this VA Medical Center that may impact the productivity of providers compared to non-VA health systems?
(FOR PCP/DENTAL ONLY) What's your panel size?	How does the way care is delivered in this facility impact the productivity of providers, compared to non-VA health systems?
Do you have a dual appointment with an affiliate university? ▪ If yes, on an average week how do you split your time between the university and facility? ▪ How are your university and facility responsibilities determined?	How does the way this facility/service is staffed impact provider productivity, compared to non-VA health systems?
What other factors have either positive or negative effects on productivity compared to the private sector?	How does the way this facility/service is staffed impact the performance of this facility in meeting the access standard?
	What other factors have either positive or negative effects on productivity compared to non-VA health systems?
	How are staffing and budget decisions made for providers in this facility?
	What methodology, data, and tools are used?
	How are these decisions made for nursing staff (inpatient, specialty, and primary care)?
	How does this facility manage and track provider productivity?
	How does this facility respond when productivity issues or inefficiencies are identified?

Table C-6. Additional Focused Assessment - Nursing Interview Questions

Chief Financial Officer	Nursing Supervisor	Chief Nurse Executive	Systems Redesign Coordinator	Head Nurse Outpatient	Inpatient Nurse Manager
Can you describe the facilities budget allocation process to address the staffing methodology needs?	We understand inpatient units are using the staffing methodology to establish their FTE's. Have you found that the staffing methodology has increased staffing on off shifts?	We understand you follow the nurse staffing methodology for inpatient and primary care for outpatient. Can you describe the nurse staffing model used in specialty care outpatient clinics?	Can you explain how the systems redesign group supports the VHA in organizational transformation?	Does your unit follow the TIDES model where a Mental Health licensed social workers or Psych nurse practitioners work with Primary Care providers to assess patient needs for appropriate care? If yes, why did you implement the TIDES model? What issues occurred that resulted in this implementation? If no, have you encountered issues with patients being referred from Primary Care to the Mental Health clinics?	Has this unit adopted the nurse staffing methodology? (e.g. establishing a unit based panel, using tools such as FTE calculator, metrics such as NDPPD and the minimum replacement factor)

Chief Financial Officer	Nursing Supervisor	Chief Nurse Executive	Systems Redesign Coordinator	Head Nurse Outpatient	Inpatient Nurse Manager
Does your budget accommodate nursing education and/or certifications?	Do you think the inpatient methodology can help VA achieve its goal of adequate nurse staffing? If not, how could this be improved?	Can you describe how this model established adequate staffing for different clinics such as procedural clinics vs. clinics with lower workloads?	Do you support any initiatives related to nurse staffing? If so, can you describe?	What nurse staffing model has the clinic adopted?	For inpatient, if the nurse staffing plans have been approved and require additional nurses, does the budget accommodate these increases? If not, what are the barriers and constraints to funding nurse staffing needs?
What are the barriers or challenges to fully funding nurse staffing levels per the staffing plans? (e.g. VHA Nurse Staffing Methodology, PACT, etc.)	How has the implementation of the staffing methodology impacted patient outcomes?	For inpatient, if the nurse staffing plans have been approved and require additional nurses, does the budget accommodate these increases? If not, what are the barriers and constraints to	We understand the systems redesign group has targeting outpatient specialty care and mental health as a priority in your Access Partnership initiative, can you describe the goal of these efforts?	What guidance do you have to determine your nurse staffing? (Directives, Policies Guidelines)	What are the barriers and constraints to filling nurse staffing vacancies according to the staffing plan needs?

Chief Financial Officer	Nursing Supervisor	Chief Nurse Executive	Systems Redesign Coordinator	Head Nurse Outpatient	Inpatient Nurse Manager
		funding nurse staffing needs?	What impact does this have on nurse staffing?		
	How has the implementation of the staffing methodology impacted nurse satisfaction?	For outpatient, if the nurse staffing plans have been approved and require additional nurses does the budget accommodate these increases? If not, what are the barriers and constraints to funding nurse staffing needs?	Has the systems redesign group assisted in the implementation of the standardized nurse staffing methodology? If so, can you describe how you supported tis effort?	Can you describe the nurse staffing model/method used in specialty care outpatient clinics? (ONLY SPECIALTY CARE)	What are your top three issues to providing adequate nurse staffing?
	Do you use a standardized scheduling database for bed management and staffing allocations for off shifts?	What are the barriers and constraints to filling nurse staffing vacancies according to the staffing plan needs?	Does the system redesign group support any data collection efforts for nurse staffing? If so, can you describe?	Can you describe how this model establishes adequate staffing for different clinics such as procedural clinics vs. clinics with lower workloads?	Does this unit use NHPPD for tracking, monitoring and addressing daily variances?
	What staffing reports are	What are your top three issues to	We understand that space or geography	For outpatient, if the nurse staffing	How does your unit determine

Chief Financial Officer	Nursing Supervisor	Chief Nurse Executive	Systems Redesign Coordinator	Head Nurse Outpatient	Inpatient Nurse Manager
	generated for off shifts? (e.g. to track number of contract nurses, overtime, sick calls, etc.)	providing adequate nurse staffing?	can be a challenge to deliver quality care with in one specific unit or having to deliver care in multiple units. Can you give an example of how you've been able to support nurses having adequate space for providing care?	plans have been approved and require additional nurses, does the budget accommodate these increases? If not, what are the barriers and constraints to funding nurse staffing needs?	the staffing mix?
	What are the top three barriers or challenges that have hindered your ability to adequately staff nurses during off shift hours?	Do you collect any nursing quality metrics in your outpatient clinic? If so, what are they?		What are the barriers and constraints to filling nurse staffing vacancies according to the staffing plan needs?	MED SURGE ONLY – Can you share the staffing grid for Med Surg units that tracks the daily NHPPD to determine what their planned versus actual NHPPD is over a period of time? (e.g. last quarter, months, etc.?)

Chief Financial Officer	Nursing Supervisor	Chief Nurse Executive	Systems Redesign Coordinator	Head Nurse Outpatient	Inpatient Nurse Manager
	What are the top three best practices or success stories that you're most proud of?	How do you compare/benchmark your nursing quality metrics to other VAMCs		What are your top three issues to providing adequate nurse staffing?	How do you compare/bench mark your nursing quality metrics to other VAMCs?
		Do you compare/benchmark your nursing quality metrics to external health care organizations? (e.g. state association or organization such as Mass State HC Association for Nurse Executives)		Do you collect any nursing quality metrics in your outpatient clinic? If so, what are they?	Do you use intermittent staff? If yes, how are you using them to fill temporary vacancies (e.g. sick leave, vacations)?
		Does the facility collect and report their NSI's to the NDNQI®? If yes, what nursing units submit their NSIs to NDNQI®? What database captures these NSIs? (e.g. national vs. local databases)		How do you compare/benchmark your nursing quality metrics to other VAMCs?	Do you conduct daily bed management meetings with all nurse managers to make decisions on staffing needs for that day?

Chief Financial Officer	Nursing Supervisor	Chief Nurse Executive	Systems Redesign Coordinator	Head Nurse Outpatient	Inpatient Nurse Manager
		If no, what are the barriers or challenges to reporting NSIs to the NDNQI®?			
		Are you reviewing Nursing Quality Metrics during your VISN meetings? If yes, are action plans discussed in response to reducing negative outcomes?		Do you use intermittent staff? If yes, how are you using them to fill temporary vacancies (e.g. sick leave, vacations)?	Do you affiliate with local nursing schools to provide potential resources to fill vacancies?
		Do you have a central staffing office that schedules nurses to fill the gaps in the unit schedules?		Do you conduct daily bed management meetings with all nurse managers to make decisions on staffing needs for that day?	Do you establish a nurse residency program?
		Do you use float pools to remediate variances in nurse staffing levels?		Do you affiliate with local nursing schools to provide potential resources to fill vacancies?	Do you provide for cross-training of staff to work in multiple inpatient units

Chief Financial Officer	Nursing Supervisor	Chief Nurse Executive	Systems Redesign Coordinator	Head Nurse Outpatient	Inpatient Nurse Manager
					and outpatient clinics?
		Do you use intermittent staff? If yes, how are you using them to fill temporary vacancies (e.g. sick leave, vacations)?		Do you establish a nurse residency program?	What % of BSNs do RN's have at this facility? What strategies have you put in place to increase the % of BSNs?
		Do you conduct daily bed management meetings with all nurse managers to make decisions on staffing needs for that day?		Do you provide for cross-training of staff to work in multiple inpatient units and outpatient clinics?	What strategies do you use to improve nurse staffing? What strategies do you use to improve nurse satisfaction?
		Do you affiliate with local nursing schools to provide potential resources to fill vacancies?		What % of BSNs do RN's have at this facility? What strategies have you put in place to increase the % of BSNs?	What strategies do you use to improve patient outcomes?
		Do you establish a nurse residency program?		What strategies do you use to improve nurse staffing?	

Assessment G (Staffing/Productivity/Time Allocation)

Chief Financial Officer	Nursing Supervisor	Chief Nurse Executive	Systems Redesign Coordinator	Head Nurse Outpatient	Inpatient Nurse Manager
				What strategies do you use to improve nurse satisfaction?	
		Do you provide for cross-training of staff to work in multiple inpatient units and outpatient clinics?		What strategies do you use to improve patient outcomes?	
		What % of BSNs do RN's have at this facility? What strategies have you put in place to increase the % of BSNs?			
		What strategies do you use to improve nurse staffing? What strategies do you use to improve nurse satisfaction?			
		What strategies do you use to improve patient outcomes?			

Additional questions asked of the Chief Nurse Executive:

1. Does this facility follow the California state mandated nurse ratio?
2. Does this facility use NHPPD for tracking, monitoring and addressing daily variances?
3. Is the nurse staffing mix predetermined with ratios/percentages or does the unit determine the staffing mix?
   o If pre-determined, what method is being followed?
4. If the unite determines the staff mix, is a process used to capture nurse tasks/interventions and map them to nurse roles?
5. Does the facility/unit develop action plans/initiatives to address low Nurse Satisfaction? Are the results of the action plans reported up to the VISN or VACO?

C.2.3   Site Visit Interview Teams

Grant Thornton deployed three teams to conduct VA medical center site visits, beginning February 3, 2015 and ending May 13, 2015. Each team had a team lead, advisor, and analyst. Team leads and analysts were senior executives with advanced experience as former medical center or clinician leaders, well versed in VHA operations. They served as interview leads and were responsible for guiding team when communicating with facility leadership. Analysts were responsible for logistics and documentation, to include coordinating logistics and taking notes as well as documenting information during/after interviews, and conducting interviews as required.

Appendix D   Leading Practices

D.1   Staffing Models

VA Leading Practices

The Southern Arizona VA Health Care System (SAVAHCS) in Tucson, Arizona implemented a locally developed specialty care clinic model, known as "PACT II." Derived from the PACT teamlet model implemented across VHA for primary care, PACT II aims to extend the multidisciplinary team based model to sub-specialties, and create integration between specialty care and primary care.[268] The Director at SAVAHCS implemented the creation of a Triad model for PACT II. "We've developed a Triad and placed key nursing staff with sub specialty medicine, sub specialty surgery, and are in the process of setting up a special procedure unit. That is the "barrier buster" concept which means that Triad in sub-specialty medicine has a position; a nurse and a business service line person and they manage that group so that if staff have issues with a specialty activity, they go to them. They are empowered to address issues such as scheduling or a situation where things aren't working right and someone needs assistance or advice."[269]

Triad members act as mid-level managers between services chiefs and providers and support staff. The leadership at SAVAHCS noted that before the Triad was established, clinics relied heavily on Administrative Officers (AOs) for staffing and other clinic management concerns, resulting in an isolated structure with a presence only where staff shortages were occurring, and limiting visibility. Triad members hold weekly meetings with each other and with service chiefs to discuss on-the ground operations, needs and issues within clinics. Each PACT II teamlet consists of providers (mixture of physicians and primarily NPs), and is assigned one RN, LPN, and MSA for the teamlet. Nurses, while technically assigned to a teamlet, can cover other teamlet clinics if there is unplanned or planned leave. [270]

Figure D-1 illustrates the Triad Governance Model, and relationship with service chiefs and teamlets.[271]

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[268] Arizona Department of Veterans' Service Advisory Commission. Retrieved from https://dvs.az.gov/sites/default/files/Meeting%20Minutes.pdf.

[269] Ibid.

[270] Interview with Mary Ann Mason, Dr. Stephen Thomson and Jeff Schnell, March 24, 2015, VHA Specialty Care Gap Analysis Site Visit.

[271] Ibid.

Figure D-1. Triad governance model[272]
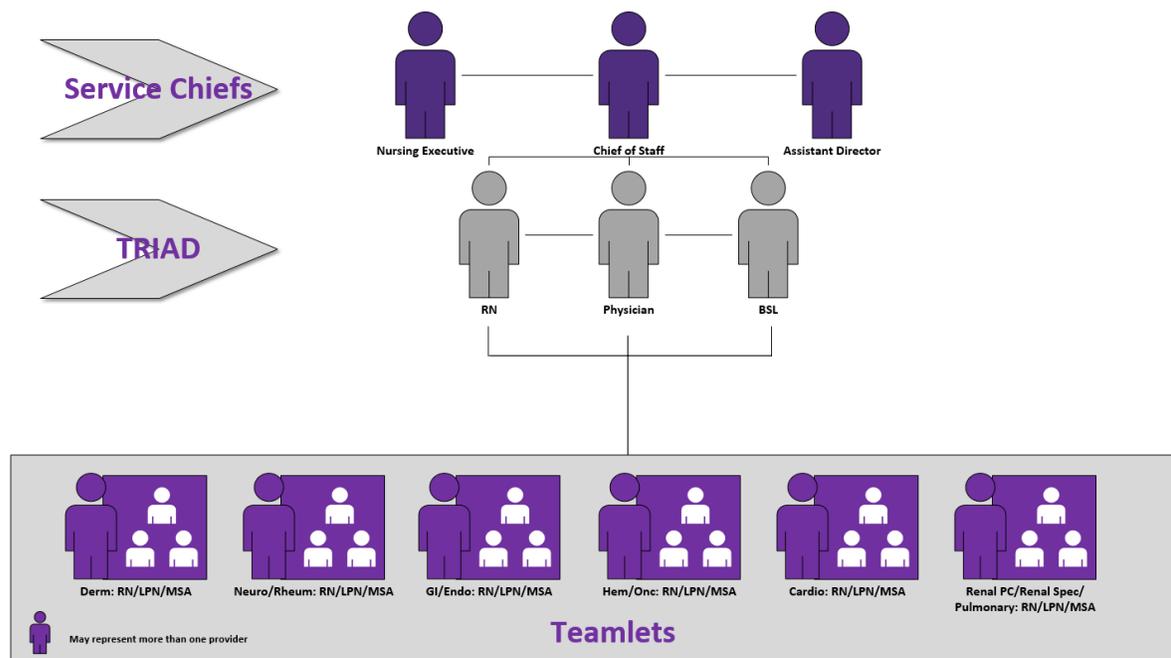
The Triad oversee the operation of the PACT II model (aka Specialty Care Teams). There are 6-7 teamlets in Medical Specialty clinics, organized as follows:

- Dermatology (in the process of splitting into two teamlets, one for procedural, and one for medicine)
- Neurology/Rheumatology (in the process of splitting into separate teamlets)
- Gastroenterology/Endocrine
- Hematology/Oncology
- Cardiology
- Renal Primary Care/Renal Specialty/Pulmonary (in the process of splitting into separate teamlets)[273]

In addition to the PACT II model described above, Triad members believe the implementation of the following has helped with proficiency in the medical specialty clinics:

- E-consults
- Telehealth
- Telephone visits

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[272] Graphic created based on data collected from Grant Thornton specialty Care gap analysis in support of VHA Office of Specialty Care Services.

[273] Interview with Mary Ann Mason, Dr. Stephen Thomson and Jeff Schnell, March 24, 2015, VHA Specialty Care Gap Analysis Site Visit.

- Secure messaging[274]

This is highlighted as a best practice as there are no standard VHA specialty care staffing model. This may be scalable across facilities, but successful implementation depends on the availability of staff with the right skillsets, leadership support, and buy-in from specialty care providers and support staff.

At the Portland VA Health Care System in Oregon, the nurse executive developed a staffing model to meet the support staffing needs of specialty care clinics. Clinics were re-organized with a surgical and medical services structure, where an RN director managed the staffing needs for multiple procedure and non-procedure clinics grouped in shared clinic spaces. Staffing levels were determined by patient volume, patient acuity (workload) and available space across several specialty clinics. Table D-1 is an example of how the Portland VA determined the estimated workload required for each service line to identify nursing and administrative support staff needs.

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[274] Interview with Mary Ann Mason, Dr. Stephen Thomson and Jeff Schnell, March 24, 2015.

Table D-1. Estimated workload required to identify nursing and administrative support staff needs

Category Simple (2-4) to Complex Clinics	2	3	4
Workload specifics for Patient complexity in SC	Liver, Cardio, Pulm, Diabetes, Plastics/Hand, Podi, ENT, Gen Surg, Neuro, Rheum, Seizure, Stroke, Derm, EPO, Renal, NW Pain, Ostomy	INF DX, ALS, Dementia, Geri, MS, Ortho, PAD	Nurse TX, Urology, Vascular, Wound Care, Nail Care, Sulptra
Clinical Reminders	∗	∗	∗
Braces		∗	∗
Position/Walk/orthostats	∗	∗	∗
Vaccine Administration	∗	∗	∗
Patient Training	∗	∗	∗
Xrays, Sutures, Staples	∗	∗	∗
Lab Specimens			∗
Time Outs	∗	∗	∗
Chaperoning	∗	∗	∗
Wnd-Vacs & cath procedures			∗
Admin involvement & room turnover	∗		∗
Utilizing Lift Equipment		∗	∗
Meter downloading	∗	∗	∗

Category Simple (2-4) to Complex Clinics	2	3	4
CBGs for steroid injury		*	*
Patient Education	*	*	*
Complex Wound Care		*	*
Call report to floor Admits/ED		*	*
ED/Casting/Amb Transport	*	*	*
Nurse Contact Time	~15 minutes	~20 to 30 minutes	40 to 60 minutes

This promising practice was developed as Portland's staffing model for outpatient clinics to address a range of factors known to impact provider productivity and patient access, including patient volume, patient acuity (workload) and available clinic space. It also supports staff flexibility because nursing staff is cross-trained to operate in multiple clinics and work at the top of their licensure.

Portland is one of VA's Magnet® Designated facilities that participates in NDNQI®. The Portland VAMC implemented a data verification/reporting process for NSI's that are submitted to NDNQI®. Portland also created an Access Database to track all information related to specific incident for example, a patient fall, hospital acquired pressure ulcers (HAPU), etc. The following depicts the data verification process that this facility created and currently follows for all nursing outcome metrics.

1. Incident occurs (e.g. falls)

2. The nurse on assigned unit completes CPRS episode note to document incident

3. The unit nurse(s) are alerted to complete a Chart Review to determine if the data definition (e.g. NDNQI® criteria) of the incident aligns with the incident that occurred (e.g. determine if the fall was actually considered a fall). Only staff trained on quality metric reviews and data definitions and entering data into the Access Database can perform Chart Reviews. Unit nurses were included in this training to promote ownership among the staff for data collection.

4. After meeting the definition of the incident, the unit nurse sends the incident data to the Patient Safety Officer to add into the Incident Reporting System.

5. Unit nurse enters the chart review incident data into the database that tracks all information related to the incident. Parts of these data elements are submitted to NDNQI®.

The value in submitting complete and verified data to organizations such as NDNQI® allows VAMCs to compare nursing quality performance nationally. Tracking incident information in one database also enables staff to determine root causes of incidents and develop preventative strategies. Our team considers these Portland practices easily replicable in other VA medical facilities.

The Atlanta VAMC is another Magnet® recognized facility that reports their NSI data to NDNQI®. Atlanta's current education level of RN's with baccalaureate degrees is 85.7 percent and exceeds the 2020 goal of 80 percent. The following NSI outcome results in Atlanta's Med-Surg units support Linda Aiken and colleagues 2002 research that higher proportion of nurses holding at least a baccalaureate degree are associated with improved patient outcomes[275]:

- Total patient falls per 1,000 patient days was **less than** the NDNQI® aggregate mean between FY12-FY13
- Overall percent of HAPUs **was less** than the NDNQI® aggregate mean between FY11-FY13
- The Restraint prevalence **was less** than the NDNQI® aggregate mean between FY12-FY13
- The Med-Surg CAUTI rate was **zero** since 2012

The benefit of having RNs with baccalaureate degrees is that it can encourage nurses to remain current on cutting edge concepts, evidenced based practices, innovative technology, or new equipment in maintaining excellence in their practice. Nurses with BSNs and other degrees can also be prepared for driving improvement initiatives and becoming leaders in the organization.

External Leading Practices

The MHS implemented within its PCMH model a measure of PCM or provider continuity. One of the core principles of the PCMH model is that patients have a consistent relationship with the same PCM or Provider who delivers proactive, preventive and chronic care management in a continuous patient-provider relationship. The MHS measures the rate of all appointments in primary care that are with the enrollee's assigned PCM and reports this data through its TRICARE Operations Center. Since PCM continuity was first measured in 2010, PCM continuity has improved from 41 to 60.9 percent in FY2014.[276]

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[275] Aiken, L., Clarke, S., Sloane, D., Sochalski, J. & Silber, J. (2002). Hospital nurse staffing and patient mortality, nurse burnout and job dissatisfaction. *JAMA*, October 29/30, 288(16). Retrieved from: http://www.nursing.upenn.edu/media/Californialegislation/Documents/Linda%20Aiken%20in%20the%20News%20PDFs/jama.pdf

[276] Military Health System Review. (2014). Retrieved from http://www.defense.gov/pubs/140930 MHS Review Final Report Main Body.pdf

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At Kaiser Permanente's Northern California region, staffing models for specialty clinics are provided as guidance to clinics who are empowered to innovate to meet their local needs. There is not a mandated clinical support staff to provider ratio in specialty clinics as the goal is to have dynamic clinics that are innovating around patient care and access, rather than emphasizing fixed behaviors by providers and staff. Clinics are physician centered, but employ NPs and PAs, and clinics and their physician chiefs have the flexibility to determine the optimal mix.[277] Outpatient nursing staff are employed by medical groups and report to the physician leader, rather than a nurse manager, who will direct nursing activities. Independent medical groups typically employ physicians, NPs, RNs, and technicians and have their own managers that oversee the actions of the practice.[278]

At the Mayo Clinic in Rochester, Minnesota, support staff ratios for specialty clinics are typically based on a modeled staff ratio. In a specialty clinic at the Mayo Clinic, you will find physicians, APPs (PAs and NPs), RNs (used more frequently than LPNs), and clinical assistants (CAs). CAs are an important part of the Mayo Clinic staffing approach. They fall on the spectrum between clerk and medical assistant. At Mayo, CAs are responsible for check-ins/check-outs, taking patient vitals, medication reconciliation, gathering patient history and helping patients fill out medical questionnaires.[279] The number of CAs is dependent on multiple factors, including the number of providers, patient volume, and types of procedures. On average, there are 6-8 CAs assigned to a specialty clinic. CAs are managed centrally by hospital Desk Operations, not by the clinics.[280]

Mayo predominately uses RNs as support staff for specialty clinics, but LPNs are used in less procedure-intense clinics because care is not as complex or as specialized.[281] RNs assist in procedures, where LPNs are seen as "super" medical assistants. Surgical outpatient clinics typically have two LPNs to support post-operative care. Nurses are hired and supervised through the Department of Nursing. There is usually 1 RN to 1 or 2 surgeons; the 2 surgeons will switch clinic days off and on and the RN will cover clinic the entire time, ensuring patient continuity of care. Nurses are not shared with other specialty clinics, instead, they are assigned to a specialty/subspecialty clinic, and work with a team of RNs to cover that service for a number of providers. This helps to maintain institutional knowledge of that specialty

To obtain approval for additional support staffing, Mayo clinic managers must submit to an Internal Resource Committee a comprehensive business justification that includes patient volume, consult fill rate, patients per provider and must show that the clinic is on a growth pattern that cannot be maintained with current resources. The clinic must show staff members are practicing to the top of their functional ability provide a cost-effectiveness justification, for example, hiring an RN that could do the majority of the work of an NP.

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[277] Interview with Mary Ann Mason, Dr. Stephen Thomson and Jeff Schnell, March 24, 2015.

[278] Ibid

[279] Ibid

[280] Ibid

[281] Ibid

Many hospitals across the industry have achieved a quality journey designation such as ANCC Magnet® Recognition Program, Baldrige Performance Excellence, and ANCC Pathway to Excellence to drive organizational, staffing and quality improvements. Table D-2 shows some benefits for hospitals and nurses that purse national quality journey designations.

Table D-2. Benefits for hospitals and nurses that pursue quality journey designations

Magnet®[282]	Baldrige[283]	Pathways to Excellence[284]
• Higher nurse satisfaction • Better nurse engagement • Lower nurse to patient ratio • Better nurse retention • Fewer complications • Fewer falls, fewer pressure ulcers, lower mortality • Higher patient satisfaction • Better financial performance and lower cost of care • Shorter length of stay	• Made a personal commitment to lead their organizational transformation • Aligned people at multiple levels to the organization's vision, mission and values • Fostered a culture focused on organizational learning and improvement • Continually motivated, inspired and engaged their workforce • Built a results focus and processes for driving personal and organizational accountability	• Improve nurse satisfaction • Retain choice nursing staff and leaders • Cultivate inter-professional teamwork Support business growth

One criteria included in the Magnet® designation, which aligns with IOM's recommendation, is that hospital RN workforces consist of 80 percent BSN degrees by 2020.[285] The benefit of having RNs with baccalaureate degrees was established in 2002 when Linda Aiken and colleagues first demonstrated empirically that a higher proportion of nurses holding at least a baccalaureate degree were associated with improved patient outcomes such as lower surgical patient mortality and failure to rescue.[286]

D.2   Aligning Organizational Reporting

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[282] ANCC. (2015). ANCC Magnet Recognition Program. Retrieved from: http://www.nursecredentialing.org/magnet.

[283] Baldrige National Quality Program, National Institute of Standards and Technology, Update, October 2008. Retrieved from http://www.baldrige.nist.gov / PDF_files / Update.10_08.pdf.

[284] ANCC. (2015). Pathway Program Overview. Retrieved from: http://www.nursecredentialing.org/PathwayOverview.aspx.

[285] The National Academies of Science. (2011). The Future of Nursing: Leading Change, Advancing Health. *The National Academies Press.* 12. Retrieved from http://www.nap.edu/catalog.php?record_id=12956.

[286] Kutney-Lee, A., Aiken, L. & Sloane, (2013). An increase in the number of nurses with baccalaureate degrees is linked to lower rates of post-surgery mortality. *Health Affiliation Journal* (Millwood). 2013 March; 32(3): 579–586. doi:10.1377/hlthaff.2012.0504

VA Leading Practices

At the Fargo VA Health Care System in North Dakota, MSAs were realigned under the responsibility of a physician leader, the Service Line Chief. According to a Service Line Leader at the facility "MSAs need to be a part of the team." Aligning MSAs under the Service Line Leader helped the Fargo VA Health Care System to better manage the efficiency of its specialty care clinics by increasing coordination and accountability between providers and administrators in managing appointment schedules so that patients were balanced between available providers and patient access to appointments was improved. This represents a best practice as it simplifies reporting relationships, increases accountability, teamwork and responsibility between providers and their administrative support staff. It further reflects a practice that is commonly found in the health care industry.

At the Huntington VA Medical Center in West Virginia, specialties were organized along service lines (groups of related specialty services provided by an interdisciplinary team of providers). Providers, nurse case managers and clinical and non-clinical support staff were aligned under service lines. For example, the Rehabilitation Service Line included a Service Line Chief, Physical Therapists, Occupational Therapists, Speech Pathologists, Nurse Case Managers, and support staff. This represents a best practice since creates a team-based care model in specialty care that includes interdisciplinary providers and their support staff. It represents a practice that is well established in many other health care systems.

External Leading Practices

The Walter Reed National Military Medical Center in Bethesda, Maryland, organizes clinical support staff and administrative staff for each specialty service under a physician service chief, or administrative officer that reports to the service chief, if the clinic is larger. This practice of aligning providers and dedicated support staff under the service chief is designed to promote teamwork, continuity of patient care, and development of specialized care knowledge among all support staff so they can practice at their highest functional level. The nurse executive of the facility maintains professional responsibility over the scope of practice by nurses, but staffing and day-to-day patient care is under the direction of the service chief.

At the Kaiser Permanente Northern California Region, outpatient nursing and administrative staff are employed by the physician-owned Kaiser Permanente Medical Group, not the hospital, and report to the physician leader of each specialty practice. This reporting structure is designed to reinforce teamwork, communication, and accountability to the specialty service. The Director of Nursing guides nurses in their scope of practice, which is required by law. Inpatient support staffing differs from ambulatory services, in that inpatient support staff are employees of the hospital and have different reporting lines to providers, who are employed by the physician-owned Kaiser Permanente Medical Group. Although reporting lines are different, all inpatient providers and support staff are expected to build trusting relationships and work effectively as a team.

D.3 Managing Staff Variances

VA Leading Practices:

At the Fargo VA Health Care System in North Dakota, nurse administrators use several techniques to flex nursing staff to address daily staffing variances across inpatient units and outpatient clinics. These techniques include: designated intermittent staff assigned to specific inpatient units; a certified nursing assistant (CNA) float pool; 0.3 part-time FTE staff scheduled that could flex up to 0.5 FTE to address staffing variances; cross-trained staff to flex across similar units/services; and staggered/overlapping shifts to handle increased patient volume due to admission and discharges (e.g. transition between day and evening shifts). This represents a best practice because it provides proactive strategies to manage staff absences and reduces the reliance on redeploying staff from one unit/clinic to staff another. Float pools represent a practice commonly found in the private sector.

At the Houston VA Medical Center in Texas, nurse administrators use CareWare, a commercially available nurse staffing software to monitor and address daily staffing variances. This staffing software is utilized for nurses and support staff across all inpatient and outpatient care areas. The benefits of this software have been particularly realized in the Med-Surg units, where daily staffing variances are more unpredictable due to patient acuity, patient volume, and other patient needs (e.g. CO's). In the Med-Surg units, nurse managers work with the staffing coordinator(s) to address staffing variances on a shift-to-shift basis. Nurse and support staff schedules are entered and tracked in CareWare. Any unfilled shifts are "red-flagged" so the nurse managers and staffing coordinators know where their vacancies are per shift. Before the end of each shift, the designated nurse manager updates the patient acuity and census in their software, which automatically updates the target NPPD/FTE needs for the next shift. Then the software alerts nurse managers to identify any additional staff needed or extra nurses that could be moved to fill a gap in another unit. Since all of their nurses are cross-trained, nurse managers are able to continuously flex and move their staff to address variances on a shift-to-shift basis.

External Leading Practices:

At Aultman Hospital, an 800+ bed Magnet® facility, implemented a central staffing office and a specialized float pool where financial incentives were provided for part-time nurses to pick up additional shifts. Aultman Hospital's staffing methods have increased nursing autonomy, which has improved nursing satisfaction scores and turnover rates which remain below other Magnet®® hospitals' average turnover rate.[287]

Using a float pool has become a major strategy for health care organizations to help staff the facilities replacement factor for leaves for example, sick call-ins, vacations, or to cover high-volume needs. [288]

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[287] Good, E., & Bishop, P. (2011). Willing to walk: A creative strategy to minimize stress related to floating. *Journal of Nursing Administration, 41*(5): 231-234.

[288] Zuzelo, P. (2010). *The Clinical Nurse Specialist Handbook*. Jones & Bartlett Publishers. Retrieved from: https://books.google.com/books?id=CAakBRDO9SAC&dq=staffing+models+including+a+replacement+factor&source=gbs_navlinks_s

A best practice from the private sector is to have a standardized policy for tracking and monitoring planned (vacation time) and unplanned absences (sick calls) in clinics to minimize the impact of staffing gaps. The policy addresses vacations and paid time off within which vacations need to be reported at least 90 days prior and sick days are reported as soon as possible. An issue for VHA is the overtime policy which states that provider overtime must be compensated in time within a week. For example, if the provider works 4 hours of overtime this week, they are entitled to 4 hours paid time off next week. This causes problems in the efficient scheduling of clinic hours. Using private sector practices, VHA can measure staffing gaps or provider cancelled clinics. These gaps can be compared monthly with how many clinics a provider cancelled against the clinic target (<8 percent). This is helpful to also link targeted direct clinic hours to actual direct clinic hours. Provisions to the policy governing gaps would include a clause that states, for example, every cancelled clinic, the provider needs to make up the clinic within a month, for example.

D.4   Mitigating Space Shortages

VA Leading Practice

At the Boston VA Health care System in Massachusetts, clinic space is at a premium. An average room at the facility is 500 square feet, whereas the industry standard is 1,000 square feet. Outpatient space is small and inpatient areas have four-bed wards. To work around the space shortage, the Boston VA has expanded clinic hours to provide care in the evening and weekends, a strategy rarely used by VA medical facilities to alleviate space shortages for specialty clinics. This is highlighted as a best practice because many VA facilities face a similar space shortage. Since VHA construction projects can take a prolonged amount of time to be planned, designed, and constructed, extending clinic hours is a feasible solution. This best practice can be leveraged across facilities, but successful implementation depends on providers' availability and willingness to take on non-traditional work hours.

External Leading Practices

At the Kaiser Permanente Northern California Region, outpatient specialty clinics have implemented care models that use multiple modes to deliver patient care (face-to-face, telephone, and direct messaging). These multiple modes are important to make the most efficient use of clinic space and to maximize access to face-to-face appointments for first-time patients. Kaiser Permanente has in the past implemented standards where every provider had one office and two exam rooms. However, with the growing use of other modes for delivering care, especially for follow-up patient appointments, they experienced too many underutilized rooms.[289] Kaiser Permanente found that many clinics can achieve exam room rations of two rooms per provider if call centers are used effectively and technology, such as eConsults or direct messaging, is used to provide existing patients with alternate ways to communicate with their provider. For example, today Orthopedics clinics typically have two rooms per provider to

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[289] Interview with Mary Ann Mason, Dr. Stephen Thomson, and Jeff Schnell, March 24, 2015.

reflect a need for more procedures requiring face-to-face appointments, whereas endocrinology often has room ratios below 1.5 rooms per provider due to the greater use of eConsults and direct messaging.[290]

The Mayo Clinic in Rochester, Minnesota has addressed space utilization by moving away from standard room ratios to a utilization standard (percentage of the day that a clinic uses a room). Based upon the utilization metric, rooms can be given to a clinic and taken away based on this standard.[291] Mayo uses a hoteling concept for clinic areas; exam rooms are clustered by hallways and clinics may be in hallway A one day and hallway B the next day. Typically, there are 4 exam rooms per cluster, and providers move back and forth.[292] Physicians have academic offices, APPs and RNs have shared office spaces, LPNs and CAs have workstations in the clinical area, and residents use work rooms in the clinical space.[293] Since the hotel model means that you may be in a different area on any given day, clinical teams work in the centrally located and shared clinical space, and physicians may go to their academic offices when not seeing patients.

D.5 Improving Accuracy of Workload Capture

VA Leading Practices

At the Detroit VAMC in Michigan, facility leaders found productivity within the Nephrology clinic was 12 percent off the national median. They investigated and found that workload within the Nephrology clinic was not being captured accurately. The Section Chief worked with the providers to address the coding issue and productivity increased from 12 to 94 percent. The facility highlighted this success and other clinics, as a result, became more aware of the importance of accurate coding.

This is highlighted as a best practice because many facilities we visited may not be capturing workload accurately, thus inadequately (and negatively) representing their productivity. It is important that clinic leadership and providers participate in understanding the workload capture process, whether or not it represents their true workload, and take an active role in ensuring workload is accurately documented in coding.

Nurses at Fargo and Palo Alto defined an optimal staffing mix by establishing a process to promote nurses to work at the top of their licensure. The first process step was to identify all tasks/patient care interventions conducted per unit/clinic based on patient population. They then mapped tasks to role (e.g. RN, LPN, support staff) and calculated staff mix based on HPPD or task time. Additionally, the nurse managers updated job descriptions to include specific tasks with functional statements. Finally, the nurses conduct education sessions to teach staff how to delegate tasks mapped to non-licensed staff. The value of this process optimized nurse and support staff roles/responsibilities, clarifies delineation of tasks between licensed and non-licensed staff, reduces costs by hiring more support staff, and promoted nurses working at the

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[290] Ibid.

[291] Ibid

[292] Interview with Mary Ann Mason, Dr. Stephen Thomson, and Jeff Schnell, March 24, 2015.

[293] Ibid

top of their license, which results in increased provider productivity by alleviating the provider workload.

External Leading Practices

CACs are increasingly being used by the private sector to improve coding consistency and reduce errors. The AHIMA Foundation and Cleveland Clinic reported the results of a 2013 study of the impacts of implementing CAC software in the Journal of AHIMA.[294] The study found that CAC software, when paired with professional coders, reduced coding time, improved coding consistency, and resulted in fewer missed or incorrect codes over time.

At the Kaiser Permanente Northern California Region, coding is not used for the purposes of billing. Kaiser Permanente uses coding to improve outcomes, track what has been done consistently, generate information about patient care practices that can be correlated to outcomes, drive performance improvements, and accurately report the risk profile/acuity of their patient population to Centers for Medicare and Medicaid Services. Kaiser Permanente does not employ professional coders; physicians code their own patient encounters. Kaiser physicians, for the last five years, have been coding using a proprietary software application, sometimes referred to as "their secret weapon." This application prompts physicians on how to code an encounter, and physicians together decide what they will title each of the operations.

In a recent study, a hospital utilized a clinical database to track and calculate nurse workload measures such as total treated patients, midnight census, and admission, discharges, and transfers. These measures were tracked as a unit activity index to identify nursing workload. These indexes were compared over time, by shift, day of week, and month within the intensive care and medical-surgical units. Between 1994 and 2006, the unit activity indexes increased, which required additional staffing needs. This study showed how using technology can help capture nurse workload to facilitate staffing decisions.[295]

Appropriate skill mix allows nursing staff to work at the top of their licensure, which provides efficiency and optimal leveraging of overhead. Nurses delegating tasks to support staff can streamline their workload to expand their roles and accept added responsibilities and help lighten the providers' workload.[296]

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[294] Crawford, M. (2013). Truth about Computer Assisted Coding: A Consultant, HIM Professional and Vendor Weigh in on the Real CAC Impact. *Journal of AHIMA*. 84, 7, 24-27. Retrieved from http://library.ahima.org/xpedio/groups/public/documents/ahima/bok1_050225.hcsp

[295] Baernholdt, M., Cox, K., & Scully K., (2010). Using clinical data to capture nurse workload: implications for staffing and safety. *Computers Informatics Nursing*. 2010 Jul-Aug; 28 (4):229-34. doi: 10.1097/NCN.0b013e3181e1e57d.

[296] The Advisory Board Company. (2015). For Prospective Members: Achieving "Top-of-License" Nursing Practice. Retrieved from: http://www.advisory.com/research/nursing-executive-center/events/webconferences/complimentary-webconferences/achieving-top-of-license-nursing-practice

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Appendix E   Prior Report, Assessments, and Recommendations

The Assessment G team reviewed prior reports, assessments, studies, recommendations, and investigations related to VHA provider staffing and productivity to make informed decisions for this report's research, findings, and recommendations. Unique VA mission impacts on productivity were surveyed, to include medical research, medical student education, and patient care of the Veteran population.

Reports and recommendations for nationwide VHA physician staffing methodology and physician productivity standards date back to 1981.[297] In 1991, the Institute of Medicine published a report that suggested a methodology for calculating the number of physicians required, by specialty grouping, to meet VA's mission and responsibilities for patient care, education and research,[298] but it was not until January of 2002 that Section 124 of Public Law 107-135 mandated VHA establish nationwide policy to ensure that medical facilities had adequate staff to provide quality care to Veterans.[299] Each VAMC was and still is responsible for its own staffing and productivity measurements based on its facility complexity, local Veteran population, and staffing needs. Specific staffing requirements and standards exist in some settings, namely the inpatient setting, where quality dictates the number of nurses and other clinical support staff required to staff patient beds, and in the ED. In January of 2003, the Deputy Under Secretary of Health for Operations and Management charged a VHA Advisory Group on Physician Productivity with developing productivity models for physicians in VHA.[300] Staying consistent with external benchmark data from the MGMA, this advisory group developed an RVU-based model for measuring the productivity of VHA physicians. In 2007, VHA established the Office of Productivity, Efficiency, and Staffing (OPES) and began using a new, Specialty Productivity-Access Report and Quadrant (SPARQ) tool, developed to serve as a decision support tool for VAMCs to manage staffing by demonstrating possible efficiencies and inefficiencies when access measures and productivity measures are combined. The tool was designed to capture physician productivity workload for physician specialties by measuring workload by work Relative Value Units (wRVUs), number of encounters, and number of

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[297] GAO. (1981). *VA Needs a Single System to Measure Hospital Productivity*. Report No. AFMD-81-23. Retrieved from http://www.gao.gov/products/AFMD-81-23

[298] IOM. 1991. *Physician Staffing for the VA: Volume I*. Lipscomb, J., editor. , ed. Washington, D.C.: National Academy Press.

[299] U.S. Department of Veterans Affairs Health Care Programs Enhancement Act of 2001. P.L No. 107-135, § 124 (2002).

[300] U. S. Department of Veteran Affairs. (2013). VHA Directive 1161 Productivity and Staffing in Outpatient Clinical Encounters for Mental Health Providers. Background information. Retrieved from http://www.va.gov/vhapublications/ViewPublication.asp?pub_ID=2891

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individual patients.[301] The PACT model was formally created in 2009, dictating staffing requirements for primary care clinics.[302] At this time, there still is no standard staffing requirements or models for specialty outpatient clinics.

As physician productivity relies heavily on the support staff (includes clinical, nurses, and non-clinical, such as schedulers and other clerical support) surrounding each physician, it was important for the team to assess the nurse staffing methodology currently in place in VHA. VHA describes its nurse staffing methodology as the process for determining staffing levels based on an analysis of multiple variables to include patient or resident needs, environmental and organizational supports, and professional judgement to recommend safe and effective staffing levels at various points of care. A principal policy document for nurse staffing is VHA Directive 2010-034 Staffing Methodology for VHA Nursing Personnel.[303] It addresses staffing levels at all points of care, including inpatient units, ambulatory clinics, specialty treatment and diagnostic areas, CLCs, home care, and within the telehealth medium.

Within the last decade, the release of reports from the OIG and GAO, a Congressional mandate, and an internal Office of Nursing Services (ONS) study, has prompted the ONS to develop a standardized nurse staffing methodology. To address nurse staffing concerns, VHA Directive 2010-034 was issued in 2010 by the ONS, directing VAMCs to implement a nationally standardized nurse staffing methodology. The intent of VHA Directive 2010-034 is to standardize information data management strategies that facilitate analyses of relationships among staffing numbers, skill mix, care delivery models, and patient outcomes for multiple points of care. The ONS's plan is for each facility to utilize VHA directive 2010-034 to develop their nurse staffing plan(s).

Historically, VHA facilities have received little guidance on staffing for their facilities and have had flexibility to develop local staffing plans, as long as plans fit within their budget requirements. VHA Directive 2009-055, which expired in November of 2014, provided general directions and national assistance for medical facilities on the development, implementation, and review of staffing plans using a combination of "evidence –based professional judgment, critical thinking, and flexibility"(U.S. Dept. of Veteran Affairs Health Admin. 2009, p.1).[304] In June of 2012, a Specialty Care Physician Productivity and Staffing Plan Task Force was asked to further refine the methodology for specialty care physician productivity and staffing. At that

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[301] Witness Testimony of Madhulika Aggarwal M.D., MPH, Deputy Under Secretary for Health for Policy and Services, Veterans Health Administration, U.S. Department of Veterans Affairs. (2013) Retrieved from https://veterans.house.gov/witness-testimony/madhulika-agarwal-md-mph-5

[302] U.S. Department of Veterans Affairs Health Department. (2014) *VHA Handbook 1101.10: Patient Aligned Care Team (PACT) Handbook*. Retrieved from http://www.va.gov/vhapublications/ViewPublication.asp?pub_ID=2977

[303] U.S. Department of Veterans Affairs Veterans Health Administration. (2010). VHA Directive 2010-034 Staffing Methodology for VHA Nursing Personnel. Retrieved from http://www.va.gov/vhapublications/ViewPublication.asp?pub_ID=2274.

[304] U.S. Department of Veterans Affairs Veterans Health Administration (2009).VHA Directive 2009-055 Staffing Plans. Retrieved from http://www.va.gov/vhapublications/ViewPublication.asp?pub_ID=2107.

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time, focus was given to specialties without developed staffing methods. VHA reported, as of March 2013, 54 percent of specialties had standards in place to measure their productivity and efficiency.[305] As of July 2015, 34 of VHA's 35 aggregate specialties have established standards. The standards were based on the median productivity for those practices, by complexity grouping, for the prior year. The only specialty outstanding is anesthesiology, for which a standard is being developed using the American Society of Anesthesiologists Physical Status classification system.[306]

<u>Previous Assessments</u>

To ensure that the Assessment G recommendations are supported by additional reviews, we reviewed several prior reports s related to provider and nurse staffing and productivity in VHA. The reports date back to 1981. Out of the 18 reports, 15 of the reports had direct research and findings on VHA providers, while the remaining contained valuable information for nursing. Recommendations stemming from these previous assessments include 1) establish a uniform method for productivity measurement, 2) create workload and productivity standards for individual specialties, and 3) provide guidance on development and review of staffing models. These provide additional support to the Assessment G findings and recommendations.

Pre 2010-2015: Provider Staffing

Past recommendations:

- Expand and implement staffing models
- Improve the human resources and recruiting process
- Improve organizational structure and alignment

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The views, opinions, and/or findings contained in this report are those of Grant Thornton and should not be construed as an official government position, policy, or decision.

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(Pre-2010) Ind Org.[307], (2010) OIG[308], (2011) OIG[309], (2011) OIG[310], (2012) Internal VA[311], (2012) OIG[312], (2014) GAO[313], (2014) Internal VA[314], (2015) OIG[315], (2015) White House[316]

Pre 2010-2015: Provider Productivity

Past recommendations:

- Maintain agency-wide productivity measurements
- Ensure providers understand the processes
- Implement productivity standards across specialties

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Pre -2010-2015: Nursing

Past Recommendations:

- Implement nurse staffing methodology
- Measure nurse staffing on patient outcomes
- Evaluate and improve recruitment and retention

Organizations:

(Pre-2010) OIG[324], (pre-2010) GAO[325], (2013) GAO[326], (2014) GAO[327], (2015) OIG[328]

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Appendix F   Reviewed Policies, Procedures, and Directives

1. VHA Directive 1063 – Utilization of Physician Assistants (PAs)

2. VHA Directive 1065 – Productivity and Staffing Guidance for Specialty Provider Group Practice

3. VHA Directive 1066 – Requirements for National Provider Identifier (NPI) and Taxonomy Codes

4. VHA Directive 1161 – Productivity and Staffing in Outpatient Clinical Encounters for Mental Health Providers

5. VHA Directive 1663 – Health Care Resources Contracting – Buying

6. VHA Directive 1761.1 – Standardization of Supplies and Equipment

7. VHA Directive 1082 – Patient Care Data Capture

8. VHA Directive 2004-066 – Education Affiliation Agreements

9. VHA Directive 2007-015 – Inter-facility Transfer Policy

10. VHA Directive 2008-056 – VHA Consult Policy

11. VHA Directive 2009-002 – Patient Care Data Capture

12. VHA Directive 2009-038 – VHA National Dual Care Policy

13. VHA Directive 2009-055 – Staffing Plans

14. VHA Directive 2010–010 – Standards for Emergency Department and Urgent Care Clinic Staffing Needs in VHA Facilities

15. VHA Directive 2010-018 – Facility Infrastructure Requirements to Perform Standard, Intermediate, or Complex Surgical Procedures

16. VHA Directive 2010-024 – Changes in Compensation and Pension Examination Reports

17. VHA Directive 2010-027 – VHA Outpatient Scheduling Processes and Procedures

18. VHA Directive 2010-034 – Staffing Methodology for VHA Nursing Personnel

19. VHA Directive 2010-040 – Health Care Resources Sharing with the Department of Defense

20. VHA Directive 2011-005 – Radiology Picture Archiving and Communication System (PACS)

21. VHA Directive 2011–009 – Physician and Dentist Labor Mapping

22. VHA Directive 2011-025 – Closeout of VHA Corporate Patient Data Files Including Quarterly Inpatient Census

23. VHA Directive 2011-029 – Emergency Department Integration Software for Tracking Patient Activity in VHA Emergency Departments and Urgent Care Clinics

24. VHA Directive 2011-032 – Availability of Medical and Surgical Supply Products for Veterans with Spinal Cord Injury/Disorder

25. VHA Directive 2011–037 – Facility Infrastructure Requirements to Perform Invasive Procedures in an Ambulatory Surgery Center

26. VHA Directive 2012-003 – Person Class File Taxonomy

27. VHA Directive 2013-001 – Extended Hours Access for Veterans Requiring Primary Care Including Women's Health and Mental Health Services at Department of Veteran's Affairs Medical Centers and Selected Community Based Outpatient Clinics

28. VHA Directive 2013-006 – The Use of Unlicensed Assistive Personnel in Administering Medication

29. VHA Directive 2014-001 – General Pay Increase and Special Rates Approved Under Title 38 U.S.C. 7455

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Appendix I   Glossary

Ambulatory Care Sensitive Conditions:	Age standardized acute care hospitalization rate for conditions where appropriate ambulatory care prevents or reduces the need for admission to the hospital per 100,000 population younger ha age 75 years.
Business service metrics	Measures of the availability or performance of a business service as provided by an application
Clinic stop	One encounter of a patient with a health care provider. The clinic stop is the workload unit of measure for space planning. One individual patient can have multiple procedures/suite stops in a single visit or in one day.
Complexity level	VA groups its 151 medical facilities into highly complex - level 1a, 1b and 1c, moderate complexity - level 2, and low complexity - level 3, facilities
labor mapping	Each VA provider's time is captured in the DSS system based on the time they spend in each activity. Clinical time, administrative time, education time, training time are all tracked through the DSS system and "mapped" back to the employee.
model of care	A "model of care" broadly defines how health services are delivered, outlining best practice care delivery by applying service principles across identified clinical streams and patient flow continuums.
provider	VA provider, for the purposes of this assessment, is defined as an independent licensed practitioner (Physician Assistants [PA], Nurse Practitioners [NP], Doctor of Medicine [MD], Physical Therapists, Psychologists, Social Workers), taking the Health Resources and Services Administration's [HRSA] definition of independent licensed practitioner to be "a physician, dentist, NP, nurse midwife, or any other individual permitted by law and the organization to provide care and services without direction or supervision, within the scope of the individual's license and consistent with individually granted clinical privileges." Clinical Nurse Specialists are excluded from this definition. The definition of a VA provider includes providers employed full-time by VA. The scope of VHA providers includes inpatient and outpatient care, Primary Care, specialty care, dentists, and mental health care providers. Although contract and fee providers are, in some facilities, a significant proportion of care delivery teams; they are deemed out of the scope of this assessment, due to an inability to quantify staffing levels (full time equivalent [FTE]), or hours worked, as VA does not track this information.

Space gap   Space needed based on the 2023 projected workloads

Space gap as a %   space gap / total projected 2023 need
of need

Telehealth   The use of electronic information and telecommunications technologies to support long distance clinical health care, patient and professional health-related education, public health and health administration. *www.hrsa.gov/**telehealth***

Total projected   Total adjusted inventory + total planned new space
inventory

Total projected   Total projected 2023 need – total projected inventory
2023 need

Appendix J   Acronyms

AAFP	American Academy of Family Physicians
ACO	Accountable Care Organization
ADA	American Dental Association
ALBCC	Account Level Budgeting Cost Center
AMGA	American Medical Group Association
AMGMA	American Medical Group Management Association
APP	Advanced Practice Provider
BHIP	Behavioral Health Interdisciplinary Program
CA	Clinical Assistant
CAC	computer assisted coding
CAMH	CMS Alliance to Modernize Health Care
CBOC	Community Based Outreach Clinic
CDI	Clinical Documentation Initiative
CDW	Computer data warehouse
cFTE	clinical full time equivalent
CLC	Community Living Center
CMS	Centers for Medicare & Medicaid Services
CNA	Certified Nurse Assistant
CNE	Chief Nursing Executive
CPRS	Computerized Patient Record System
CPT	current procedural terminology
ED	Emergency Department
EHR	Electronic Health Record
FFRDC	Federally Funded Research and Development Center
FTE	full time equivalent
FY	fiscal year
GAO	Government Accountability Office
GMENAC	Graduate Medical Education National Advisory Committee
HAPU	hospital acquired pressure ulcers
HBPC	Home-based Primary Care
HHS	Department of Health and Human Services
HMO	Health Maintenance Organization
HRSA	Health Resources and Services Administration
HT	Home telehealth

ICU	Intensive care unit
ID	infectious disease
LMI	Labor Management Institute
LPN	Licensed Practical Nurse
LVN	Licensed Vocational Nurse
MCAO	Managerial Cost Accounting Office
MD	Doctor of medicine
Med-Surg	Medical surgery
MGMA	Medical Group Management Association
MH	Mental Health
MHS	Military Health System
MSA	Medical Support Assistant
NA	Nursing Assistant
NCLEX	National Council Licensure Examination
NDNQI®	National Database of Nursing Quality Indicators
NHPPD	Nursing Hours per Patient Day
NIH	National Institutes of Health
NLC	Nurse Licensure Compact
NP	Nurse Practitioner
NSI	Nursing Sensitive Indicators
OIG	Office of Inspector General
ONS	Office of Nursing Services
OPES	Office of Productivity, Efficiency, and Staffing
OR	Operating Room
ORD	Office of Research and Development
OT	Occupational Therapist
PA	Physician Assistant
PACT	Patient Aligned Care Team
PAID	Personnel and Accounting Integrated Data
PC	Primary Care
PCM	Primary Care Manager
PCMH	patient-centered medical home
PCMM	Primary Care Management Module
PCP	Primary Care Provider
PD	Post deployment
PI	Principal Investigator

PT	Physical Therapist
RBRVS	resource-based relative value scale
RN	Registered nurse
R&D	Research and development
RVU	relative value unit
SAVAHCS	Southern Arizona VA Health Care System
SCI	Spinal Cord Injury
SME	subject matter expert
SPARQ	Special Productivity-Access Report and Quadrant
VA	Veterans Affairs
VACO	VA Central Office
VACI	VA Center for Innovation
VAMC	Veterans Administration Medical Center
VANOD	VA Nursing Outcomes Database
VISN	Veteran Integrated Service Network
WH	Women's Health
WHC	Women's Health Center
WOC	Without compensation
wRVU	work relative value unit

Category	Sub-Category	Chief of Staff	Deputy Chief of Staff
Care Models	Patient-centered care		
Care Models	PACT model implementation & sustainment		
Care Models	Specialty care model		
Data Integrity	Inaccurate workload capture		
Data Integrity	Coding accuracy		
Data Integrity & Capture	Capturing true work effort		
Other	Management & service line leadership turnover		
Other	Additional time dedicated to creating sense of community for patient		
Other	Academic affiliation		
Other	Measurement & management of quality processes and outcomes		
Other	Geography		
Other	Parking		
Other	Morale		
Patient Population	Patient demographics & complexity		
People	Provider licensure		
People	Insufficient clinical support staff		
People	Insufficient non-clinical support staff		
People	Performance improvement		
People	Compensation incentives		
People	Provider staffing		
People	Advanced practitioner support		
People	Recruitment and retention		
Scheduling	Master scheduling		
Scheduling	Appointment no-shows & late arrivals		
Scheduling	Referrals documentation		
Scheduling	Clinic hours of operation		
Space & Equipment	Exam rooms		
Space & Equipment	Equipment availability		
Technology	Electronic Medical Records (CPRS) ease of use		
Technology	Telehealth		

Associate Chief of Staff	Chief, Internal Medicine	Chief, Surgery	Chief, PM&R	Chief, Mental Health	Chief, Dentistry	Chief, Cardiology	Chief of Human Resources	Chief of Fiscal Services	Assoc Director Pt Care Services	Chief, Neurosurgery	Deputy Director	Chief, Medicine	Chief, ICU	Chief, Geriatrics & Extended Care (and providers)	Chief, Opthalmology	Director of Pain Medicine	Chief, Plastic Surgery	Chief, Endocrinology	Chief, Addictive Disorders (Mental Health	Total Count

Category	Sub-Category	Surgery	PM&R
Care Models	Patient-centered care		
Care Models	PACT model implementation & sustainment		
Care Models	Specialty care model		
Data Integrity	Inaccurate workload capture		
Data Integrity	Coding accuracy		
Data Integrity & Capture	Capturing true work effort		
Other	Management & service line leadership turnover		
Other	Additional time dedicated to creating sense of community for patient		
Other	Academic affiliation		
Other	Measurement & management of quality processes and outcomes		
Other	Geography		
Other	Parking		
Other	Morale		
Patient Population	Patient demographics & complexity		
People	Provider licensure		
People	Insufficient clinical support staff		
People	Insufficient non-clinical support staff		
People	Performance improvement		
People	Compensation incentives		
People	Provider staffing		
People	Advanced practitioner support		
People	Recruitment and retention		
Scheduling	Master scheduling		
Scheduling	Appointment no-shows & late arrivals		
Scheduling	Referrals documentation		
Scheduling	Clinic hours of operation		
Space & Equipment	Exam rooms		
Space & Equipment	Equipment availability		
Technology	Electronic Medical Records (CPRS) ease of use		
Technology	Telehealth		

Observational

Categories from Provider Interviews																																		Total Count
Internal Medicine	Psychology	Psychiatry	Orthopedic Surgeon (1)	Orthopedic Surgeon (2)	Urologist	Opthalmologist	PM&R	Pain Medicine	Primary Care	Neurosurgery	Dentist	Surgery	Surgery (2)	Surgery (3)																					

Category
Space & Equipment
People
People
Technology
People
People
Care Models
Scheduling
Space & Equipment
People
Patient Population
Care Models
Scheduling
Care Models
Other
Other
Other
Other
Other
Scheduling
Scheduling
People
Technology
Other
Data Integrity & Capture
People
Other
Data Integrity
People
Data Integrity

Observational Categories from Provider Interviews
Sub-Category
Insufficient exam rooms
Insufficient clinical support staff
Insufficient non-clinical support staff
VA's electronic medical record is slow to use
Insufficient provider staff
Not working to top of provider licensure
Workload associated with prevention/clinical reminders
Centralized scheduling does not optimize available provider time
Equipment unavailable when needed
Difficulties with recruitment and retention
VA patients have more complex health issues
Lack staff to fully implement PACT
Appointment no-shows & late arrivals
Specialty care model
Measurement & management of quality processes and outcomes
Insufficient parking
Additional time dedicated to creating sense of community for patient
Management & service line leadership turnover
Low staff morale
Delays in receiving documentation from referrals
Failure to coordinate clinic hours of operation
Insufficient compensation incentives
Telehealth technology not working
Responsibilities at academic affiliate
Capturing true work effort
Advanced practitioner support
Lack proximity to skilled labor sources
Inaccurate workload capture
Performance improvement
Coding accuracy

Aggregate (%) Count	Total Count (Long Beach)	Total Count (Lexington)	Total Count (Jackson)	Total Count (Gainesville)
	1b	1c	1b	1a
49%	20	6	18	15
43%	15	5	19	11
29%	12	1	10	6
28%	13	1	6	8
24%	6	9	13	12
23%	9	4	6	7
18%	2	5	2	8
18%	9	3	5	4
17%	3	2	11	1
17%	4	3	7	5
16%	5	5	7	3
13%	6	2	6	1
11%	4	2	6	4
9%	2	0	0	3
9%	4	0	0	0
8%	9	0	1	0
8%	1	0	3	0
7%	2	0	2	0
7%	6	2	1	0
6%	7	0	2	0
6%	6	1	2	4
6%	3	0	1	4
5%	0	4	4	1
5%	2	1	5	0
4%	4	0	2	0
3%	2	0	3	0
3%	1	1	1	0
3%	1	0	1	1
2%	1	0	2	0
1%	1	0	1	0

Total Count (Central Texas)	Total Count (Central Alabama)	Total Count (Boston)	Total Count (Canandaigua)	Total Count (Durham)
1c	2	1a	3	1a
25	8	2	9	25
19	9	6	0	15
13	9	6	1	13
7	2	3	2	12
7	3	3	1	2
13	1	5	4	12
9	0	1	4	5
16	3	0	3	2
1	3	2	0	6
5	3	7	1	5
11	4	2	2	4
4	3	0	0	1
5	2	2	1	5
0	2	1	0	12
0	1	0	0	15
1	0	2	0	12
2	0	0	2	8
6	3	1	0	0
1	2	1	0	4
5	1	2	1	0
1	0	0	0	1
2	1	1	1	1
1	0	1	0	3
0	0	0	0	6
1	0	2	0	0
0	0	1	0	0
1	3	0	0	1
0	1	2	0	2
0	0	1	0	1
0	1	2	0	0

Total Count (Albuquerque)	Total Count (Coatesville)	Total Count (Northport)	Total Count (Detroit)	Total Count (Iron Mountain)
1a	3	1c	1b	3
16	1	8	4	1
21	5	7	8	2
9	5	2	6	0
22	2	3	7	0
16	2	1	2	2
4	3	0	3	1
8	7	4	1	3
8	5	1	3	0
9	2	5	5	1
6	1	5	0	2
6	1	1	2	0
4	3	3	2	1
2	1	0	1	0
5	1	1	3	0
3	1	2	2	0
0	0	3	0	0
2	4	2	0	0
7	1	0	0	0
5	0	1	0	1
1	0	0	0	0
4	1	0	0	0
1	0	0	1	2
4	0	0	0	0
1	0	1	0	0
3	2	1	0	0
2	2	0	0	0
0	0	0	0	0
1	0	0	0	0
0	1	0	1	0
0	0	0	0	0

Total Count (Palo Alto)	Total Count (Fargo)	Total Count (Ft Harrison)
1a	2	2
3	7	6
6	3	1
5	2	4
4	5	3
1	1	3
0	3	5
2	2	2
0	2	0
4	2	4
3	2	1
4	0	0
1	5	3
3	0	2
0	2	1
0	3	0
0	0	0
2	1	0
0	0	3
0	0	0
0	1	2
2	0	0
2	0	0
0	1	0
0	1	0
0	0	0
0	0	1
1	1	0
0	0	0
0	0	0
0	0	0

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Section 201: Independent Assessment of the Health Care Delivery
Systems and Management Processes of the Department of Veterans
Affairs

Assessment H (Health Information Technology)

September 1, 2015

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Preface

Congress enacted and President Obama signed into law the Veterans Access, Choice, and Accountability Act of 2014 (Public Law 113-146) ("Veterans Choice Act"), as amended by the Department of Veterans Affairs (VA) Expiring Authorities Act of 2014 (Public Law 113-175), to improve access to timely, high-quality health care for Veterans. Under "Title II – Health Care Administrative Matters," Section 201 calls for an Independent Assessment of 12 areas of VA's health care delivery systems and management processes.

VA engaged the Institute of Medicine of the National Academies to prepare an assessment of access standards and engaged the Centers for Medicare & Medicaid Services (CMS) Alliance to Modernize Healthcare (CAMH)[1] to serve as the program integrator and as primary developer of the remaining 11 Veterans Choice Act independent assessments. CAMH subcontracted with Grant Thornton, McKinsey & Company, and the RAND Corporation to conduct 10 independent assessments as specified in Section 201, with MITRE conducting the 11th assessment. Drawing on the results of the 12 assessments, CAMH also produced the Integrated Report in this volume, which contains key findings and recommendations. CAMH is furnishing the complete set of reports to the Secretary of Veterans Affairs, the Committee on Veterans' Affairs of the Senate, the Committee on Veterans' Affairs of the House of Representatives, and the Commission on Care.

The research addressed in this report was conducted by The MITRE Corporation.

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[1] The CMS Alliance to Modernize Healthcare (CAMH), sponsored by the Centers for Medicare & Medicaid Services (CMS), is a federally funded research and development center (FFRDC) operated by The MITRE Corporation, a not-for-profit company chartered to work in the public interest. For additional information, see the CMS Alliance to Modernize Healthcare (CAMH) website (http://www.mitre.org/centers/cms-alliances-to-modernize-healthcare/who-we-are/the-camh-difference).

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Executive Summary

Assessment H (Health Information Technology) responded to language in Title II, Section 201, of the Veterans Choice Act of 2014 that mandated an independent assessment of "the information technology strategies of the Department with respect to furnishing and managing health care, including an identification of any weaknesses and opportunities with respect to the technology used by the Department, especially those strategies with respect to clinical documentation of episodes of hospital care, medical services, and other health care, including any clinical images and associated textual reports, furnished by the Department in Department or non-Department facilities."[2]

To gain comprehensive insight into Department of Veterans Affairs (VA) health information technology (IT) and the strategies that guide its implementation, the Assessment H team conducted 185 interviews in the course of site visits to Veterans Integrated Service Networks (VISNs), VA Medical Centers (VAMCs), and community-based outpatient clinics (CBOCs), as well as VA's Office of Information and Technology (OI&T). The team also reviewed plans, reports, audits, and protocols procured from OI&T and the Veterans Health Administration (VHA), as well as external reports and journal articles relevant to health IT and complex system development. Further, the team compared its observations and findings against lessons learned and best practices identified by executives, administrators, clinicians, and IT professionals at high-performing private health systems. Because IT touches nearly every aspect of operations at VHA, the data gathered by Assessment H generally support the qualitative evidence related to IT collected by the other assessments.

Findings

Several decades ago, VA led the development of electronic health record (EHR) technology with its Veterans Health Information Systems and Technology Architecture (VistA) system and Computerized Patient Record System (CPRS). Most VHA clinicians have a high opinion of the clinical applications and databases enabled by VistA and CPRS, as well as VA's newer technologies such as telehealth and mobile applications (apps). Numerous Assessment H interviewees attributed the success of the early VistA and CPRS development efforts to the close working relationship between VistA/CPRS developers and clinicians. This collaboration seems to have degraded with the centralization of IT in 2006, resulting in uncoordinated execution of health IT strategy and limited development of new and improved capabilities for VistA/CPRS. During the past decade, VistA and CPRS development has been confined to point solutions and minor enhancements.

Clinical users have become increasingly frustrated by the lack of any clear advances during the past decade. Numerous VHA clinicians have experience with commercial EHR systems and want the same level of features, modern clinical capabilities, integration, and mobility they see emerging in the commercial marketplace.

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[2] United States. Congress. Veterans Access, Choice, Accountability, and Transparency Act, 38 U.S.C. § 1701 (2014) (Pub. L. No.113–146, 128 Stat. 1754).

VHA and OI&T do not collaborate effectively with respect to the planning and execution of IT strategies for managing and furnishing health care. Although the goals of OI&T and VHA do not conflict at the strategic planning level, the organizations often do not agree on priorities for executing the strategic plans.

During the past decade, VA's ability to deliver new capabilities for its VistA system to meet changing Veteran health care needs has stalled. As a result, VA/VHA health care systems are in danger of becoming obsolete. The VistA/CPRS systems are based on a tightly integrated, monolithic architecture and design with numerous and diverse functional components and associated interdependencies. These characteristics impose significant barriers to modernizing these systems. In addition, the high cost of infrastructure operation and maintenance (85 percent of the total IT budget) reduces funding available for new development efforts.

Maintenance and data sharing are further complicated because most VAMCs have customized their local versions of VistA, leading to approximately 130 different instances of VistA across the country.

Overly demanding processes for system development, as defined by OI&T's Project Management Accountability System (PMAS), impede cost-effective delivery of new health IT capabilities and limit VA's ability to measure the value of IT investments. The PMAS process is schedule driven and risk averse, leading many project managers to limit the amount of functionality in each release, thereby increasing the total time for any capability to be released.

The lack of standard clinical documentation has made it harder to develop effective clinical decision-support systems and hinders EHR information exchange among VAMCs, between VA and non-VA facilities (including those of the Department of Defense [DoD]), and between VA and the individual Veteran. The lack of data standards presents challenges to using comparable data for analysis and disparities among the 130 tailored local instances of VistA, complicating information sharing, data aggregation, and analytics. The outdated technology underlying VistA weakens VHA's ability to leverage powerful new technologies for extracting information from free-form text, processing genomic data and images, and extracting and analyzing data from personal health monitoring devices.

While VA has successfully developed and deployed telehealth capabilities and mobile apps, it does not effectively assist end users of these technologies, and it does not match the pace of the commercial marketplace. VA's support for telehealth users (patients and clinicians) is weak, understaffed, and poorly integrated with IT systems. In addition, barriers associated with providing VISN-to-VISN telehealth make optimizing the caseload across VISNs more difficult, creating unnecessarily long waits for care in certain regions. VA has the opportunity to apply mobile technology at a low price point, but the previously mentioned issues with the PMAS process prevent VA from realizing the strategic value of mobile technologies as an enabler of both Veteran access and Veteran satisfaction.

Recommendations

VA/VHA must resolve IT challenges comprehensively, targeting solutions to the entire system rather than seeking to solve isolated problems. To their credit, many leaders within OI&T and VHA, as well as administrators, health information management and IT professionals, and users at the facility level, recognize the need to address these issues. This report describes a future vision for VA/VHA as a high-performing health care system and a continuously learning health system that implements enterprise IT service management best practices.

At the strategic level, VA and VHA need to transform IT strategy, planning, and execution in a systematic manner with dedicated executive-level leadership. Specifically:

The VA chief information officer (CIO) should select a CIO for VHA to manage and advocate for VHA's IT needs and assist in transforming the VA IT strategy to a model based on enterprise IT service model standards and best practices. The VHA CIO acts primarily as an advocate and facilitator between OI&T and VHA to ensure both organizations are successful in meeting health IT needs. The VHA CIO will not move IT operations to VHA nor decentralize the organization. This involves taking the following actions, explained in more detail in this report:

- The VHA CIO should facilitate the requirements collection and prioritization within VHA with final approval provided by the VHA Under Secretary for Health and establish IT service level agreements that are mutually acceptable between OI&T and VHA and optimize the services for effectiveness.
- Refine the planning and budgeting process to ensure that business needs are effectively identified, prioritized, funded, and used to drive health IT investments.
- Develop a governance policy to ensure the strategic plans are executed well and in a timely manner.
- Establish product (capability)-focused teams to ensure delivery of needed capabilities to users.
- Refine VA's development process from a document-and-schedule focus to a delivery focus.

The VHA CIO, in partnership with the VA CIO, should oversee a comprehensive cost-versus-benefit analysis among commercial off-the-shelf (COTS) EHRs, Open Source EHRs, and continued in-house custom development of the VistA EHR currently in use. The analysis should take into account all the complexities of the VistA/CPRS architecture and infrastructure and known issues with performance, scalability, extensibility, interoperability, and security. It should also address full life-cycle costs, including development time (based on recent delivery trends), availability of development resources, maintenance and licensing costs, and infrastructure costs. The VHA CIO should participate in the VHA requirements collection to fully understand strategy and needs. Prioritization and final approval will be provided by the VHA Under Secretary for Health (USH).

The VA and VHA CIOs should conduct site visits and review the successful IT practices implemented at high-performing health care systems (including VISN 4), to inform their

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strategies for effective approaches and potential contributions that IT can provide to improve the treatment of Veterans today.

The VA CIO and VHA CIO should report to Congress at the end of fiscal year 2016:

- Evidence provided by both VHA USH and VA CIO that the VHA CIO serves as an effective advocate for the IT needs for health care delivery. This should include, but not be limited to, a description of the requirements for an effective health care management system that annually provides advancement to VHA mission and goals.
- Actions taken and evidence that OI&T acts as a service provider and delivers IT capabilities and IT services that improve health care delivery to Veterans. Evidence should include results of clinician and Veteran surveys confirming the quality of and satisfaction with the newly delivered capabilities and services.
- Results of the cost-versus-benefit analysis between the COTS, Open Source, and VistA EHRs.

VA should implement a broad process, inclusive of clinicians, to pursue requirements that support clinical documentation best practices and improved functionality and usability while considering the positive aspects of existing systems. Although providers can continue to leverage the free text capability available in the current EHR, it must be augmented with discrete, structured data capture using industry standard definitions to increase the interoperability with other systems inside and outside of VHA. This is especially critical due to the increased use of non-VA care.

VHA should accelerate efforts to establish semantic definitions for data elements through the use of standard nomenclatures, terminologies, and code sets. By doing so, VA can ensure consistency and integration across multiple systems, leverage follow-on IT products, and facilitate analytics for clinical decision making.

VA/VHA should assess the effectiveness of analytical products in driving health and business outcomes. They should identify and recommend improvements needed in the information systems that serve as the sources of the data to improve the reporting capabilities. VA/VHA should track actions taken as a result of the analytical products and quantify how effective those actions were in improving health and business outcomes.

To provide greater access through telehealth technology and reduce the number of Veterans who abandon these services, VA should offer technical support to Veterans, should make testing a connection between Veterans and providers easier for all parties, and should better integrate telehealth technologies across VA medical facilities and VISNs. Assisting Veterans with using this technology should improve the Veteran experience and reduce health care costs. VA should also address the challenges that complicate telehealth appointments between VISNs.

VA should explicitly identify mobile applications as a strategic enabler to increase Veteran access and satisfaction and help VHA transition to a data-driven health system. Mobile technology could effectively leverage patient-generated data to augment the data captured in the EHR to feed the learning health system.

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1   Introduction

Published reports of long wait times for medical appointments, accusations of Veterans dying while waiting for care, and evidence of "secret" waiting lists prompted Congress to pass the Veterans Access, Choice, and Accountability Act of 2014 (hereafter the "Veterans Choice Act"). Section 201, Title II – Health Care Administrative Matters, of the Veterans Choice Act, called for an independent assessment covering 12 aspects of the health care and other services that the Department of Veterans Affairs (VA) delivers to the nation's Veterans. This report documents the results of Assessment H (Health Information Technology [IT]). As directed by Section 201, Assessment H focused on:

> The information technology strategies of the Department with respect to furnishing and managing health care, including an identification of any weaknesses and opportunities with respect to the technology used by the Department, especially those strategies with respect to clinical documentation of episodes of hospital care, medical services, and other health care, including any clinical images and associated textual reports, furnished by the Department in Department or non-Department facilities.[3]

1.1   Scope

Assessment H examines VA health IT on two levels, where the first level plays a critical role in the success of the second level:

1. **IT Strategies:** The methods, processes, objectives, and metrics used to plan, implement, operate, manage, and measure health IT capabilities and technologies for Veterans.

2. **Health IT Capabilities and Technology:** Computerized systems, applications, databases, and other IT for delivering and managing Veteran health care.

VA's overarching strategic plans and roadmaps include descriptions of IT investments and expected outcomes, emphasizing Veteran health and satisfaction. These VA strategic plans should provide direction for VA and Veterans Health Administration (VHA) health IT strategies. These plans should identify health IT investment priorities and associated outcomes that form the basis for planning, implementation processes, and value measurement of resulting health IT clinical applications and new technologies. Assessment H focuses on these health IT strategies and resulting health IT capabilities and outcomes. Assessment H also identifies links to other Veterans Choice Act assessments that examine management applications related to health IT. The Assessment H study covers the electronic health record (EHR), scheduling, clinical documentation, and informatics and analytics. In addition, it examines the new technologies of telehealth and mobile applications (apps). The assessment does not include general aspects of the infrastructure, such as architecture, networks, performance, and reliability. Figure 1-1 summarizes Assessment H's scope.

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[3] United States. Congress. Veterans Access, Choice, Accountability, and Transparency Act, 38 U.S.C. § 1701 (2014) (Pub. L. No.113–146, 128 Stat. 1754).

Figure 1-1. Assessment H Scope
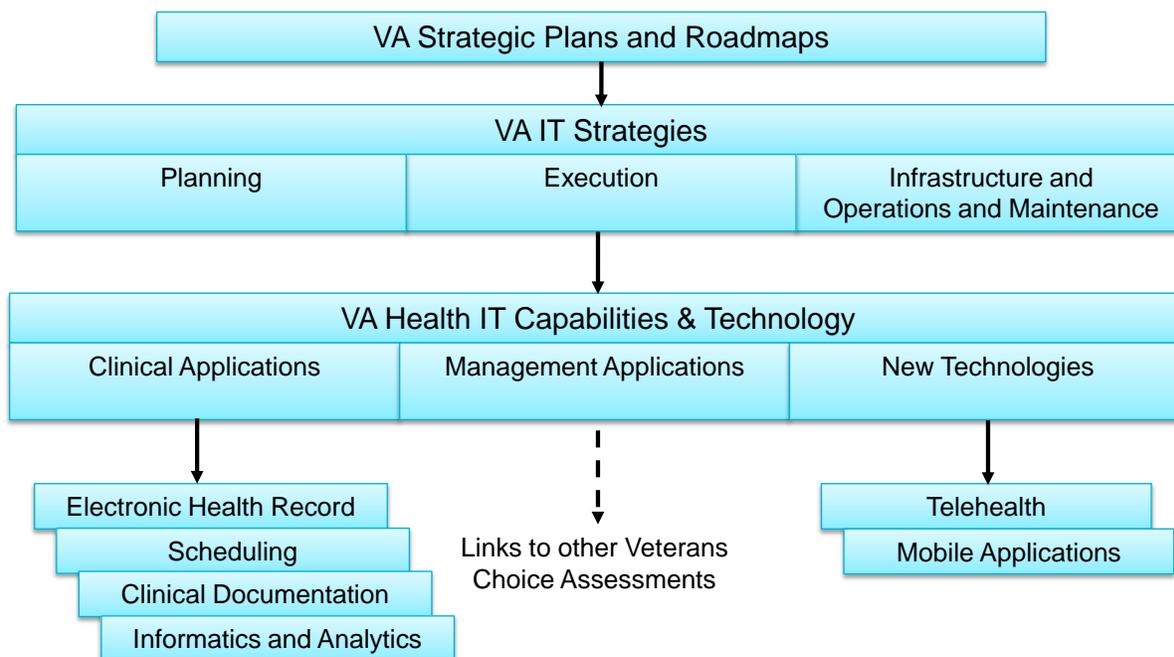
1.2 Document Organization

Following this introductory section, Section 2 explains the methodology applied to conduct the Assessment H study on VA health IT. Section 3 summarizes VA's strategic plans and roadmaps, focusing on direction in those plans for improving outcomes in Veteran health through improvements to VA IT strategies and implementing advanced health IT capabilities and technology. Section 4 addresses VA's strategies for delivering health IT capabilities and technology. Sections 5–8 describe VA's major clinical applications, including the EHR, scheduling, clinical documentation, and informatics and analytics. Sections 9 and 10 describe new VA health IT technologies: telehealth and mobile applications. Sections 4–10 also present findings and recommendations relevant to the topics examined.

Section 11 outlines a future vision for transforming VA into a high-performing health care system (based on a current VHA exemplar), a learning health system, and an organization that applies industry best practices for enterprise IT service management across the life cycle of all its IT systems.

Appendix A contains white papers developed as part of Assessment H to capture detailed descriptions of VA's IT strategies and underlying software infrastructure for health IT. This information supplements the findings in Sections 4–8. These white papers address:

- VA Project Management Accountability System (PMAS)
- VA/VHA IT infrastructure and operations and maintenance (O&M)
- EHR/Veterans Health Information Systems and Technology Architecture (VistA).

Appendix B contains additional white papers developed as part of Assessment H to support analysis of current and future VA/VHA IT strategies and health IT capabilities and technology. These white papers cover:

- Industry outreach
- Common failure and success factors for large-scale EHR systems
- Return on investment (ROI) in health IT.

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2   Methodology

To evaluate VA's IT strategies and health IT capabilities and technologies, the Assessment H team collected qualitative data through 185 interviews—117 during site visits to six Veterans Integrated Service Networks (VISNs), 11 VA Medical Centers (VAMCs), and two community-based outpatient clinics (CBOCs)—and the other 68 during visits to Office of Information and Technology (OI&T) and VHA leaders. The team reviewed more than 200 artifacts (strategic and operational plans, reports, audits, and protocols) procured from OI&T and VHA and more than 100 external reports and peer-reviewed journal articles to derive comparative information on topics such as IT expenditures for private sector health systems, IT implementation success and failure factors, and related issues.

The Assessment H team compared its observations and findings against lessons learned and best practices gathered from chief information officers (CIOs) known for their innovation and industry leadership (15 interviews), as well as executives, administrators, clinicians, and IT professionals at high-performing health systems (The Permanente Medical Group, Cleveland Clinic, and Geisinger Health System). In addition, as noted, the team linked its findings to those of other assessments in the present series.

2.1   VA/VHA Health IT Evaluation Process

The Assessment H team used the data collected from site visits, interviews, and document reviews to identify and document findings based on insights, observations, and evaluation of detailed technical data. The team then derived recommendations to address the findings related to VA/VHA IT strategies and health IT capabilities and technology.

2.2   Interviews

2.2.1   VA/VHA Staff

The Assessment H team developed specific lines of inquiry during semi-structured interviews with staff at VA/VHA sites. The interviews gathered a wide spectrum of stakeholder perspectives on topics from planning to outcomes. Interviewees played a representative variety of roles at centers and sites and included:

- Leaders of OI&T and VHA who develop the IT visions and strategies (planners)
- IT professionals who design, develop, and implement information systems, technology, and architecture (builders)
- Clinicians who use health IT (users).

The team conducted its interviews over the telephone or in person at the VA Central Office (VACO) and during site visits to VISNs, VAMCs, and CBOCs. Appendix C lists sites visited by the Assessment H study team.

Assessment H considered the generic roles of planners, builders, users, and others. To ensure that the team could gather honest and candid information from the interviewees, team members assured interviewees that no comments would be directly attributed to them.

However, for evidentiary purposes, the team had to tie comments made by the interviewees to certain roles so that the weight of their comments could be taken in the context of those roles. Among the different types of interviewees, the team chose the roles of planners, builders, and users. Table 2-1 illustrates the role categories aligned to critical health IT functions and the rationale for their inclusion in Assessment H interviews.

Table 2-1. Role Categories Mapped to Assessment H Interviews

Critical IT Aspect	Stakeholder Category	Description
Planning *Business Focus*	**Planners**	Involved in strategic planning; business requirements analysis; prioritization and allocation of resources (funding and/or staffing). Examples include the VA CIO; VHA directors and management; OI&T directors and management.
Execution *Technology Focus*	**Builders**	Involved in IT/software requirements analysis; development project planning and execution; software development, integration, testing, and deployment. Examples include PMAS project managers, software development project leads, software developers, and so on. Involved in development and operations (DevOps) activities and the sustainment of IT assets, including software applications, in the deployment environments (e.g., data centers, Clinical Operational Environments, and so on.).
Using the System *Patient Focus*	**Users**	Staff at VAMCs and sites, including directors, Chief of Medical Operations, clinicians, schedulers, and so on.

2.2.2 Chief Information Officers

The team interviewed CIOs from both health care and non-health care institutions who were selected because they had developed and implemented innovative IT solutions. They provided valuable insights, lessons learned, and best practice IT strategies. Their input, summarized in a white paper on industry outreach in Appendix B, helped the team to compare VA's IT effectiveness with that of the private sector.

2.3 Document Reviews

2.3.1 VA/VHA Artifacts

The Assessment H team reviewed VA-level strategic plans, health IT strategic plans, health IT business requirement documents, and internal assessment reports related to IT strategies and health IT capabilities and technologies.

2.3.2 External Documents

The Assessment H team reviewed the following types of external documents for specific purposes.

- **Assessments and Audits** from sources such as the VA Office of the Inspector General (OIG), Government Accountability Office (GAO), and the Office of Management and Budget (OMB) contained numerous previous findings that could be compared to the Assessment H team's findings and recommendations to determine VA/VHA progress toward remedying identified problems over the years.

- **IT Spending Profiles and Health Care Quality/Performance Metrics** yielded basic insights into costs, benefits, and software development results for comparison to VA/VHA information.

- **Software Quality and Development Efficiency Metrics** presented measurements that could be used to establish OI&T's and VHA's ability to develop, test, integrate, deploy, and sustain quality software and obtain the desired outcomes efficiently and cost effectively.

- **Published Case Studies of IT and Health IT Projects**, representing a large collection of peer-reviewed and grey literature, identified critical success and common failure factors based on analysis of numerous health IT and non-health care IT projects.

2.4 Findings and Recommendations

The *GAO High Risk* series (GAO, 2015a) calls attention to more than 100 recommendations for VA health care that have yet to be resolved in five areas, including IT. This strongly suggests that developing more pairs of findings and recommendations would not prove particularly effective, especially since many of the Assessment H findings are consistent with existing recommendations from oversight organizations such as GAO or VA's OIG. Thus, rather than match recommendations to specific findings, many Assessment H recommendations are combined to provide a more holistic approach to resolving findings in this report.

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3 VA Strategic Plans and Roadmaps

3.1 IT Investments for Veteran Health Outcomes

VA's strategic planning documents and roadmaps are generally acceptable products. These documents and roadmaps articulate desired business and Veteran health outcomes based on IT investments in terms of: (1) improved Veteran access to care; (2) better care for Veterans; (3) better Veteran health; (4) improved Veteran health care experience; (5) increased Veteran satisfaction; and (6) increased cost effectiveness of VA and VHA health IT. Of these outcomes, VA considers Veteran health and satisfaction as important measures of effectiveness and success of health-related IT strategies and resulting health IT capabilities and technologies produced by these strategies.

Figure 3-1 illustrates relationships among the most significant VA strategic planning documents and roadmaps.

Figure 3-1. Relationships Among VA Strategic Planning Documents

Source: MITRE summary of interview data and documentation relationships outlined in the VHA Health Information Strategic Plan; Information Resources Plan; VA, 2014c; and VA, 2015c.

VA's strategic planning documents are comprehensive in terms of the IT topics they address and generally reflect similar goals, objectives, and outcomes. However, they do not consistently inform, align, and support each other. For example, in many cases, multiple levels in the VA

organization develop independent strategic plans with limited alignment with one another, resulting in competing or conflicting priorities for the same funding. Although these documents represent an ambitious approach to strategic planning for a large, complex enterprise, they also create a need to coordinate and orchestrate 70 goals and 156 objectives as well as an additional five goals and 14 objectives reflected in the *Federal Health IT Strategic Plan (2015– 2019)* (VHA, 2014a). Successfully executing all these plans would prove challenging for any organization.

3.2   VA Centralization of IT Organization

In 2006, the current OI&T became a centralized component of VA and was assigned responsibility for delivering, operating, and managing IT capabilities across the department. The division of health IT responsibilities and concerns between VHA and OI&T has created a situation where each has its own values and priorities, and these may diverge. For example, improving the quality, safety, and efficiency of health care delivery and management is the top priority for VHA but not necessarily for OI&T, which is also responsible for delivering IT capabilities to other major VA organizations.

3.3   Execution of Strategic Plans

OI&T and VHA struggle to identify, prioritize, and translate clinical goals and strategic initiatives reflected in VA's overarching planning documents into buildable, testable health IT requirements that result in measurable health care outcomes for the Veteran. Although the goals of OI&T and VHA do not conflict at the strategic planning level, the organizations often do not agree on priorities for executing the strategic plans.

4   IT Strategies

VA introduced the Project Management Accountability System (PMAS) in 2009 to improve its strategies and processes for delivering IT capabilities. VA Directive 6071, issued February 20, 2013, mandated the use of PMAS in all IT projects (VA, 2013d). PMAS requires that projects be completed in increments not exceeding six months and be validated and accepted by the customer. This time-bound requirement aligns with OMB guidance designed to reduce investment risk, deliver capabilities more quickly, and facilitate the adoption of emerging technologies (OMB, 2012). This guidance states, "All projects (regardless of whether they use modular development principles) must produce usable functionality at intervals of no more than six months." Section A.1 of this Assessment H report provides a more detailed review of PMAS.

4.1   Findings

The PMAS Guide 5.0 (VA OI&T 2014e) documents the current IT life-cycle management process, governance mechanisms, participant roles and responsibilities, and reporting requirements. PMAS is supplemented by ProPath, a repository that contains the detailed artifacts, processes, and procedures to execute PMAS (VA, 2015h). ProPath also includes more than 400 documents and templates to assist project teams, 60 of which are deemed essential to support PMAS milestone reviews. A web-based PMAS dashboard presents an authoritative view of all PMAS data, giving senior leaders visibility into the current status of projects. VA submits PMAS dashboard data to the Federal IT Dashboard via the OMB 300B process.

Finding 4.1.1: VHA and OI&T are not effectively collaborating with respect to the planning and execution of IT strategies for managing and furnishing health care.

Effective planning starts with clear business objectives, which case studies have consistently identified as a critical success factor for IT projects (see Section B.2.4). Conversely, lack of clear business objectives is a top failure factor (Standish Group, 2011). Ineffective collaboration between VHA and OI&T has limited VA's ability to establish and communicate clear business objectives to ensure IT investments align with its health care objectives. During Assessment H interviews, 28 of the 62 planners and builders (or 45 percent) in OI&T and VHA (e.g., CIO, director-level, deputy-level, chief-level, lead, senior adviser, program manager, project manager) provided unprompted comments about the problems with collaboration and communication.

Effective IT planning requires clear goals and objectives to guide the schedules and resource allocation needed to successfully execute the plans. The large number of goals, objectives, and measures listed below obscure the highest priorities:

- At least 70 goals and 156 objectives in VA/VHA/OI&T strategic planning documents
- An additional five goals and 14 objectives in the Federal Health IT Strategic Plan (VHA, 2014a)
- Currently 382 measures in its 10-N National Measures Report (see Assessment L [Leadership]).

When asked about these planning documents, key OI&T leads referred to the documents as "dated" and "useless," noting that "the value of our documents is very questionable." Regarding collaboration, key OI&T leads indicated they were not aware of VHA's *Blueprint for Excellence* at all or had heard about it only on the day it was published.

VHA stakeholders offer a different perspective regarding requirements. VHA provides business requirement documents, but Assessment H could find no evidence of communication between the VHA and OI&T teams to confirm that the technical requirements reflect or are updated to reflect the business requirements through agile development. The Assessment H team found no evidence of a joint health care architecture or a joint IT investment management process to improve their communication and collaboration. This also relates to VA OIG findings (OIG, 2015c) on cyber security, which identified ineffective communication with field offices as a reason for the inconsistent adherence to cyber security policies.

Many Assessment H interviews revealed perceptions that a risk-averse culture and a lack of trust between OI&T and VHA undermine effective collaboration. Of the 185 individuals interviewed, 88 (or 48 percent) volunteered statements that indicated some degree of discord between OI&T and VHA. These perceptions apply equally to both VHA and OI&T leaders. Neither organization appeared solely responsible for the lack of clear communication and collaboration, but poor collaboration clearly curtails the ability to plan and develop new IT capabilities to assist clinicians and Veterans.

Finding 4.1.2: VA's project management and execution processes are document centric, emphasize schedule over results, and fail to deliver capabilities called for in VHA health care strategies.

During Assessment H interviews, 15 of 46 planners (33 percent) and 17 of 26 builders (65 percent) indicated that, although PMAS improves accountability and transparency, it has become overly complex and burdensome and reduces project success rates. Both planners and builders indicated that process-focused meetings and documentation consume a significant percentage of each six-month increment, along with several months required for contracting. Interviews with OI&T leaders indicated they recognize these issues and have a working group assessing ways to simplify the process.

The complexity of PMAS, conveyed in Figure 4-1, creates excessive overhead for small projects, lowering the effectiveness of rapid prototyping and other means of increasing technical innovation. "Project Management" and "System Development" are two of the primary process areas described in PMAS. The Project Management process consists of 71 separate activities and the System Development process involves 91 activities to produce deliverables or artifacts required to design, develop, test, and implement a solution. Assessment H interviewees indicated that PMAS overemphasizes schedule while accommodating little evaluation of the quantity or quality of functionality delivered. As a result, many project managers include less functionality in each increment to ensure that they meet their schedules.

Figure 4-1. PMAS and ProPath Complexity
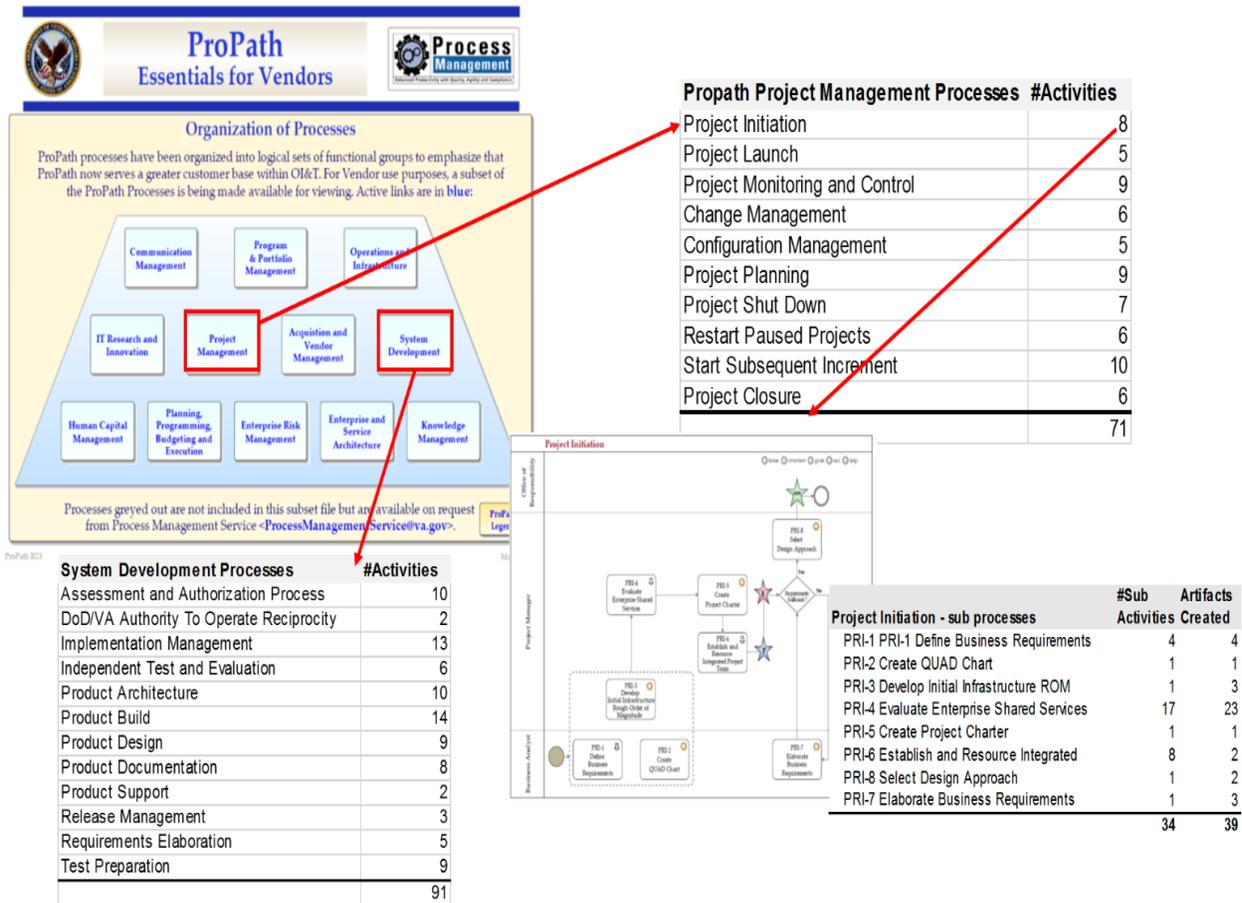
Source: Graphics from VA, 2015h.

Agile development approaches typically generate frequent modifications to project artifacts such as the Requirements Specification Document and the System Design Document, leading to redundant reviews for the same project. PMAS guidance indicates that tailoring might allow smaller projects to reduce the documentation required. Unfortunately, Assessment H interviews uncovered cultural reluctance to tailoring. Each modification involves extensive reviews and burdensome documentation requirements.

PMAS limits projects to a 24-month duration. Even if business requirements remain unfilled, managers must close the project and initiate a new project to deliver the remaining functionality. Although projects can request two-month extensions, longer term projects potentially require multiple cycles of initiations and closeout. Thus, while this approach reduces the risk of long project overruns, complex projects may require repetitive startup and closure documentation and activities. The PMAS process for achieving Initial Operational Capability (IOC) and release (depicted in Figure 4-2) identifies more than 61 separate activities and provides another example of the high overhead incurred by PMAS.

Figure 4-2. PMAS Mandatory Activities

Pre-IOC	IOC	Release

Pre-IOC

Development Activities:
- EDE Training, EDE ETS, EO Perf, & Vista Installs (1 week); Smoke Tests (1 week)
- ETS Testing & Defect Development/Test (4 weeks)
- EO Performance & 508 Testing (1 month)
- Security Testing – WASA, SwA V&V w/Fortify & Nessus scans and remediation (1 month)
- EO Performance, 508, & Security Testing (4 weeks)
- Proxy/Dev Accounts Created & Tested (2 weeks)
- EO Pre-Prod install and smoke test (2 weeks)
- IOC Test VistA Install (1 week)
- Pre-Prod Testing (3 weeks)
- ESE Training Development & dry runs (8 weeks)

PMAS & ProPath Activities:
- Complete/updates to RSD, SDD, OAP (8 weeks)
- SEDR Review Process (8– 12 weeks)
- ID Test Sites; Complete MOUs (2 – 3 weeks)
- Testing Intake Assessment; Independent Testing
- Perform CARA Analysis (2 – 4 weeks)
- IV&V, ORR, Final UFT (8 weeks)
- Complete National Release & ORR Checklists (2 – 3 weeks)
- Conduct ORR PMAS Readiness Review (1 day)
- Prepare IOC Entry/Exit Summary (1 week)
- Master Test Plan (1 week)
- Coordinate and Verify ATO (4 – 8 weeks)
- SQA Checklist (1 week)
- Define ESE Training Plan (2 – 3 weeks)
- Coordinate ATO Activities (2 months)
- Update System Security Plan (SSP) (1 Month)
- Update Privacy Impact Assessment (PIA) (3 weeks)

IOC

Development Activities:
- EO Prod Install & IOC Prod VistA Install (2 weeks)
- Training (2 weeks)
- Production Testing (3 weeks)
- Collect Concurrences and IOC Capability Evaluation Data (1 week)

PMAS & ProPath Activities:
- Confirm ATO (2 – 3 weeks)
- IOC Entry/Exit Summary (1 week)
- Request VHA Release Management Approval for IOC Entry (2 weeks)
- Meeting with Health Systems Rep. (1 day)
- IOC Kick-off meeting with test sites (1 week)
- Perform Testing (2 weeks min.)
- Update Issues, Anomalies, Exceptions and Risks (1 week)
- Documentation for IOC Exit Approval (1 week)
- Finalize Transition Plan (2 – 3 weeks)
- Create/Finalize Deployment Plan (3 weeks)
- Finalize OAP (2 – 3 weeks)
- Submit Final National Release Checklist (1 day)
- NSD Updates (1 week)

Release

Development Activities:
- Site coordination/Training roll-out (1 – 5 months)
- Prepare and Distribute Release (1 – 5 months)
- Monitor Installation Activities (1 – 5 months)
- Execute Backout/Roll Back/Rework Procedures (1 – 5 months)

PMAS & ProPath Activities:
- Release Site Readiness (1 – 2 weeks)
- Health Product Support Approval (2 weeks)
- VHA Release Team Mgmt. Approval (2 weeks)
- ESE Release Office Approval (2 weeks)
- Final Customer Acceptance Form (1 week)
- Lessons Learned Report (1 week)
- Milestone 2 Review (1 day)
- Initiate Change Request (1 day)
- Verify Final Configuration (1 – 2 weeks)
- Distribute Release (1 – 5 months)
- Close Change Request (1 day)
- Notification of Successful Release (1 day)
- Milestone 3 Review* (1 day)

Source: VA OI&A, PMAS IOC Mandatory Activities (briefing presented during Assessment H interview)

VA naturally considers the delivery of useful capability as the primary metric for agile software development. However, during Assessment H interviews, 36 planners, builders, and users provided unsolicited insights suggesting that an over-emphasis on schedule diminishes the incentive to deliver working software demonstrably suitable for its intended purpose.

- Planners with the most insight into funding allocations for business requirements described PMAS as a broken process due to its over-emphasis on time-bound deliveries, which forces projects to drop functionality, creating a backlog of unmet requirements. They noted similar problems with testing that depended on the missing functionality; as a result, the tests would fail, but no funding or time would remain to fix the problems that were uncovered.

- One planner stated, "Over 80% of projects are meeting their milestones but are delivering 10% of what we wanted. The increments have so little in them. We're not delivering anything of major significance." This perception was corroborated by interviews with users who claimed that VA has made no significant updates to the legacy health IT

systems and that only 20 percent of Computerized Patient Record System (CPRS) feature requests have been implemented in the past three years. Finding 5.1.1 contains additional details.

- Other planners claimed that business owners are sometimes pressured into "signing off" on deliveries; otherwise, they will lose funding. The Assessment H team observed that many health care business owners resided at VACO, served as a business owner for multiple projects, and had other leadership responsibilities. In other words, they had little time to devote to each task and were far removed from the clinical environments they were intended to represent. In contrast, visits to high-performing health care systems revealed that these organizations typically establish dedicated teams focused on specific IT initiatives with complete participation from the business owners who drove prioritization of requirements.

A January 2015 follow-up audit of PMAS by the VA OIG had similar findings and reported that, for VA's portfolio of IT development projects totaling $495 million, VA and OI&T leaders "lacked reasonable assurance that development projects were delivering promised functionality" on time and within budget (VA OIG, Office of Audits & Evaluations, 2015).

Finding 4.1.3: The current OI&T IT service management (ITSM) philosophy is that of an internal project-focused organization rather than that of an IT service provider focused on the enterprise, customer needs, and service delivery to both VHA personnel and Veterans.

Today's best-practice concepts for enterprise ITSM are based on a discipline for managing IT services centered on the customer's perspective regarding IT's contribution to the business. Section 11.2 of this report further describes enterprise ITSM standards and best practices.

Infrastructure and O&M

Many of VA's current technical challenges stem from the decentralized approach to IT that VA adopted during the 1990s. At the time, the decentralized approach was credited with VA's dramatic turnaround in health care services (Walters, 2009). In addition, the characteristics of self-organizing teams; small-scale, close user engagement; and continuous delivery of useful software were precursors of what would later be termed "agile software development" and produced an effective breeding ground for innovation and rapid advancements in health IT. However, this also created the foundation for maintenance difficulties because, according to Walters, "new applications were popping up sporadically and haphazardly." The lack of standardization and effective IT governance ultimately created significant technical complexity in the form of a "sprawling, aging, and unwieldy system of computer and communications technologies spread across the department's more than 1,000 medical centers, clinics, nursing homes, and Veterans' centers" (Walters, 2009).

VA recognized the need to overcome these technical problems, but high-cost, software-intensive consolidation initiatives failed (GAO, 2008) and contributed to Congress directing VA to adopt a centralized approach to IT in 2005 (U.S. House of Representatives, 2005a). However, Assessment H findings suggest that VA has not achieved sufficient improvements with respect to these enterprise integration and modernization efforts despite the centralization of IT

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authority, a sustained VA IT emphasis on consolidating and integrating IT solutions (VA, 2007), and billions of dollars in IT funding.

Finding 4.1.4: Earlier decentralized software-development approaches and continued evolution of VA's custom-built health IT systems have created infrastructure complexity that poses significant challenges for VA's ability to effectively execute IT strategies.

An unintended consequence of VA's decentralized IT development in the 1990s was the creation of a custom health IT system consisting of many versions of numerous different software modules with many different dependencies between these modules. Although this decentralized approach quickly satisfied local requirements for IT to help in managing and furnishing health care, it established inconsistencies that undermined enterprise-wide data sharing and innovative applications.

A gold-standard VistA activity has consolidated nearly 60 percent of these software modules (VA, 2015g) and is currently being deployed across the enterprise to reduce the numerous variations that emerged during the previous era. Even so, Assessment H found that VA's IT and software infrastructure remains an extremely intricate, heterogeneous mix of software frameworks and technologies.

The scheduling system currently used by VA offers one example of the problems caused by these complexities. This scheduling system is approximately 30 years old and has more than 1,000 integration points (VA, 2014d)—locations in software where one software module depends on the functionality implemented in another software module. The system relies on 31 different software modules, and 71 software modules depend on the scheduling module (VA OI&T, 2014c). The number of dependencies exceeds 100 because different versions of these modules exist and must be addressed. The gold-standard VistA activity intends to reduce the number of different versions of each module, but the roughly 100 integration points will remain. As GAO recently noted (GAO, 2015a), the tangible impact of this programming complexity is that:

> VA undertook an initiative to replace its scheduling system in 2000 but terminated the project after spending $127 million over 9 years due to weaknesses in project management and a lack of effective oversight. The department has since renewed its efforts to replace its appointment scheduling system, including launching a contest for commercial software developers to propose solutions but VA has not yet purchased or implemented a new system.

Dependencies among the many VA software modules have an impact on the cost of change associated with enterprise-scale software, which is considered one of the highest software-related cost factors and is closely correlated with the dependencies among the software modules. These dependencies also raise the cost of integration, which directly affects the ability to integrate commercial off-the-shelf products into VA's health IT systems. All these complexity factors explain why replacing the VA scheduling system remains a costly and highly technical challenge (Booch, 2015; Knoernschild, 2012). Section 6 of this Assessment H report provides more information on IT aspects of VA's scheduling capability.

The enterprise perspective on VA IT adopted by Assessment H is critical to understanding the scale, scope, and complexity of the technical challenges OI&T has faced in accomplishing its decade-long strategic IT objective to create "One-VA" (VA, 2005). In theory, One-VA will transition VA "from disparate stovepiped processes and systems to a unified environment of integrated, interoperable business processes and technical services" (VA OI&T, 2014a). The approach requires special expertise and appropriate IT processes for successful large-scale, centralized IT management; large-scale software infrastructure; and large-scale software development. However, these capabilities are not well aligned with the expertise and processes required for the decentralized IT and local software customizations that created the successful health IT solutions in the 1990s.

Figure 4-3 shows a graph of VA's ongoing struggle to transition from a distributed approach to an enterprise approach. During the period shown, each new CIO attempted consolidation using new infrastructure technologies. Unfortunately, none of the consolidation attempts was completed, resulting in even greater software complexity and more challenges for the next CIO.

Figure 4-3. Timeline for VA IT Modernization Using a Mix of Technologies
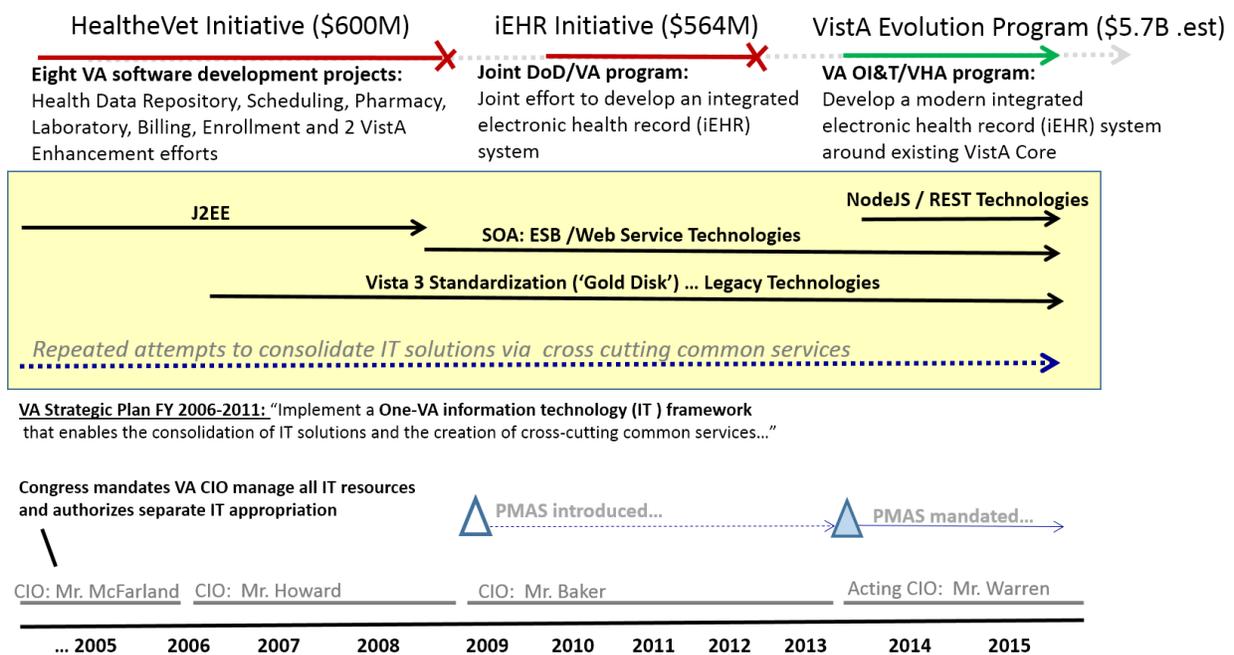
Source: MITRE rendition of data from planning documents and reports.

The simplified version of the VA software health architecture in Figure 4-4 illustrates the lack of standardization created by the mix of technologies introduced over the past decade. The software stack on the left of the diagram represents the results from VA's move toward a service-oriented architecture (SOA) and web services. The software stack in the middle represents the legacy software (without the hundreds of modules and their many different versions). The software stack on the right shows the recent move toward a modern

infrastructure technology called "Node.js," which has emerged as one of the most popular technologies in today's open source software community.

Figure 4-4. VA's Heterogeneous Software Architecture
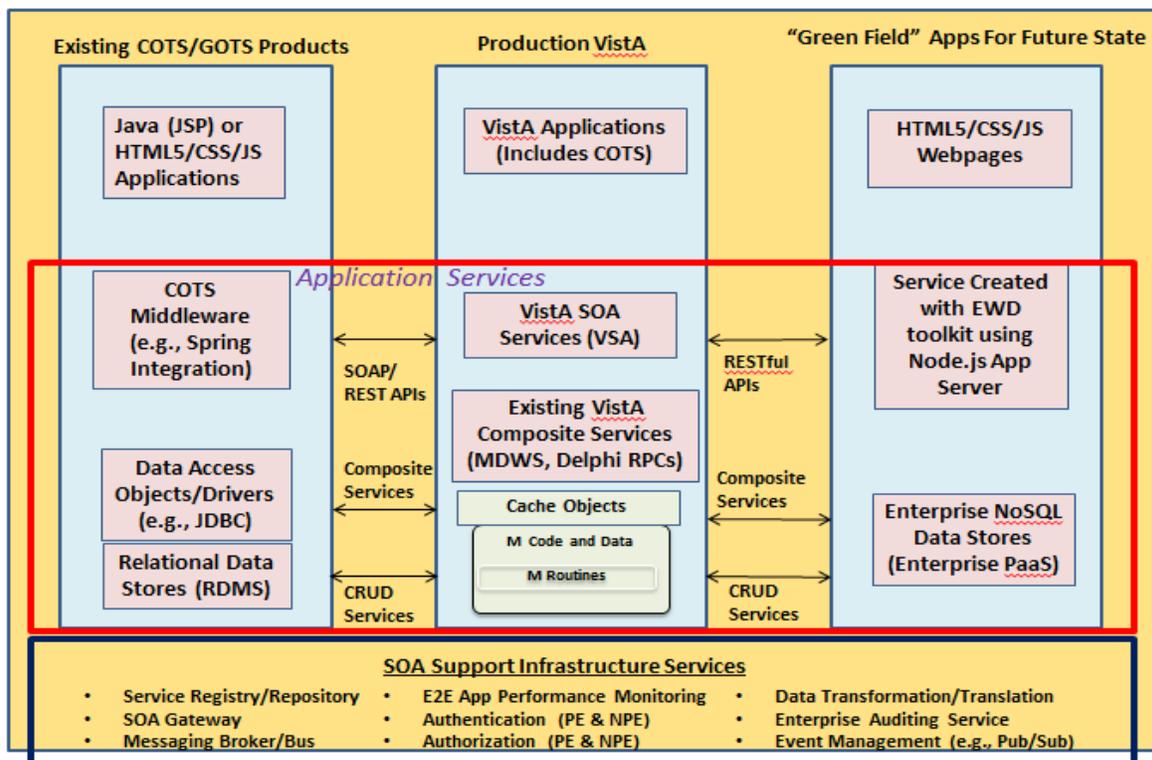
Source: OI&T ASD, VistA 4 Product Architecture Review Triad Meeting Winter 2015 (briefing), January 27, 2015.

This mix of software stacks reflects a "non-standardized infrastructure," which has been identified in industry case studies as a common failure factor for IT projects (Standish Group, 2011). As noted in Figure 4-3, VA's efforts to transition from small scale to large scale have increased software complexity due to implementing multiple software application and infrastructure technologies over a 10-year time span. Instead of consolidating the software infrastructure, VA has expanded it, creating more challenges that impede VA's ability to upgrade and extend the existing software systems. Figure 4-4 illustrates this mix of software applications and infrastructure (e.g., Java J2EE Technology, SOA: Enterprise Service Bus (ESB)/web service technologies and Node.js/REST Technologies) that VA must now simultaneously maintain as a non-standardized infrastructure. Consequences of such a non-standardized software infrastructure include increased time and cost to implement changes due to complexity and duplication of efforts, higher costs to maintain teams with multiple skill sets, and greater challenges to establish effective cyber security across multiple technologies.

Increasing O&M Costs

VA's enterprise IT infrastructure includes the combination of hardware, software, networks, and facilities required to develop, test, monitor, secure, support, control, and operate VA's IT

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services. VA's annual IT spending published on the Federal IT Dashboard can be organized into four categories (SemanticInfo, 2015):

- **New/Upgrades Spending for Mission Area**: Program costs for new investments, changes, or modifications to existing systems reported as IT investments directly supporting an agency-designated mission area.

- **New/Upgrades Spending for Infrastructure**: Program costs for new investments, changes, or modifications to existing systems identified as IT investments supporting infrastructure, strategic management of IT operations, or a grants management system.

- **Maintenance Spending for Mission Area**: Spending covering maintenance and operation (O&M) costs at current performance level for systems reported as Mission Area Spending.

- **Maintenance Spending for Infrastructure**: Spending reported as IT investments supporting infrastructure, strategic management of IT operations, or a grants management system.

A detailed assessment of VA's enterprise IT infrastructure and itemized annual IT O&M spending was beyond the scope of Assessment H. Because OI&T provides infrastructure and mission area capabilities for the Veterans Benefits Administration (VBA), the National Cemetery Administration (NCA), and VHA, the proportion of IT spending for health care capabilities and infrastructure cannot be discerned from available data. However, analysis of VA IT spending trends found that maintenance costs have grown almost continually since 2002, as shown in Figure 4–5. More troubling, spending on upgrades or new capabilities for the VA mission now represents only 15 percent of the total IT budget. During Assessment H interviews, several stakeholders, including those directly involved with IT investment planning and funding allocations, echoed concerns that O&M funding is "eating up our development, modernization, and enhancement funding." As a result, the growing cost of operating and maintaining the complex infrastructure reduces the availability of funding for new IT capabilities needed to manage and meet health care needs.

The views, opinions, and/or findings contained in this report are those of The MITRE Corporation and should not be construed as an official government position, policy, or decision.

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Figure 4-5. VA IT Spending on Upgrades vs. Maintenance
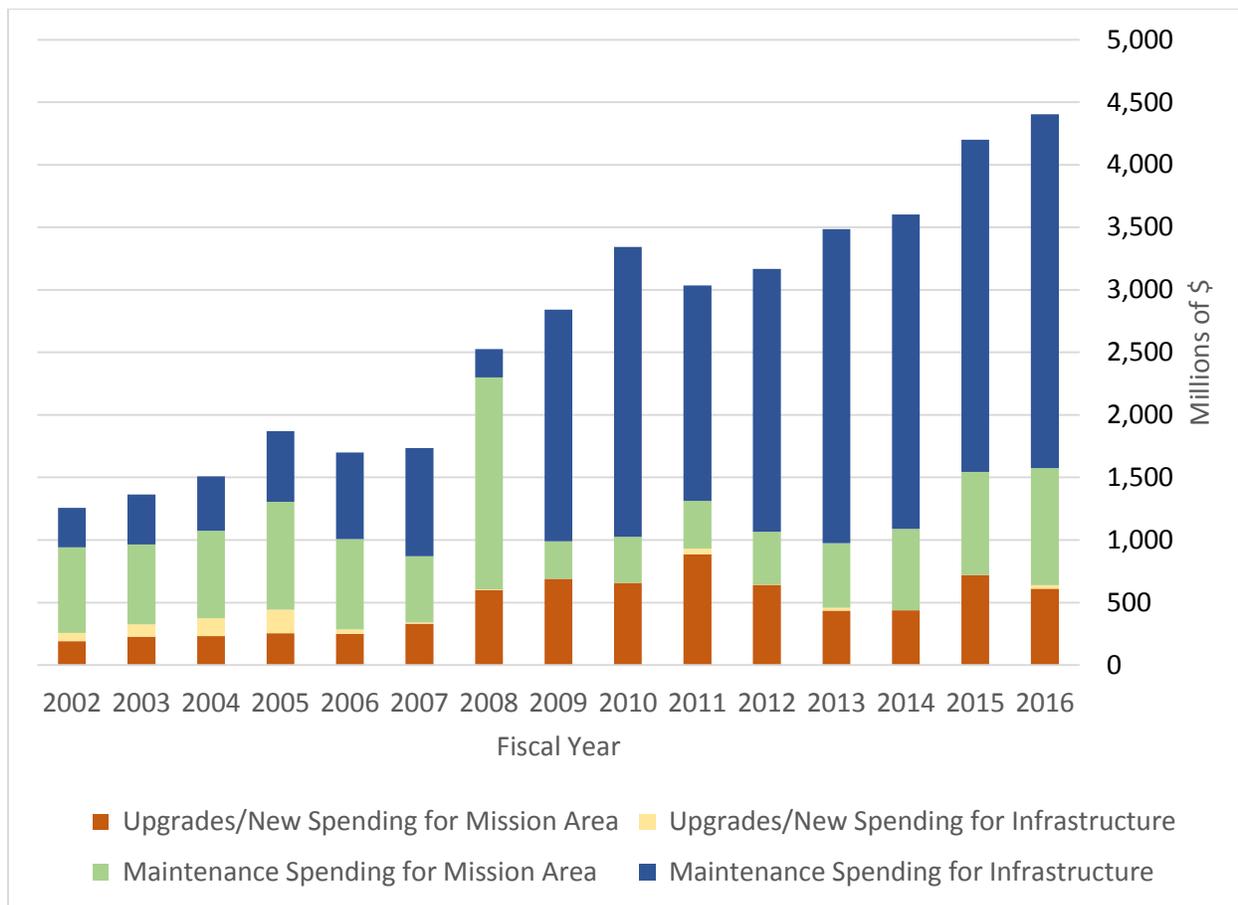
Source: MITRE graph derived from data collected from the Federal IT Dashboard 2015, https://itdashboard.gov/

Increases in the cost of VA IT infrastructure have continued despite several IT initiatives to reduce them, such as:

- **Physical consolidation of enterprise IT infrastructure assets:** Since 1998, VA has attempted to consolidate its distributed physical servers (and software applications) into four regional data centers (GAO, 1998) with completion originally planned by 2010 (OMB, 2008). VA described this cost cutting in a 2008 OMB Exhibit:

  > *To address [costly existing model], VHA is moving to a Regional Data Processing Center (RDPC) model of centralization of VHA health information data processing by co-locating and/or integrating services to a smaller number of data centers (from 128 to four, nationwide).*]

  As of 2014, this consolidation remains far from complete (VA Enterprise Centers, 2014). Phase 1 of the National Data Center Program (NDCP) consolidation effort completed 18 VistA migrations, and Phase 2 is slated to migrate an additional 52 instances "subject to funding availability." According to the fiscal year (FY) 2016 Enterprise Operations Business Plan, "Enterprise Operations (EO) supports development of the VA National Data Processing Strategy, which over time will consolidate more than 80 data centers within the Franchise Fund." EO is responsible for infrastructure investments, including

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modernization and consolidation, at a cost exceeding $300 million per year per the FY15 Pre Volume II Medical Programs and Information Technology Programs Congressional Submission—the highest line item in the FY15 O&M budget. VA was unable to clearly demonstrate the cost-cutting aspects or ROI gained from these efforts to date.

- **Ruthless Reduction Task Force**: VA established this task force specifically to eliminate hardware and software redundancies within the VA enterprise (Miller, 2011). The group's focus included consolidation of IT contracts where possible, IT virtualization, elimination of desk-side printers, and purchase of more multi-functional devices (e.g., printers with fax capability). Although OI&T leaders indicate some costs were reduced, the overall growth of maintenance costs continued.

Despite increased spending on IT infrastructure, Assessment H interviewees expressed dissatisfaction with OI&T's ability to meet local IT infrastructure needs as illustrated by the following examples.

- VA has disparate telephone technologies at various levels (local/site, regional, VISN, administration). At one VAMC, a leader indicated, "We have three incompatible phone systems in the VAMC that OI&T won't replace, so we cannot transfer calls from Veterans to a department using one of the other phone systems."
- Sites have insufficient resources to meet local requirements, such as increased bandwidth for telehealth deployments, scanners, and telephone upgrades.
- Sites lack sufficient local IT staff to assist users with infrastructure needs.

4.2 Recommendations

Key findings regarding IT strategies in Assessment H echo previous reports over the past decade and also reflect top failure factors identified in a large body of published case-study analyses of large-scale IT projects. Assessment H findings reveal complexities and limitations in key aspects of IT planning and execution that affect business (patient-facing clinical systems) and IT (system-engineering processes). These recurring findings indicate high-risk exposure in the form of chronic, fundamental problems that discrete recommendations cannot adequately address.

In light of these recurring findings, the resulting high-risk exposure, and the obvious limited value of repeating individual recommendations previously made, Assessment H recommends an integrated transformation involving executive-level leadership to address numerous findings associated with VA/VHA IT strategies. These recommendations are summarized as follows:

1. Select a CIO for VHA to manage and advocate for VHA's IT needs.

2. Transform the VA IT strategy to a model based on enterprise ITSM standards and best practices that includes the following actions:
   - Establish mutually agreed-upon service level agreements and optimize them for effectiveness.
   - Refine the planning and budgeting process to ensure business needs are effectively identified, prioritized, funded, and used to drive IT investments.

- o Develop a governance policy to ensure the strategic plans are executed well and in a timely manner.
- o Establish product (capability)-focused teams to ensure delivery of needed capabilities to users.
- o Shift the focus of VA's agile development process from documentation and schedule to service delivery.

Recommendation 4.2.1: The VA chief information officer should select a CIO for VHA to manage and advocate for VHA's IT needs and assist in transforming the VA IT strategy to a model based on enterprise IT service model standards and best practices.

Subject to the oversight and direction of the VA CIO, the VHA CIO acts primarily as an advocate and facilitator between OI&T and VHA to ensure both organizations are successful in meeting health IT needs. The VHA CIO will not move IT operations to VHA nor decentralize the organization. The VA CIO will define the specific roles and responsibilities of the VHA CIO. In the interest of consistency, VA should consider appointing equivalent CIOs for VBA and NCA.[4]

VHA needs a dedicated executive who can understand the changing health care needs that the complex VHA organization must meet, establish the IT priorities needed to address the ever-evolving health care challenges, and advocate for IT investments at the department level with the VA CIO. In addition, the VHA CIO should monitor delivery of the OI&T organization on behalf of VHA to ensure projects and services are completed or updated in a timely manner and deliver the needed capabilities. This recommendation is consistent with the requirements of the Federal Information Technology Acquisition Reform Act (FITARA) and the Clinger-Cohen Act[5] as implemented by recent OMB guidance[6] that expects departmental CIOs will appoint "bureau CIOs" or, in the case of VA, administration CIOs.[7]

Recommendation 4.2.2: VA should transform its IT strategy for delivering and managing health IT capabilities and technologies to a model based on enterprise ITSM standards and best practices.

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[4] The recommendation is derived from the text of H.R. 4061, Department of Veterans Affairs Information Technology Management Improvement Act of 2005, introduced to the House on October 27, 2005, and passed by that body on November 2, 2005, by a vote of 408 to 0 but never passed by the Senate. Govtrack.us, Text of the Department of Veterans Affairs Information Technology Management Improvement Act of 2005, available at https://www.govtrack.us/congress/bills/109/hr4061/text/rh and https://www.govtrack.us/congress/votes/109-2005/h560. See also: H.R Report 109-256 (2005), at 2, available at: https://www.congress.gov/congressional-report/109th-congress/house-report/256/1

[5] Codified in relevant part respectively at 40 U.S.C. §11319 and 41 U.S.C. §3506.

[6] OMB M-15-14 (June 10, 2015) and related FAQs and Federal CIO comment, available at: https://management.cio.gov/#attachment-a-common-baseline-for-it-management-and-cio-assignment-plan

[7] "Official with the title or role of Chief Information Officer within a principal subordinate organizational unit of the agency, as defined in Section 20 of OMB Circular A-11, or any component organization of the agency (contrast with "agency CIO") OMB M-15-4, Attachment B at 18; OMB Circular A-11 provides: "Bureau means the principal subordinate organizational units of an agency." OMB Circular A-11 (2015) at Page 4 of Section 20, available at: https://www.whitehouse.gov/sites/default/files/omb/assets/a11_current_year/s20.pdf

Acting upon this recommendation should improve VA's ability to effectively and cost-efficiently plan and execute IT strategies for delivering and managing clinical applications, management applications, and new technologies. Key objectives should include developing modular IT system architectures, open and well-defined interfaces, and standardized infrastructure.

A key aspect of the recommended transformation is to establish clearer roles, responsibilities, and accountability between VHA and OI&T. This should improve the working relationship and provide transparency in process and decision making. Ultimately, such changes should help to create a culture that ensures joint, collaborative efforts focused on service to the Veteran—clearly the driving goal of all the VA staff interviewed during the Assessment H study.

The selection of a VHA CIO should ensure that VA acquires and allocates health IT resources in a manner commensurate with VHA program requirements. This would entail establishing clear responsibilities and ensuring that everyone understands them. Staff in VHA and OI&T need to know that other parts of the organization can and will deliver on their commitments. Further, with respect to the definition and execution of IT strategies, each organization's expectations must be unambiguous and widely disseminated.

VA must unambiguously define OI&T accountability for service agreements. Specifically in the case of VHA, service agreements should be driven by health care needs identified by VHA. OI&T should implement a comprehensive portfolio-management business model that allocates investments and delivers services based on business priorities as established by the VHA staff under the leadership of the new VHA CIO. Key features of this model include accountability to health care business owners, metrics, and controls. Industry outreach interviews described IT departments' clear accountability to the business owners for outcomes. Most of these organizations also have standard metrics by which they gauge performance of IT products and the IT delivery process.

OI&T should establish service-level measurement programs jointly with VHA to include:

- **Business outcomes** (tangible, delivered IT capabilities with an assigned business value shown to have an impact on health IT)
- **System performance** (for example, user response times, processing times, capacity, bandwidth, availability, scalability, and security)
- **Service management** (for example, service desk support, incident management, problem resolution)
- **User satisfaction**.

Joint agreements between OI&T and VHA should define the metrics as well as openly shared measurements, trends, and plans to address shortfalls. The agreements should resemble industry standards. Failure to meet the intent of service agreement should have consequences, such as contracting with a different provider who can meet the service agreement measures.

Recently OMB published a memorandum (Donovan, 2015) that emphasizes the importance of understanding business needs and implementing metrics to measure and improve outcomes and customer satisfaction. The above recommendation to align the VA IT function "with the needs of VHA organizations" reflects this guidance aimed at assisting "agencies in establishing

management practices that align IT resources with agency missions, goals, programmatic priorities, and statutory requirements."

OMB published this guidance in the form of a memorandum to implement FITARA, which significantly enhances the authorities of the CIO to assure that the CIO plays a central role in the program planning, budget, acquisition processes, and the Clinger-Cohen Act, whose terms (when read together with FITARA) require the CIO to use the enhanced authorities to support "agency missions, goals, programmatic priorities and statutory requirements" and that the Secretary "[is] responsible for . . . carrying out the agency's information resources management activities to improve agency productivity, efficiency, and effectiveness."

The OMB guidance mandates that the CIO report directly to the Secretary "to carry out the responsibilities of the agency under this subchapter" and to "establish and maintain a process to regularly engage with program managers to evaluate IT resources supporting each agency's strategic objective" and share responsibility with program managers "to ensure that legacy and ongoing IT investments are appropriately delivering customer value and meeting the business objectives of programs."

In summary, the OMB memorandum on FITARA (Donovan, 2015) indicates:

> World-Class Customer Service Agencies shall discuss how their portfolio management practices emphasize the customer-centric themes of the U.S. Digital Services Playbook,[8] OMB's capital planning and investment control guidance,[9] and the Smarter IT Cross-Agency Priority (CAP) Goal.[10] Agencies should describe where in their policies the following are implemented: the Playbook's 'Understand what people need,' the capital planning guidance requirement for major investments to measure customer satisfaction performance metrics, and the Smarter IT CAP Goal's focus on improving outcomes and customer satisfaction with Federal services.

A detailed substantive discussion of the recently issued OMB guidance is outside the scope of this Assessment H study and would in any case be incomplete in that the guidance will be extensively supplemented in the future. However, an initial review of its provisions makes clear that the Secretary of the VA has authority and tools to develop an "inclusive governance process" that will be sufficiently flexible to adapt to VA's and VHA's unique mission requirements and to ensure that the CIO and OI&T are accountable for aligning IT resources with VHA mission and program requirements.

The following specific actions supplement the Assessment H recommendation for transforming VA/VHA IT strategies based on enterprise ITSM standards and best practices.

Optimize IT service agreements. The VHA CIO should facilitate the requirements collection and prioritization within VHA, with final approval provided by the VHA Under Secretary for

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[8] U.S. Digital Services Playbook, available at: https://playbook.cio.gov/

[9] IT Budget Capital Planning Guidance available at: https://www.whitehouse.gov/omb/e-gov/strategiesandguides.

[10] Smarter IT Delivery Cross-Agency Priority Goal, available at:
http://www.performance.gov/node/3403?view=public#overview.

Health; establish IT service level agreements (SLAs) that are mutually acceptable between OI&T and VHA; and optimize the services for effectiveness. OI&T should ensure that service agreements support the clinical environment and decrease overhead, bureaucracy, and the number of processes involved. For example, with respect to telehealth, as VHA increases virtual access for the delivery of care, a National Telehealth Services Agreement would eliminate the need for separate agreements between VHA, IT Development, and IT O&M.

Refine the planning and budgeting process. VA should revise the planning and budgeting process to ensure business needs are effectively identified, prioritized, funded, and used to drive IT investments—while simultaneously avoiding the proliferation of the "local site" optimizations that created some of the underlying problems identified in Assessment H key findings. VA should ensure identification and prioritization of health care objectives with more accurate cost and outcome analysis (e.g., better use of the existing planning and budgeting process). Industry outreach interviews indicated that all successful organizations tightly align IT investment to the organization's strategic plans and needs.

Develop a governance policy to ensure the strategic plans are executed well and in a timely manner. The VHA CIO should facilitate VHA measurement of services to ensure compliance with the agreements. Fifty-one percent of the VHA CIO performance will be based on how well SLAs with VHA are being met by OI&T. SLAs would cover support for requirements development, project cost estimation, health IT systems project design and delivery, and the quality and performance of the health IT systems. Performance would also be measured by how well the CIO understands the current and future health IT needs of VHA to improve care delivery for the Veterans.

Establish product (capability)-focused teams. Product or capability teams would execute their tasks under the authority of a business owner fully accountable for the product's entire life cycle, from identifying priority requirements through planning, delivering, and verifying measurable health care outcomes in patient-facing clinical environments. The teams must actively and sufficiently represent all relevant stakeholders associated with the product and include embedded, collocated IT staff (e.g., software developers) in critically necessary but subordinate roles. The tight coupling of planners, builders, and users would facilitate more effective identification and translation of prioritized objectives outcomes—essentially, more effective collaboration between "business" and "IT."

Each product-focused team should be allocated to, responsible for, and exclusively dedicated to the planning, execution, and full life-cycle delivery of integrated, end-to-end, top-to-bottom, working products with verified outcomes. These teams should focus on "vertical" business needs with tight coupling to the enterprise technical leads for consistent, effective integration with the cross-cutting IT needs.

The teams must actively and sufficiently represent all relevant stakeholders associated with the product and include tightly integrated IT staff (e.g., software developers).

VA OI&T has discussed emerging ideas for incorporating product-focused teams and has introduced a similar concept. However, OI&T's approach must define the critical responsibilities of the business owner and effectively communicate the importance and details of a product-

focused approach. Finally, the approach must incorporate cross-cutting architecture and integration activities to ensure that the IT infrastructure evolves consistently and acceptably.

Refine VA's development process. VA can improve the PMAS process by incorporating best-practice agile principles for delivering prioritized, measurable outcomes into the operational environments (in the case of VHA, the patient-facing clinical environment) in the context of VA's enterprise IT development. The suggested refinements would specifically work in conjunction with the product-focused teams that address vertical business requirements and the enterprise technical teams that address cross-cutting concerns associated with an integrated, unified IT framework.

Assessment H's recommended transformation of IT strategy retains aspects of VA's existing agile approach but incorporates key principles from best-practice strategies for scaling these processes to accommodate their effective use in large-scale enterprise modernization efforts. These refinements essentially eliminate the current fragmented approach when combined with the vertical product-focused business teams and horizontal IT-focused technical teams (holistic approach). They should also incorporate the flexibility required to accommodate small-scale innovative development activities that should not require the overhead imposed by PMAS—a common source of complaints by VA stakeholders during Assessment H interviews. OI&T should turn to small-scale, rapid development and verification of innovative health IT concepts that could subsequently be incorporated into the enterprise-level product-driven process.

While industry uses some prescriptive enterprise agile models (for example, Scaled Agile Framework [SAFe], Disciplined Agile Delivery, and Large Scale Scrum), Assessment H does not recommend that VA shift to one of these scaled agile development processes. Instead, OI&T should modify the existing PMAS process to reduce the risks and learning curve associated with shifting to a completely new methodology. Assessment H recommends the following refinements to PMAS:

- **Adopt an enterprise agile model that implements portfolio and program team structures** to coordinate efforts of multiple teams that simultaneously develop products with mutual dependencies. The enterprise agile model would clearly define the structure of the program teams and describe how to allocate business goals to the teams for execution. VA OI&T and each of its business partners (VHA, VBA, NCA) should work together to identify the right portfolio/program/project structure.

- **Create agile teams that effectively collaborate with the enterprise software architect** (and team) to ensure OI&T receives the feedback required for evolution of the enterprise architecture.

- **Establish a sufficiently defined and implemented enterprise-level technical infrastructure** to support agile delivery, which includes use of more effective development and operations practices.

- **Evolve PMAS to support enterprise agile development**:
  - Accommodate more complex portfolio/program/project structures so that the business owner and other stakeholders can see a complete picture of the entire implementation plan for a business endeavor.

- o Identify meaningful agile project performance metrics and adapt PMAS to support the definition, capture, and analysis of those metrics.
- o Allow tailoring of PMAS documents and schedule and encourage tailoring for small or unusually large projects.
- o Accelerate PMAS enhancements already identified by OI&T that are consistent with these goals.
- o Evolve contracting practices that facilitate enterprise agile development.

The Assessment H team recognizes the difficulty of instituting cultural changes and implementing agile technical practices in a large organization. Attempts to create such fundamental shifts through self-teaching and self-monitoring would likely fail. Assessment H therefore recommends that VA:

- Seek external training and consulting to establish the desired agile culture, practices, and the technical infrastructure needed to support an enterprise agile endeavor.
- Retain appropriate consultant(s) to conduct periodic reviews of progress and recommend how to improve the adoption of agile processes.
- Test the new practices in small scale pilot projects prior to deployment across the entire organization. An enterprise agile consultant could assist with project selection and organizational rollout strategy.
- Establish an agile-focused Program Management Office (PMO).

An effective enterprise agile approach will place more emphasis on deliverables and cost and less emphasis on schedule. It will also provide greater flexibility for particularly large or particularly small projects because current approaches tend to focus on the average size project.

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5   Electronic Health Record

Veterans Health Information Systems and Technology Architecture (VistA) encompasses EHR data, several associated applications, and other databases that furnish and manage health care at VHA. As shown in Figure 5-1, VistA has a highly sophisticated architecture with a kernel that provides low-level services; shared databases that contain patient, facility, and other information; a large suite of applications that serve clinical and management needs; and the Computerized Patient Record System (CPRS) component that presents a modern user interface.

Figure 5-1. VistA Technical Architecture
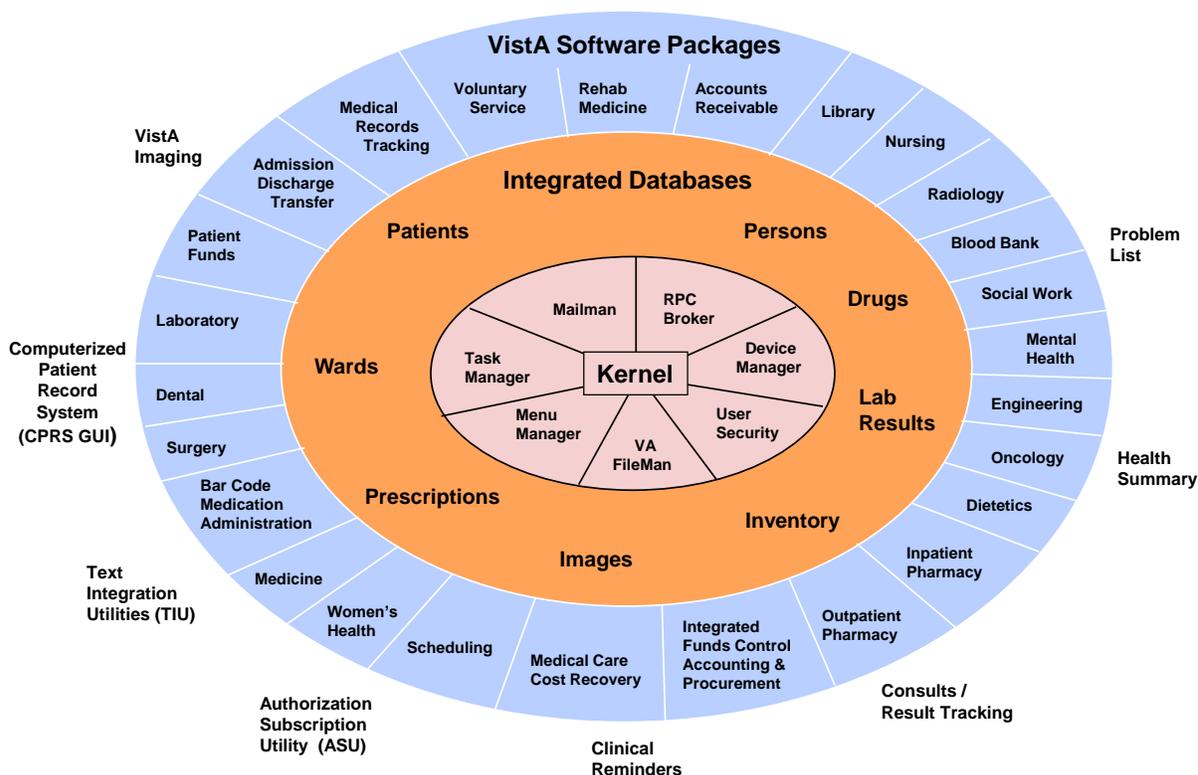
Source: MITRE rendition of VistA specifications

Discussions of health care systems can lead to confusion because the term "EHR" can be used to specify the contents of one person's health record, the database of all health records within an organization, or the combination of data and applications described by a system such as VistA. This Assessment H report uses EHR to describe a complete system, such as VistA, including health data, health IT applications, related management applications, and several databases that support applications.

5.1   Findings

Several decades ago, VistA and CPRS led the development of EHR technology. Many commercial off-the-shelf (COTS) EHRs are based on the concepts and even the code introduced by VistA.

Almost all VHA clinicians interviewed by the Assessment H team preferred VA's CPRS over other EHR user interfaces because of its flexibility and functionality, which resemble those of a paper patient chart.

Several interviewees attributed the success of the early VistA and CPRS development efforts to the close working relationship between VistA/CPRS developers and clinicians. This collaboration seems to have degraded with the centralization of IT, which has resulted in disconnects and limited new capabilities developed for VistA/CPRS. Also, during the past decade, VistA and CPRS development has been confined to fixes and minor enhancements.

Finding 5.1.1: During the past decade, VA applied the majority of its development resources to HealtheVet (not the same as My HealtheVet) and the integrated EHR (iEHR) projects, both of which failed. This delayed further development and improvement of VistA and CPRS so that they are no longer leading-edge products and are in danger of becoming obsolete.

Clinical users remain fairly pleased with VistA and CPRS but have become increasingly frustrated by the lack of any obvious advances over the past decade. Numerous VA clinicians have experience with commercial EHRs and want the same level of features, modern clinical capabilities, integration, and mobility they see emerging in the commercial marketplace. A majority of Assessment H interviews across nine VAMCs and five VISNs indicated that users are unaware of and uninvolved in any major VA EHR modernization and development efforts.

As shown in Table 5-1, information from VHA's Office of Strategic Investment revealed that in the last three years, VA has addressed only 44 out of 225 CPRS requests ranked as high priority, which amounts to only 20 percent of the high-priority requests for the main clinical system seen by end users.[11] In addition, both interviews and literature studies indicated that system usability suffered due to the lack of a continuous development and improvement process. As described in Section 4 of this report, users noted that the PMAS process requires such significant overhead that it reduces the resources actually contributing to development. Users also characterized the PMAS process as schedule focused and risk averse and believed that this leads many program managers to limit the amount of functionality in each release, thereby increasing the total time to complete any *useful* capability.

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[11] VHA, Office of Strategic Investment (10P2e) 10 June 2015.

Table 5-1. CPRS Request Satisfaction for Past Three Years (2013–2015)

5	Requests to be satisfied in CPRS v30b
8	Requests to be satisfied in CPRS v31
30	Requests to be satisfied in CPRS v32
1	Requests closed (Code Space Expansion)
44	Total requests addressed in the last three years by CPRS planned releases
225	Number of CPRS requests ranked high priority by Clinical Capability Management Board plus number of new requests that have not been reviewed to date
$\frac{44}{225} * 100\% = 20\%$	Percentage of CPRS requests in the last three years have been addressed or are being addressed

The results in Table 5-1 do not reflect the level of effort required to satisfy each request. OI&T does not track this information as part of the PMAS reporting process, so there is no existing way for users to assess the degree of difficulty or impact of delivered CPRS services. Additionally, "product effectiveness" assessments are only conducted when requested by the project manager and are not a required step of the current PMAS process. Thus, data are not readily available to show the extent to which requests are satisfied from a user's perspective. In interviews, some users expressed frustration about the lack of feedback on the usability or impact of new CPRS capabilities.

Users noted that, over time, CPRS has developed usability issues, including excessive alerts, poor alerts, too much unfiltered data, and a lack of assistance for the clinical workflow. Some clinical users reported that these usability problems created potential safety risks; for example, the large number of alerts prompted users to turn off alerts altogether, and clinicians encountered problems when trying to copy and paste information between records. Interviewees emphasized the importance of involving subject matter experts in such areas as clinical decision support, human factors, and clinical documentation improvement to ensure a balance between prescriptive practices and system usability.

Finding 5.1.2: The complex and obsolete technologies underlying VistA and CPRS make it difficult to maintain resources and adopt mainstream software coding and security tools to aid in development.

Much of the VistA and CPRS software code is written in the MUMPS (Massachusetts General Hospital Utility Multi-Programming System) programming language. Because MUMPS is not broadly offered in college curricula and is not widely used by other organizations, the software ecosystem of books, tools, services, training classes, and experienced programmers is limited compared to that of more mainstream languages (e.g., Java, C, C++, Python). Similarly, only a few productivity and quality improvement tools are available for MUMPS; for example, there is

a lack of automated tools for testing, behavior-driven development, code coverage, and performance tuning.

Finding 5.1.3: VistA skills are essential for developing future capabilities, and these skills require several years to develop. VA currently has no formal program to predict the attrition and need for developers and to train their replacements.

VA needs to migrate the current VistA and CPRS EHR to a more capable health IT and EHR system based on a flexible, modular design and modern system and software technologies to achieve its strategic health objectives and to meet the 2014 National Defense Authorization Act (NDAA, 2013), Section 713, mandate to deliver a modernized VistA system by December 31, 2016.

Finding 5.1.4: The complexity of VA's underlying software infrastructure (e.g., multiple access layers, multiple software technologies, and numerous diverse functional components) and the existence of approximately 130 VistA instances across VAMCs compound the difficulty of developing an EHR on time with the reliability and performance required by its clinical users.

These many points of complexity significantly reduce maintainability, extensibility, and scalability of VistA/CPRS. Effectively managing federated health records across 130 instances of VistA (Fihn et al., 2014) requires complex integration schemes to achieve performance goals and reduce network latency. This complexity increases the cost to develop, manage, and troubleshoot applications.

Finding 5.1.5: The differences among approximately 130 instances of the VistA/CPRS system are not well documented, complicating efforts to upgrade and maintain the system and to conduct end-to-end testing outside of the operational environment.

The CPRS fat client architecture and associated stateful design constrain performance of the current VistA/CPRS, which may not scale to support thousands of users (or tens of thousands of users via telehealth and mobile applications).

Recent VistA performance statistics indicate that the current VistA system availability has ranged from 99.4 to 99.9 percent. Assessment H interviews indicated that a majority of the outages were due to network issues that resulted in days of manual data entry, possibly introducing data errors and impacting patient safety.

Assessment H interviewees stated that VA has no environment in which all system components can be tested end-to-end before going into production. An initial field test of the enterprise Health Management Platform (eHMP) at Hampton Roads, Virginia, brought the production CPRS system down for several hours, and identifying a root cause of the event took several weeks.

VA established the VistA Evolution program in 2014 to oversee modernization of VA's EHR system—the third EHR modernization program in the past 10 years. VistA Evolution is a joint program of OI&T and VHA and is intended to provide interoperability with the DoD EHR systems and with the systems of other health care partners to promote better outcomes in quality, safety, efficiency, and satisfaction in health care for Veterans, service members, and their dependents.

The VistA Evolution program includes plans to upgrade the technical infrastructure for health data interoperability while reducing overall system complexity, converting to standards-based services, formats, protocols, and data models, and enabling expanded and improved data exchange with partner providers. VA must maintain the current VistA/CPRS operating environment while the VistA Evolution program simultaneously modernizes key components of those legacy systems and integrates them with newly developed software applications across the enterprise.

The VistA Evolution replacement component for CPRS is a web-based platform that, as currently designed, may encounter even greater problems in meeting performance and scalability of VA's EHR system due to the stateful design of the overall VistA system, which is not compatible with modern web-based technologies. This issue is discussed in more detail in Section A.3. Assessment H interviews and project documentation reviews indicated that few VA staff understand the optimization that will be required to handle the user loads and workloads for a web-based system with data aggregation from multiple systems versus a single system today.

As explained in Figure 5-2, VistA Evolution will develop and deploy capabilities in four major feature increments over five to six years, completing in fiscal year 2018.

Figure 5-2. VistA Evolution Roadmap
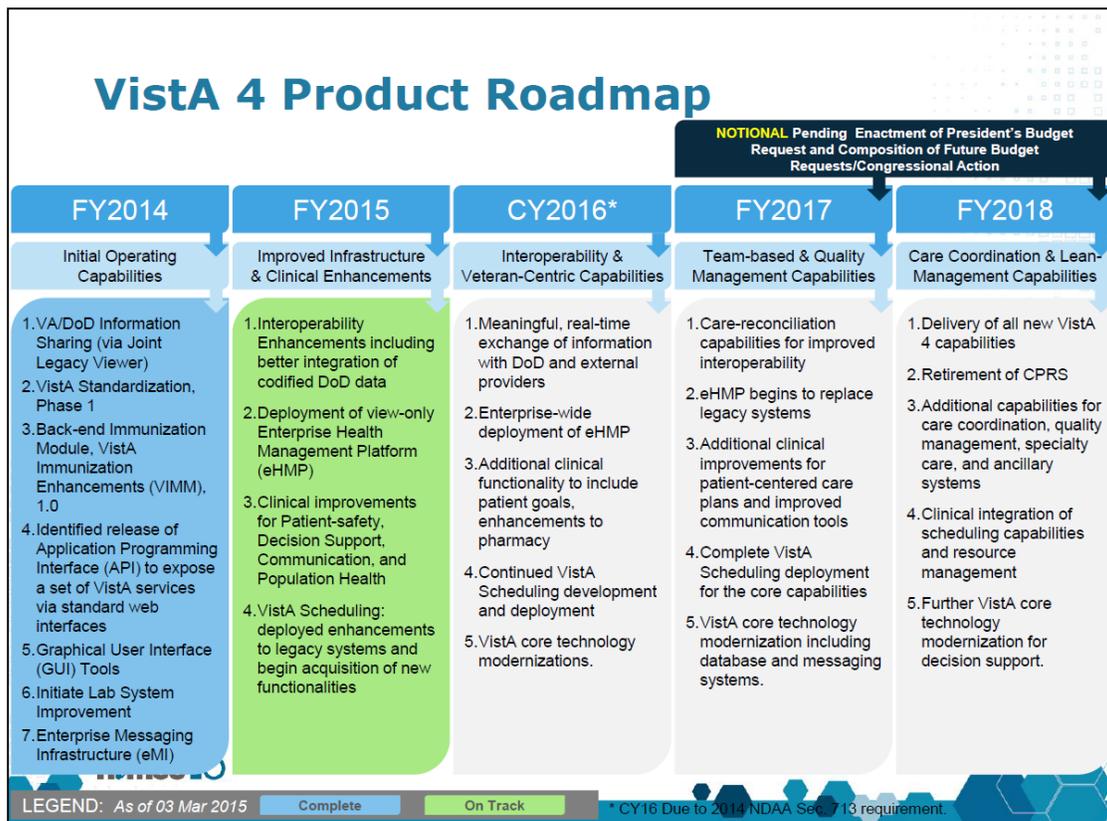
Source: Drew & Nebeker, 2015

Finding 5.1.6: The VistA Evolution program is not adequately organized or staffed to successfully manage the development and integration of such a large complex software program, which increases the risk of schedule delays or failed delivery of clinical IT capabilities.

VistA Evolution is managed by a matrixed organization, with the VA CIO acting as the single point of accountability. As depicted in Figure 5-3, the VistA Evolution Program Executive Triad reports to the VA CIO and oversees activities related to budget, scope, schedule, objectives, strategy, and internal prioritization of program activities related to acquisition, implementation, and sustainment of the EHR and ancillary health IT systems.

Figure 5-3. VistA Evolution Program Triad
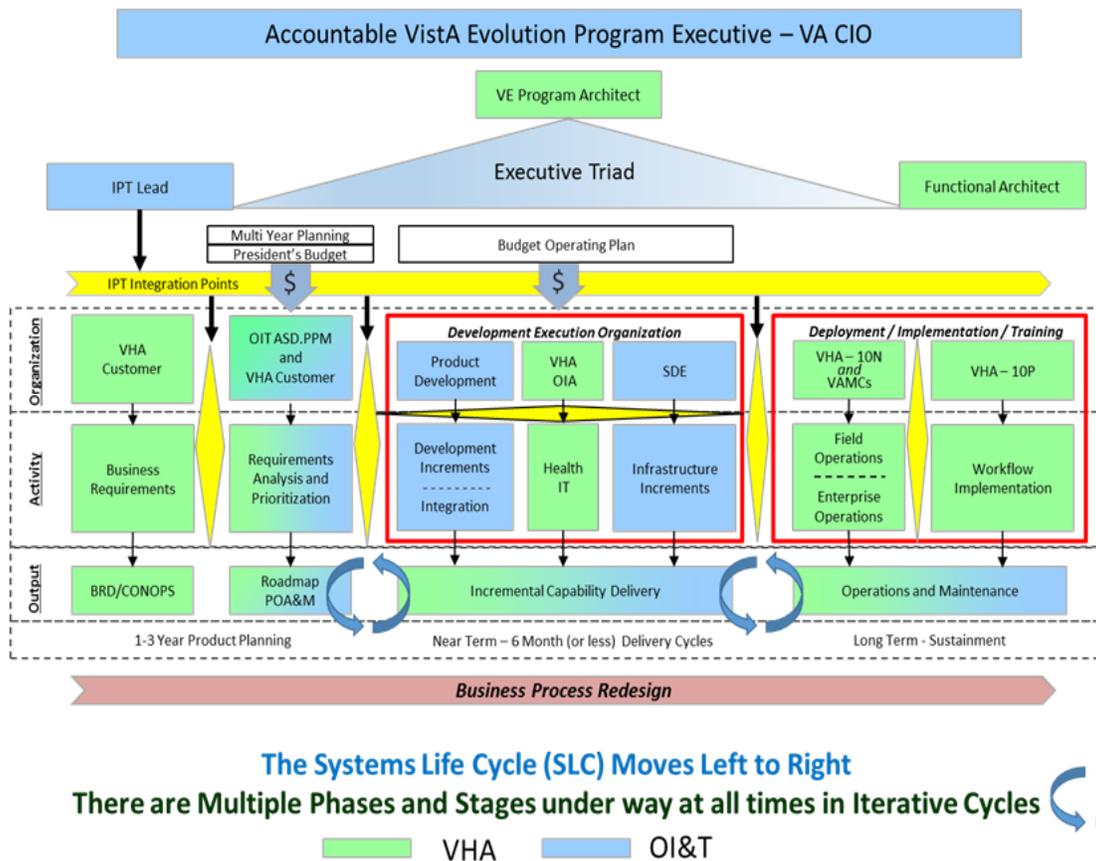
Source: Cullen & Constantian, 2015

VistA Evolution is attempting to use the Triad and a capability team development approach to continually design, develop, and deploy functional product lines that integrate and test all layers of a solution. Examples of product lines may include clinical core systems (eHMP and Clinical VistA), clinical ancillary systems (e.g., laboratory, pharmacy, radiology, and scheduling), population analysis and management systems, shared services (e.g., enterprise Messaging Infrastructure), and health IT infrastructure.

Assessment H interviews with VistA Evolution project development and program management staff indicated that the initial creation of the VistA evolution program was not sequenced properly. Business requirements were given priority over technical dependencies, and capabilities were built before the underlying infrastructure was completed. VistA Evolution is beginning to correct these mistakes now that the VistA Evolution Triad is providing clear direction. The Triad is engaging senior leadership at the department level to increase program support. However, even with an OI&T member as part of the Triad, several senior OI&T leadership officials indicated during Assessment H interviews that they do not feel adequately engaged and empowered in the current VistA Evolution Triad structure, reducing team and program efficiency.

Neither the 2014 VistA Evolution Program Plan (OIT 06) nor the 2015 Program Charter (OIT 07) designates a single program manager or integration lead responsible for oversight and integration across all VistA Evolution projects. These omissions increase the risk of incompatibilities, duplicated effort, and rework and are magnified because the VistA Evolution architecture is not fully approved. As a result, individual teams may make incompatible design decisions or may delay making decisions until the architecture is completed.

Neither OIT 06 nor OIT 07 includes specific documentation or reporting requirements, so information maintained on the internal VA VistA Evolution SharePoint site was outdated and missing critical program documentation. The Assessment H team could find no evidence that VistA Evolution performs frequent analysis of project schedules, and this reduces the program's ability to assess delivery across the program. An April 2015 VistA Risk Register (OIT 08) report indicated that "VistA Evolution lacks foundational documentation to clearly articulate program expectations and scope to the execution teams." For example:

- "The Program Work Breakdown Structure has been weakly supported and poorly communicated and still lacks reasonable leadership input for scope definitions."
- "The VistA Evolution Integrated Master Plan has not been completed and injects a significant level of risk exposure to the VistA Evolution Program."
- "A VistA Evolution Program Integrated Master Schedule (IMS) that is resource loaded, with dependencies and milestones and is tied to the budget has not been developed."

The assessment team reviewed a May 2015 IMS (OIT 10), developed with Microsoft Project, that was not resource loaded, did not provide all cross-project dependencies, and lacked sufficient detail to generate a critical program path. VistA Evolution risk documentation indicates that "the quality of some information received related to contracts and the lack of key decisions impede the ability to provide a true programmatic path." Timelines are difficult to meet given the large magnitude amount of work and large number of dependencies across the enterprise.

5.2   Recommendations

VA was a thought leader in health IT development for many years but, during the past decade, delayed development of VistA and CPRS has brought these key system components to a point where they are practically obsolete. Failures of major programs during the past decade have

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demonstrated that these systems cannot be modernized and have resulted in a complex set of EHR components built on outdated software. The VistA Evolution program represents another attempt to upgrade these systems, but VA has proven unable to develop and execute a health IT strategy to evolve with rapidly changing technologies. Further, as explained in Appendix A.3, the VistA Evolution program exhibits several failure factors seen in industry and encountered on prior VA initiatives of equivalent size and complexity. Industry articles reviewed by the Assessment H team and interviews of VA staff indicated that several technical issues, in particular the architectural complexity of the platform, constituted major contributing factors to failures of previous attempts to modernize the VistA/CPRS system.

The complexity of VA's underlying EHR software infrastructure—a large heterogeneous mix of software frameworks and technologies—makes the infrastructure difficult to efficiently develop, modernize, and manage. These risks will be magnified by the lack of a single VistA Evolution integration lead responsible for managing cross-project dependencies and failure to develop the tools (i.e., IMS, Integrated Master Plan, common project technical/program repositories) needed to effectively manage the 30–40 dependent projects across the program.

Recommendation 5.2.1: The VHA CIO, in partnership with the VA CIO, should oversee a comprehensive cost-versus-benefit analysis among COTS EHRs, Open Source EHRs, and continued in-house custom development of the VistA EHR currently in use.

The analysis should take into account all the complexities of the VistA/CPRS architecture and infrastructure and known issues with performance, scalability, extensibility, interoperability, and security. The analysis should also address full life-cycle costs, including development time (based on recent historical trends), availability of development resources, maintenance and licensing costs, and infrastructure costs. The analysis should consider the need to share data among the clinical and business activities within VA and to exchange data across the VA system, with third-party providers, with DoD, and with payers. The VHA CIO should participate in the VHA requirements collection to fully understand strategy and needs. Prioritization and final approval will be provided by the VHA USH.

This Analysis of Alternatives (AoA) should be led by an organization capable of assessing the total cost and return on investment of acquiring and implementing an integrated COTS EHR suite and best-of-breed solution, compared to continued in-house custom development. This requires an organization with:

- The clinical expertise needed to assess requirements supporting VA's clinical structure, treatment modalities, practice workflow, and business management.

- Expertise with operating large health care systems to assess the approaches to automate and integrate both clinical and business functions across the system.

- Experience with large-scale COTS EHR implementations to assess the technical and operational impact of adapting the VHA practice workflows and the COTS default settings to meet VHA needs.

- Technical expertise with systems development, large-scale system integration, health IT interoperability (i.e., health information exchange), clinical data standards, data conversion, and data migration.

- Federal acquisition and security expertise to assess the impact and cost of meeting unique government requirements.

Additional factors that the AoA should address include:

- The importance that VA accords to maintaining core competencies in EHR development and health IT leadership, even if this proves more expensive than procuring and integrating COTS technology.

- The extent to which continued in-house system/software development provides VA with greater freedom to develop a learning system focused on clinician and patient needs and driven less by commercial business and billing requirements. The AoA should also weigh the option of having VA share its vision with a vendor who can build these requirements into an existing product for VA's use.

- The impact of losing VA-unique capabilities associated with VistA.

- The extent to which a COTS EHR would provide immediate automation of VHA business processes that are currently mostly manual.

- The possible advantages of building on DoD's EHR Request for Proposal for an integrated best-of-breed solution. This proposal aligns with many of VA's requirements, including longitudinal patient data, medical device integration, ancillary services, scheduling and (VA-DoD and VA-Private Provider) interoperability (DoD, 2014).

- The rapid maturation and improving interoperability of COTS EHRs. Assessment H industry outreach interviewed 14 provider organizations and found that 11 of them already use COTS EHR solutions. Of the remaining three, one was actively moving to a COTS solution and one plans to do so in the next few years. Procuring a COTS EHR could provide continuous alignment with industry standards (i.e., ICD [International Classification of Diseases]-10, Meaningful Use [MU]) and would allow VA to focus IT development on innovation and VA-unique capabilities.

- The value of implementing industry best practices (i.e., care plans, workflow, and team management) by adopting a solution driven by the large private sector provider ecosystem.

- The ability of a joint VA and DoD COTS EHR purchase to provide significant leverage for influencing data ownership, vendor development, and modernization priorities.

- The long-term (20-year) impacts of licensing and maintenance on reducing VA's O&M costs, which currently prevent developing modernized and new capabilities and technologies.

- The ability of VA's networks, system infrastructure, and centralization strategy to support a COTS procurement.

The VA and VHA CIOs should conduct site visits and review the successful IT practices implemented at high-performing health care systems (including VISN 4), to inform their strategies for effective approaches and potential contributions that IT can provide to improve the treatment of Veterans today.

The VA CIO and VHA CIO should report to Congress at the end of fiscal year 2016:

- Evidence provided by both VHA USH and VA CIO that the VHA CIO serves as an effective advocate for the IT needs for health care delivery. This should include, but not be limited to, a description of the requirements for an effective health care management system that annually provides advancement to VHA mission and goals.
- Actions taken and evidence that OI&T acts as a service provider and delivers IT capabilities and IT services that improve health care delivery to Veterans. Evidence should include results of clinician and Veteran surveys confirming the quality of and satisfaction with the newly delivered capabilities and services.
- Results of the cost-versus-benefit analysis between the COTS, Open Source, and VistA EHRs.

Recommendation 5.2.2: VHA should select a program executive to oversee and coordinate the more than 40 independent projects and initiatives related to EHR modernization, regardless of whether VHA continues in-house development or pursues a COTS solution.

Any program of the size and complexity of the EHR modernization requires program executive and lead integration roles and governance processes to manage integration across the many interdependent projects and initiatives. VA must create a program structure that scales to address the challenges of developing and integrating a large software system.

6   Scheduling

VHA relies on a VistA scheduling package to provide Veterans with access to health care. Attempts to modernize and improve access have a history of delayed and inadequate product delivery, highlighted in reports by the GAO (2012), the VA OIG (VA OIG, 2014), and the Northern Virginia Technology Council (NVTC, 2014). Currently, tools for access to health care and operational support, such as reporting and resource allocation, do not fully support goals related to business processes, access, and satisfaction of both internal and external customers. The VistA system does not *prevent* scheduling of outpatient appointments, but its technologies exacerbate existing issues with access to appointments (as described in detail in Assessment E [Workflow – Scheduling]).

VistA Scheduling was initially developed in the 1980s and was not designed to handle the complexities and volumes required by over 100 million appointments in fiscal year 2014 (OI&T Product Development, 2014). Current operations involve workarounds and rework, producing inefficiencies and unsatisfactory results.

From a strategic standpoint, VHA has a commitment to improve scheduling and access for Veterans and recognizes that the current system may be incapable of providing the robust infrastructure necessary for the envisioned future state. For example, VistA is not aligned with the *Blueprint for Excellence* statement:

> Scheduling capabilities will need to include assessing provider productivity as related to virtual care, as well as management of virtual care encounters (resource management). Limitations of the current system include inadequate capture of provider supply and demand, as well as lack of ability to schedule resources across the system (VA, 2014c).

Currently, VistA Scheduling also performs poorly in terms of integrating mobile, web, and telehealth scheduling.

6.1   Findings

Several recent reports have highlighted challenges with VA's development and deployment of scheduling improvements. Not originally designed as a scheduling system, over time VistA has evolved into a system that does not optimally support processes or allow for efficient scheduling of appointments. Over the past decades, VA/VHA has made several attempts to modernize its scheduling system as described in the following paragraphs.

Scheduling Replacement Project

VA's Scheduling Replacement Project initiative, underway during 2002–2009, failed after VA had invested $127 million. The GAO report on this project (GAO, 2010) cited several key factors:

- The project suffered from managerial issues (no acquisition plan, ad hoc acquisition activities, and lack of competition).
- System requirements were incomplete and not sufficiently detailed.
- Earned value management data did not serve as a reliable indicator of project performance.

- Even though VA had a plan and process for managing project risks, it did not identify key risks or take steps to mitigate them.

- Although VA recognized major issues with the project through several external reviews, the lack of effective institutional oversight allowed the project to continue unchecked and, ultimately, to fail.

This project included efforts to develop requirements for the scheduling product and program, which led to the Medical Appointment Scheduling System (MASS) Request for Proposal (RFP) package under source selection as of June 2015.

The NVTC report on scheduling for medical examinations in 2014 (NVTC, 2014) noted that "VA's exam-scheduling processes are insufficiently enabled by state of-the-art technologies or (consistently applied) standard operating procedures." The report cited outdated software, inadequate performance measurement, and poor system usability as IT functions that VHA should address. NVTC also suggested that VHA improve call centers and telephone systems and adopt a system-wide approach to redesign. According to NVTC's summary of a follow-up with VA stakeholders, current or future initiatives address many of the issues noted in the report, although VA also considered some recommendations not feasible.

HealtheVet Scheduling Program

Following the failure of the Scheduling Replacement Project, VA completed an AoA in 2009 to evaluate five potential options (developed by an OI&T study team) (VA OI&T and Office of Enterprise Development AoA Study Team, 2009). In 2011, under the HealtheVet Scheduling Program, VA initiated efforts to replace the VistA Scheduling capability through a Request for Information and other measures to upgrade its legacy scheduling system.

After evaluating the HealtheVet Scheduling Program with respect to performance, cost, and schedule, VA decided to pursue a COTS solution, ultimately leading to the current and ongoing technical evaluation for MASS. An interim report by the VA OIG in May 2014 (VA OIG, 2014a) cited wait-time concerns related to deficiencies in electronic wait list management, as well as process and procedural practice issues, and made recommendations about monitoring and wait list management.

VistA Scheduling Enhancements

VHA launched the development and implementation of a VistA Scheduling Enhancements (VSE) project (due fall 2015), which will lead to some improvements. As noted above, VHA has a major technical evaluation in progress for a COTS solution for MASS that will replace many current interfaces, improve administrative functions, and automate and improve business rules, but seemingly will still rely heavily on interfacing with VistA. According to requirements for the new COTS scheduling solution, when implemented, the new product is expected to move VHA from primarily a face-to-face appointment model to a coherent, resource-based system with broad opportunities for improved services across VA stakeholders (OI&T, Product Development, 2014).

The MASS Business Requirements Document (BRD) designates the Access and Clinic Administration Program (ACAP) as the business owner for scheduling initiatives. ACAP is "a

single entity responsible for defining, standardizing and coordinating system-wide administrative clinic operations and management" (VA, 2015g). ACAP will cover outpatient access standards and workload capacity alignment, with the highest priorities being primary care, mental health, and call-center operations to include triage, queuing, and standard operating procedures. Specialty care clinic access will include establishing tracking and monitoring standards. ACAP, in collaboration with OI&T, will also serve as VA's business owner and manager for medical appointment scheduling.

Additionally, ACAP is expected to bridge the gaps and disconnects between policy and operations necessary to comprehensively define and coordinate the transformation of clinic operations. This will require standardization through consistently implemented policies, reliable and actionable performance measures, and reporting structures that facilitate accountability. The resulting fundamental business processes will ensure standardization of clinic practices across VA health care systems and will focus proactively and strategically on systemic improvements to Veterans' access to care. Assessment E (Workflow – Scheduling) contains extensive details about ACAP and its process efforts.

MASS

VHA is acquiring MASS as a COTS solution to replace VistA Scheduling over the next few years. According to section 3.1.1 of the Performance Work Statement (PWS) (OI&T Product Development, 2014),

> The objective of the MASS program is to acquire a COTS medical scheduling application, integrate it with VA enterprise, build out all required portions of VA infrastructure, and implement the MASS solution within VHA's clinical and administrative operations. Implementation includes all activities needed to deploy and install the infrastructure, configure the COTS application, and train staff who will use and maintain MASS.

Assessment H limitation: The ongoing acquisition process prevented the Assessment H team from conducting a full-scope review of the current plan to acquire MASS.

Legal constraints surrounding the technical evaluation for MASS prevented the Assessment H team from interviewing key members of the MASS team who are sequestered during the procurement. These MASS team members were involved over the life of the RFP development (initiated May 2014), and some have had a far longer involvement in VHA Scheduling and other related VHA/OI&T programs and projects. As of late June 2015, the technical evaluation continued. Therefore, the Assessment H team could not:

- Gain a deep understanding of how key VHA, VA, and OI&T integrated product team (IPT) members worked together and of successes and challenges during the requirements development process.

- Evaluate early design plans and ascertain how and/or how well the new vendor will be able to begin development and integration.

- Discover the opinions of key IPT members as to the completeness of the RFP, key factors in a successful rollout, any changes critical to success, and the readiness of both VHA and OI&T for such a large-scale rollout if/when an award is granted.

This group could have provided significant insight, given that members have decades of experience in program, project, and IT implementations, and understand the strengths, challenges, and opportunities of MASS.

VistA Evolution Program

Under the VistA Evolution program, VSE will also support MASS procurement and will ensure that any COTS products adhere to the VistA 4 roadmap (see Section 5 and Appendix A.3 of this report for more information on the VistA Evolution program). Notional roadmaps and interviews indicate that VSE and MASS will produce some improvements for schedulers, in particular an improved graphical user interface, as early as fall 2015.

Telephony

Telephony plays an integral role in scheduling, as many Veterans make VHA appointments on the telephone via schedulers and various call center systems. This section briefly examines aspects of VHA telephony IT, but an evaluation of VA's telephone systems does not fall within the scope of Assessment H. Additionally, while these dependencies exist, fixing VA's telephone issues lies outside the scope of MASS.

Outdated technology hinders VHA telephony from achieving enterprise-wide success because interim solutions are managed locally, which restricts some national-level initiatives and prevents VHA from realizing economies of scale. As detailed in a December GAO report titled "Reliability of Reported Outpatient Medical Appointment Wait Times and Scheduling Oversight Need Improvement" (GAO, 2012b), outdated technology, limited human capital, high call volumes, and lack of call centers had a negative impact on the Veteran experience. This GAO report recommended oversight and process changes in order to improve conditions and responsiveness, including VISN-level oversight and routine monitoring. Assessment E has detailed the current state of call centers, focusing on opportunities and weaknesses across VHA. Improvements to the phone systems must be prioritized appropriately against other expensive, pressing needs in CPRS, scheduling, cyber, and other areas.

Recent efforts to improve telephony have shown some successes through policy standardization, and some call-center pilot activities have had positive results. However, the Managing Veterans Access via the Telephone (MVAT) plan outlines an extended timeline and will require enterprise-level effort and funding. Existing artifacts produced by VA describe limitations to the current system in detail and indicate that the solutions noted will not be easily funded or implemented (VA, 2014d).

VA can and should address issues related to business and operations (discussed in Assessment E) with solutions that support IT modernization related to VHA phone systems.

Relevant Health Care Objectives and Business/Clinical Strategies

Future scheduling systems should reflect the overarching vision of VA to "improve the quality of care for Veterans with complex medical conditions through an evolving approach to personalized, proactive, and patient-centered care" (VA, 2014c). The current VistA scheduling system is difficult to use and does not provide adequate insight into business operations. Table 6-1 summarizes the strengths and weaknesses of VHA scheduling IT systems.

Table 6-1. Summary of VHA Scheduling IT System Strengths and Weaknesses

Strengths	1. ACAP is making process and policy changes that will complement ongoing and future IT improvements. The ACAP team has deep insight into the issues around scheduling and will provide strong insight as the MASS activity is initiated.
	2. Recent efforts have improved access to appointments for Veterans, and VSE will ameliorate some critical issues with scheduling when employed in the operating environment by fall 2015.
	3. The Scheduling Program Council (SPC) is addressing the larger concept of access via scheduling modalities across VHA, and is bringing together leadership with the authority and vision to drive change.
Weaknesses	1. Inconsistent/poor relationships between VHA and OI&T over the years have slowed initiatives and improvements in scheduling. This systemic organizational issue has manifested itself within scheduling.
	2. The current VistA scheduling system exacerbates inadequate processes and procedures that currently impede access to care.
	3. System-wide scheduling initiatives so far lack fully supported governance to guide prioritization, funding, resource allocation, etc.

Efforts to improve access to health services through the development of various scheduling products and enhancements have included some collaboration between OI&T and VHA. Misalignment of funding streams and accountability have led to delays in schedules, failed development and deployments, and failure to incorporate appropriate business requirements and features into the operating environment. Unless VHA and OI&T realign governance, funding, and accountability, any product development or implementation will risk delaying improvements in access and lead to inefficiencies and higher costs.

Finding 6.1.1: The RFP package for the COTS MASS scheduling product has been developed over several years and was built on decades of experience, lessons learned, evaluations, and analyses. However, without enterprise-level improvements in management processes and governance, there is a risk that the MASS project will not succeed.

Components of IT design, planning, and implementation that are not yet fully planned and funded, and whose scope is not understood, pose particular concern. Specific shortfalls include standardization of clinic profiles, education and training, policy changes, resourcing and budget allocation, organizational challenges, the effect of the COTS product on VistA, and full lifecycle cost assessments. VistA Evolution program evaluations included high-level ROI assessments for scheduling initiatives (VA, 2014); however, the Assessment H team could not discover a detailed, current analysis.

Finding 6.1.2: The deployment of the MASS COTS package will require significant adaptation of existing VHA scheduling processes and an unknown amount of custom software

development to achieve effective integration with other VA systems, including the multiple instances of VistA across VAMCs.

Section 4 describes factors that will likely affect a project as large as MASS, including the following:

- **Culture and Leadership.** Many Assessment H interviews across VA noted lack of effective collaboration between OI&T and VHA with respect to IT strategies. Like any large program, MASS must overcome process and cultural hurdles, but ACAP is adapting policies and procedures to satisfy requirements for the next phases of the program (see Assessment E). Top-down accountability and collaboration of both business and technical leadership will prove key to delivering business and technical requirements to the operational environment throughout the life of this project.

- **Planning.** Difficulties in translating clinical goals into IT requirements may complicate the implementation of MASS. While some reports indicated a good working relationship between OI&T and VHA during the RFP package development, history and the inability to gather firm evidence to the contrary (due to sequestration) would indicate that risks related to design and planning remain.

- **Resourcing.** According to interviews across VA, allocation of resources remains inconsistent and insufficient despite efforts to improve the process, and interviewees reported incomplete lifecycle planning pertaining to project funding. Considering the complexity and scope of MASS, the potential for scope and feature modification along the way, and the reported issues related to delivery of business requirements, consistent and adequate resourcing could pose concerns throughout the life of the project.

- **Implementation.** Currently VHA and OI&T take a fragmented approach to large-scale health IT development. MASS documents provide a great deal of information for potential vendors about integration points and related requirements, but VA so far has not succeeded in solving large-scale system problems, and governance issues noted could impact many facets of implementation. VHA and OI&T could ease implementation issues through ongoing efforts to coordinate business, technical, functional, and non-functional requirements across programs and offices.

- **Infrastructure.** Any implementation with the scale of MASS will require highly detailed plans and oversight at many levels and throughout the development and delivery process. The project will involve many technical challenges, including numerous dependencies and the need for many data exchanges. In an effort to improve and simplify some scheduling features across the system, ACAP has begun work on standardization that will support national-level business rules, data capture, and other aspects of MASS, as detailed in Assessment E.

Finding 6.1.3: VA does not yet have a robust, detailed strategy and roadmap for scheduling initiatives across VA that integrates Veteran access to scheduling via phone, telehealth, and mobile apps.

VHA envisions a "Single View of the Veteran" (described in the MASS Business Blueprint; VHA 2014b) that demands consistent, accurate, secure data capture and exchange for the Veteran

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experience, including support for scheduling modalities. The MASS Business Blueprint and the MASS PWS (VA OI&T Product Development, 2014) note that the new MASS vendor must support web and mobile requests by Veterans, and as such the documents list such requests as unique, high-priority business needs. They also cite the need to support telehealth as a medium. While the Connected Health FY15-16 Operating Plan V19 delves deeply into mobile apps and serves as a roadmap for that program, it makes little mention of MASS or the larger scheduling initiative.

However, interviews conducted during the Assessment H study indicated that VA has recently made progress in its scheduling efforts. VA has tasked the Scheduling Program Steering Committee (SPSC) that supports the SPC with oversight of the individual ad hoc teams that will aid the SPC. The SPSC represents the major stakeholder groups that will integrate with MASS and scheduling initiatives, and it will likely include stakeholders from Connected Health, VSE, MASS, the HealtheVet (HeV) portal, and others. While the new SPC has had some difficulty gaining traction as a formal entity, limited reports indicate that the stakeholders have made inroads in recent weeks and months during the technical evaluation of MASS, and that leadership levels have achieved some concurrences around budgets and priorities.

Finding 6.1.4: VA must refresh the technology of its telephony system to support scheduling process changes. Some pilot projects that have developed call centers have succeeded, but resources (funding, human capital) and the lack of consistent guidance and prioritization have limited progress across the system.

The VHA phone system performs poorly in data collection, warm transfers, and other customer-facing features, as described in a white paper developed by the VHA Offices of Primary Care Service (10P4F), Primary Care Operations (10NC3) and Access and Clinic Administration Program (10NA12) in December 2014 (VHA, 2014d). Assessment H found the same challenges in leadership, funding, expertise, and prioritization described in this paper. The MVAT Project that supports the Telephone Access and Contact Management (TACM) Office is addressing some of these issues, but the timeline presented extends over 15 years with core concepts identified on a 7–10 year roadmap (VA, 2014d). VHA could shorten that timeline by dedicating additional resources, potentially increasing Veteran access and satisfaction.

6.2 Recommendations

The VA/VHA scheduling program reflects many of the same strengths and risk factors seen across other VHA programs. Recent and ongoing programmatic achievements such as VSE, on track to rollout enhancements by fall of 2015, and the MASS effort to date, highlight the enormous effort that VHA has devoted to improving a dynamic environment with unique drivers and metrics, a convoluted legacy infrastructure, embedded cultures, and the need to counter negative press. Still, risks inherent to the infrastructure, governance, and resource planning, along with lack of human capital, hamper the program's ability to plan, build, implement, and maintain systems and technology.

Modernization of scheduling and telephone systems should provide access for both new and established Veterans seeking care within VHA. Improvements to the existing scheduling program, as well as the planned phase-in of MASS, should lead to efficiencies, cost savings,

expanded access, and higher satisfaction from internal and external customers. These improvements should foster innovations in health modalities such as telehealth, virtual care, and mobile engagements. Development of key metrics and consistency in data capture and sharing should help VHA transition into a more data-driven organization and allow VHA to better forecast supply, demand, and other operational drivers.

Continued investments in phone systems over time, with strong considerations for a shorter timeline than is seen in current plans, should support VHA's goals of improved access and customer satisfaction. However, VHA makes these investments in scheduling and telephone systems at the cost of other investments; thus, an enterprise-level understanding of the costs and benefits across all VA projects will prove key to success. Without significant cultural and organizational changes, there is risk to any path forward for these initiatives. The SPC is making strides toward establishing accountability and governance at the appropriate levels, but will require time, effort, and resources to reach its potential.

A holistic approach to improving access through scheduling initiatives and modernization should provide VA/VHA with improved access and outcomes at a better cost over time. However, the lack of effective collaboration and high-level planning, difficulty in data translation, poor resource allocation, and an overly complex infrastructure hamper design, development, and execution. Table 6-2 shows a summary of VHA scheduling opportunities.

Table 6-2. Summary of VHA Scheduling Opportunities

1. VHA can provide cradle-to-grave support for scheduling initiatives once prioritizations are determined. MASS is currently under technical evaluation, creating opportunities to exploit new governance structures (SPC) and build the path forward through experience and action.
2. Through the SPC there is an opportunity to make impactful decisions that align business and clinical needs under a fully considered budget. This Council has the line authority and leadership-level vision to make the hard decisions that will be required to balance needs in scheduling against needs of EHRs, phone systems, innovations, cyber, and other high impact areas. Full support of this team at all levels of governance will ensure that the voice of the front line is recognized and considered within the existing fiscal constraints.
3. Improvements in scheduling should dramatically increase access and satisfaction, as well as data quality, productivity, and operational reporting capabilities.
4. Enhanced transparency will help to rebuild trust with the community of Veterans.
5. Developing/aligning scheduling capabilities across modalities (outpatient, telehealth, mobile apps, etc.) should provide the 21st century access that Veterans desire.
6. Broadening and improving scheduling capabilities will provide more opportunities for Veterans to become active partners in their own care.
7. VSE and MASS will improve operations and free up human capital, potentially leading to shorter wait times for traditional outpatient appointments, an increased capacity for telehealth and other provider/Veteran engagement modalities, and cost savings.
8. Heavier investments in telephone systems could improve access and shorten the timeframe for improving access and services, albeit at the expense of other projects.

Recommendation 6.2.1: VA should develop a more detailed strategy and roadmap encompassing outpatient scheduling, mobile apps, telehealth, and modernized phone systems to ensure success of the COTS MASS product acquired.

Without full support of an enterprise-level strategy and budget allocations, these ongoing and future efforts will produce only moderate gains in access to health services, Veteran satisfaction, and operational efficiencies. As previously detailed in this report, strengthening or modifying IT business and technical processes will aid delivery of capabilities into the operating environment. To do so, VA should take the following actions:

- Support the SPC (and SPSC) fully as soon as possible as this group has the appropriate level of vision and insight, as well as the authority and diversity, to initiate and drive change where and how it is needed. VA should address any outstanding concerns or leadership issues, and modify and formalize any charter and governance documents to ensure engagement.

- Refine the strategic funding and resource processes to align technical and clinical goals. VA should realign access and scheduling initiatives (MASS, mobile, telehealth, etc.) so that stakeholders understand all aspects and will support prioritization at an appropriate level.

- Once the contract for MASS is awarded, develop a roadmap to include all aspects of VHA scheduling (telehealth, mobile, phone systems, etc.) and use the roadmap to guide integration of scheduling across VHA clinics and management applications and new technologies as appropriate. VHA must integrate cross-program efforts, and this will demand a more robust strategy and roadmap that address all of the modalities involved. The SPC should make decisions soon after award about prioritizations related to MASS and scheduling across VHA. Through this, VA could gain better short-term and long-term insight into fiscal planning and requirements.

- Through the SPC or related efforts, align all OI&T and VHA activities related to access to execute a health IT strategy that will contribute to improving Veteran health. Better alignment of program business needs with technical requirements, specifically for MASS, mobile, web, and telehealth, could reveal economies of scale, provide insight into future collaborative efforts, support better prioritization, and spur innovation. This would help to associate IT outcomes more tightly with clinical outcomes to improve Veteran health and satisfaction.

- Perform regular assessments of scheduling-related core services of COTS versus continued in-house development to ensure that VHA delivers the best products at the best value to the operating environment. VHA should initiate this process as soon as possible after the launch of MASS, with evaluations at each step of design to determine and prioritize products best suited for funding. VHA should evaluate cost versus benefits of leveraging existing systems over new ones with consideration for all aspects of lifecycle costs and impacts. This may demand that the SPC conduct additional studies after the contract for MASS is awarded.

- Incorporate full lifecycle costs into integration and interoperability plans early on, providing insight into resource allocations and future funding requirements. This, too, may call for additional SPC studies after MASS contract award.

- Ensure that the portfolio of metrics developed for MASS provides an assessment of impacts on Veterans with each incremental deployment, as well as insight into costs, so that robust cost assessments can be used for decision making. With regular assessments of products and options, VHA could develop a well-balanced portfolio of COTS and in-house products that best meets the needs of Veterans and drives improvements in clinical outcomes.

7 Clinical Documentation

Clinical documentation includes clinical images and associated textual reports that cover clinicians' descriptions of episodes of hospital care, medical services, and other health care. This section examines clinical documentation practices within VHA, including the means by which clinical documents are created (the documentation process) and the documents produced by the system.

7.1 Findings

VHA was once a leader in clinical documentation, adopting best practices ahead of the majority of health care institutions in the United States. Unfortunately, in 2015, the clinical documentation produced by the VHA health system is, at best, average in terms of quality and support for data standards. VHA has lagged in the movement towards greater standardization of clinical documentation practices, particularly with respect to the incorporation of standard structured and coded terminologies. This lack of standardization has impeded communication inside the VHA system, made it harder to develop effective clinical decision support systems, and caused downstream challenges and shortcomings in health information exchange and analytics.

Capturing relatively little information in machine-readable form hampers VHA's ability to examine its clinical, operational, and financial performance and to exchange data among VA facilities and with third parties. Moreover, the failure to adequately utilize coded terminologies and standards in the capture of data during the clinical documentation process, as well as additional limitations in information exchange, reduce VHA's ability to measure outcomes of care and learn from them – impeding the creation of a continuously learning health system.

Observations regarding clinical documentation cover:

1. **Point of Care (POC) Documentation Systems.** The assessment of clinical documentation must consider: (1) the *practice* of documenting health information, whether on paper or through an information system; and (2) when electronic systems are used, the manner in which those systems support clinical documentation best practices. While Section 5 examines VA's EHR capabilities, this section centers on the ways in which clinicians use the current EHR to document care as well as on the quality of the clinical documentation produced by POC systems.

2. **Data Quality Management and Clinical Documentation Improvement (DQM/CDI) Programs.** The quality of clinical documentation depends on both the quality of the data and adherence to data standards that impose consistent syntax and semantics (i.e., harmonization of data definitions, as well as incorporation of standard nomenclatures, terminologies, classifications, and code sets). Monitoring data quality, documentation for coding, and adherence to data standards help identify any clinical documentation issues, as well as the appropriate interventions (e.g., face-to-face training programs vs. handouts) to address them.

3. **Secondary Data Use.** VHA uses data from POC systems for analytics, reporting, and health information exchange. Each of these activities requires that data be cleansed and transformed for the particular purpose. These data cleansing and transformation processes yield valuable insights into the manner in which POC systems can collect data, balancing the data needs for health care delivery, transitions of care, and analytics.[12]

4. **Feedback Loop.** Feeding back the insights and lessons learned from DQM/CDI programs and secondary data use initiatives in the form of system requirements (e.g., data validation routines, standards-based copy-and-paste functionality, proper use of codes) can result in enhancements to IT systems such as VistA and CPRS, or in specifications for future IT products such as those planned for the VistA Evolution program. These insights can also suggest updates to clinical documentation best practices that will support clinical decision support in future systems.

The above components, as shown in Figure 7-1, demand a comprehensive, integrated, and collaborative approach among product development, health information management, and analytics staff, as well as the clinicians who use POC systems. Moreover, the implementation of these components in an integrated manner conforms to the principles of a learning health system.

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[12] The description of analytics and secondary data use is provided as background on the analytics issues related to clinical documentation; it is not intended to describe the wider area of informatics and analytics. Section 8 contains a more detailed description of informatics findings and recommendations.

Figure 7-1. Assessment of Clinical Documentation
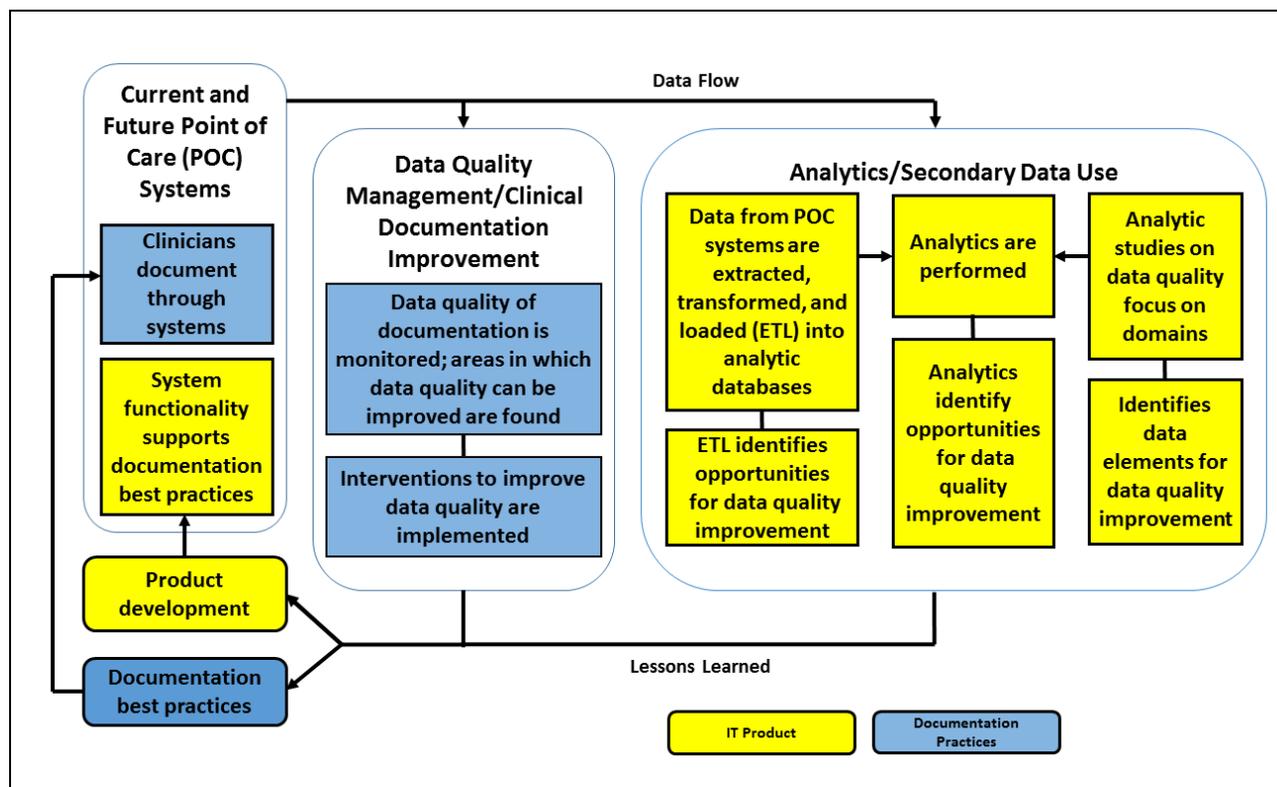
Source: MITRE rendition of VHA process.

Relevant Healthcare Objectives and Business/Clinical Strategies

The VA *Blueprint for Excellence* (VA, 2014c) advances four themes and 10 strategies that together frame a set of activities aimed at improving VHA health care, building a service culture, transitioning from "sick care" to "health care," and developing more agile, efficient business systems. Theme One of the *Blueprint* centers on improving the performance of VHA with respect to the current delivery system. The *Blueprint* states that:

> VHA is fortunate to have a longstanding electronic health record, offering the possibility of generating "big data" related to care and health. Advanced analytics should be used predictively to identify and intervene on risks, improving the outcomes for individuals, cohorts, and the overall population of Veterans enrolled for care within VA.

VHA captures the majority of data coming out of EHRs during the documentation of care in the form of clinical documents and reports. Thus, effective analytics have a critical dependence on the quality of clinical documentation (see Section 8).

Under Theme One, Strategy Three states: "Leverage information technologies, analytics, and models of health care delivery to optimize individual and population health outcomes." This strategy describes two transformational actions that rest squarely on best practices in the creation of clinical documentation: "Enhance the interoperability of Health Information with DoD and the Private sector" and "Enhance Clinical Decision Support using Analytical Systems and Predictive Analytics (VA, 2014c).

Finding 7.1.1: VHA lacks a comprehensive and collaborative approach for producing clinical documentation. Clinical documentation tools do not collect key data in a consistent or standardized manner and often lack the functionality to support current documentation best practices.

To assess the general quality of clinical documentation generated by VHA facilities, the Assessment H study team used the American Health Information Management Association (AHIMA) guidelines (AHIMA 2007), which assess clinical documentation according to parameters that include:

- Accuracy—Ensure data are the correct values, valid, and attached to the correct patient record.

- Accessibility—Data items should be easily obtainable and legal to access with strong protections and controls built into the process.

- Comprehensiveness—All required data items should be included. Ensure that the entire scope of the data is collected and document intentional limitations.

- Consistency—Value of the data should be reliable and the same across applications.

- Currency—Data should be up to date.

- Definition—Clear definitions should be provided so that current and future data users will know what the data mean. Each data element should have clear meaning and acceptable values.

- Granularity—Attributes and values of data should be defined at the correct level of detail.

- Precision—Data values should be just large enough to support the application or process.

- Relevancy—Data are meaningful to the performance of the process or application for which it is collected.

- Timeliness—Timeliness is determined by how and when the data are being used and the context.

The Assessment H study team identified documents containing similar guidance distributed by VHA. These documents conveyed clear expectations for clinical documentation generated at VHA facilities (VA_AssessH_COR_156, 2014); however, interviews indicated that Health Information Management (HIM) departments and staff at the VISN and hospital levels interpret these standards in different ways. Clinical documentation provided and related activities most often pursued at many hospital level HIM departments appeared to focus on the proper coding of diagnoses and testing for attributing costs, with less attention to the general quality of documentation from a clinical perspective as detailed in the AHIMA and VHA documents. By contrast, VA's Office of Information and Analytics (OI&A) emphasizes the structure and coding of clinical documentation to support clinical decision support and analytics. Most activity advocating standardization of key clinical data has come from OI&A. Thus, both AHIMA and VHA have established initiatives aimed at improving different aspects of clinical documentation. VHA would benefit from better planning, coordination, and collaboration between these and other groups that contribute to the quality of clinical documentation produced by VHA systems.

Finding 7.1.2: The quality of VHA clinical documentation produced by current systems does not support accurate and optimal analytics or clinical decisions. Unclear definitions of data elements and extensive free text entries within clinical documents impede the creation of effective analytic data resources.

As noted in Section 5, Assessment H interviews revealed that most clinicians are moderately satisfied with the flexibility and functionality of the CPRS user interface—their primary system for creating clinical documentation. VistA and CPRS capture some data in discrete fields and retain the data in coded form. However, clinicians enjoy the flexibility of entering a significant portion of the data as unstructured "free text," reporting that this allows them to convey a richer patient story and context that helps them better understand their patients.[13] This flexibility (1) introduces variability in clinical documentation; (2) demands greater effort to extract quantifiable data as well as monitor, cleanse, and transform the data downstream (VA OI&A, 2014b and 2014c); and (3) results in analytics or reports that contain different results although they were ostensibly drawn from the same data, undermining trust in the information.

Finding 7.1.3: Current VHA clinical documentation practices do not adequately support accurate measurement of quality, safety, or performance metrics.

Capturing information in a semantically clear, machine-readable form has an important impact on measurement of operational performance, quality, safety, costs, and support for general analytics. VHA's ability to provide these functions depends on making a greater portion of the data generated in the course of documenting care accessible in this form throughout VHA in order to assess these measures at a single site, within a VISN, or across the entire VHA system. Currently, the widespread use of unstructured, uncoded text in clinical documentation and the failure to support emerging clinical documentation exchange standards force VHA to exchange data in a manner that the data recipients cannot interpret without manual intervention (VA OI&A, 2014b and 2014c).

To enable large-scale measurement of performance, quality, and safety, and to build effective analytics, IT systems must capture data in a way that supports these functions. This usually means adhering to a standard for each data type, capturing information via the use of coded terminologies, and structuring forms to contain as much coded data as possible. However, requirements to capture too much data in coded structured form can slow down the physician and degrade the physician-patient interaction. It also can add time to the documentation process for busy physicians. Clinicians can easily enter certain data, such as problems and medications, in structured form, but other data types, such as medical history, are less suited to structured entry.

Ultimately, VHA must find a balance that captures useful information efficiently without compromising physician or patient experience (Rosenbloom et al., 2011). To improve speed, vendors and their physician users have developed various shortcuts for documenting care, such

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[13] Section 5 contains a more detailed assessment of CPRS. The description of clinician use and satisfaction with VistA and CPRS in the present section is provided only as background on implications for clinical documentation.

as cutting-and-pasting of prior notes, "copy forward" functions, and macros that create large blocks of text quickly. While these techniques may accelerate the process, they result in large amounts of unnecessary text (so-called "note bloat") and sometimes introduce errors, while at the same time making it difficult for other clinicians to read and understand the patient's true situation. The Medical Informatics Committee of the American College of Physicians has developed guidelines to deal with this phenomenon (Kuhn, Basch, Barr, & Yacket, 2012).

Today's best systems balance all competing needs to produce high-quality clinical documentation (Schiff & Bates, 2010; Silow-Carroll, Edwards, & Rodin, 2012). VistA and CPRS capture some data types in coded form—most notably problems, laboratory data, medications, and allergies—but could capture more information in structured coded form without unduly burdening clinicians. Assessment F (Workflow – Clinical) found, "In spite of national efforts to address these issues [appropriate use of copy-paste functionality] through mandated monthly EHR quality reviews, VHA clinical staff and medical coders reported that challenges persist: 80 percent of sites reported limited template utilization or use of suboptimal templates and 55 percent reported inappropriate use of copy-paste."

Finally, many specialists at non-VA hospitals and practices increasingly use natural language processing to extract important data from free text records. This technology can sometimes extract coded concepts from text, freeing physicians from the need to laboriously enter this information themselves. Increasing use of this new technology should improve physician productivity and VA should explore its use.

Finding 7.1.4: The standards and terminology used in clinical documentation, as implemented by VistA and CPRS, do not suffice to enable interoperability across multiple systems within VA, as well as between VA and non-VA facilities, including payers, private sector providers, DoD, and individual Veterans.

VHA must exchange health-related data between VHA facilities and increasingly with non-VA health care facilities at which Veterans receive treatment. VHA facilities have difficulty exchanging data with each other and find it nearly impossible in most cases to send information electronically to outside health care facilities. This results in part from the lack of clear standards for the exchange of clinical documents between facilities.

Commercial vendors are rapidly adopting certain standards, such as the HL7 Consolidated Clinical Document Architecture (CCDA) and the Fast Health Internet Resources (FHIR) standard, which will soon allow far greater exchange of data. By embracing these standards and creating the necessary application programming interfaces (APIs) to support interchange using these standards, VHA would greatly enhance the communication and quality of care received by Veterans treated at multiple sites. Finally, beyond improving the quality of clinical documentation and the quality of care, greater exchange of data will also increase VHA's ability to measure health care results and use this information to improve future care.

Finding 7.1.5: Clinical imaging and document archival systems are functionally adequate; however, accessing raw images and reports from within clinical workflow processes can be awkward and often requires users to navigate multiple systems.

CPRS users wishing to access medical images and reports must often navigate to native VistA imaging systems and/or document archival systems—particularly when attempting to review third-party reports that are currently mailed and scanned for incorporation into VistA with little accompanying metadata. Researchers also have difficulty searching for the images they need and extracting data from images and associated text reports because CPRS lacks sufficient metadata on many of the images to make extraction practical. VHA is aware of these shortcomings and has planned for improvements both in current systems and as part of the VistA Evolution program.

Interviewees characterized support for other clinical imaging systems as adequate but providing little opportunity for substantive improvements or innovation. VHA currently has a project underway to create a centralized optical character recognition (OCR) capability that will securely scan and extract metadata, including encounter-level information that will give clinicians much faster access to data. Finally, the improvements noted above will create an opportunity for previously impossible image mining and analytics.

7.2 Recommendations

VHA should reduce the amount of unstructured data in clinical documentation by analyzing instances in which IT systems could collect currently unstructured data as discrete structured data and by changing the data field definitions over time. At the same time, VHA must consider the need to balance maintaining ease of documentation for clinicians and providing more computable data for downstream analytics needs.

Recommendation 7.2.1: VHA should implement a broad process, involving clinicians, to pursue requirements that support clinical documentation best practices and improved functionality and usability while taking into consideration the positive aspects of existing systems.

Where analyses conclude that unstructured text (free text) remains the best means for capturing detailed clinical data, VHA should accelerate informatics efforts to study and deploy emerging technologies (e.g., natural language processing) that can parse unstructured data and reliably extract computable structured data. Implementing a comprehensive integrated clinical documentation quality program and fully engaging stakeholders in IT product development will help VA/VHA balance ease of documentation with the collection of computable data and increase the potential for more robust software functionality in the VistA Evolution project.

Recommendation 7.2.2: VHA should accelerate efforts to establish semantic definitions for data elements through the use of standard nomenclatures, terminologies, and code sets to improve exchange of data and interoperability among VA facilities and with payers and non-VA providers.

VHA should incorporate current data standards into initial releases of VistA Evolution, rather than wait for later releases. By doing so, VA/VHA can ensure consistency and integration across multiple systems, leverage development and implementation of follow-on IT products, and facilitate clinical decision making, analytics, quality, safety, performance measurement, and health information exchange.

Specifically, VHA should invest in the technologies needed to exchange HL7 clinical documents containing more computable structured data. This may require developing business drivers that motivate non-VA facilities to implement HL7 CCDA, FHIR, and other applicable standards on their side of the exchange process. Exchanging more standardized computable data will promote interoperability in the health care industry and could position VA/VHA as an industry leader in this area. Engaging in industry-level data standards and information modeling initiatives (e.g., HL7, Clinical Information Modeling Initiative) should benefit similar VA/VHA efforts, promote adoption of data standards across the health care industry, and place VA/VHA in a leadership role.

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8 Informatics and Analytics

VA formed OI&A in February 2011 to "Support patient-centered care by facilitating the deployment of innovative, secure health data systems and collecting, analyzing and disseminating the highest quality health information for Veterans, caregivers, clinicians and administrative staff for decision-making" (VA, 2014a). In December 2012 the majority of the Office of Health Information (OHI) was realigned with OI&A to leverage both health data and health IT.

Relevant Healthcare Objectives and Business/Clinical Strategies

OI&A provides capabilities and services that are critical to the themes, strategies and transformational initiatives described in the *Blueprint for Excellence* (VA, 2014c). Theme One of this *Blueprint* centers on improving the current delivery system. Under this theme, Strategy Three states: "Leverage information technologies, analytics, and models of health care delivery to optimize individual and population health outcomes." One of the transformational initiatives associated with this strategy, "Enhance Clinical Decision Support using Analytical Systems and Predictive Analytics" (VA, 2014c), depends heavily on OI&A. The third theme focuses on advancing health care innovation for Veterans and the country. OI&A contributions are also critical to the success of several transformational initiatives associated with Strategy Seven ("Lead the nation in research and treatment of military service-related conditions"): "Rapidly Translate Research Findings and Evidence-Based Treatments into Clinical Practice," "Conduct Veteran-Focused Comparative Effectiveness Research," and "Enhance VA Research with Health Informatics."

IT Systems Used for Informatics and Analytics

OI&A provides reporting and analytics capabilities through the:

- CDW (Corporate Data Warehouse): Data, infrastructure, and tools housed at the Austin Corporate Data Center Operations (CDCO), covering national clinical, financial, and administrative data from across the enterprise
- RDW (Regional Data Warehouse): Data, infrastructure, and tools housed in OI&T Regions 1–4 , covering VISN clinical, financial, and administrative data collected through the CDW process
- VINCI (Veterans Informatics and Computing Infrastructure): Data, infrastructure, and tools used to support the Health Services Research community as well as the advanced analytics needs of the enterprise

The VistA systems (described in Section 5.1) and the clinical documentation records (described in Section 7.1) feed the CDW, RDW and VINCI.[14] CDW consolidates the highest priority domains of key clinical and operational data and permits near-real-time analysis and reporting. VHA produces a number of dashboards, graphs, maps, and reports from CDW data. These products are aimed at assessing treatment safety and effectiveness, improving patient care, monitoring

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[14] http://www.hsrd.research.va.gov/for_researchers/vinci/cdw.cfm

costs and efficiencies, and preparing for national emergencies. The consolidation of reporting systems and activities through the OI&A allows VHA to generate authoritative analysis with more consistent results.

Although the CDW was created primarily to support health care delivery, researchers also use its contents. VINCI provides secure workspaces for informatics researchers to use this data in experiments with advanced tools such as the Hadoop framework for processing large data sets across clusters of servers, machine learning software, Bayesian statistical analysis tools, human factors analysis, and natural language processing tools. In the research arena, analytics are moving from a traditional encounter-based view of patient care to a more longitudinal population-based view of groups that researchers could use to predict the outcome of care and assess health interventions in a risk-based way.

The numbers below, drawn from CDW training materials, provide a glimpse of the volumes of data stored:

- Unique Veterans: 20 million
- Outpatient encounters: 1.6 billion
- Inpatient admissions: 9 million
- Clinical orders: 3.2 billion
- Lab tests: 5.6 billion
- Pharmacy fills: 1.5 billion
- Radiology procedures: 162 million
- Vital signs: 2.3 billion
- Text notes: 2.0 billion.

8.1   Findings

OI&A seems positioned to lead VHA's transformation into a learning health system that can achieve better Veteran health, better care, and lower costs. However, the slow pace of VA's IT development, the constraints imposed by old systems that pre-date modern technologies and health data standards, and limits on resources constrain OI&A's ability to succeed.

Informatics and analytics capabilities in VHA leverage VistA, which became operational in 1985, and the associated CPRS user interface. Since 2004 VHA has used VistA/CPRS to document clinical activities, retrieve results, and enter orders for medications, procedures, and consultation. Local sites developed early analytical tools and used them to extract structured data, create facility-level reports, and identify practices that improve the quality of patient care. Although VHA has obtained some analytical value through these methods, technical limitations of VistA/CPRS continue to hamper true progress in advancing informatics and analytics (see Sections 5, 7, and A.3).

OI&A has formed some effective partnerships and shows evidence of producing analytic products for use across VHA (Findings 8.1.1 through 8.1.3). However, VHA's aging information systems limit its ability to keep pace with rapid advances in the field of health informatics and

analytics. Section 5 of this report describes the challenges and root causes of the issues with VHA's information systems, and the high cost of maintaining them. Findings 8.1.4 through 8.1.6 center on the impacts that these systems limitations have on the ability of VHA to perform accurate and useful informatics and analytics functions.

Finding 8.1.1: Research partnerships have proven effective in expanding and demonstrating the value of VA/VHA informatics and analytics capabilities.

OI&A occasionally partners with other components of VHA and with external health organizations to conduct analytic research on key health challenges of the Veteran population. An example is a recently published collaborative effort between the National Institute of Health, the VHA office of mental health operations, the VHA office of public health, VHA mental health services, OI&A, and VISN 2. The research team performed statistical analysis on clinical data from the VHA National Patient Care Database, a collection of integrated patient care data from all VistA systems. The study analyzed hundreds of variables, including clinical, demographic, military service history, behavior, mental health, and drug use factors. The model used succeeded in accurately predicting subgroups with suicide rates up to 80 times higher than VA patients as a whole, and found that current practices do not flag all patients in the high risks groups (McCarthy et al., 2015).

In FY14, VINCI supported over 600 Health Services Research & Development (HSR&D) projects. Projects included studies on self-directed violence and suicide, homelessness, post-traumatic stress disorder, military sexual trauma, end of life care, hepatitis C, acute kidney injury, and traumatic brain injury, just to name a few.[15] VHA has also established a set of policies and procedures that enable sharing of data in secure workspaces with research institutions, while complying with privacy and security regulations. One example mentioned during Assessment H interviews was a collaboration with IBM on application of the Watson predictive analytic capabilities to the health care domain, initially exploring the utility of Watson for post-traumatic stress disorder.

Finding 8.1.2: Strategic Analytics for Improvement and Learning Value Model (SAIL) reports supply valuable information across VA/VHA.

Operational Analytics and Reporting (OAR) within OI&A produces a quarterly report called SAIL, which offers high-level views of health care quality and efficiency at VHA. SAIL has grown and improved since 2012 with the addition of new measures and new facilities. As of June 2014, the SAIL reports included data from 128 VAMCs that provide acute inpatient medical and/or surgical care to Veterans and 19 facilities that do not offer acute inpatient medical and/or surgical care (VA, 2014c; VA, 2014d). SAIL reports are adapted from the Truven Health Analytics' Top Health Systems Reports,[16] and include all eight inpatient Truven measures as well as additional measures related to health care quality, employee satisfaction, quality of life, and efficiency. As of 2014, the reports included measures across the following domains:

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[15] Research highlights for several of these projects can be found at
http://www.hsrd.research.va.gov/publications/forum/oct14/default.cfm.

[16] http://truvenhealth.com/

- Acute care mortality

- Avoidable adverse events

- CMS Risk Standardized Mortality Rate (RSMR) and Risk Standardized Readmission Rate (RSRR)

- Length of stay

- Performance

- Customer satisfaction

- Ambulatory Care Sensitive Condition (ACSC) hospitalizations

- Clinical wait times and call center responsiveness

- Clinical efficiency

- Administrative efficiency

Quarterly reports graphically depict both scores at each participating facility and aggregate scores, and show the degree of improvement from one quarter to the next. The reports highlight successful strategies of top performers and help facilities identify areas for improvement.

An investigation of the actual use of SAIL reports in each of the facilities was beyond the scope of the Assessment H study. However, other Section 201 assessments have found evidence that SAIL reports drive behavior changes in some facilities and that OAR should further improve the reports.

- Facilities view a high score on the SAIL report as a source of pride, suggesting that leaders pay attention to their reports and seek ways to improve their scores (Assessments F [Workflow – Clinical] and L [Leadership]).

- Some facilities have discovered inaccuracies in underlying EHRs from which SAIL metrics are derived and have taken steps to improve the accuracy of clinical documentation at the point of entry through better training and education (Assessment F).

- The sheer number of operational performance measures overwhelms some leaders, making it difficult to focus on the most important items. While SAIL has not replaced the existing hundreds of performance measures, the reports now align more consistently to the VHA mission and are seen as a foundation upon which improved target setting could be built. (Assessment L).

Finding 8.1.3: Analytical reports and products provide useful insight and support decision making by VA/VHA organizations.

The Business Intelligence Service Line (BISL) FY14 Annual Report (VA, 2014f) describes some of the standard analytical reports and products built from corporate and regional data warehouses. Those products align to Veteran health and VHA business outcomes as follows:

- Improved Veteran access:
  - Supervisory appointment tools improve efficiency and accuracy of appointment creation.

- Improved Veteran quality of care:
  - o Electronic Clinical Quality Measures allow near-real-time reporting of clinical performance measures on all Veterans.
  - o A follow-up dashboard on seriously mentally ill patients identifies Veterans who are living with serious mental Illness and who have not received outpatient or inpatient care at a VA facility for at least one year. The dashboard helps care providers proactively engage with patients who are at elevated risk of suicide or death.
- Improved Veteran safety:
  - o The Opioid Monitoring dashboard helps care providers monitor use of opioid medications and ensure safe and effective use of the drugs.
  - o The Time in Therapeutic Range Monitoring dashboard improves management of outpatient anticoagulation medication to reduce rates of adverse events such as stroke, blood clotting and major hemorrhaging.
- Improved financial management:
  - o The Non-VA Care Consult Program Management Report links non-VA care consults and fee basis claims authorizations and appointments for use in reconciliation of budget and cost processes.
- Reduced VA cost:
  - o Pharmacy Benefits Management monitors and analyzes pharmaceutical cost management programs to assess effectiveness.
  - o Prosthetics and Sensory Aids Management dashboards monitor and analyze the use of national contracts to ensure Veterans receive clinically appropriate devices at the best value consistently across the health care system.
- Improved operational efficiency:
  - o The VISN Morning Report provides daily updates of a variety of key patient care metrics.
- Emergency preparedness and response:
  - o The Ebola Situational Awareness report tracks suspected and confirmed Ebola cases across the United States.

Assessment H did not conduct a comprehensive survey of users to determine which reports and dashboards, if any, they consider most valuable and the actual impact of these tools. However, other assessments uncovered evidence of perceived value of some reports and dashboards, as well as improvements needed. For example:

- The Pharmacy Benefits Management reports are used to manage the pharmaceutical supply chain (Assessment J [Supplies]).
- Opioid Monitoring tools have proven effective in reducing the utilization of high-risk medications such as opioids and benzodiazepines (Assessment J).

- Senior leaders make increasing use of visual reports during daily performance meetings, which increases transparency and helps leaders and employees to focus on key metrics (Assessment L).

- Current decision support capabilities do not suffice to support oversight and management of Non-VA Care claims processing and payment. For example, VA cannot determine the reasons for denial or suspense of claims. This deficiency prevents VA from analyzing enterprise-wide denials (Assessment I [Business Processes]).

Finding 8.1.4: Problems with VistA/CPRS interoperability among VHA facilities and with external health care providers present challenges for data aggregation and analytics.

The interoperability problems identified in Section 5 will likely increase as Veterans increasingly seek care outside VHA from health care providers who produce either paper records or electronic records incompatible with VHA systems. Furthermore, over time variants of the VistA/CPRS system evolved across VAMCs, resulting in approximately 130 different instantiations of the system (Fihn et al., 2014). This poses significant challenges in integrating new technologies and data sources into VistA/CPRS and complicates VHA's ability to leverage powerful new technologies such as image processing analysis, language processing techniques for extracting information from free-form text, algorithms for processing genomic data, and analytic tools for extracting and analyzing data from personal health monitoring devices.

Finding 8.1.5: Aggregation of data across the entire VA system is problematic when each system conforms to different local data standards. This constrains the ability of VHA to conduct research, identify trends, identify best practices, and assess the effectiveness of treatments across the entire VA population.

A recent clinical code gap analysis commissioned by OI&A performed a thorough assessment of VHA's ability to electronically extract the required, standard data elements from the CDW for nine eligible provider (EP) meaningful use (MU) clinical quality measures (CQMs) and 16 eligible hospital (EH) CQMs. Key findings included (VA OI&A, 2014b and 2014c):

- Data capture can vary significantly across VISNs. This complicates data aggregation for metrics analysis and reduces data quality.

- VHA does not routinely use a Problem List or Medication List for each patient. As a result, clinicians cannot discern when a diagnosis becomes inactive. It is also difficult to determine which medications are currently active.

Most OI&A leaders interviewed cited the inconsistent use of industry data standards as a key challenge. The following comment provides an example of impact:

> …a greater issue is the lack of standardization of code sets. One aspect of data standardization is in lab tests – any given site may name it any number of ways, e.g., Hemoglobin tests. That site may know what it means. When you roll it up nationally – there is a lot of variability. Reference ranges can be different. Different sites use different lab instances.

Others described the growing challenges of integrating records from third parties:

> Imaging is a huge issue. There are lots of different images. Image information from 3rd party consult reports is not well integrated into VistA. Currently, 98% of reports are currently mailed in and scanned into a pdf in VistA with very little (if any) metadata [searchable, computable data about the image]. Users need to dig through the system which is a disaster.

Assessment I identified other consequences of the lack of standards. VA uses a mostly manual process for receiving claims and the supporting medical records for non-VA Care, because VHA cannot process electronic records that conform to private sector standards. This also can introduce errors in analytical products, which may fail to incorporate inputs from non-VA care providers. CDW represents a particular opportunity to focus effort on data quality and common data standards and to demonstrate immediate benefits to health outcomes from better enterprise-wide data management.

Finding 8.1.6: VA faces challenges in building and maintaining a workforce with skills in health informatics and analytics at the capacity needed for an evidence-based, data-driven learning organization.

Health informatics and analytics require advanced skills and experience across a number of domains, including clinical quality measures and decision support, health care operations, computer science (machine learning, data mining, data standards, natural language processing), and mathematics (statistics, algorithm development, analytical modeling). VHA has concerns about its ability to attract and retain sufficient numbers of staff with the right capabilities.

VA OI&A participates in a very competitive marketplace for talent. Health informatics and analytics depend on a discipline labeled as data science, which relies heavily upon elements of statistics, machine learning, optimization, signal processing, text retrieval, and natural language processing to analyze data and interpret results. Partly as a result of the explosion of data generated from smart devices, web applications, mobile devices, and social media, demand for data scientists is growing across a number of business sectors, including marketing, security, fraud detection, finance, insurance, health care and manufacturing. For example:

> According to Dr. Tara Sinclair, Indeed.com's chief economist, the number of job postings for data scientist grew 57% for the first quarter this year compared to the year-ago quarter. And searches for data scientist grew 73.5% for the same period (Darrow, 2015).

> Salaries rose 8 percent on average in the last year, with bonuses adding $56,000, according to a salary and employment survey released on Tuesday by Burtch Works, a recruiter of professionals with quantitative skills (Lohr, 2015).

> A McKinsey study predicts that by 2018, the United States alone faces a shortage of 140,000 to 190,000 people with analytical expertise and a 1.5 million shortage of managers with the skills to understand and make decisions based on analysis of big data (Strong, 2015).

> It's clear that talent equipped for these roles is in high demand and low supply across a number of industries as more agencies turn to data to inform creative and media strategies (Bruell, 2014).

VHA expressed concerns in written documentation and interviews about maintaining a sufficient number of well-qualified staff.

As of December 16, 2012, as part of VHA realignment which brought OHI into OI&A, OI&A had 680.73 Full-Time Equivalent Employees (FTEE). The authorized FTEE ceiling was 646.43. The Resource Management Committee (RMC) approved 22.0 FTEE above the limit for 36 months beginning January 1, 2012 (VHA, 2014e).

OI&A personnel also noted frustrations with OI&A staffing levels, for example:

We were created as an organization – but have been sorely under-resourced. We have been undersized. VA has done most investment in data collection and storage. We've got lots and lots of data—we tend to not use it very well. We touch 2% of the data we have. We don't do this as well as we should or could—because we are largely resource-constrained.

Assessment H interviewees also cited concern over getting the right types of skills.

We have a serious lack of talent in the organization – in the clinical and technical. Very few people left who understand our processes.

Getting the right skillsets is hard, e.g., in quality measurement. A mindset used to be— ordered measures, compliance mentality. Need to think about decision support, some analytic skillsets are required. We see a need for Bayesian analysis skills. It's a challenge in a government environment to hire the right folks.

The consumers of health informatics products and services at VA span VHA and VA OI&T and include nurses, pharmacists, physicians, dentists, and researchers who perform health informatics functions as at least part of their job responsibilities. In 2013, OI&A estimated the size of this population at some 6,000 individuals, based on the numbers of individuals culled from known informatics-related email distribution lists (VHA, 2014e).

The Health Informatics Initiative, established in 2011 within OI&A, is building the capacity to deliver informatics solutions for health care delivery. The Initiative conducted two workforce assessments, one in 2011 and one in 2013. The assessments included surveys to determine professional qualifications, health informatics roles, competence, and career and community development activities. OI&A uses the results of those assessments to decide on its workforce investments. As a result of these assessments, OI&A has implemented a number of training and awareness programs, increased engagements with professional organizations, and established career paths. The assessments also help VHA to anticipate workforce changes well in advance, so that interventions can be made early. For example, the 2013 assessment identified a risk of significant loss of talent due to retirements:

Approximately one-third (32%) staff expect to discontinue their role in health informatics at VA within the next five years and over half (59%) expect to leave their roles in the next 10 years. This is not surprising given the number of people who have had a role for over 10 or 20 years; it suggests that many respondents are coming up on retirement (VHA, 2014e).

8.2   Recommendations

OI&A is in a position to lead VHA in the transition to become a learning health system. With appropriate resources, leadership, and direction, the use of informatics and analytics has the potential to achieve the outcomes of better health, better care, and lower costs. Indeed, VHA

already produces and uses analytical products to improve Veteran health care and business operations. All leading private health care systems use data to drive improvements. In addition, VHA is well positioned to lead a comprehensive new initiative on "precision medicine" in response to the Presidential Initiative in Precision Medicine (IPM), 30 Jan 2015.[17] This section offers recommendations to build on and improve the current suite of VA/VHA analytical products, and overcome resource challenges. However, these recommendations will not be effective unless VHA also makes significant improvements to the information systems upon which it depends. Other sections note the steps necessary to improve VHA's health IT systems. These system improvements will be critical to the success of informatics and analytics at VHA.

Recommendation 8.2.1: OI&A should assess the quality and validity of analytical products and results across VHA and their effectiveness in driving health and business outcomes.

OI&A should engage with leadership and staff across VHA on a frequent basis and identify ways to make the products more useful. Evidence from other assessments indicates the value of continued outreach, education, and awareness campaigns. OI&A may have to make further incremental improvements in the types of metrics collected. Pruning less useful products will prove important for mitigating the sense of data overload that some leaders experience.

OI&A should also identify specific improvements needed in the information systems that serve as the sources of the data used for VHA analytics to generate more complete and accurate results. VHA should also track actions taken as a result of the analytical products and quantify how effective those actions are in improving health and business outcomes.

OI&A should expand its research to cover trends in the larger health informatics community, tapping into resources such as the Healthcare Information and Management Systems Society (HIMSS), which performs compensation surveys. Comparisons to leading health care providers should guide staffing targets and compensation within VHA.

Recommendation 8.2.2: OI&A should assess workforce needs in informatics and analytics on an ongoing basis to estimate future needs and acquire skilled expertise in a timelier manner.

Workforce assessments should consider a variety of factors that may influence employment decisions, such as compensation, work environment, demographics, technology resources, and research opportunities. As a government employer, VHA may have only limited ability to influence some factors, such as compensation. However, VHA should identify factors within its control to attract and maintain an effective health informatics and analytics workforce. For example, in many high technology fields the presence (or lack) of leading-edge information systems and tools within the environment influences decisions about where to accept employment. OI&A could consider offering scholarship programs in exchange for government services, similar to the U.S. Office of Personnel Management (OPM) Scholarship for Service (SFS) CyberCorps program[18] as a way to increase the pipeline of graduates to fill OI&A analytic positions.

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[17] https://www.whitehouse.gov/the-press-office/2015/01/30/fact-sheet-president-obama-s-precision-medicine-initiative

[18] https://www.sfs.opm.gov/

Recommendation 8.2.3: OI&A should increase collaborative partnerships for analytics research with research institutions and other health care providers to better understand the value of integrated health data analytics.

OI&A should continue to develop collaborative relationships with research institutions offering advanced degree informatics programs and sponsor joint research. Assessment H research reviewed two examples of successful research partnerships: one with the National Institutes of Health and one with IBM. OI&A should increase the use of these types of partnerships as a way to improve research outcomes despite the constraints on internal staffing.

Expanded collaborative partnerships with health care providers could also help improve the exchange of electronic health records. Interviews identified one such pilot initiative with Walgreens. OI&A should increase the number and scope of these partnerships to enable integrated health data analytics across all providers of health services to Veterans, including VHA, the private sector, and DoD.

9 Telehealth

VA defines telehealth as:

> The wider application of care and case management principles to the delivery of health care services using health informatics, disease management and telehealth technologies to facilitate access to care and improve the health of designated individuals and populations with the intent of providing the right care at the right place and right time" (VA, 2014a).

In FY 2014, VA used telehealth to serve more than 690,000 Veterans, amounting to approximately 12 percent of the overall Veteran population. Of those, 55 percent were Veterans in rural areas (VA Office of Public and Intergovernmental Affairs, 2014). The total number represents an increase from 608,000 Veterans in FY13, approximately 11 percent of the overall Veteran population (Hall, 2014). As described in Assessment B (Health Care Capabilities), not only are more patients taking advantage of telehealth, but they also remain satisfied with the telehealth services.[19] Assessment H examines telehealth from the perspective of VA/VHA's ability to implement new technologies that could help achieve strategic VA health care outcomes.

VA provides three main types of telehealth services: Clinical Video Telehealth (CVT), Home Telehealth, and Store-and-Forward Telehealth. Table 9-1 (also included in Assessment B), describes these three categories and explains how each supports various health care objectives.

Table 9-1. Telehealth Definitions

Modality	Description	Health Care Objective
Clinical video telehealth	Use of real-time interactive video conferencing, sometimes with supportive peripheral technologies, to assess, treat and provide care to a patient remotely. Typically, clinical video telehealth links patient(s) at a clinic to provider(s) at another location; however, it can also connect a remote provider and a patient at home.	▪ Provide access to specialists practicing in regional medical centers ▪ Reduce travel burden for Veterans in remote or underserved areas
Store-and-forward telehealth	Use of technologies to acquire and store clinical information (e.g., high-resolution images, sound, and video) that is then made available to a provider at another location for clinical	▪ Provide access to specialists practicing in regional medical centers ▪ Reduce travel burden for Veterans in remote or underserved areas

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[19] Assessment B describes VA's telehealth capabilities and utilization rates in greater detail.

Modality	Description	Health Care Objective
	evaluation. It is frequently used in radiology, dermatology, and diabetic retinopathy.	
Home telehealth	Applies care and case management principles to coordinate care using health informatics, disease management, and technologies such as in-home and mobile monitoring, messaging, and/or video technologies.	▪ Facilitate continuous (non-episodic care) to improve clinical outcomes ▪ Provide acute and chronic care management, and promote health and disease prevention

Source: The RAND Corporation, Assessment B.

9.1 Findings

VA was an early adopter of telehealth and has been a leader in this space for years, but many Assessment H interviewees expressed concern that VA could not stay at the forefront of telehealth. VA help desks do not offer technical support directly to Veterans who have difficulty using the telehealth service. Assessment H interviewees reported that:

> Telehealth appointments are typically scheduled one or, at most, two per hour and they can often take longer than in-person appointments because of the time it takes to get the equipment setup. The Permanente Medical Group (TPMG) reports they can see an average of six patients per hour via telehealth, compared with an average of 1.6 per hour for in-person visits (Tahir, 2015).

Table 9-2 summarizes telehealth strengths and weaknesses examined in the subsequent findings.

Table 9-2. Telehealth Strengths and Weaknesses

Strengths	1. VA was an early adopter of telehealth. 2. The National Telehealth Governance Board (NTGB), co-chaired by VHA and OI&T, is a useful forum for providing oversight of telehealth services. 3. Users view VHA's National Telehealth Technology Help Desk as responsive and helpful.

Weaknesses	1. VHA believes OI&T is slow to provide support to the VISNs, which has a negative impact on Veteran access to care.
	2. Veterans are not offered technical support for telehealth resulting in many Veterans abandoning telehealth.
	3. There are many challenges and correspondingly little incentive to provide care between the VISNs through telehealth.

In a 2014 internal survey conducted by VHA Telehealth Services, the VISNs reported "inadequate OI&T and Biomedical Engineering infrastructure and support" as a major barrier to the sustainment and expansion of telehealth (VHA Telehealth Services, 2014). Assessment H interviews with VAMC staff echoed this view.

Finding 9.1.1: Although providers report an unacceptable time to resolution for configuration requests, roles and responsibilities are uncertain, and National Service Desk ticket data do not track to the service level agreement (SLA) metrics, creating uncertainty whether service levels are being met.

The NTGB provides a useful forum to help align VHA clinical needs with OI&T infrastructure support, thereby increasing the likelihood that more Veterans can access care through telehealth in the future. However, users interviewed cited confusion about the roles and responsibilities of OI&T and Biomedical Engineering. This contributes to delays in problem resolution because both organizations must often assist with the same piece of equipment, since OI&T manages the general IT assets, such as the network, and Biomedical Engineering manages the medical devices, such as a telemedicine cart. One interviewee said, "It usually ends in a stalemate." Another site representative said that OI&T thought Biomedical Engineering was responsible for configuring the cart, but Biomedical Engineering said the responsibility belonged to OI&T.

As the National Service Desk consolidates (from over 100 help desks to one), disparities remain in help desk ticket data. Assessment H received ticket data from VA (VA SDE, 2015), but these data did not directly track to any of the metrics in the three telehealth-related SLAs (VA, 2013a, 2013c, and 2013d). Table 9-3 summarizes the service level targets defined in these three SLAs that specifically or logically should be measurable by National Service Desk ticket data.

Table 9-3. Service Desk Telehealth-related Service Level Targets

Metric	Service Level Target
CVT Endpoint Normal configuration request submitted by NTTHD once precondition checklist met	Completed within 20 business days after equipment arrives
CVT Endpoint Urgent configuration request submitted by NTTHD once precondition checklist met	Completed within 10 business days after equipment arrives

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Metric	Service Level Target
SFT Acquisition Workstation Configuration: New User Requests	95% within 3 days
SFT Telereader Configuration: New User Requests	95% within 3 days
SFT Acquisition Site Configuration: New User Requests	95% within 3 days
HTH Virtual Private Network restore time	4 hours
HTH Average Speed of Answer	<60 Secs
HTH [call] Abandonment Rate	<5%
HTH First Contact Resolution Tier One	>70%

Finding 9.1.2: Lack of technical support to Veterans discourages Veterans from participating in home telehealth, thereby missing opportunities to reduce health care costs. Veterans cannot call a VA help desk to receive technical support.

VA screens Veterans to see if they have the videoconferencing technology and know how to use it for home telehealth and CVT. A Telehealth Coordination Technician (TCT) tests the technology with the Veteran in advance of an appointment with a health care provider. An Assessment H interviewee stated that the TCT schedules an actual appointment and notifies the provider separately that the interaction only represents a test and can be ignored. The TCT can provide guidance if the Veteran has difficulty with the technology, but the value depends on the technical abilities and willingness of the TCT to offer help. VISNs cited challenges in recruiting and retaining TCTs (VHA Telehealth Services, 2014). If this trend continues, VHA will have fewer TCTs and they will have even less time to spend helping Veterans use the technology.

If Veterans cannot install and use the videoconferencing technology, they are "screened out" of the telehealth appointment. This not only degrades the Veteran experience but also increases health care costs because home telehealth is a proven low-cost alternative to more traditional modes of care (VA OIG, Office of Audits & Evaluations, 2015a).

Finding 9.1.3: The barriers associated with providing VISN-to-VISN telehealth make it harder to optimize the caseload across VISNs, resulting in unnecessarily long waits for care in certain regions.

As discussed in Assessment B, only 1 percent of telehealth appointments happened across VISNs in FY14. This results in missed opportunities to balance the caseload nationally and results in long waits for care in certain areas and no waits in others. VA must make it easier for a patient in one VISN to receive care from a provider in a different VISN. The challenges that complicate telehealth appointments between VISNs include requirements around telehealth services agreements and rules governing provider privileges and credentials. Currently, every

pair of medical centers that plan to connect via telehealth must create a telehealth services agreement. Also, providers must be privileged and credentialed wherever the patient is located. In addition, once the appointment has taken place the provider cannot update patient records held by another VISN.

VA is moving in the right direction. For example, VA has a plan for a new Telehealth Scheduling System (TSS) that will pull all telehealth resources and telehealth service agreements together. However, several Assessment H interviewees expressed concern that TSS would not meet all their needs. For example, they feared that it would not allow them to determine if both a room and a technician would be available for an appointment. VA has an opportunity to assess the current and planned processes and systems to ensure they remove as many of the barriers to VISN-to-VISN telehealth as possible.

9.2 Recommendations

To take advantage of the full potential of telehealth to improve access to care, VA must make it easier for providers to treat their patients through telehealth. VA can expand telehealth to become more responsive to clinical needs. Table 9-4 summarizes the telehealth opportunities described in the subsequent recommendations.

Table 9-4. Telehealth Opportunities

Opportunities	1. VA can clarify telehealth-related roles and responsibilities.
	2. VA can strengthen the NTGB by identifying a lead from Biomedical Engineering to co-chair the NTGB with the Office of Telehealth Services and OI&T.
	3. VA can improve SLAs to ensure they meet the clinical need yet remain achievable and measurable.
	4. VA can offer telehealth technical support directly to Veterans.
	5. VA can improve policies, processes, and systems to make it more attractive to provide VISN-to-VISN care through telehealth.
	6. VA and private industry can both benefit from exchanging telehealth best practices.

Recommendation 9.2.1: To improve the execution of telehealth, VA should clarify roles and responsibilities between OI&T and Biomedical Engineering and reexamine service agreements. VA should identify a lead from Biomedical Engineering to co-chair the NTGB with the Office of Telehealth Services and OI&T.

VA must ensure that all stakeholders agree on service-level targets. Because VAMC staff believe IT support is too slow, representatives of VAMCs, the Office of Telehealth Services, OI&T, and Biomedical Engineering should examine the SLA targets to ensure they meet the clinical need. Once the stakeholders have set the service agreement targets, they must communicate them to the facilities so that each site can adjust its expectations. OI&T and Biomedical Engineering

must also communicate directly with any requestor of support to acknowledge the request and provide an approximate time to resolution. VA must then ensure measurement and reporting of service agreement compliance.

The NTGB would become an even more effective forum and could contribute to greater Veteran access to care if it added a Biomedical Engineering representative as a co-chair. First, this would ensure Biomedical Engineering participation in discussions of telehealth clinical needs and support to be provided by OI&T and Biomedical Engineering. Second, it would assist in clarifying and communicating roles and responsibilities of OI&T and Biomedical Engineering.

Recommendation 9.2.2: To provide greater access through telehealth technology and reduce the number of Veterans who abandon these services, VA should offer technical support to Veterans who have trouble using telehealth technology and make it easier for all parties to test a connection.

For VA to become truly Veteran-centric, it cannot screen out Veterans from telehealth simply because they cannot figure out how to use videoconferencing technology on their own. Assisting with use of this technology should improve the Veteran experience with VHA and reduce health care costs. This means that VHA should provide an easy mechanism for testing a telehealth connection with the Veteran without involving a provider. If a mechanism already exists for easily creating a test appointment without notifying the provider, VHA should ensure all TCTs are trained on how to use it.

Recommendation 9.2.3: To provide more care across VISN boundaries through telehealth, VA should revise policies, processes, and systems to migrate toward virtual access as the norm for the delivery of care.

VA should consider establishing a National Telehealth Services Agreement that would eliminate the need for agreements between each pair of sites, and grant providers national-level privileges and credentials rather than requiring privileges and credentials for each location. If national credentialing and privileging are not possible, VA should at least explore centralized administration of credentials and privileges as opposed to storing them locally in each VAMC.

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10 Mobile Applications

The future of VA health care is a Veteran-centric system of care that treats the whole person regardless of their physical location. Technology innovations and consumer-demand are enabling this transformation. VA Connected Health virtual and mobile technologies are key elements of a healthcare environment that is supportive and responsive and that enhances relationships between Veterans and their providers. Connected health technologies offer powerful opportunities to extend access to health information, knowledge and support at the place and time when it is needed, and improve the interactions between patients, caregivers, and health care teams regardless of their physical location. The use of connected health technologies such as patient web portals, mobile applications (apps), video telehealth, sensors, wearable devices, and home monitoring systems have had significant impacts on VA health care processes and outcomes with encouraging results thus far. Strategically, VA seeks to expand the use of connected health technologies to support the transformation towards patient-centric and consumer-driven health care delivery for the benefit of Veterans, beneficiaries, and health care providers. (VA OI&A, 2014a)

OI&A's Connected Health (OI&A/CH) organization, formed in 2012, has responsibility for web and mobile solutions, My HealtheVet, kiosks, and innovation. Several Assessment H interviewees cited the Connected Health management team as possessing the strength of personality to move the mobile application concept forward, noting that this team has given caregivers, providers, and Veterans initial mobile capabilities that improve access to VA-approved health care capabilities.

From a strategic planning perspective, Connected Health has mapped VA and VHA Strategic Plans (VA OI&T, 2013; VA 2014c) into its organizational operating plan. Specific actions and initiatives in the operating plan are derived from Connected Health's goals and assigned to Connected Health senior staff. Connected Health has identified key performance measures for its mobile technology offerings; each measure has a targeted quality threshold with specific staff assigned.

As a baseline, VHA operates a mobile application store from which Veterans and providers can download applications. According to a table in Assessment B, as of May 2015 over 300,000 downloads of publicly released mobile applications had taken place. Approximately half of the more than 20 released mobile applications are in a controlled roll out with no publicly available data. The Assessment H team also discovered that VA has approximately 30 additional applications in the release pipeline.

VA's mobile applications target only Apple or Android devices. Also, only mobile applications developed by VA personnel or contractors and qualified and certified by VA are available through the VA AppStore. However, several of these applications are also available through the Apple iTunes and Google Play stores.

The current VA Mobile Framework (VAMF) (VA OI&T ASD, 2014) shown in Figure 10-1 performs infrastructure services for all mobile applications. VAMF also provides an environment to meet OI&T's process for releasing mobile applications, which includes enterprise-level certification (testing, certification, and release).

Figure 10-1. VA Mobile Framework "As-Is" Logical Architecture
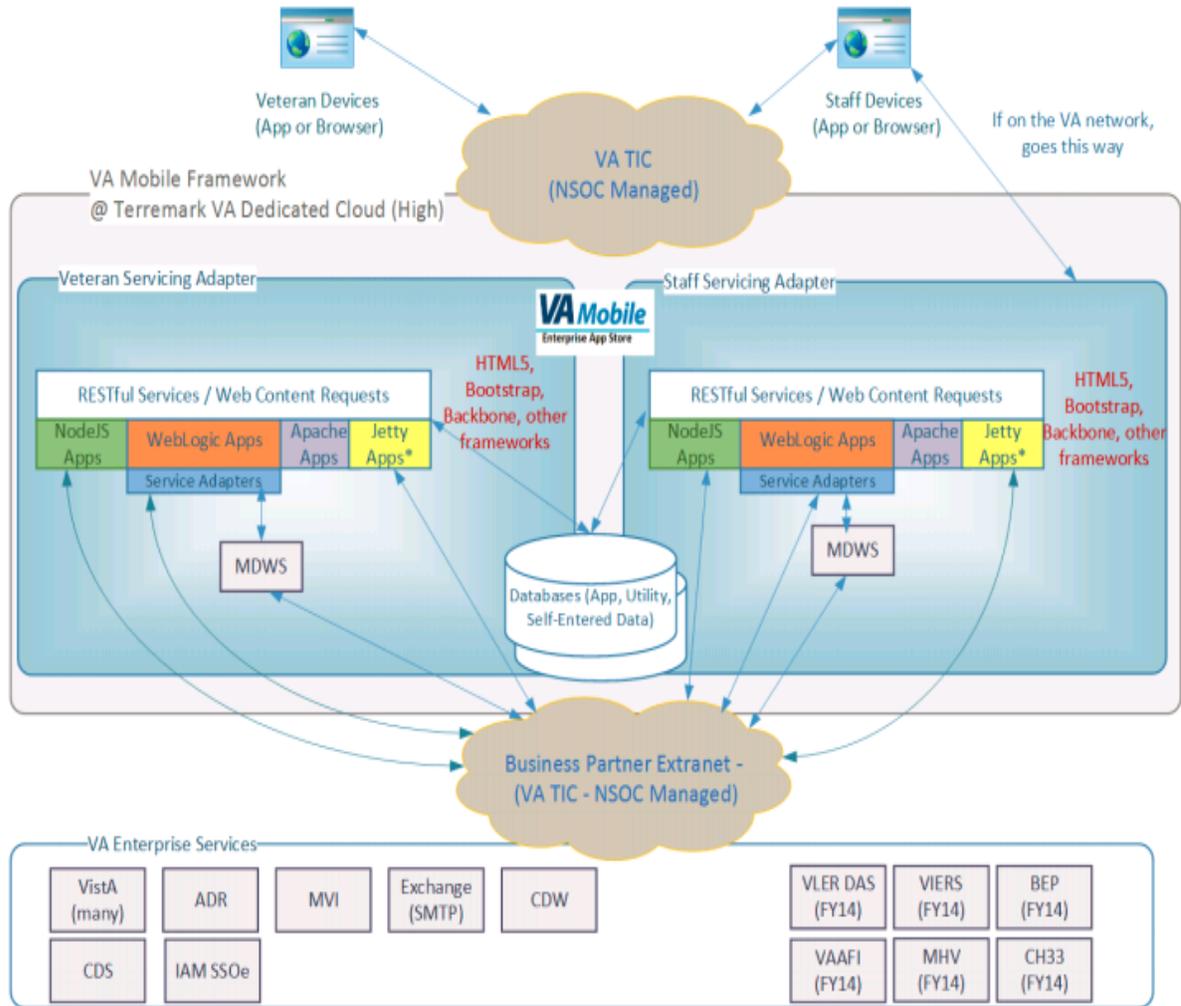
Source: VA OI&T ASD, 2014.

The Medical Domain Web Services (MDWS) provide the interface to VistA and other data stores and services. VAMF also maintains a local database to support self-entered and patient-generated data. The VA Mobile Application Environment (MAE) is a production and testing environment that consists of four separate environments to provide tools and services for testing and compliance of internal VA mobile applications. The environments are:

- Development
- Test (Federal Information Security Management Act [FISMA] Low)
- Integration
- Production (FISMA High).

MAE also includes project management tools such (e.g., JIRA), the mobile solutions development wiki, and a documentation repository.

The high-level application design for each mobile application is provided through the HealthAdapter model depicted in Figure 10-2. "The HealthAdapter has been designed to decouple the service endpoints, business logic, and data sources from each other … decoupling data sources makes it easier to utilize the HealthAdapter for different needs" (VA, 2014l). Separate HealthAdapters are provided for Veteran-facing applications and staff applications.

Figure 10-2. Mobile Application Health Adapter
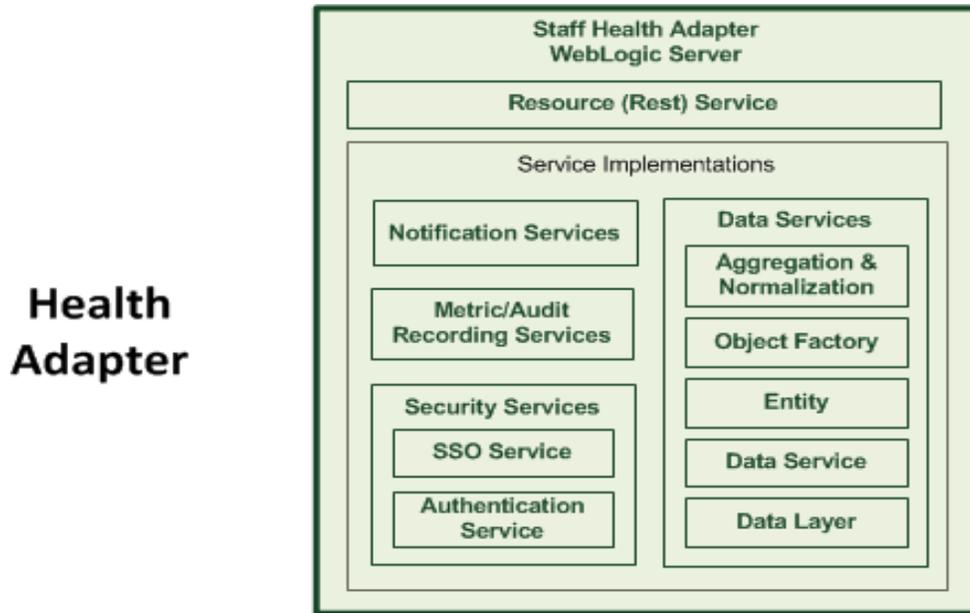
Source: VA, 2014l.

VA provides a "to-be" architecture (VA OI&T ASD, 2014) for enterprise mobile solutions (Figure 10–3) and evolving mobile capabilities and infrastructure to all VA Lines of Business (LOBs). The to-be architecture shows a uniform VA enterprise with a seamless network and data access experience across all Veteran- and clinician-facing applications regardless of user platform, role, or location, and a reliable user experience that conforms to and enforces standards (HL7, FHIR, etc.).

Figure 10-3. VA Mobile Framework "To-Be" Logical Architecture
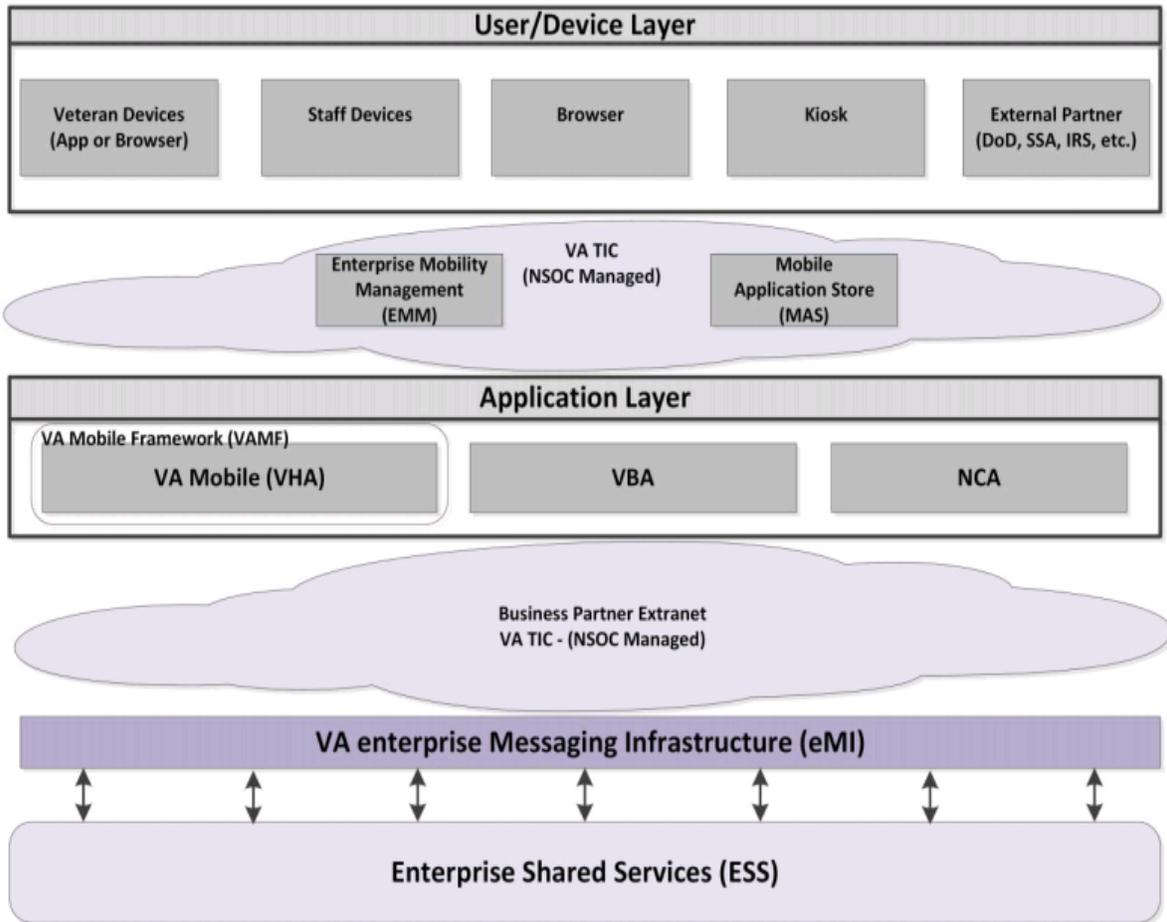
Source: VA OI&T ASD, 2014.

The to-be architecture also allows high-level interactions between multiple users/devices on varying platforms accessing Enterprise Shared Services (ESS) through both internal and external applications. This is achieved through the respective LOB mobile environments contained within VAMF. VA is also developing further detailed guidance through capability-specific design patterns and through the implementation of the VA Mobile Application Reference Architecture (MARA).

Additionally, OI&T's Architecture, Strategy, and Design (ASD) team has identified a way forward that includes, but is not limited to, more robust mobile device management (MDM) for staff, mobile security, application management, deployment, certification, and governance.

10.1 Findings

Finding 10.1.1: VA mobile capabilities are extending health care delivery beyond physical facilities to Veterans. VA is releasing mobile applications that capture patient satisfaction but not patient-generated health data.

The Connected Health office has delivered more than 20 mobile applications to a user base that includes Veterans, caregivers, and other health care providers. The limited number of applications reflects VA's very recent adoption of mobile approaches and the rollout of state-of-the-practice mobile infrastructure and applications within VA. Connected Health and its partners within OI&T continue to deliver and execute pilot programs while increasing infrastructure capability. The partnership model at the working level between Connected Health and OI&T Product Development Mobile Infrastructure teams is based on mutual respect and strong leadership with commitment to success of mobile capability for VHA.

The initial Veteran-facing applications are simplistic relative to their interactions with clinicians and in general provide the ability to view patient (Veteran) data and (Veteran) self-management applications. Additionally, VA has embarked on developing a video visit capability to extend telehealth through the of use mobile sensing capabilities. Video Visits is the first mobile application that will use multiple sensors[20] (camera and microphone) to gather and exchange patient information.

VA is releasing mobile applications that capture patient feedback/satisfaction.[21] However, VA does not currently capture patient-generated health data. In the private sector, patient-provided data help create a data-driven health system and enable a shift from "sick care" to "health care."

Finding 10.1.2: Connected Health is underfunded and understaffed for achieving the aggressive initiatives and development activities identified in its operating plan. VHA should evaluate opportunities to enhance access and satisfaction through relatively small investments in mobile solutions.

According to its own operating plan (VA OI&A, 2014a), Connected Health is underfunded and understaffed with "$26.6 million of unfunded contracts… [and] experiencing a significant shortfall in personnel resources, particularly experienced program managers…" (VA OI&A, 2014a). In the same plan Connected Health sets forth an aggressive set of initiatives and development activities for the next two fiscal years. OI&T currently has difficulty filling open job requisitions, which reduces the efficiency of the organization. Thus, it cannot fill key positions, specifically engineering positions at the mobile infrastructure and technology senior leadership (Executive Director) levels. This inhibits the execution of mobile programs.

In general, mobile applications are small, self-contained capabilities, so development requires less investment to deliver focused, incremental capability, and can have higher proportional impact. For example, Business Solutions cites four specific areas where mobile apps have had a positive impact:
- **Addressing chronic disease**: An Accenture study of early trial data revealed a 15 to 20 percent reduction in hospital days and 30 percent fewer emergency room (ER) visits (Accenture, 2015).

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[20] Typical mobile devices include several sensors, including microphones, cameras, ambient light, proximity sensor, gyroscope, and compass as well as Bluetooth, Wi-Fi, and GPS radios (from Apple iPhone 4 Specifications [https://www.apple.com/fr/support/]).

[21] https://mobile.va.gov/appstore

- **Avoiding non-urgent use of the ER**: iTriage, an app that offers a symptom checker, location of the nearest urgent care or retail clinics and ERs, and a comparative cost of those providers, boasts a potential savings of $300 to $3000 per visit (Aetna, 2015).
- **Reducing preventable readmissions**: The Mayo Clinic conducted a controlled study involving mobile monitoring applications for cardiac rehabilitation patients and found a 40 percent decrease in readmission for patients who did use the app, resulting in a significant reduction in costs and penalties (Mayo, 2014).
- **Improving prescription adherence**: An app with reminders could easily send push messages to the provider and patient to help improve prescription adherence rates (Lynch, 2013).

While mobile technology could have strategic importance to VA in increasing Veteran access and Veteran satisfaction, the *Blueprint for Excellence* (VA, 2014c) does not explicitly identify mobile application development as a priority.

Finding 10.1.3: While VA can develop and deploy mobile applications successfully, it cannot do so at the pace of the commercial sector.

The major contributors to delays in developing and deploying mobile applications appear to be PMAS's documentation, process, quality assurance, and certification requirements. As described in Section A.1 of this report, PMAS documentation and processes add overhead to any development project—including small-scale mobile app development projects. The required quality assurance processes for compliance and governance are based on governance policies and procedures for large IT systems. Mobile application projects must follow the same or similar PMAS steps/workflow as new capabilities for VHA/VBA/NCA. Thus, each mobile application release encompasses more than 50 discrete artifacts required for deployment to the user communities (VA, 2013b).

The Connected Health team seeks to follow commercial mobile delivery practices to speed delivery of mobile products that increase access and satisfaction for Veterans and clinicians/providers. Trends in mobile application development rely on user (i.e., Veteran) feedback and rapid application modification and deployment. Current practices in commercial industry indicate multiple releases per day is the norm for organizations adopting continuous delivery approaches. (Valasquez, 2014). For iOS applications, there is an additional one-to-two week delay for approval from Apple to include it in its AppStore (Apple, 2015b).

OI&T Product Development and Connected Health typically require fewer than six staff months and anecdotally as little as three months to develop a mobile application. However, quality assurance and certification requirements delay deployment over 90 days (VA OI&A, 2014a). This totals over nine months of development and certification time before an app can be deployed to the Google Play Store or to Apple for approval to put in its AppStore.

10.2 Recommendations

Recommendation 10.2.1: VA should explicitly identify mobile applications as a strategic enabler to increase Veteran access, satisfaction, and patient-generated data to help VHA transition to a data-driven health system.

Current technology trends include using and taking advantage of mobile devices as personal sensors and activity monitors to collect data to feed into health, fitness, and medical applications. These applications have become more powerful with innovative use of social media to gather community input and data to modify and expand options within a particular application. For example, an input option in diet applications can assess aspects of the food to be consumed.

As VA rolls out mobile applications, it has an opportunity to absorb data generated by Veterans to help clinicians proactively manage health outcomes. Mobile applications can contribute to increased personalized attention, better health outcomes, and greater Veteran satisfaction at a low price point. As in most areas of health IT, budget and staffing present challenges. VA should build out the mobile infrastructure and streamline the mobile release (qualification and certification) processes, tailoring them to enable faster approval while not increasing liability to VA.

Recommendation 10.2.2: VA should streamline PMAS methods for mobile applications and adopt an "automate quickly" mindset for mobile application qualification, vetting, and certification within OI&T to reduce application delivery timelines.

VA should investigate the application of commercial products for static code analysis and other methods to automate quality measurement, and explore the emerging commercial market for automated application vetting products and services. In doing so, VA should follow the principles in the Guide to Vetting of Security of Mobile Applications (NIST, 2015). VA should also investigate and adopt continuous integration and continuous delivery practices for mobile development *where appropriate*, recognizing the need to ensure patient safety and accuracy of the applications developed.

Recommendation 10.1.3: VA should open the development of VA mobile applications to third parties to increase delivery of health care to Veterans through innovative community-developed mobile solutions.

VA should explore the possibility of allowing external entities (third parties) to develop mobile applications that can be released via the VA AppStore. If the governing agreements properly address privacy and security concerns (NIST, 2015), this may enable increased delivery of health care to Veterans through innovative community-developed mobile solutions. VA must carefully review and test all applications to ensure a consistent level of quality (including privacy, security, patient safety, accuracy, etc.) prior to publication in the VA AppStore.

VA should publish standards, quality expectations, and interfaces to the ESS, MDWS, etc. to enable third-party development and integration. VA should consider publishing these data through the Open Source Electronic Health Record Alliance (OSEHRA).

VA should also investigate and adopt commercial practices where appropriate for mobile app store efficiencies, including investigating alternative licensing and pricing models[22] with third-party providers. Further, VA should evaluate COTS health, fitness, and medical mobile

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[22] Alternative licensing and pricing model considerations is a continuing topic at the Federal Mobile Computing Summit series as well as the Federal CIO Council (Federal Mobile Computing Summit, 2014).

applications for use by Veterans and providers for ROI of build versus buy. VA could consider using existing third-party rating systems, such as iMedicalApps, to determine the potential value of third-party health and medical mobile applications.

11 Future Vision for VA and VHA

To significantly improve VA IT strategies and health IT, Assessment H recommends that VA emulate successful high-performing health care system (HPHS) organizations, implement enterprise IT service management as the organizational process for developing and managing delivery of VA health IT to achieve stakeholders' prioritized outcomes, and become a learning health system (LHS). As a part of this VHA should undertake an initiative on "precision medicine" to regain a cutting edge position in health informatics.[23] VA and VHA already have elements of these factors in place and can build upon them to create the future vision described in this section.

11.1 High-Performing Health Care System

Concept

In visits to centers with HPHSs, the Assessment H team observed a number of common attributes:

- **Incentive to improve.** Many of the HPHS organizations at one time faced serious financial difficulties, requiring them to transform their delivery model. The presence of a "burning platform" created the necessary willingness to make transformational changes.

- **Physician leaders.** Physicians played leadership roles in all key organizations, even the IT organizations. Because physicians are highly educated, they tend to learn the requisite skills rapidly, and because they understand the health care system and patient needs, they can prioritize activities and investments that will provide maximum benefit to patients. Later in the transformation, HPHS organizations identified physicians with leadership potential and placed them in a training pipeline to ensure availability of an adequate supply of trained, qualified leaders in the future.

- **Patient-centric.** The organizations established health care quality and patient satisfaction as their primary objectives. Decisions about investments and changes to processes were based on potential improvements in these two areas.

- **Same-day access.** Although the goals initially appeared impossible, HPHS organizations changed their models of supply and demand, shifted their priorities, improved their clinical workflows, and ultimately achieved their goals of same-day access.

- **Fully integrated IT system.** The organizations constantly updated their IT systems with the latest data. The systems shared data across all applications to minimize manual data entry. As a result, physicians entered diagnoses and treatments in the system, enabling rapid billing of insurance companies.

- **Data transparency.** The organizations made data broadly available to all providers and clinicians so they could observe quality and satisfaction by provider, clinic, and facility. The data also provided the basis for examining new health care approaches and collecting

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[23] https://www.whitehouse.gov/the-press-office/2015/01/30/fact-sheet-president-obama-s-precision-medicine-initiative

evidence about which innovations improved quality and satisfaction. Ultimately, the integrated IT system provided the basis for an LHS system. The quality and patient satisfaction data for all providers was visible throughout the system. Physician leaders coached underperforming physicians rather than punishing poor performance. Highly performing physicians and teams shared their approaches so that everyone in the system improved. Because many physicians are high achievers, the mere ranking of their scores led to efforts to improve their results.

VHA Exemplar

A skeptic might dismiss the approaches of the HPHS organizations as feasible in the private sector but not realistic for VHA with its burden of federal regulations. However, at least one VISN has demonstrated the ability to overcome or work around the onerous regulations to achieve some of the best health care outcomes of any VISN in VHA.

Assessment H conducted an analysis to identify those VAMCs that have consistently demonstrated high performance at VHA. The team considered several sources of information and ranked the VAMCs across all of these factors. Key sources used for this analysis include:

- Veteran Affairs Site Tracking (VAST) FY15 – Complexity, rural/urban, VAMC classification
- American Hospital Association facility data, 2014 – Adjusted admissions, volume of patients, number of beds
- SAIL FY15, Q1 data (SAIL Value Data, 2015)
- Survey of Healthcare Experiences of Patients (SHEP) FY12, FY13, FY 14
- The Joint Commission top performers 2011, 2012, 2013 (The Joint Commission, 2015)
- Robert W. Carey Performance Excellence Award 2010, 2011, 2012, 2013 (Carey, 2015)
- Health Grove SMART Scores (HealthGrove, 2015)
- VHA leadership vacancy report as of 3/9/2015

The resulting analysis put several of the VAMCs at VISN 4 in the top tier:

- Five of the ten VAMCs with the most SAIL scores in the top 10 percent are located in VISN 4.
- The Erie VAMC has received several national awards, including the VA Secretary Robert W. Carey Performance Excellence Award in 1998 and 2000, in addition to receiving national recognition as one of the nation's top Homeless Care Programs and as a Top Performer in the Joint Commission's Key Quality Measures program in 2011 and 2012.
- VISN 4 leads the nation in non-recurring maintenance (NRM) investment and has the lowest facility deficiency rate of all VISNs (where the deficiency rate is defined as the total deficiency costs divided by the total replacement costs).

To understand the secret to their success, the Assessment H study team visited the VISN 4 leaders, the Pittsburgh VAMC, and the Erie VAMC. Findings indicated that VISN 4 and its VAMCs apply many of the approaches found in the private sector HPHS organizations.

- **Incentive to improve**. A large number of the smaller VAMCs faced declining Veteran populations. As a result, they realized it would be difficult to maintain key clinical skills at many of the hospitals because each VAMC would treat too few complex cases. Therefore, they transformed the delivery model in western Pennsylvania to a hub-and-spoke approach: the smaller VAMCs would provide standard services, but Veterans with the most complicated needs would be transferred to the Pittsburgh VAMC, which maintained an experienced cadre of physicians.

- **Leaders.** The leaders across VISN 4 and the nearby VAMCs have long tenure in VISN 4 and have built a strong rapport and trust. This improves collaboration and coordination compared to VISNs that have a higher rate of leadership turnover.

- **Patient-centric.** VISN 4 organizations established health care quality and patient satisfaction as their primary objectives. Most VA personnel are already committed to these objectives, but the VISN 4 facilities take steps to systematically measure and improve quality and satisfaction. For example, the Erie VAMC asks patients to fill out a small questionnaire on an index card to understand the patient's satisfaction with their visit. The Erie leaders hold periodic town hall meetings with the Veteran Service Organizations to answer questions and request suggestions on how to improve. The Erie VAMC also engages frequently with the local television, radio, and newspaper organizations to publicize health-related events and share information. This leads to strong rapport with and support from the Veterans in their area.

- **Same-day access.** VISN 4 recognized that Veterans would accept the hub-and-spoke approach only if the Pittsburgh VAMC could treat all high-acuity cases when they arrived. As a result, VISN 4 established an access objective of "Never Say No." The first step was to overhaul the rooms, pre-admission processes, and observation processes to make them sufficiently flexible to manage a broader range of conditions. Second, VISN 4 established agreements with local hospitals (in particular, the University of Pittsburgh Medical Center) to take lower acuity cases when needed to ensure available bed space for incoming patients. Finally, VISN 4 developed real-time reports based on the timely data managed at the VISN level to track discharges and admissions to ensure they had adequate beds available. The larger load of high-acuity cases has enabled the Pittsburgh VAMC to maintain a quaternary care certification.

- **Fully integrated IT system.** VISN 4 implemented an operational data store that contains centralized copies of all data (100 percent sampling) and is constantly refreshed with the latest data. The system shares data across applications to minimize manual data entry. Because the data are always current, changes in quality or in patient satisfaction are immediately visible. Likewise, if a facility deploys an innovative process to improve quality or satisfaction, the results are immediately apparent and available for sharing throughout the system. New applications and reports can be developed to monitor and control innovative processes.

- **Data transparency.** Using the VISN 4 operational data store, providers can see how they compare to their peers. While the system does not show the names of the peers, providers can observe whether they perform near the top or bottom among providers in

the VISN with respect to quality and satisfaction. This provides a powerful incentive for providers to improve. The leadership places emphasis on coaching the low performers on how to improve (as opposed to implementing punitive measures). However, the data also provide a means to hold physicians accountable if they make no effort to improve. In addition, the data serve as the basis for examining new health care approaches and collecting evidence about which innovations improved quality and satisfaction. Finally, the accurate, timely data serve as the basis for improving communications, responsiveness, and issue resolution on contracts with outside providers. In essence, the integrated IT system creates the foundation for an LHS.

- **Continuous process improvement.** Using the VISN 4 operational data store, staff can develop new applications and reports to monitor and control innovative processes. The leadership encourages a culture of innovation and the IT systems provide evidence of improvements. At the Erie VAMC, a robust lean improvement approach led to extraordinary improvements in hiring and food service built on strong employee engagement. At the Pittsburgh VAMC, evidence-based system redesign lay at the heart of achieving the "Never Say No" objective. A periodic forum called "Expoceptional" gives employees the opportunity to suggest improvement initiatives based on their familiarity with the front-line processes.

In summary, VISN 4 achieves excellent outcomes in quality and patient satisfaction for the Veterans it serves in many categories of service. An effective, experienced leadership team, enabled by effective IT services that allow leaders to monitor and control their processes in real time, drives much of this outstanding performance.

11.2 Enterprise IT Service Management

Concept

ITSM refers to a discipline for managing IT services centered on the customer's perspective regarding IT's contribution to the business. ITSM provides an enterprise framework to structure IT-related activities and the interactions of IT personnel with business customers and users. The current OI&T ITSM philosophy is that of an internal, project-focused organization rather than that of a service provider model focused on the enterprise, customer needs, and service delivery to both VHA personnel and Veterans.

The standard Information Technology Infrastructure Library (ITIL, 2011), Control Objectives for Information and Related Technology (COBIT), and International Standards Organization (ISO) 20000 contain ITSM best practice frameworks. These standards present an enterprise-level view and can help improve an organization's IT service delivery and support capabilities. All three offer a comprehensive set of best practices and practical guidance that could help OI&T oversee and manage all key aspects of its work, including governance, enterprise strategy and goals, tactical planning, and operations.

OI&T has defined processes for project management in PMAS which require an agile software development methodology. However, PMAS imposes numerous requirements for process steps and upfront documentation that undermine agile development. To improve design,

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development, and deployment of IT services, systems, and products, OI&T could tailor its implementation of the ITSM framework to augment existing practices with industry best practices and achieve the best balance of enterprise IT management for VA.

Industry Standard

ITIL provides a full service lifecycle perspective on managing IT services at an enterprise level. ITIL lifecycle phases include Strategy, Design, Transition, Operations, and Continual Improvement. Each phase includes processes, activities, metrics, and technology considerations, as well as integration points to the other lifecycle phases.

ITIL is the de facto industry standard for implementing ITSM best practices and can serve as a reference knowledge base of robust, mature, time-tested IT management practices that OI&T could harmonize with its current practices. Both federal agencies and private sector companies have implemented ITIL successfully.

Benefits for VA

An ITSM framework based on ITIL helps organizations manage and improve key areas such as IT governance, organization, processes, and technologies. OT&T could leverage ITIL to refine its definitions of services, standardize IT processes, define roles and responsibilities, establish a centralized IT governance and optimized IT support structure, and implement measures that focus on metrics relevant to Veterans and end users. By applying ITIL best practices, OI&T should realize the following benefits:

- Better alignment between OI&T services and VHA and Veteran priorities and needs
- IT acquisition and investment decisions that result in tangible and quantifiable business value
- Reduction in IT costs via improved planning and controls
- Secure and reliable operation of IT services, reducing failures and unexpected disruptions and meeting service levels
- Standardized, consistent IT processes implemented across OI&T groups with clearly defined roles and responsibilities
- Continuous service improvement through ongoing focus on improving quality, effectiveness, and efficiency of IT processes and services
- Improved communication and information sharing between OI&T and VHA business units
- Improved customer satisfaction for Veterans and end users.

Figure 11-1 provides a notional view of an ITSM framework using ITIL.

Figure 11-1. IT Service Management Framework
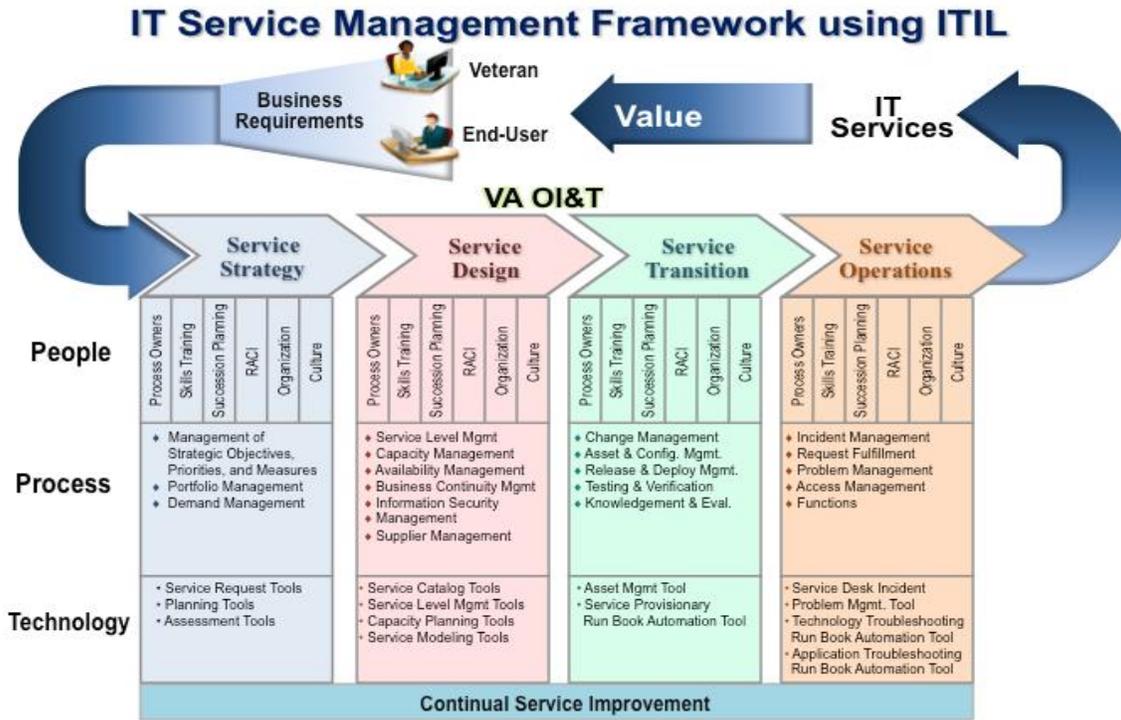
Source: MITRE rendition of ITSM as applied to OI&T

By adopting proven and tested ITSM best practices, OI&T could become a business-aligned, customer-focused, high quality provider of services and capabilities to VA, and position itself to become a trusted and capable mission-enabling partner.

11.3 Learning Health System

Concept

Since 2006, the Institute of Medicine (IOM) has promoted the learning health system (LHS) concept (Olsen et al., 2007). An LHS is

> . . . one in which science, informatics, incentives, and culture are aligned for continuous improvement and innovation, with best practices seamlessly embedded in the care process, patients and families active participants in all elements, and new knowledge captured as an integral by-product of the care experience (Roundtable, 2012).

Continuous learning enables organizations to:

- More quickly produce evidence of the effectiveness of treatment interventions and wellness programs, so that they can be adopted as early as possible to reduce deaths, improve patient health, and reduce cost
- Manage the increasing complexities in health care (i.e., increasing diagnostic, treatment, and care management options; technological advances in medicine; fragmented financing; and complicated clinical workflows (Smith et al., 2013)

- Manage unsustainable increases in health care costs (Smith et al., 2013)

Table 11-1 describes the characteristics of an LHS.

Table 11-1. Characteristics of a Continuously Learning Health System

Science and Informatics
Real-time access to knowledge—Continuously and reliably captures, curates, and delivers the best available evidence to guide, support, tailor, and improve clinical decision making and care safety and quality.
Digital capture of the care experience—Captures the care experience on digital platforms for real-time generation and application of knowledge for care improvement.
Patient-Clinician Partnerships
Engaged, empowered patients—Anchored in patient needs and perspectives; promotes the inclusion of patients, families, and other caregivers as vital members of the continuously learning care team.
Incentives
Incentives aligned for value—Incentives are aligned to encourage continuous improvement, identify and reduce waste, and reward high-value care.
Full transparency—Systematically monitors safety, quality, processes, prices, costs, and outcomes of care; makes information available for care improvement, informed choices, and decision making by clinicians, patients, and their families.
Continuous Learning Culture
Leadership-instilled culture of learning—Stewarded by leadership committed to a culture of teamwork, collaboration, and adaptability in support of continuous learning as a core aim.
Supportive system competencies—Constantly refines complex care operations and processes through ongoing team training and skill building, systems analysis and information development, and creation of feedback loops for continuous learning and system improvement.

Source: Grossman, Powers, & McGinnis, 2011.

A continuously learning health system requires a digital infrastructure (Grossman, Powers & McGinnis, 2011) that:

- Supports diagnosis (e.g., molecular diagnostics), treatment (e.g., individualized medicine), and research (e.g., genetics, genomics) that have high computational needs
- Integrates *intelligent* functionality into and across EHRs, personal health records (PHRs), telehealth and mobile health applications, and electronic monitoring devices, to better:
  - o Engage patients and guide them toward healthier lifestyles
  - o Coordinate care
  - o Anticipate resource needs of health care facilities as well as care needs of patients

o Predict outcomes of individual patients

- Provides large-scale, federated databases containing clinical, behavioral health, administrative, socio-environmental, and patient-generated health data that can be accessed by:

  o Clinicians from different facilities to get a comprehensive and longitudinal view of the patient

  o Clinical and health services researchers who can analyze the data to measure outcomes, program performance, post-market drug monitoring, and social determinants of health

- Enables seamless interoperability between electronic systems and health information exchange among providers, patients, payers, and researchers.

Transforming VHA into an LHS

The LHS can serve as an excellent transformation model for VHA as it strives to return to its previous status as a world-class health care delivery system. The Assessment H team found evidence that VHA aspires to be an LHS and has adopted LHS concepts. The VHA *Blueprint for Excellence* states that "[R]obust clinical and health services research supports VHA's efforts to be a learning health system" (VA, 2014c). Moreover, Strategic Initiative #5 (page 23) describes how VHA wishes to "foster an environment of continuous learning" and use it to improve organizational effectiveness, foster psychologically safe risk-taking, and increase personal accountability.

VHA deserves praise for adopting these important LHS concepts at the strategic planning level, but transforming into an LHS requires a fuller commitment to planning and, more important, to executing its concepts and tenets. *VHA would have less difficulty transforming into an LHS than other health systems once it makes such a commitment.* VHA already has many of the digital infrastructure building blocks of an LHS (Kupersmith, 2007); a fuller commitment would allow VHA to improve and then assemble these building blocks into a tightly integrated transformational model. Executing that model would then enable VHA to transform into an LHS over the next few years.

IOM reports dating back to 2007 (Olsen et al., 2007; Grossman, Powers& McGinnis, 2011; Smith et al., 2013) have highlighted excellent examples of how VHA had begun building LHS capabilities, including rapid learning (Etheredge, 2007a; 2007b). In addition, the reports cite VHA as one of the health systems in the United States with the best potential for becoming an LHS. Etheredge (2007a; 2007b) further suggests that VHA could become one of the public sector leaders in transforming into an LHS.

Transforming VHA into a Learning Health System

Clearly, VHA has the building blocks for an LHS. From a strategic planning perspective, the *Blueprint for Excellence* (VA, 2014c) states the aforementioned aspiration to become an LHS, as well as a strategic initiative (#5) that specifically calls for the application of LHS principles to achieve organizational effectiveness. However, the *Blueprint* contains other themes and

strategic initiatives that, while not called out as such, reflect LHS concepts and tenets. For example, it notes the need for evidence-based results as VHA:[24]

- *Transitions* from a "sick care" *to a "health care" model* (theme)
- Delivers *high-quality, Veteran-centered care* that compares favorably to the best of private sector in *measured outcomes, value, efficiency, and patient experience* (strategy #2)
- *Leverages information technologies, analytics,* and models of health care delivery to *optimize individual and population health outcomes* (strategy #3)
- Advances *personalized, proactive, and patient-driven health care*, and *engages Veterans,* inspiring them to their highest possible level of health and well-being (strategy #6)
- Leads the nation in *research* and treatment of military service-related conditions (strategy #7)

From a planning perspective these strategic initiatives set an excellent course for VHA to transform into an LHS. Fully committing to the LHS would require VHA to frame the above initiatives more extensively within the LHS vision and concept.

Leveraging VHA's Digital Infrastructure

VHA also has the essential components of a digital infrastructure for an LHS (Kupersmith, 2007). In addition, Assessment H's analysis of VHA's informatics and analytic capabilities, as well as VA's IT infrastructure and health IT applications, found the following more notable digital infrastructure capabilities:[25]

- A portfolio of IT applications—including VistA/CPRS, HealtheVet, and their telehealth and mobile applications—currently captures demographic, clinical, behavioral health, and administrative data, with VistA Evolution/eHMP positioned to do so in the future (digitally capturing the care experience, Table 11-1).
- VHA plans to use smartphone apps and monitoring devices (e.g., Fitbit) to capture patient-generated and other health data (Table 11-1).
- The Clinical and Regional Data Warehouses currently serve as large-scale databases, providing clinicians and researchers near-real-time access to knowledge (Table 11-1).
- VHA plans to conduct genomic research and perform individualized medicine (supporting research and clinical processes with high computational needs).
- VA's OI&A plans to build in intelligent functionality within VistA Evolution (new knowledge captured as a natural by-product of providing care).

Challenges in the Transformation to an LHS

While VHA may possess the essential components of an LHS, it must still develop or enhance other components. With regard to the characteristics of a continuously learning health system

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[24] Italicized words tie back to the definition of an LHS stated above.

[25] Parenthetical statements tie back to Table 11-1 and LHS tenets stated above.

found in Table 11-1, VHA appears to have a good start on Science and Informatics, but given the current culture, resources, IT infrastructure complexity, and implementation issues described in Assessment H findings, a number of characteristics listed in Table 11-1 remain as challenges for VHA. For example, OI&T and VHA must work together to align incentives to support continuous improvement and reduce waste. Moreover, while OI&A truly aspires to monitor safety, quality, processes, and outcomes, it lacks sufficient resources and staff to create all the metrics needed to do so and generate the reports to monitor these areas. This lack of resources and staff also prevents OI&A from channeling process and quality improvements back to the clinicians in the field.

In addition, leadership committed to a culture of teamwork and collaboration must exercise stewardship of the continuous learning culture. Given the lack of effective collaboration between OI&T and VHA, these two entities must first rebuild their own levels of trust and collaboration before they can instill a culture of learning within the staff.

Summary

VHA aspires to become an LHS and already has many of the essential components to become one. In fact, LHS experts have stated that VHA is one of the few health systems in the United States with the best potential to become an LHS. However, transforming into an LHS requires a fuller commitment. VHA plans must more forcefully convey a concrete vision of VHA as an LHS and the actions VHA must perform to achieve that vision. Even more important is how VHA executes those actions. VHA must overcome the cultural, resource, staffing, infrastructure, and implementation issues identified in the Assessment H findings. By transforming into an LHS, VHA can regain recognized status as a world class health care delivery system.

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Appendix A   Assessment H Background Data

A.1   Project Management Accountability System (PMAS)

A.1.1   Background

Prior to a congressionally directed internal review by the VA Office of Inspector General (OIG), VA's on-time IT project delivery success rate was in the mid-30 percent range. Many projects were delivering late, not delivering, or delivering inaccurate functionality resulting in millions of dollars being wasted or mismanaged with little or no accountability.

In response to the Congressional direction, the VA Office of Inspector General conducted an internal review of more than 280 IT development projects (VA OIG, 2009). OIG discovered that a major cause was the lack of timely, thorough IT development project reviews and poor management of project or program life cycle costs and schedules. OI&T implemented the Project Management Accountability System (PMAS) across all projects to address these issues and improve VA's IT on-time project delivery success rate.

Applicability

PMAS applies to all IT projects except those that are managing the sustainment of existing systems and that are not defined as product delivery projects. Infrastructure projects that provide new capability fall under the management discipline of PMAS. VA IT projects, whether funded by the IT Appropriation or any other appropriation, and that are resourced at a value greater than $250K (which includes both contract and full time equivalent) total lifecycle cost, must use PMAS.

Structure

PMAS focuses on delivering IT projects and recognizes that these programs fit into a larger VA planning, programming, budgeting and execution structure in which large collections of related work are represented in VA's multiyear plans. "A work stream represents the budget request, which identifies the specific goals within the Program or Initiative that VA will be achieving for the two-year budget cycle. Each project executes by increments, which are manageable subsets of project work delivered every six months or less." Each increment can then have releases, which are even smaller subsets of usable functionality put into production within each increment.

PMAS execution starts after the Initiative/Program and Work Stream levels and begins at the Project level, which is also when the PMAS project officially commences. Every PMAS project must have an Integrated Project Team (IPT) and associated leadership structure.

PMAS outlines a process for managing single projects in short six-month increments and relies on IPTs to manage integration across dependent initiatives. This approach does not scale for large, complex enterprise initiatives. For example, VistA Evolution is a large program comprising over 40 individual projects. PMAS is used to manage each project, but integration and management of dependencies across these projects is the sole responsibility of the IPT teams,

which provide little feedback and discussion. There is no overarching process outside of PMAS to establish program structure needed to manage multiple, complex initiatives as a program.

PMAS describes "project" processes, documentation, and roles and does not provide "program" specific governance or oversight. However:

- An IPT may be responsible for more than one project if it is established at the program level.

- A program level IPT could be chaired or co-chaired by the IT Program Manager (PM), while the IT Project Manager is the chair or co-chair for a project level IPT. The primary customer or Business Sponsor must serve as a member of the IPT and is frequently the co-chair with the IT PM.

- Program-level artifacts applicable to all programs and projects may be developed at the Data Access Service/Deputy CIO level.

- Projects are welcome to use program level artifacts, if applicable. Program-level artifacts promote consistency, save planning time, and improve quality through reuse. If a program-level artifact is being used for a project artifact requirement, the information must be clearly stated at the Milestone Review.

A.1.2   Principles and Objectives

PMAS's primary objective is to establish a disciplined repeatable approach to identify the processes, products and responsibilities of the IT project team, IPT, vendors, and all stakeholders responsible for achieving on-time project delivery. PMAS is based on eight major principles:

1. Incremental development - PMAS requires delivery of new capability or capabilities in increments of six months or less to reduce delivery risk.
2. Integrated teamwork across VA - All PMAS projects must have a fully functioning project or program level Integrated Project/Program Team (IPT) comprising all applicable stakeholders from OI&T, the Office of General Counsel (OGC), and the Office of Acquisition and Logistics (OAL), in addition to the Business Sponsor (VHA).
3. Accountability – PMAS teams continuously report and hold mandatory 60-day project assessments in addition to normal milestone reviews to assess schedule, cost and scope.
4. Resource management – Project increments will not start or maintain execution without the allocation of resources required to execute the project. Projects are provided resources by increment based on established OI&T project priorities.
5. Transparency – PMAS requires that each project publish cost, schedule, quality, scope, and resource status throughout the project's lifecycle. Projects are continuously monitored and flagged (Green, Yellow, and Red) to provide status and warn of increased risk and issues that require management intervention. This information is collected and published in the VA internal PMAS Dashboard for reporting both internal and external to VA—most notably to the Federal IT Dashboard and to Congress.
6. Senior leadership engagement – Leadership participates in major milestone reviews in addition to the continuous dashboard and reporting mechanism mentioned above.

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7. <u>Direct participation by the customer</u> - Sponsors participate as member of the IPT, as reviewers for critical milestone decisions (e.g., New Start State, Closed State), participate in user testing and make the final decision to accept the delivery of capabilities.
8. <u>An emphasis on agile program and development practices</u>.

A.1.3   Management Process

The PMAS Guide 5.0 (VA OI&T, 2014e) documents the current process life cycle, governance mechanisms, participant roles and responsibilities and reporting requirements. PMAS is supplemented by ProPath,[26] a repository that contains the detailed artifacts, processes, and procedures to execute PMAS. An electronic web-based PMAS Dashboard is the authoritative source for all PMAS data. It captures not only project-level data, but also increment data. The PMAS Dashboard is also used to submit data to the Federal IT Dashboard via the OMB 300B process and provides senior leaders visibility into the current status of the projects.

PMAS defines four standard states: New Start, Planning, Active, Closed and two conditional states: Provisioning and Paused in which a program can reside. PMAS projects may be in only one of six states at a time. Advancement through the states is made by successful completion of the requirements for each state and through approval at the required Milestone Review.

Source: VA OI&T, 2014c.

New Start State, Planning State, and Closed State focus at the project level, while the active State focus is on increments and product delivery.

New Start – During the New Start State, the initial project scope and intent are defined by the Business Sponsor (who works with either the IT Program Manager [ITPROG] or PM within the Office of Responsibility [OOR]). Artifacts that are required prior to entry into the Planning State are listed in ProPath. Projects in the New Start State must be evaluated every 90 calendar days by the OOR.

Planning State – Projects that are performing initial planning activities including: Artifacts that must be completed during the Planning State, prior to entry into the Active State, are listed in ProPath.

Active State – A project cannot remain in the Active state for more than 24 months. The Active State has three PMAS applicable increment types: Delivery, Initial Operational Capability (IOC) and Deployment. The core business objective of these processes is to develop and deliver functionality within their increments. These are known as "Delivery" increments.

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[26] https://www.voa.va.gov/DocumentView.aspx?DocumentID=223

- Delivery: A cycle of less than six months within the project schedule in which a project develops and deploys customer accepted functionality into production within the committed increment timeline. A Delivery increment may end at IOC Entry or Deployment.

- IOC: A cycle within the project schedule for large or complex projects whose increments need to be placed into limited production environments of varying size and complexity. This is done to test the new functionality and determine if the features and functionality perform as expected and do not adversely affect the existing functionality of the product/system.

- Deployment: A cycle within the project schedule dedicated to deploying usable functionality to a system, data center, site, and/or product. Because of the nature of the functionality being deployed, the project may need to roll out its functionality in a deliberate area-by-area or site-by-site manner.

- Closed State - A project enters or is placed in the Closed State when the project objectives have been met, business priorities have changed or the project performance was poor and not meeting objectives.

An increment deliverable is defined as a new or enhanced IT capability used by one or more customers in production. This is true for software/system increment deliverables and for infrastructure upgrades, enhancements, or expansions. For some high-risk projects, delivery of a prototype or pilot may be an acceptable increment deliverable and would be approved as such during the Milestone 1 Review for that increment. For some complex systems for which field deployment is resource intensive, the increment deliverable may be defined as the first production deployment, also known as the alpha site.

Figure A-1 shows the PMAS project management lifecycle.

Figure A-1. PMAS Project Management Life Cycle
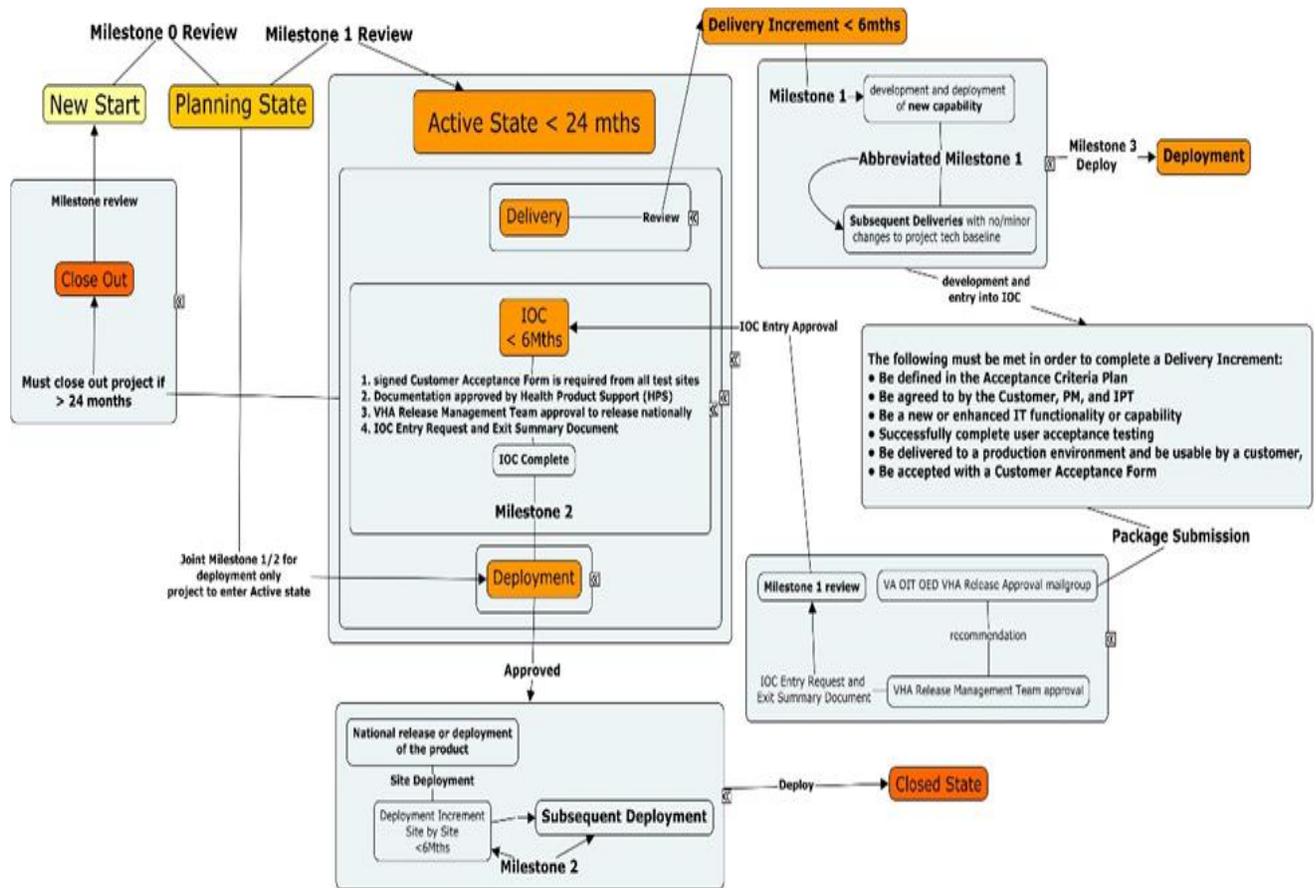
Source: MITRE summarization of PMAS and ProPath Guides process diagrams.

A.1.4   ProPath

The ProPath process supplements PMAS by providing a repository that contains artifacts, processes, and procedures. ProPath is the companion to PMAS and maps directly to the requirements outlined within the guide. It supports PMAS execution by providing the detailed processes and instructions, descriptions, roles and responsibilities required by PMAS policy and practice. It also provides a front-end Process Asset Library containing information regarding standard processes and over 400 artifacts and templates to assist project teams. Sixty of the over 400 documents and templates are deemed essential as part of the SDLC process to support PMAS milestone reviews.

Process Effectiveness

A 2009 GAO audit (US GAO, 2009) was conducted at the request of the CIO to evaluate the effectiveness of PMAS. The report indicated that OI&T created and instituted the PMAS concept without a roadmap, adequate leadership, and staff to effectively implement and manage the new methodology. Specifically, key management controls to ensure PMAS data reliability, verify project compliance, and track project costs had not been well established. Also detailed

guidance on how such controls should be used within the framework to manage and oversee IT projects had not been fully established.

In fiscal year 2011 OI&T reported that the on time delivery rate jumped to 89 percent, continued at 80 percent in fiscal year 2012 and was 82 percent in 2013. OI&T also reported that PMAS has delivered 97.3 percent of all IT commitments to its customers since its inception. However, a second follow up audit on OI&T implementation of the prior audits' recommendations (GAO, 2015b) pointed to continuing issues with process execution and impact.

The 2015 audit reported "OI&T has taken steps to improve PMAS. Although steps were taken to improve PMAS, more than five years after its launch, it still has not fully infused PMAS with the discipline and accountability necessary for effective oversight of IT development projects." OIG specifically identified that OI&T had not provide adequate oversight to ensure OIG's prior recommendations were sufficiently addressed and process controls were operating as intended; also, PMAS Guide enhancements were not implemented. OIG identified that "IT development projects are potentially being managed at an unnecessarily high risk."

PMAS does not have the proper balance between cost, schedule, and performance incentives. Incentives are weighted too heavily towards meeting the schedule. Several Assessment H interviewees reported that requirements are "deferred" to stay on schedule—"Over 80% of projects are meeting their milestones but are delivering 10% of what we wanted." Several interviewees felt that the resulting deliverables, while coming every six months, were often too short of value/capability to be useful for the cost of the deliverable increment and there was risk that the project would be completed without the minimum capabilities to be successful.

User satisfaction assessment is not mandated by the PMAS process making it difficult to understand the impact of product releases.

PMAS Efficiency

PMAS is overly complex and requires an immense amount of paperwork to complete, creating significant overhead for smaller projects – "PMAS has too much process overhead with 78 steps." In its existing form, PMAS cannot easily be tailored depending on the project's size, risk, and complexity. Most projects are smaller, putting a great burden on the projects' resources to abide by the PMAS process, to the point that in several reported cases - such as projects to quickly address defects or immediate needs, the effort to support PMAS requirements far surpassed the effort to delivering value for the project.

A recent VA OIG audit (OIG, 2013) of OI&T's PMAS implementation acknowledges that the implementation has come along since its inception, while additional work remains. Key gaps identified included lack of oversight tools, continued VA staff vacancies, and inadequate planning and compliance reviews.

PMAS has addressed several issues well. It stopped projects from living on for years and not producing anything. It accomplishes this by validating that projects have a plan, conduct regular reviews, and report progress providing greater transparency. Projects are regularly assessed when they fail to make delivery and must explain why and must produce a get-well plan. The

plan is reviewed and a decision is made as to whether to approve an extension or shutdown the project. However, Assessment H interviewees identified 15 of 46 Planners (33 percent) and 17 of 26 Builders (65 percent) who conveyed that, while PMAS improves accountability and transparency, it has become overly complex and burdensome and is impacting project efficiency. PMAS has also made many project managers risk averse and "very, very conservative." Several lead project managers acknowledged that many project managers schedule conservatively so the six months increments contain less functionality. The process needs some way to measure the quantity and quality of things being delivered.

The true complexity of the management processes are captured in ProPath. The ProPath Project Management process consists of 71 separate activities focusing on the project life cycle to produce deliverables or artifacts to initiate, plan, and manage IT projects. ProPath System Development processes contain over 91 activities focused on the System Development Life Cycle producing deliverables or artifacts to design, develop, test, and implement the solution. Figure A-2 demonstrates PMAS and ProPath complexity. The top-level Project Management "Project Initiation" phase consists of eight major planning activities supported by 34 process tasks, generating or reviewing over 39 project documents or artifacts.

Figure A-2. PMAS and ProPath Complexity
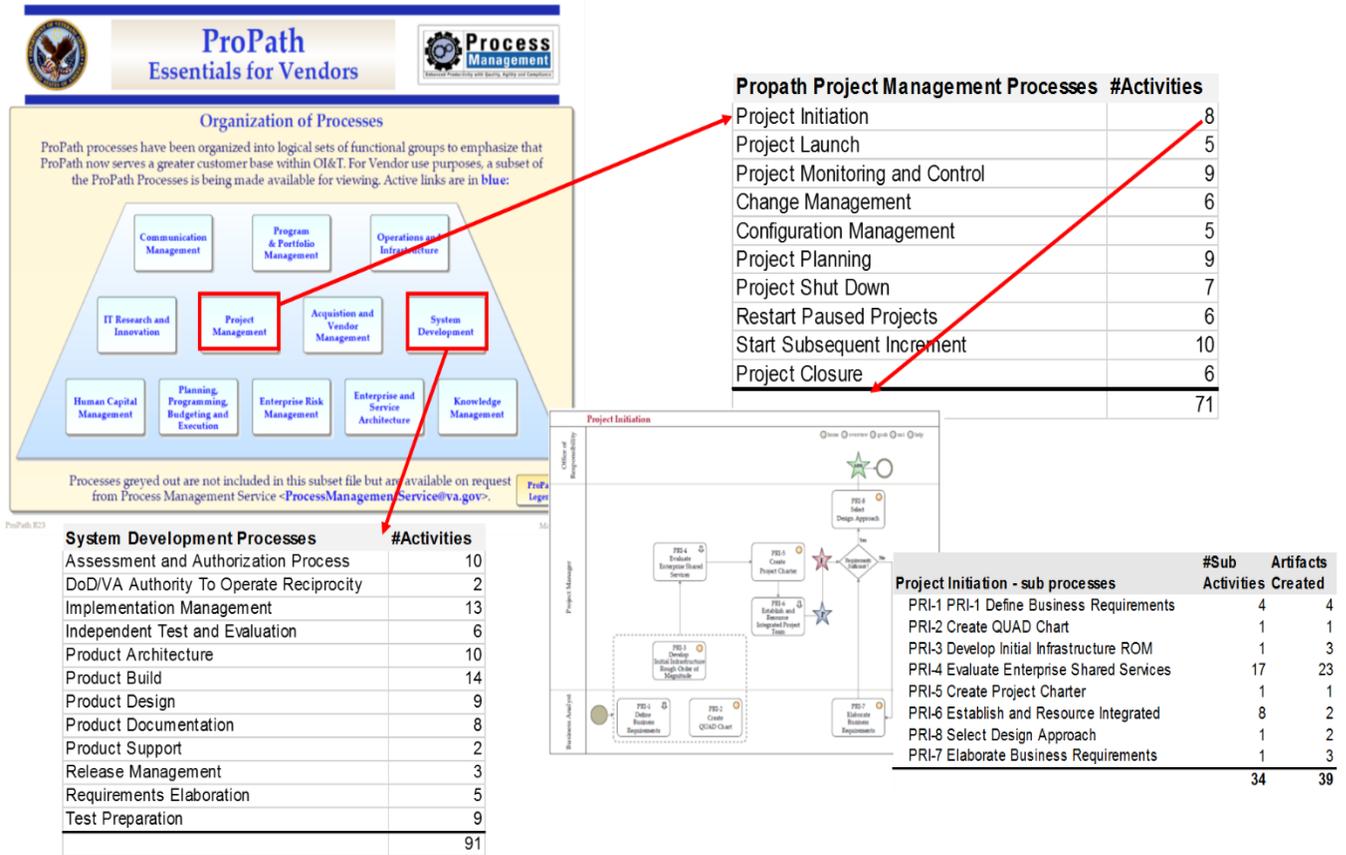
Source: MITRE summarization of ProPath Guide Project Management and System Development Workflow diagrams.

PMAS is designed with some flexibility. If the specifics of the project do not require the use of all these documents and justification is given at the Milestone 1 Review, the Milestone 1 Review Board grants waivers for artifacts or ancillary processes. Projects in the Planning State must be evaluated every 60 calendar days by the OOR to determine if the project will remain in Planning, move to the Provisioning or Active State, be re-evaluated, or closed. For projects that will be technically complex, early engagement with the Architecture Engineering Review Board (AERB) is highly recommended but not required.

However, agile processes with frequent modifications do not fit well within the current PMAS process. Each modification requires extensive reviews and burdensome documentation requirements. The agile process causes frequent modifications to project artifacts causing redundant reviews. The CIO process incurs over 61 separate activities and is another example of the high overhead incurred by PMAS as demonstrated in Figure A-3.

Figure A-3. PMAS Mandatory Activities
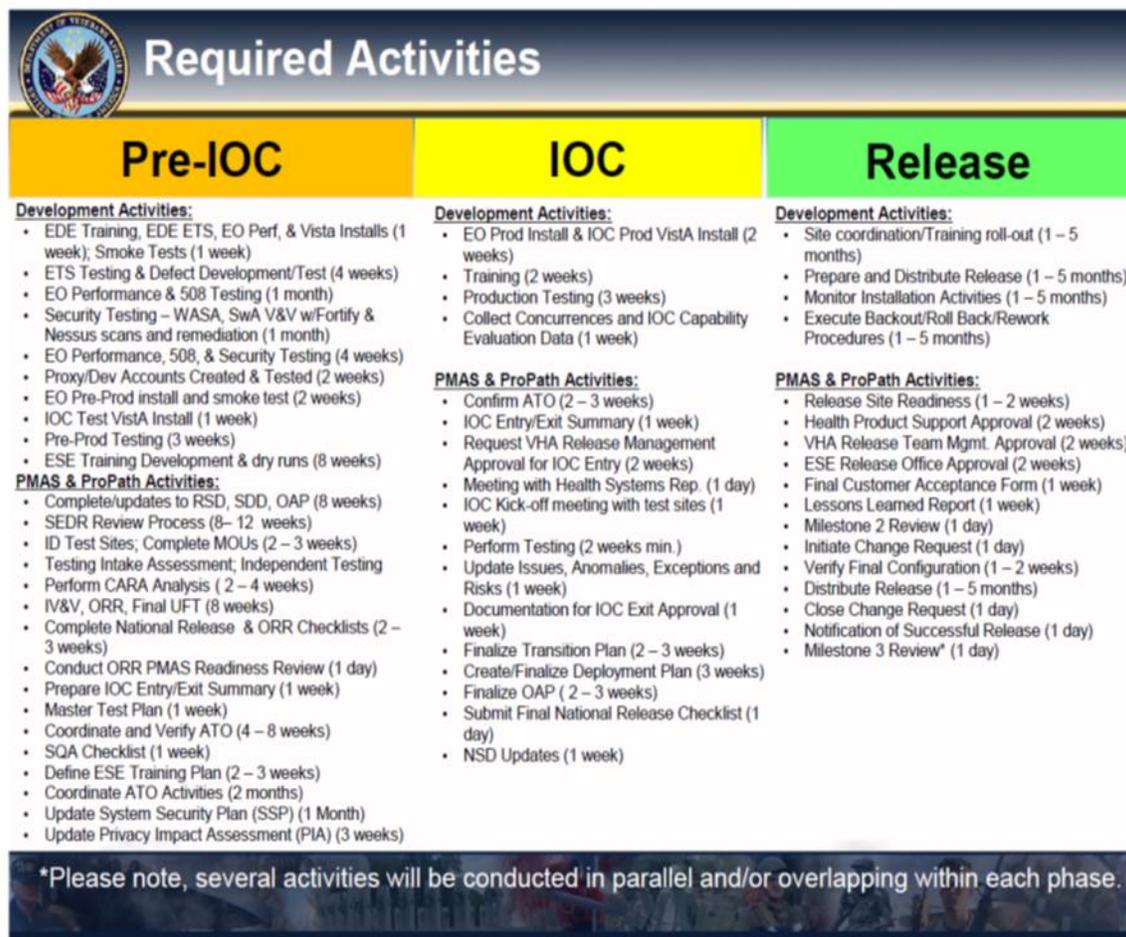
Source: VA OI&T, 2014c.

A.1.5 How PMAS Supports Agile Development

PMAS strongly encourages adoption of agile practices during project development as one of the eight basic principles documented in the PMAS Guide. However, the PMAS guide and ProPath process contain little in the way of agile execution. Each project must assess and declare the development methodology it uses.

PMAS and ProPath documentation stipulate that not all projects require exactly the same artifacts. Agile project managers can select activities that best fit their requirements, as long as they adhere to mandated policies, such as PMAS, Information Security, or National Release policies. These policies mandate creation and completion of certain artifacts which reflect clearly established milestones necessary for both project funding and/or acquisition and to mitigate risks associated with deploying systems nationwide.

VA's OI&T established an Agile Lean Community of Practice (ALCP) to provide guidance to Program and Project Managers using Agile and Lean methodologies. The COP is supported by

the Agile/Lean Implementation Work Group (ALIWG) which comprises senior agile practitioners and holds to the principle that the Program and Project Mangers determine the appropriate methodologies to use for their assigned projects. The ALIWG leadership follows policies and procedures for oversight and review as outlined in the latest version of the PMAS Guide and ProPath processes and recommends changes as appropriate.

ALCP also provides an Agile Suitability and Maturity Guide and tools. The context for the document and tools is to help determine if a project should be managed using agile methods and how to measure that agility specific to VA.

- Agile Suitability Assessment tool provides a framework for assessing whether a project is suited for agile. Additionally, it supports decisions related to:

  o Identifying and mitigating risks specific to delivering a project using agile methodologies.

  o Pinpointing necessary changes to team and stakeholders' skill sets to support the use of agile.

- Agile Maturity Assessment tool provides a framework for assessing whether a project can be considered agile or not based on certain minimum characteristics of agile projects.

- Agile Project Characteristics Suitability and Maturity Guide provides guidance to help determine if a project should be managed using agile methods and how to measure that agility specific to VA.

The ProPath team has an active member on the ALIWG and is responsible for incorporating into ProPath the agile management guidelines, templates, and toolsets once determined and established by the ALIWG. Additional agile template and tools were added to PMAS and ProPath to adopt a more common agile approach and ensure projects are using the same measures to assess projects performance.

As shown in Figure A-4, these documents are meant to provide common agile management and measurements capabilities in the following areas of the PMAS process.

Figure A-4. PMAS Agile Management and Measurement Process
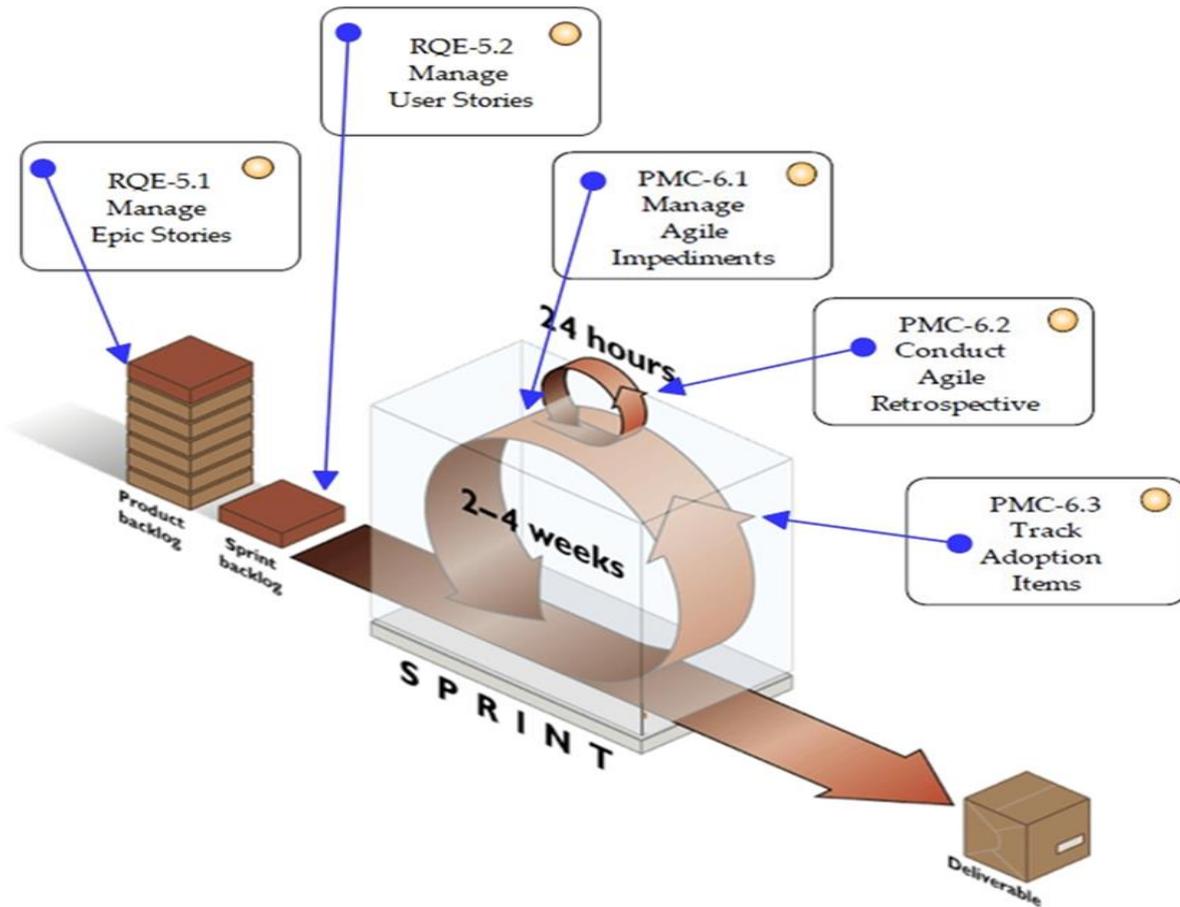
Source: VA, Agile Methodology and VA, 2015h.

The audience for these tools and the guideline are the project managers, development leads, and project oversight boards that make the decision on development methodology, often in consultation with their teams and the PMO. However, during Assessment H interviews, none of the 46 planners (i.e., architects, program managers/leads) or 20 builders (i.e., project leads, development staff, software engineers) mentioned the community of practice, the tools, or the ALIWG when specifically asked.

Is PMAS Agile?

The Agile Manifesto set down some simple objectives. ProPath strives to be SDLC agnostic and does not adhere to or endorse any specific development methodology (e.g., Waterfall, Rational Unified Process, or Agile). Agile project managers are expected to use their expert judgment and discretion to select those activities that best fit the project's needs and create project plans to meet the need of the selected development methodology. While sequencing of activities (and creation of artifacts) can be at the project team's discretion, ProPath provides a recommended sequencing of activities based on a logical progression of artifact development in

support of a project which does not support agile development. This process is serial in nature and overly focused on process and creating artifacts as opposed creating working software.

PMAS guidance emphasizes the need for good "customer collaboration," but over 60 percent of Assessment H interviewees indicated that customer interactions at the clinical working level (i.e., VAMC, VISN, Innovation Centers, Research Centers) are limited, sporadic, and usually unidirectional.

PMAS seems to address "working software" in the guidance, but the Assessment H study discovered that schedule drives delivery more (at the expense of working software) which is evident by the focus on schedule and financial process metrics used to track project status and the lack of customer satisfaction and content delivered.

The Agile Suitability Assessment tool, Agile Maturity Assessment tool, and Agile Project Characteristics Suitability and Maturity Guide provide common method to measure differing implementations and adoption of agile processes across projects.

Agile processes with frequent modifications do not fit with the current PMAS process. Each modification requires extensive reviews and burdensome documentation requirements. For example, because of the dependency on the Requirement Specification Document (RSD), a System Design Document (SDD) cannot be completed prior to the development of a RSD.

Doing Agile, but Not Being Agile

PMAS and the OMB guidelines for incremental development are basically trying to exploit aspects of 'agile' development, which emerged as a best practice over the past decade and has consistently been identified as a success factor for IT projects. However, *the highest priority for agile development is "to satisfy the customer through early and continuous delivery of valuable software."* In contrast, the highest priority for PMAS is meeting a complex schedule of milestones.

PMAS and supplemental agile related documentation align with the recommended set of principles in the Government Accountability Office (GAO) report on "Effective Practices and Federal Challenges in Applying Agile Methods." They center on the Agile Manifesto themes of small, frequent capability releases, a dynamic requirements process that allows for the continuous prioritization of requirements, active involvement from the user community throughout the development process, and commitment to delivering working software based on a time-boxed schedule. However, they fail to define and standardize agile-based practices to ensure a Department-wide consistent and common understanding of what constitutes an agile-based DoD program or project (Lapham, Williams, Hammons, Burton, & Schenker, 2010). This leads to misunderstanding and misrepresentation of agile principles. After defining the principles, VA needs to provide detailed guidance to the acquisition community that describes how to execute the agile acquisition processes within acquisition guidelines and regulations.

Adopting only a handful of agile practices without a broader agile strategy fails to achieve desired results. For example, one DoD early adopter initially attempted to implement agile practices by breaking large requirements into several four-week sprint cycles. However, the program lacked high-level agreement on what to develop in each cycle, and did not have a

robust requirements identification and planning process in place. Furthermore, the program lacked an organized user community and active user-participation throughout the development process—a fundamental agile tenet. As a result, the agile processes quickly degenerated and the program only delivered 10 percent of its objective capability after two years of failed agile development attempts. The program finally retreated to a waterfall-based process. It simply could not execute the agile strategy without the proper environment, foundation, and processes in place.[27]

The <u>primary metric</u> for true *agile* development is not based on rigid timelines – *the primary metric is whether or not working software actually exists and is demonstrably suitable for its intended purpose*; which should be determined empirically at the end of every increment. The insights above, combined with other findings, lead us to conclude that PMAS has simply incorporated the temporal aspect of agile development, but is not actually 'being agile' in the sense of incorporating best practice approach.

A.1.6   Summary

PMAS follows a waterfall project management approach which is a sequential process broken into stages. This typically includes eight stages; conception, requirements, analysis, architecture, development, testing, implementation, and maintenance. The steps in these processes are intentionally sequential, so that the team transitions from each step in directed order, with meticulous record keeping/documentation and shared awareness in capabilities so that the client knows what to expect. Software architecture is almost entirely focused on its one phase of a waterfall product management process. PMAS should be retooled to account for the documentation and process to support continuous planning, multiple sprints including design, development, integration, and test cycles that culminate in demonstration of capabilities to users and other stakeholders.

Agile is not an "all or nothing" approach for "all VA projects." However, once the decision to use an agile project management approach to manage <u>a project</u> is made, agile should affect every phase of a software project. Any constraints on agile project management processes which co-mingle waterfall processes will be a significant risk to realizing the benefits of using agile.

Properly implemented agile processes should result in capabilities developed and potentially shipped into the hands of users at the end of every sprint. Industry norms see these sprints range from four weeks, to as little as two weeks. Mixing successful agile processes with parts of the PMAS prescriptive IT development processes represent a risk to successfully using agile. The PMAS process will need to be enhanced to support and encourage more rapid software release processes for all projects so that agile development teams can easily deliver a "shippable product" as frequently as every two weeks. Operationally, successfully implemented agile project management will depend on strict adherence to well-known and well-understood practices for the engineering team. This should include software development coding conventions, software code complexity analysis, continuous integration servers that run unit

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[27] (Defense Information Systems Agency, 2015)

test code upon every iterative check-in, strict adherence to reviewing delivered capabilities at the end of sprint burn-down meetings (as frequently as every two weeks), and transparent management of and technical debt that the team knowingly assumes.

The PMAS process is currently an impediment to more rapidly introducing new capability and collecting feedback from VA's users. This longer latency introduced in the PMAS processes represents an impediment in successfully implementing agile if VA is to see more software projects incrementally update their working software systems.

For instance, the Enterprise Health Management Platform (eHMP) is a VistA Evolution project that is taking significant steps to ensure the adoption of processes that align well with a stricter agile project management activity.

A cursory review of eHMP documents and team interviews indicated that the project uses many best practice development and management methodologies. eHMP is fully embracing agile development strategies, involving two-week sprints with demos to stakeholders at the end of each sprint for a tight feedback loop. Potentially Shippable Increment (PSI) planning sessions are conducted periodically at the end of several sprints to revisit and plan for new features, develop and update user stories, look for interdependencies with other projects, and prioritize development for the next PSI.

PMAS processes need to be more flexible with respect to the ability to rapidly change technologies used by software projects in the PMAS process. For instance, the PMAS process needs to reduce the impediments and latency associated with introducing new and emerging versions of software languages and frameworks.

It should be an aim of the PMAS process to identify and introduce a new version of a language or software framework in as little as two weeks. This would align with a more rapid software development process that VA software teams should also be striving to meet (bi-weekly software builds and associated releases). This additional flexibility would allow VA software teams to more rapidly incorporate capabilities into projects that will benefit Veterans.

VA must successfully align the incentives for contractors to use agile well within the bounds of government regulation. Contracts will need to be enhanced to align incentives for shared benefit to VA and VA's contractors when capabilities are delivered ahead of schedule, and under-cost. Alternatively, VA contracts may need to be more flexible if capabilities need to be extended either beyond the original Period of Performance or via increased mission scope based on positive user feedback.

Agile must be scaled to support complex enterprise initiatives and programs. To support increased program-level visibility of both interdependencies and overall program risk, VA should adopt any one of the scalable enterprise models including processes like "scrum of scrums." These agile processes allow teams to continue to maintain high velocity designing and developing the most relevant capabilities for their users. To address the need for heightened awareness and visibility into the activities of individual projects, "ambassadors" from the various teams conduct their own daily "read out" scrums to share all new and emerging decisions that the teams are incrementally making. This has the same benefit to managing risk as scrum does on the individual basis.

A.2   IT Infrastructure and O&M

A.2.1   Introduction

VA's IT infrastructure for its enterprise software architecture is large and overly complex with a heterogeneous mix of software frameworks and technologies, making it difficult to efficiently modernize health IT functionality and products that impact health care delivery. Impacts include:

- Sustainment costs are increasing and are unsustainable, taking resources away from new capability development.

- VA has not established the data standards required for intra-VA interoperability.

- The size and complexity of VA's enterprise IT infrastructure continues to impact their ability to effectively secure sensitive data within their information systems. Increased dependence on telehealth, mobile applications, and information exchange with external providers will increase their challenges with achieving an acceptable cyber security posture.

A.2.1.1   Historical Perspective

The Assessment H team found that VA's ability to <u>execute</u> IT strategies revealed significant challenges created by the compounding, accidental complexity resulting from the initial development approach and ongoing evolution of their custom-built software-intensive health IT system[28]. Related findings associated with this complexity include increasing O&M costs, intra-VA interoperability challenges, and the long-standing inability to effectively secure the sensitive data in VA's information systems.

Much of VA's current technical challenge stems from their *decentralized* approach to IT during the 1990s, which was credited with their dramatic turnaround in health care services during that time. It is important to note that *decentralization and autonomy were* the *most often cited reasons for that remarkable turnaround in VA health care during the 1990s* (Walters, 2009) -- and it was the local-scope, small-scale, decentralized approach to software development that produced an effective breeding ground for innovation and rapid advancements in health IT. However, this also created unsustainable IT cost via the *accidental software complexity* created as "*new applications were popping up sporadically, and haphazardly.*" The lack of standardization and effective IT governance ultimately created significant technical complexity in the form of a "*sprawling, aging, and unwieldy system of computer and communications technologies spread across the department's more than 1,000 medical centers, clinics, nursing homes and Veterans' centers*" (Walters, 2009).

VA's initial failed attempts to overcome this technical complexity via high-cost, major software-intensive consolidation initiatives such as '*HealtheVet'* contributed to Congress directing VA to adopt a centralized approach to IT in 2005 (U.S. House of Representatives, 2005a; GAO, 2008;

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[28] VA is one of the only major health care providers that continues to build and integrate significant amount of custom software-intensive Health IT and other business line solutions

Walters, 2009). However, Assessment H findings suggest VA has achieved less-than-sufficient improvements with respect to these enterprise integration and modernization efforts, despite the centralization of IT authority, a perpetual VA IT priority to consolidate and integrate IT solutions (VA 2007; VA OI&T 2014), and billions of dollars in IT funding.

A.2.2   Complexity

There are too few common services and the software architecture remains insufficiently defined, implemented, and governed with respect to inter-module interfaces and rules of interactions.

VA's decentralized IT development in the 90's created a custom health IT system comprising *many different versions of many different software modules*, with *many different dependencies* between these modules. This was primarily the result of local, autonomous IT resources developing customized versions of these software modules to quickly satisfy local IT requirements for managing and furnishing health care. The *focus on 'local, small-scale' requirements* during VA's era of decentralized, autonomous software development was not consistent with the *'enterprise, large-scale' software complexity.*

While a 'Gold Standard VistA' has consolidated nearly 60 percent of these software modules (VA 2015) and is currently being deployed across the VA enterprise to consolidate the hundreds of variations that emerged during the previous era, Assessment H found that VA's IT and software infrastructure remain overly (unnecessarily) complex with a heterogeneous mix of software frameworks and technologies.

The current VA scheduling system is an example of technical complexity and its consequences. The scheduling system currently used by VA is approximately 30 years old (note that there have been repeated failed, high-cost attempts to replace this system). VA scheduling system has *over 1,000 integration points* (VA, 2014*)* which are basically locations in software where one software module depends on the functionality implemented in another software module (i.e., the dependent software module will not function without the software module its dependent on)*.* These integration points for VA scheduling system include those from *71 separate software modules that are depending on the scheduling module*, and *31 separate software modules that the scheduling system is depending on* (VA OI&T 2014). The dependencies are actually more complicated, because there are *different versions of each of these modules* which adds compounding degrees of complexity (in other words, each of those 71 + 31 modules is a different version). The 'Gold Standard VistA' will help address the additional complexity created by all the different versions of each of the separate modules but it does not address the dependencies between the Gold Standard versions of the 71 + 31 modules that will remain.

The many dependencies between the many VA software modules have a direct impact on what is referred to as the "*cost of change*" associated with enterprise-scale software, which is considered one of the highest software-related cost factors and is closely correlated with the dependencies (seams) between all the software modules. These dependencies (seams) also impact the "cost of integration," which directly impacts the ability to integrate COTS products into the health IT system. All these complexity factors explain why replacing VA scheduling

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system remains a high-cost, highly-technical challenge. Similar 'dependency' challenges exist for other health IT applications in VA. It is also worth noting Assessment H related findings regarding the absence of a 'master integration plan' in VA's fragmented approach to IT project management (referring to their reliance on a multitude of discrete, separately managed software development efforts with no master integration schedule or plan), which aligns with GAO's repeated findings associated with VA's IT and software integration challenges.

Since the end of VA 1990s era of small-scale software development, VA has been trying to consolidate their entire collection of health IT solutions – which requires cross-cutting enterprise IT considerations for VHA, VBA, and NCA and significantly magnifies the IT and software complexity factors. This VA IT enterprise perspective is critical to understanding the scale, scope, and complexity of the technical challenges OI&T has faced in accomplishing their decade-long strategic IT objective to create a 'One-VA' (VA, 2005) that transitions VA "from disparate stovepiped processes and systems to a unified environment of integrated, interoperable business processes and technical services"(VA OI&T 2014). The approach requires special expertise and appropriate IT processes for successful large-scale, centralized IT management; large-scale software infrastructure; and large-scale software development – all of which represent a stark contrast to the expertise and processes required for the decentralized IT and local software customizations that created the successful health IT solutions in the 1990s.

Evidence of VA's ongoing struggle to transition from 'small-scale' to 'large-scale' is illustrated in Figure A-5, which provides an approximate timeline for the various infrastructure technologies VA has implemented. Instead of consolidating their infrastructure, VA has arguably increased the software complexity, creating more challenges. This evolution of technologies reflects an enterprise software anti-pattern[29] called "The Technology Alter" (Torkamani & Bagheri, 2014), where the enterprise ends up focusing on the underlying technologies instead of the business objectives. Assessment H interviews with VA stakeholders described this as "chasing shiny objects" and "bright shiny new things," referring to exactly the same concept embodied in the 'The Technology Alter' anti-pattern (chasing new technologies) with the same consequences (IT-driven, not business-driven). Further evidence of this was offered by OI&T leadership who told us that, in the absence of clear health care objectives from VHA, their IT development has been focused on building "flexibility into the infrastructure" while "[VHA] figures out what they want." Other Assessment H interviewees described the lack of defined measurable health care outcomes for driving IT investments. While VA has recently developed KPIs for driving IT development, "the approach will require implementing a process that has never been done before." These examples indicate problems ensuring business needs are driving IT investments, but OI&T's attention to increasing the 'flexibility' *of their enterprise software infrastructure is a positive finding*.

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[29] Enterprise Software Anti-Patterns derive from analysis of the wide and ever-growing selection of repeated software failures in an attempt to understand, prevent, and recover from them. Anti-Patterns are a new tool that bridge the gap between architectural concepts and real-world implementations.

Figure A-5. Timeline for VA IT Modernization Using a Mix of Technologies
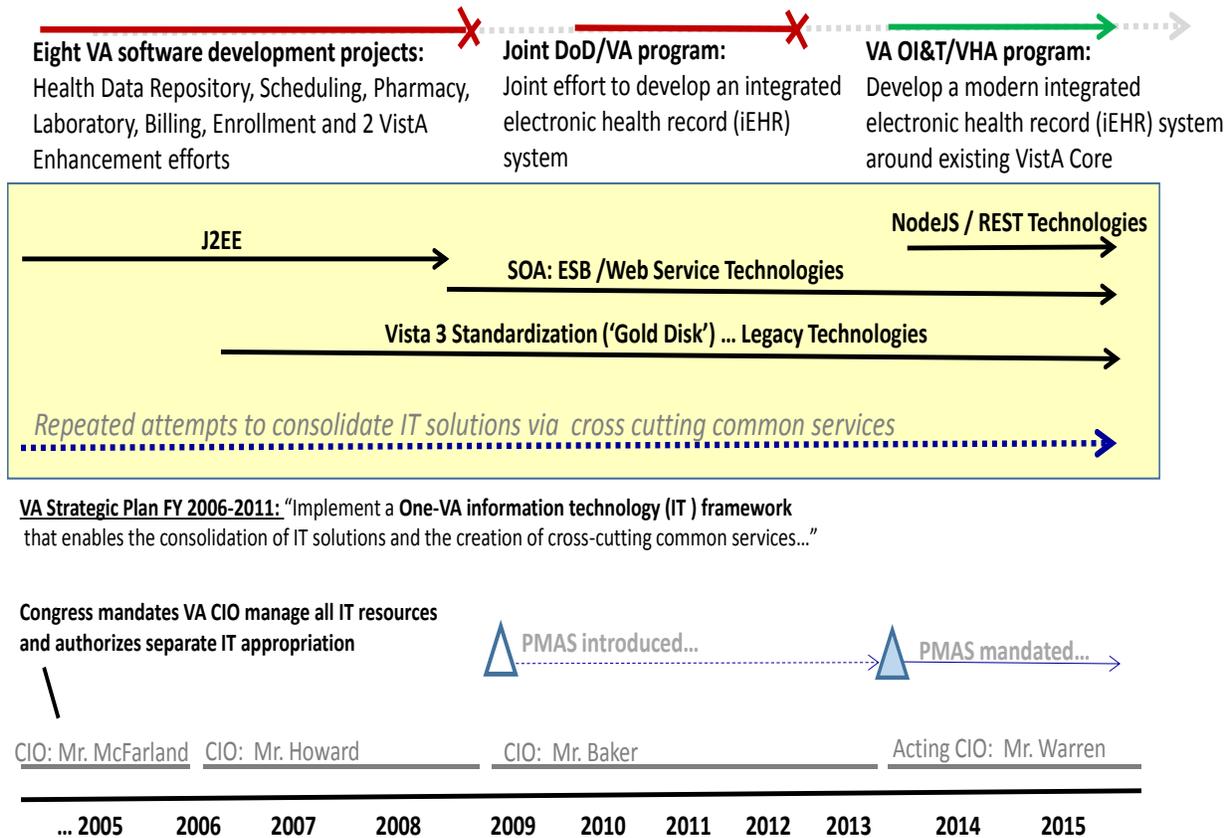
Source: MITRE rendition of data from planning documents and reports.

As a non-functional 'quality' attribute of a software architecture, flexibility does not directly impact the health care outcomes. However, the complexity described so far limits flexibility, which limits the ability to support evolving business needs. This increases the time and cost of delivering measurable outcomes exploit emerging, innovative health IT solutions – as VA was able to do so well with the inherent flexibility of the decentralized, small-scale development in the 1990s.

Assessment H revealed that VA's ongoing attempts to "*increase flexibility,*" along with their related ongoing attempts to overcome the accidental complexity created by the development of their legacy health care system, has produced the software health IT infrastructure illustrated in Figure A-6, which shows the lack of standardization created by the mix of technologies incorporated over the past decade. Note that this figure does not show the breadth and depth of VA's enterprise software infrastructure, which must incorporate many cross-cutting considerations for all VA business lines and also impacts their health IT efforts. The 'software 'stack' on the left of the diagram represents the results from VA's move towards SOA and web services; the software stack in the middle represents the legacy software, but does not show the hundreds of modules and their many different versions; and the software stack on the right shows the recent move towards a modern infrastructure technology called

'Node.JS,' which recently emerged as one of the most popular technologies in today's global open source software community.

Figure A-6. VA's Heterogeneous Software Architecture
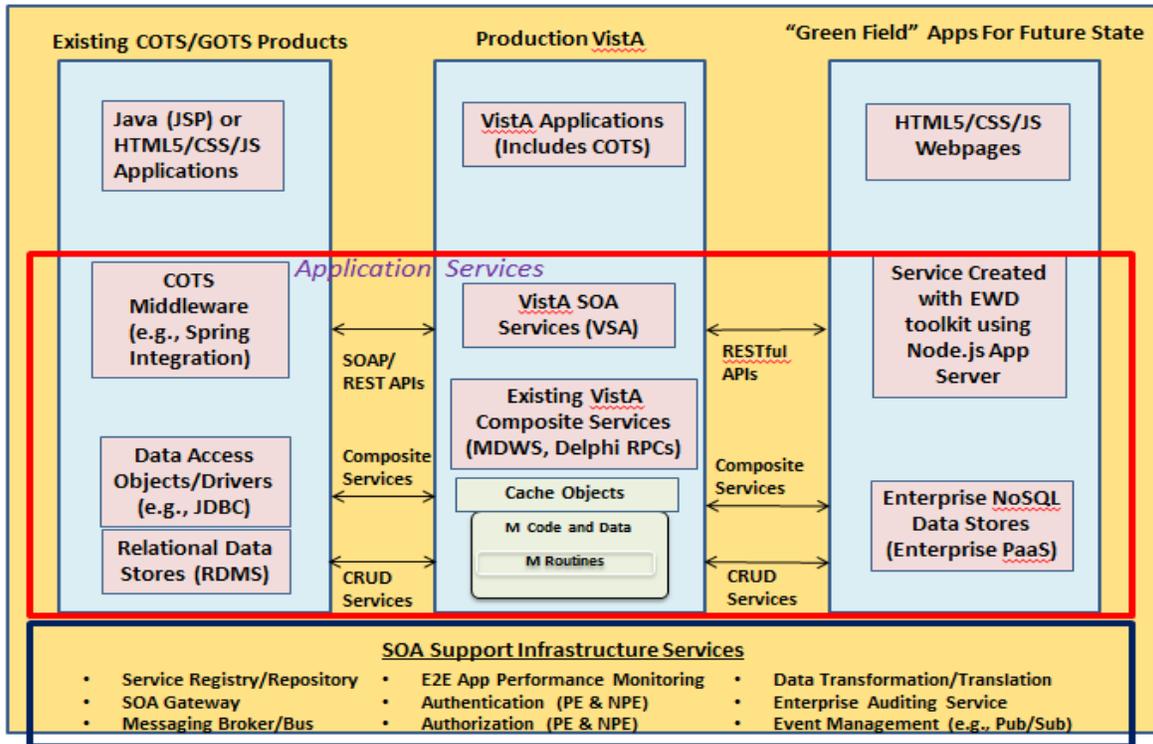
Source: OI&T ASD, VistA 4 Product Architecture Review Triad Meeting Winter 2015 (briefing), January 27, 2015.

This mix of software stacks reflects what is described as a 'non-standardized infrastructure,' which has been identified in case studies as a common failure factor for IT projects. (Standish Group, 2011). As noted in Figure A-5, VA's efforts to transition from 'small-scale' to 'large-scale' have increased the software complexity due to implementation of multiple software application and infrastructure technologies over a 10-year time span. Instead of consolidating their infrastructure, VA has created more challenges that impede their ability to upgrade and extend their existing software systems.

Figure A-6 illustrates in more detail this mix of software applications and infrastructure (e.g., Java J2EE Technology, SOA: Enterprise Service Bus (ESB)/web service technologies and Node.js/REST Technologies) that VA must now simultaneously maintain as a 'non-standardized infrastructure.' This type of 'non-standardized infrastructure' has been identified in academia and industry case studies as a common failure factor for IT projects.

Consequences include the exponentially increasing 'time and cost of change' due to complexity and duplication of efforts; the variety of added costs required to maintain and manage multiple skill sets -- especially those required for VA's 30-year old technologies, where the pool of skilled resources are significantly decreasing (e.g., Mumps, Delphi); and a list of challenges with

respect to effective cyber security. Additional impacts were revealed from interviews with VA stakeholders, who described impacts from the lack of sufficiently defined and/or sufficiently implemented 'common services' required for accomplishing rapid, cost-effective development. Other stakeholders, including OI&T leadership also described the time and cost impacts related to the challenges with integrating COTS solutions into this infrastructure.

This finding also reflects a top failure factor for IT projects described as 'underestimating the technical complexities of large-scale IT infrastructure,' which is related to the inability to develop accurate cost estimates and effectively control the total software development and integration costs that emerge at enterprise scale. These impacts are reflected in several other Assessment H findings.

A.2.3   Increasing IT Maintenance Costs

VA's enterprise IT infrastructure includes the combination of hardware, software, networks and facilities required to develop, test, monitor, secure, support, and control VA's IT services. VA's annual IT spending published on the Federal IT Dashboard can be organized in four categories (SemanticInfo, 2015):

- New/Upgrades Spending for Mission Area – Program costs for new investments, changes or modifications to existing systems reported as IT investments directly supporting an agency-designated mission area.

- New/Upgrades Spending for Infrastructure – Program costs for new investments, changes or modifications to existing systems identified as IT investments supporting infrastructure, strategic management of IT operations, or a grants management system.

- Maintenance Spending for Mission Area – Spending covering maintenance and operation costs at current performance level for systems reported as Mission Area Spending.

- Infrastructure Spending – Spending reported as IT investments supporting infrastructure, strategic management of IT operations, or a grants management system.

A detailed assessment of VA's enterprise IT infrastructure and itemized annual IT O&M spending were beyond the scope of Assessment H. However, analysis of VA IT spending trends found that maintenance costs have grown almost continually since 2002, as shown in Figure A-7. More troubling, spending on upgrades or new capabilities for the VA mission now represent only 15 percent of the total IT budget. During Assessment H interviews, several stakeholders, including those directly involved with IT investment planning and funding allocations, echoed concerns that O&M funding is "eating up our development, modernization, and enhancement funding." As a result, the growing cost of maintaining the complex infrastructure reduces the availability of funding for new IT capabilities needed to manage and meet health care needs.

Figure A-7. VA IT Spending on Upgrades vs. Maintenance
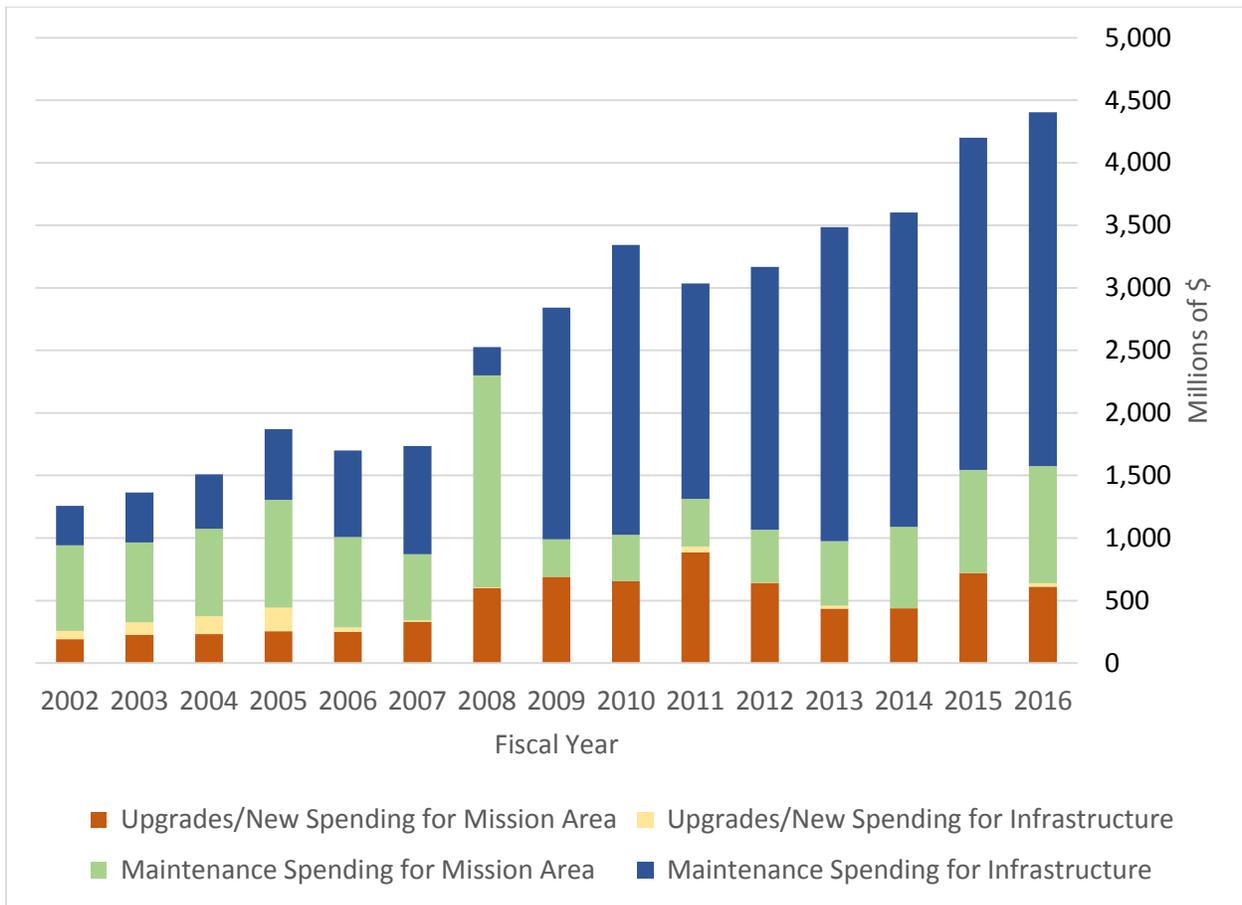
Source: MITRE graph derived from data collected from the Federal IT Dashboard 2015, https://itdashboard.gov/

OI&T leadership identified these O&M costs as those associated with the sustainment of VA legacy systems, which corroborates our previous finding regarding the high cost associated with the 'accidental complexity' created by the initial development and ongoing evolution of VA software infrastructure.

Figure A-8 illustrates the impact of increasing IT infrastructure costs, which shows increases in total VA IT spending and IT infrastructure maintenance spending during the past five years, but a flat to declining trend in DME spending on mission areas and infrastructure improvements (software development and modernization). Because OI&T provides infrastructure and mission area capabilities for VBA, NCA, and VHA, the proportion of IT spending for health care capabilities and infrastructure are not discernible from this figure. In addition, the negligible spending on infrastructure upgrades compared to infrastructure maintenance raised questions about how OI&T categorized IT spending that could not be resolved prior to publishing of this report.

Figure A-7. VA IT Spending Trends by Year
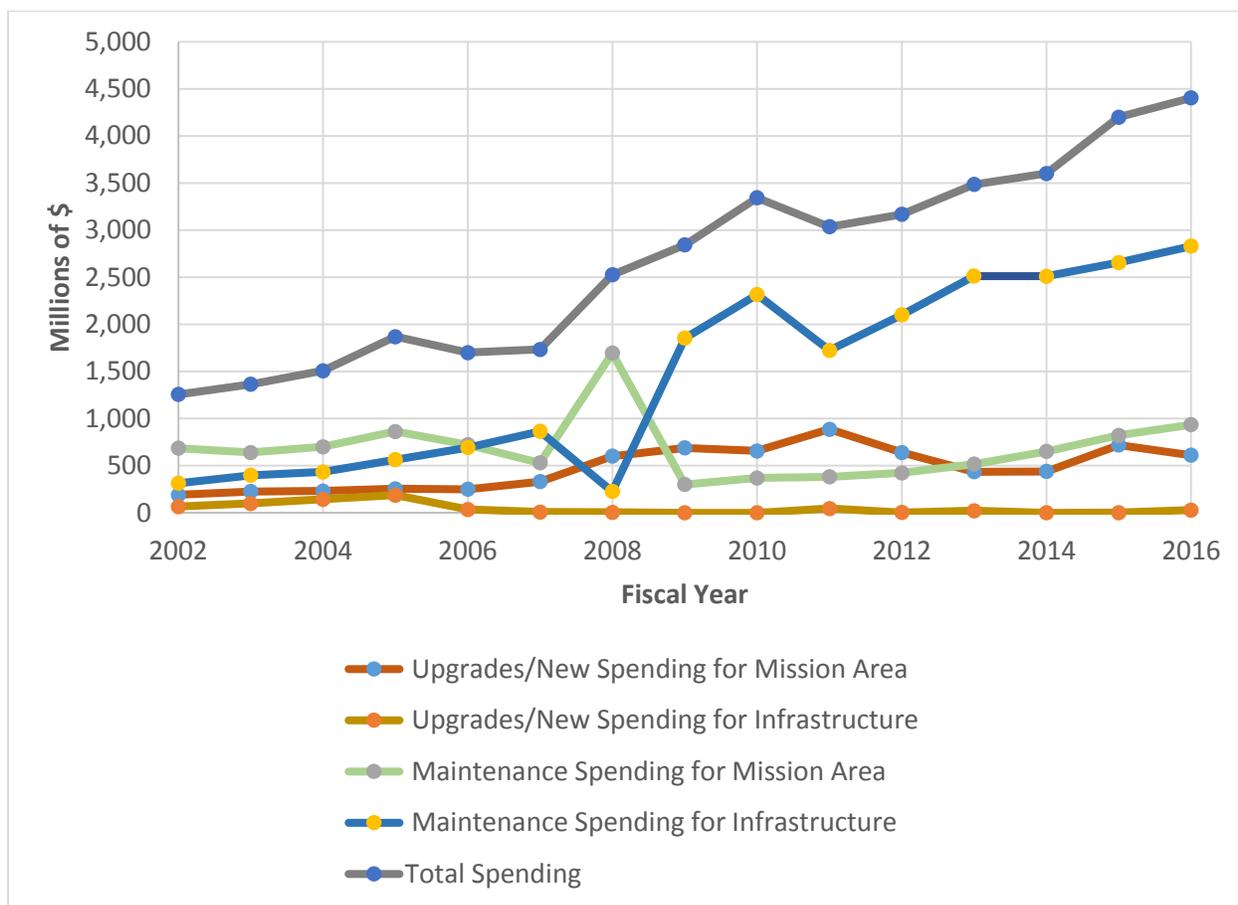
Source: MITRE rendition of VA data.

The VA IT O&M cost increases have continued *despite* several ongoing IT initiatives that are specifically intended to reduce IT O&M-related costs. These cost-cutting initiatives include the following, which have not demonstrated measurable reduction in costs:

- **Physical consolidation enterprise IT infrastructure assets:** VA has been attempting to consolidate their distributed physical servers (and applications) into four regional data centers since 1998 (GAO, 1998) with planned completion by 2010 (OMB, 2008). As of 2014, this consolidation remains far from complete (VA Enterprise Centers 2014) with the cost for managing these yet-to-be-filled enterprise data centers exceeding $300M per year – the highest line item in the FY15 O&M budget. Furthermore, multiple VAMC CIOs interviewed by the Assessment H team were unaware of these consolidation plans.

- **Logical consolidation of enterprise software infrastructure**: This consolidation can be considered a form of 'logical consolidation,' which is intended to reduce development, integration, and sustainment costs by reducing total complexity, eliminating duplication of functionality (e.g., many different versions of many different software modules). Effective logical consolidation, combined with the VA CIO's explicit focus on 'increasing flexibility' as a non-functional requirement of VA's software infrastructure, should be having

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measurable impacts on both DME and O&M costs, but the Assessment H study did not find evidence of this impact.

- **Ruthless Reduction Task Force (RRTF**): This was specifically designed to eliminate hardware and software redundancies within the VA enterprise (Miller, 2011). The focus of this group included: consolidation of IT contracts where possible, IT virtualization, elimination of desk side printers, and purchase of more multi-functional devices (e.g., printers with fax capability).

None of the VA stakeholders interviewed by the Assessment H team could identify the specific root cause of these O&M increases or explain why the cost-cutting initiatives listed apparently have no measurable impact on cost cutting. Also, they could not describe an executable mitigation plan for controlling these increasing costs.

Despite increased spending on IT infrastructure, VISN sites expressed dissatisfaction with OI&T response time and overall ability to support local IT infrastructure needs.

VA stakeholders across many VISN clinical environments expressed concerns that may reflect the unintentional consequences of the transition to a centralized IT organization. This transition has moved most of the IT decision making to the regional and national levels, disconnecting the local IT organization from these decisions. The problems expressed by stakeholders at the local VISN sites include the following:

- OI&T is slow to respond to local requests.
- Local IT resources having insufficient resources to support local requirements. This included a variety of requirements, from increased bandwidth to accommodate the increased use of Telehealth to the need for scanners.
- Insufficient local IT staff to support the infrastructure growth required to support emerging health IT trends.
- VISN directors and IT staff have little or no visibility into strategic IT objectives and major IT projects that are in development or how and when these may impact their clinical environments.

A.2.4 Security and Privacy

The size and complexity of VA's enterprise IT infrastructure continues to impact their ability to effectively secure the sensitive data within their information systems; and the increased dependence on telehealth, mobile applications, and information exchange with external providers will increase their challenges with achieving an acceptable cyber security posture.

A detailed, comprehensive assessment of VA's cyber security plan and current posture was beyond the scope of Assessment H. Furthermore, VA OIG already provides annual performance audits of VA's compliance with the Federal Information Security Management Act (FISMA) with the latest report published May 2015 (VA OIG, 2015).

However, the ability to effectively secure Veteran's sensitive information is a critical cross-cutting enterprise IT concern for all aspects of VA IT strategies, especially with respect to the

outcomes impacting Veterans (in this case, the measurable effectiveness of cyber security strategies).

VA is responsible for executing the Federal Cybersecurity Cross-Agency Priority (CAP) Goal and objectives, which the Government established to "*address the long standing challenges of tackling horizontal problems across vertical organizational silos.*" The Cybersecurity CAP Goal strategy starts by requiring compliance with the FISMA requirements.

Chronic Weaknesses and Deficiencies with Cyber Security Posture

With respect to execution of IT strategies for satisfying FISMA requirements, the 2013 audit report "*marks the 16th consecutive year the agency has failed a cyber-security assessment* (Federal News Radio 2014; Washington Free Beacon 2014)." Even more relevant to our previous findings regarding *effective IT execution* is the fact that OIG has <u>repeatedly identified the same weaknesses and deficiencies</u> in VA's information security program in their annual FISMA audit reports (VA OIG, 2011; VA OIG, 2012; VA OIG, 2013; VA OIG, 2014; VA OIG, 2015). That trend has continued in the recent 2014 FISMA audit report published May 2015 (VA OIG, 2015), which states that "*this FISMA audit continued to identify significant deficiencies related to access controls, configuration management controls, continuous monitoring controls, and service continuity practices designed to protect mission-critical systems. […] the VA has not remediated approximately 9,000 outstanding system security risks in its corresponding Plans of Action and Milestones to improve its information security posture.*"

Despite these repeated failures to meet FISMA compliance requirements, the 2015 version of the OMB report to Congress (OMB 2015) on the implementation of FISMA by Federal agencies ranked VA in the middle tier *with respect to aggregate cybersecurity compliance scores* (see Figure A-10). However, this middle-tier ranking only reflects VA's relative ability to meet basic cybersecurity compliance requirements (and may be interpreted as a negative indication of cyber security posture for Federal IT systems rather than a positive indication for VA, but these results prove that VA cannot be singled out as a poor performer in the Federal IT domain).

Critical Assets, Specific Threats, and Vulnerabilities

While Assessment H did not conduct an evaluation of VA cybersecurity posture, the team did assess VA IT strategies with respect to the following critical considerations for effective cybersecurity:

1. **Assets**, in the context of Assessment H, include the Veteran's private, sensitive information (e.g., Social Security numbers, home address, personal health information). The sensitive nature of these data and the specific threats listed below highlight *the potential impact on the Veteran.* The specific vulnerabilities described below highlights the increased *likelihood of this impact.* The inability to execute effective cybersecurity IT strategies to address the specific threats and IT-related vulnerabilities listed below contributes to our concerns expressed in this finding.

Figure A-8. Cybersecurity Assessment Scores in OMB 2015 FISMA Report

Agency	FY 2014 (%)	FY 2013 (%)	FY 2012 (%)
General Services Administration	99	98	99
Department of Justice	99	98	94
Department of Homeland Security	98	99	99
Nuclear Regulatory Commission	96	98	99
Social Security Administration	96	96	98
National Aeronautics and Space Administration	95	91	92
Department of the Interior	92	79	92
Department of Education	91	89	79
National Science Foundation	87	88	90
United States Agency for International Development (USAID)	86	83	66
Environmental Protection Agency	84	77	77
Department of Labor	82	76	82
Department of Veteran Affair	80	81	81
Department of Energy	78	75	72
Office of Personnel Management	74	83	77
Department of the Treasury	67	76	76
Department of Transportation	63	61	53
Small Business Administration	58	55	57
U.S. Department of Agriculture	53	37	34
Department of State	42	51	53
Department of Health and Human Services	35	43	50
Department of Housing and Urban Development	19	29	66
Department of Defense	N/A*	N/A*	N/A*
Department of Commerce	N/A†	87	61

Source: OMB, 2015.

2. **Threats** are *parties with the intention and capabilities to exploit vulnerabilities and gain access to the assets.* The FBI has issued two specific threat warnings that elevate our concerns about VA cyber security:

    - The FBI Cyber Division issued a Private Industry Notification (PIN) that states "*Health Care Systems and Medical Devices at Risk for Increased Cyber Intrusions for Financial Gain*" (FBI Cyber Division,2014). The FBI warns about the "*transition to EHR coupled with more medical devices being connected to the internet will generate a rich new environment for cyber criminals to exploit.*" The FBI report includes a reference to a SANS, Ponemon, and EMC²/RSA that states the following: "*the health care industry is not technically prepared to combat against cyber criminals' basic cyber intrusion tactics, techniques and procedures (TTPs), much less against more advanced persistent threats (APTs). The health care industry is not as resilient to cyber intrusions compared to the financial and retail sectors, therefore the possibility of increased cyber intrusions is likely.*"

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- The FBI and the Department of Homeland Security issued a joint intelligent bulletin with a threat warning regarding ISIS and their call on supporters to scour social media for addresses of their family members – and to "*show up [at their homes] and slaughter them.*" The warning specifically stated this: *"The FBI and DHS recommend that current and former members of the military review their online social media accounts for any information that might serve to attract the attention of ISIL [ISIS] and its supporters."* While this threat warning was not explicitly expressed as a direct threat to the VA enterprise, this should arguably be considered a relevant cyber security threat because: 1) there is a clear focus on using cyber-based tactics to obtain Veteran's personal information; 2) the VA information systems have Veteran's personal information; and 3) the risk has very high impact.

3. **Vulnerabilities** are specific weaknesses and deficiencies in VA's ability to secure their assets against known and unknown, emerging cyber threats (e.g., secure the Veteran's data against the threats listed above). With respect to Assessment H, our specific concerns focused on the identification and mitigation of IT-related vulnerabilities (i.e., not insider threats, etc.) – especially those IT-related vulnerabilities related to the concerns described in our other findings, and concerns regarding the increasing reliance on Telehealth, mobile devices and applications, and information exchange with external providers.

   Assessment H reviews of past FISMA compliance reports described the fact that OIG *has repeatedly identified the same weaknesses and deficiencies in VA's information security program*, which already suggests vulnerabilities with respect to protecting Veterans' data against threats which include those listed above.

The identification of critical assets, threats, and vulnerabilities are essential planning activities for developing effective IT cyber security strategies. However, minimizing or eliminating vulnerabilities requires *effective execution of IT strategies*. As decades of security audits indicate, VA has significant challenges in this area. Many of these challenges stem from the complexity of the IT and software infrastructures described above (e.g., inability to establish accurate inventory of all IT assets).

While VA was ranked middle-tier in comparisons with other Federal IT systems in their aggregate cybersecurity scores, our assessment identified high risk exposure created by specific IT-related KFMs (see Table A-1) related to the Veterans' data and the threats described above.

4. **Ability to Protect, Detect, and Respond** to Cyber-based attacks. While there is clear evidence of the inability to satisfy basic cyber security compliance, with additional evidence suggesting that this is related to IT complexity. The Assessment H team was unable to ascertain the degree of strategic and tactical planning that has been focused on maximizing 'effectiveness' of VA's enterprise-wide cyber security capabilities. 'Compliance' does not ensure cyber security effectiveness, which involves a holistic, continually evolving, risk-based approach incorporating sophisticate analytics, detection, containment, and recovery strategies are on par with the assets, threats, and vulnerabilities outlined.

Table A-1. VA Challenges with CAP Goals and Key FISMA Metrics

Key Performance Area	Description	Avg. Score	VA Score
Automated Asset Management: Detect and Block Unauthorized Software (KFM)	Percentage of applicable assets for which the organization has implemented an automated capability to _detect and block unauthorized software_ from executing or for which no such software exists for the device type. The average is weighted by the total number of the organization's hardware assets connected to the organization's unclassified network(s).	69%	**0%**
Data Protection: Mobile Asset Encryption (KFM)	Percentage of _mobile assets with encryption of data_ on the device. The average is weighted by the total number of mobile assets at the organization.	55%	**5%**
Data Protection: Anti-spoofing (KFM)	Percentage of _email systems_ implementing anti-spoofing technologies when sending messages, and when receiving messages.	Receiving: 87%	Receiving: **0%**
TIC Traffic Consolidation CAP Goal	_Percentage of underlined external network traffic to/from the organization's networks that passes through a Trusted Internet Connection (TIC) / Managed Trusted Internet Protocol Services (MTIPS)._	_95%_	_**57%**_

Source: OMB, 2015.

A.2.5 Summary

The cumulative _combination_ of findings above, along with Assessment H findings related to VA's ability to effective execute IT strategies, will _continue_ to have the following impacts:

- Limit VA's ability to effectively address the new and existing, long-standing IT-related vulnerabilities required to effectively secure their information systems.

- Increase the time and cost of OI&T's perpetual attempts to create an integrated, unified VA enterprise that must effectively and cost-efficiently addresses many cross-cutting IT aspects.

- Limit the ability to develop and incorporate innovative health IT solutions, since these technologies will typically need to be integrated into the enterprise software infrastructure to effectively be leveraged in the centralized IT model.

- Limit OI&T's time and funding to support traditional IT responsibilities, and decrease their software development productivity. This will have a similar impact on O&M costs by increasing the 'time and cost of change.'

- Limit the ability to accurately estimate the total time and cost to translate health care objectives into measurable outcomes.

- Limit their ability to cost-efficiently integrate COTS products that offer innovative or supplemental health IT solutions.

- Limit VA's ability to effectively execute cost-cutting initiatives, which will continue to limit their ability to produce measurable cost-cutting results (and thereby control increasing O&M costs).

A continued trend in increasing O&M costs could create the following impacts:

- Continue to take away time, staff, and funding required for the development of IT infrastructure updates and advancements in health IT for managing and furnishing health care.
- Ultimately lead to the need to incorporate reactive measures, which are typically associated with high-cost consequences (note that a proactive approach requires the identification of root cause followed by the development of an executable plan to control these increases before they become unmanageable).

The inability to satisfy local site IT infrastructure requirements, despite the increasing IT infrastructure funding, suggests underlying problems with VA's approach to centralized IT management that may have the following impact:

- Limit ability for patient-facing clinical environments to effectively support Veterans health care using emerging technologies such as telehealth and mobile applications (e.g., inability to respond to network capacity limitations and other site-specific IT-related limitations).

A.3   EHR/VistA

A.3.1   Overview

VA's health IT Infrastructure is a large and complex ecosystem comprising several layers of applications, services, databases, and technologies to manage and deliver clinical patient information. The Veterans Health Information Systems and Technology Architecture (VistA) and Computerized Patient Record System (CPRS) applications are the core components of this system. When released in 1997, CPRS was widely acknowledged to be innovative and the best in its class. Nearly 20 years later, it is still considered by many to have functionality on par with commercially available systems.

VA has had automated information systems in its medical facilities since 1981 beginning with the Decentralized Hospital Computer Program (DHCP). DHCP was transformed into VistA in the 1990s. In 1997, CPRS was released to provide an updated graphical user interface (GUI) to complement VistA capabilities. Figure A-9 shows the timeline for implementing VistA and CPRS capabilities.

Figure A-9. VistA/CPRS Development Timeline
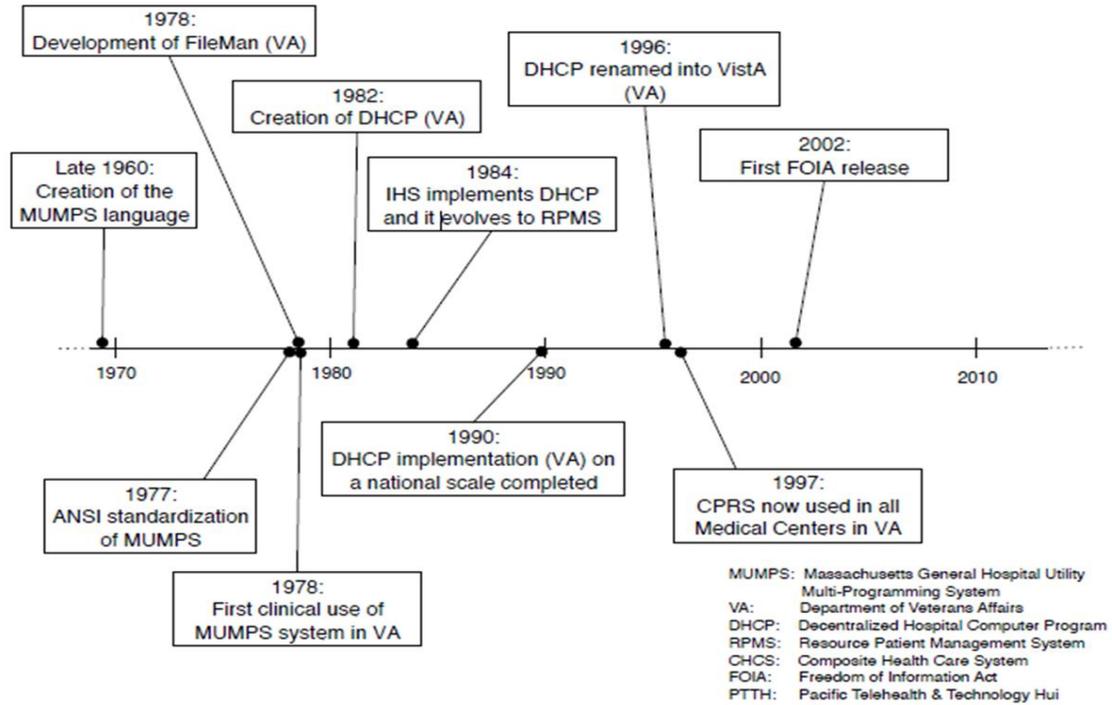
Source: VistA/CPRS Timeline - http://worldvista.org/AboutVistA/VistA_History

Figure A-10 shows VistA as an enterprise-wide ("Mega Suite Clinical") information system built around an EHR used throughout VA.

Figure A-10. VistA Technical Architecture
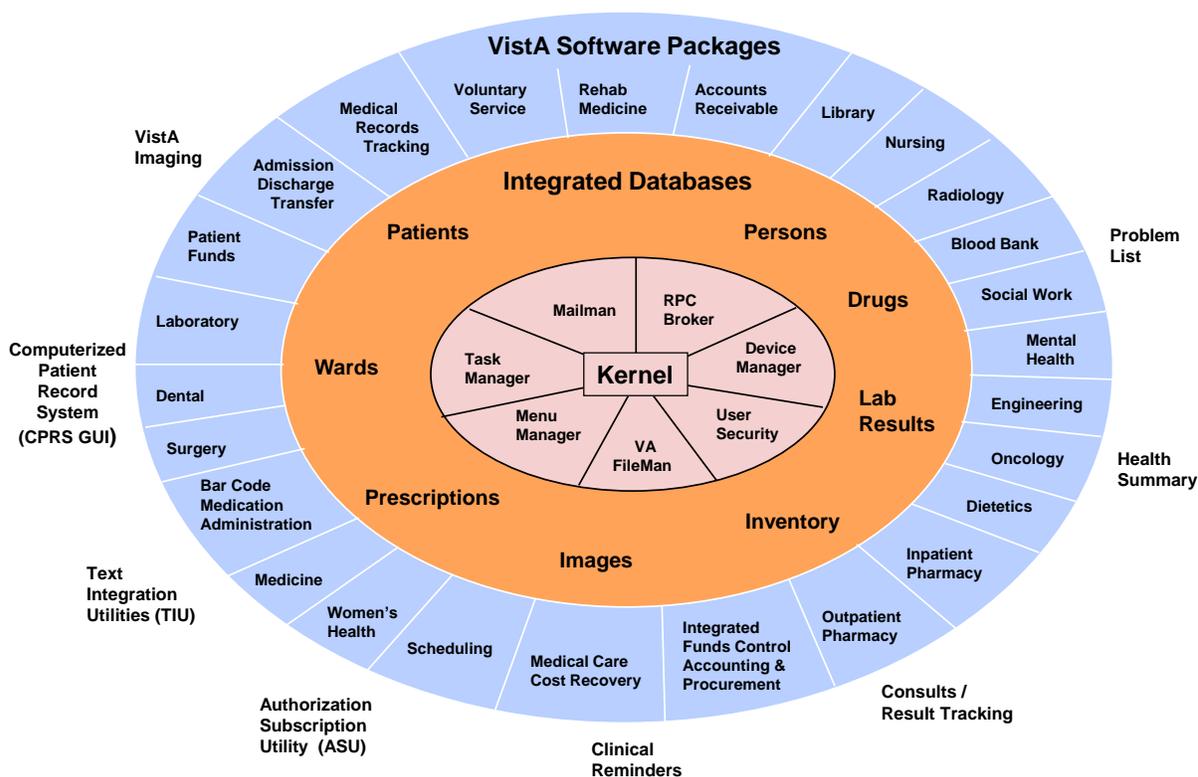
Source MITRE rendition of VistA technical specifications

VistA consists of application packages that share a common data store and common internal services to capture, manage and share patient information at local VA Medical Centers (VAMCs), between VA locations, with the DoD, with private providers, and with Veterans and payers. The data store and VistA kernel are implemented in the MUMPS (or M) computer language and comprise nearly 160 distinct applications/modules, 15,000 routines, and millions of lines of software computer code. VA has approximately 130 separate physical instances of VistA running the "same" version of software on centralized VA servers (in regional data centers) to support all 155 VAMCs and clinics throughout the United States.

In 2012, VA started the "Gold Disk Project" to standardize on a national version of VistA by the end of 2015. The first "gold disk" standardized 60 percent of the modules in VistA that were considered "essential" to clinical care. This instance was deployed and work on the remaining 40 percent of modules continues. The system does allow for local variations, resulting in some data elements being captured in different ways from instance to instance. Data is copied from CPRS as it is recorded and replicated into VA's Corporate Data Warehouse and Regional Data Warehouses. Differential interpretation/transformation of the data, however, sometimes results in reports being different, though the data came from "the same" data source. Figure A-11 shows the EHR/VistA technology stack, which includes kernel and core applications (i.e., Remote Procedure Call (RPC) Broker, FileMan, Device Manager) that provide the essential

functions to capture, manipulate, and exchange patient information with VA's user applications and interoperability solutions. VistA's use of MUMPS technology tightly integrates the clinical information stored in the underlying Intersystem Caché databases with the business logic used to retrieve and manipulate that data.

Figure A-11. EHR/VistA Technology Stack
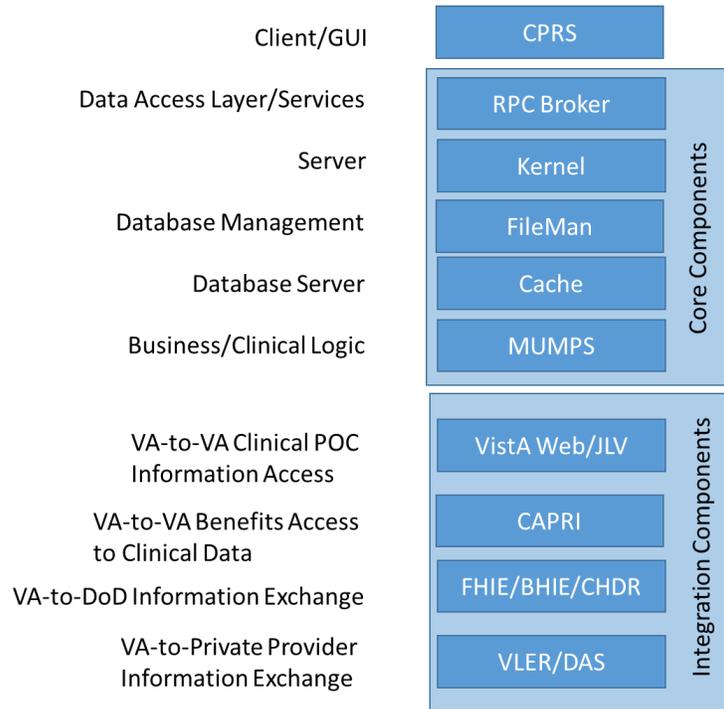
Source: VA OI&T, 2015b.

To simplify data access, VistA employs FileMan as VistA's database management system. The majority of VHA clinical data is stored in VA FileMan files and is retrieved and accessed through VA FileMan user interfaces. FileMan utilities allow the definition of data structures, menus and security, reports, and forms, allowing a person to set up applications without tremendous experience in the MUMPS programming language.

Patient Information is retrieved from the current VistA's InterSystems Cache data store using existing MUMPs procedures (MUMPS RPC interface) based upon business triggers (such as an appointment, admission, Integration, or patient search).

Figure A-12 shows the CPRS user interface. CPRS is a desktop client application (i.e., a "fat" client) that provides VA's health care professionals with a single Windows-style interface for health care providers to review and update any patient information, to place orders, including medications, special procedures, x-rays, patient care nursing orders, diets, and laboratory tests stored and managed in the VistA EHR.

Figure A-12. CPRS User Interface

Source: CPRS User Interface – https://en.wikipedia.org/wiki/VistA#/media/File:VistACPRScover.png
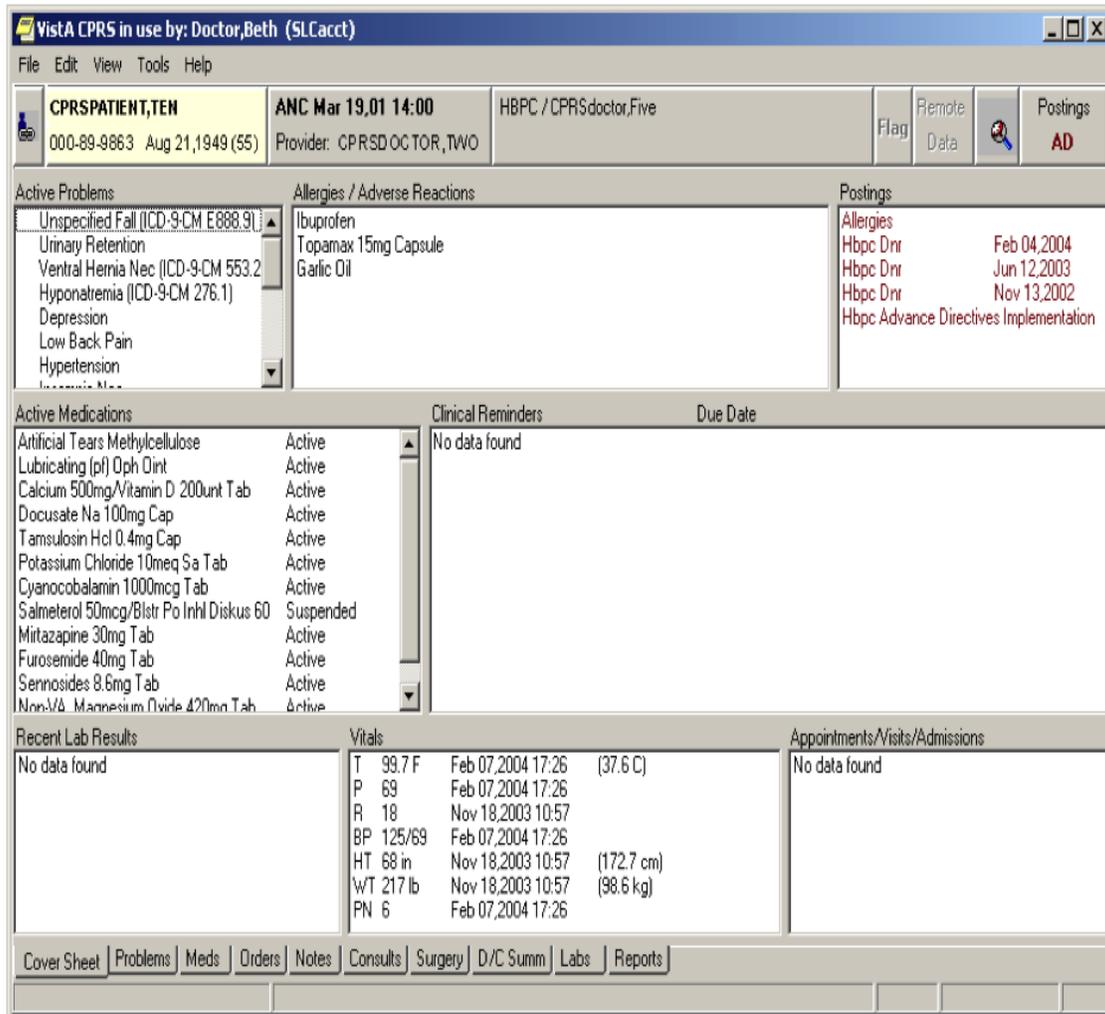
A.3.2   EHR Integration

VistA supports the ability to communicate and interact with other systems at multiple levels: applications may be tightly integrated with VistA code or loosely integrated via application programming interfaces (APIs), medical devices may be connected, and patient data may be shared between providers.

For custom or commercial applications that require tight integration with the VistA database or business logic, the interface of each VistA package is documented, identifying both the code routines and the data fields owned by the package. VistA supports a library of published interfaces that provide access to VistA data and logic for a wide variety of functions through VistA's RPC Broker module. This is the mechanism used by CPRS to call the underlying business logic in VistA. The RPC interface provides separation between the mainline VistA applications and the clinician-facing GUI. Some web-based applications interface with VistA via the RPC

library using newer software architecture that allows for newer software technologies (i.e., JavaScript-based development).

In addition to internal programming interfaces and outward-facing web services interfaces, many VistA applications communicate via standard Health Level 7 International (HL7) messaging protocols. HL7 messages provide for application-to-application communication and enable data exchange with external data repositories. HL7 messaging provides the fundamental mechanism for medical devices to interact with VistA. The Clinical Procedures package provides an interface between medical devices and VistA. Data from the device is saved according to the particular application. VistA supports both a data repository for clinical device data and a report viewer to format the data for clinical review. Numerous devices, from Picture Archiving Communications Systems (PACS) imaging to Intensive Care Unit (ICU) equipment, interface with VistA in this manner.

A.3.3   EHR Interoperability

Assessment H interviews indicated that widespread device integration is limited due to the time required to gain security accreditation and lack of programmer (MUMPS VistA) integration skills within VA. The Assessment H team was unable to identify a medical device strategy or inventory of device interfaces requests and approved interfaces. However, a sample of 20 New Service Requests for "New Device Interfaces" from OI&T's Innovation and Development Request Portal (IDRP) database indicate that only one is complete (submitted 9/8/14), one is under development and test (submitted 12/13/12), three were rejected, and the remaining 15 (75 percent) were "Not Opened - Pending NSR Acceptance" or "Accepted for review."

To be useful the EHR must expose and share information with external providers, administrative applications, and benefits organizations to service Veteran's needs. The four primary paths of information exchange to fulfill these roles are described in Table A-2.

Table A-2. VA Clinical Information Exchanges

Information Exchange Profile	Current Systems	Data Exchanged
VA-VA	VistA Web	Remote patient information found in VistA, the Federal Health Information Exchange (FHIE) system, and the Health Data Repository (HDR) databases
	JLV	Medications, progress and discharge notes.
	CAPRI	Veteran's entire VA health record including progress notes and discharge summaries, Compensation and Pension (C&P) exam requests and results, FHIE data

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Information Exchange Profile	Current Systems	Data Exchanged
VA-DoD	BHIE	Real-time read-only viewing of DoD and VA patient clinical data (i.e., Consultations, patient history and physical reports, theatre clinical data)
	FHIE	Monthly transfer of discharged Service members' clinical data from DoD to VA (i.e., Pharmacy, radiology, lab results)
	CHDR	Two-way exchange between DoD and VA of actionable outpatient (pharmacy medication, allergy, and allergy reaction) data for beneficiaries that use both DoD and VA health facilities, allowing the information to become part of the patients' permanent medical records.
VA-Private Provider	VLER DAS	Veterans external partner data
	eHealth Exchange	Veterans external partner data (Populated Summary of Care Document (C32), Populated Unstructured Document Component (C62) data domains
VA-Veteran	My HealtheVet	Veteran Web Portal
	BlueButton	Veteran medical records in C32 Continuity of Care document format

Figure A-13 shows a simplified view of a patient's encounter with the current VA and DoD health care systems.

Figure A-13. Current View of Patient Encounter with VA and DoD Health Care Systems
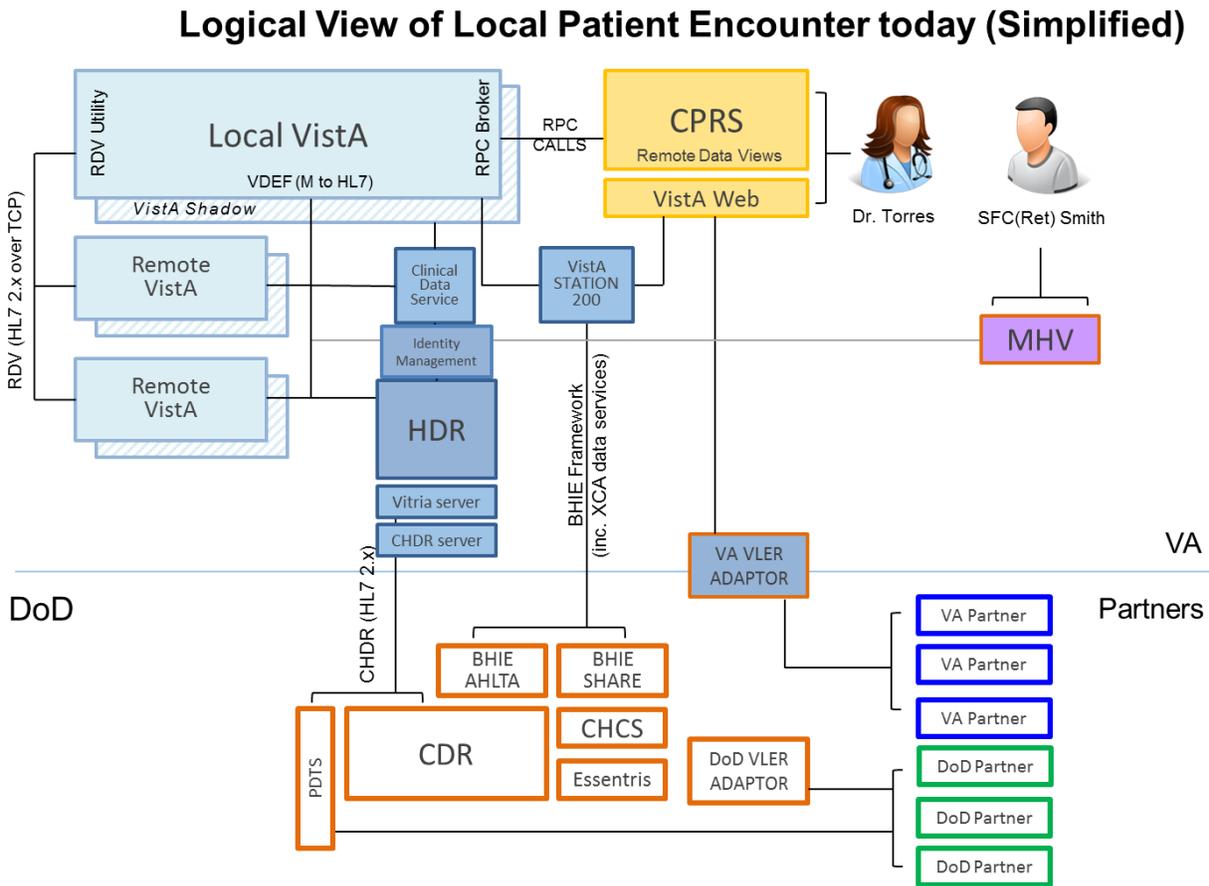
Logical View of Local Patient Encounter today (Simplified)

Source: OI&T ASD, VistA 4 Product Architecture Review Triad Meeting Winter 2015 (briefing), January 27, 2015.

VA-VA Information Exchange

VistA Web and the recently updated Joint Legacy Viewer (JLV) are intranet web applications that clinicians use to review remote patient information found in VistA, the Federal Health Information Exchange (FHIE) system, and the Health Data Repository (HDR) databases. To a large extent, VistA Web mirrors the reports behavior of CPRS. An updated version of the JLV that provides the ability for both VA and DoD user to view health record data to meet the increasing need for seamless interoperability of standards-based health data was released in FY15Q1.

A clinician in Palm Springs, who is looking at a record from a Veteran who received care in Northport, NY, will view that record through VistA Web and also through the JLV. The clinician is not actually able to copy that record in Northport and put it in the Palm Springs instance—they are viewing the record in a web viewer, whose data reside in the Northport instance.

VA-DoD Information Exchange

VA clinicians have been able to access DoD data (i.e., medications, progress, and discharge notes) for many years through VistA Web using the same workflow for accessing data from

other local VA systems. JLV, also allowed Health Information Exchange (HIE), starting in 2013 and was recently updated in FY15Q1 and is the first major phase to modify the viewer capability. JLV provides a read-only interface for patient data aggregated from DoD, VA, and external partners. JLV provides an integrated view of both DoD and VA health information on a single screen for providers of both Departments. It obtains its data from the DoD's newer data services (currently called the DoD Adaptor) and from all of VA's VistA systems (currently via its "VistA Data Services" component).

The following three major backend applications are used to transfer information between DoD and VA to populate VistA and supply data to JVL and VistA Web:

Federal Health Information Exchange (FHIE) has been in use since 2002 and is the oldest and simplest exchange between the DoD and VA. The FHIE architecture is essentially a one-time data transfer of data from the DoD to VA triggered by a Service member's separation from Active Duty. The FHIE Repository (aka BHE Repository) sits within the BHIE Framework within the VA networking enclave.

Bidirectional Health Information Exchange (BHIE) is a middleware hardware and software framework that builds on FHIE. BHIE provides a secure, bidirectional, real-time interagency exchange of clinical Personal Health Information (PHI) data and patient demographics sharing between DoD and VHA. BHIE allows both DoD and VA care providers to view records on shared patients receiving care from both Departments.

Clinical Health Data Repository (CHDR) is a semantically interoperable solution that generates standards-based, bidirectional, real-time computable electronic health data for outpatient pharmacy and drug allergies. CHDR data enable drug/drug and drug/allergy order checks for active ADC Veterans, Service members, and dependents eligible to receive health care services from both agencies.

VA-Private Provider Information Exchange

The purpose of the Virtual Lifetime Electronic Record (VLER) project is to facilitate data exchange between VA and the private sector using national standards. The project has been in development for roughly five years and exchange includes eHealth Exchange[30], Direct Secure Messaging, and exchange through Health Information Handlers (HIH). External partner data are now included in JLV. The eHealth Exchange (formerly known as the Nationwide Health Information Network) was originally launched by DoD and VA Interagency Program Office (IPO) to support the VLER initiative.

Future plans include FHIR and public APIs. VA is currently partnering with 50 external organizations through eHealth Exchange and has several active and planned use cases for secure messaging. VA providers may also be approved to access partners' HIE data through local health exchange organizations that are not currently participating in eHealth Exchange.

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[30] Formerly known as the Nationwide Health Information Network, the NHIN or NwHIN, is an initiative for the exchange of healthcare information. It is operational and securely exchanging data. It was developed under the auspices of the U.S. Office of the National Coordinator for Health Information Technology (ONC), and now managed by a non-profit industry coalition called HealtheWay.

VA-Veteran Information Exchange

All consented Veterans are able to use the "Blue Button" mechanism through the My HealtheVet portal to download their entire record from My HealtheVet in an electronic format of the C32 Continuity of Care document. VA's Blue Button support is built upon web services that perform the extraction of Blue Button information from VistA, the composition of Continuity of Care Documents, and the system management required to provide on-demand patient access to current Blue Button information.

A.3.4   VistA Evolution Program

VA established the VistA Evolution program in 2014, to oversee modernization of VA's EHR system. VistA Evolution is the third EHR modernization program in 10 years. VistA Evolution is a joint program of VA's OI&T and VHA organizations and will provide interoperability with DoD EHR systems and with other health care partners to promote improved outcomes in quality, safety, efficiency, and satisfaction in health care for Veterans, Service members, and their dependents. The first product version, VistA 4, will use modern software technologies to build a new web-based interface around the existing VistA core.

This approach is also driven by the FY 2014 NDAA (section 713) that requires any enhancements to VistA to result in an EHR that *"...at the point of deployment...must be at a generation 3 level or better for a health information technology system"* as described by Gartner.

A 2011 Gartner report states that while Gartner did not complete a formal Generations Assessment of VistA, the organization estimates that VistA is definitely more than a Generation 1 EHR and may in fact be Generation 2 EHR, but is definitely not a Generation 3 EHR.

A 2007 Gartner report identifies five generations of CPRS systems as follows:

- Generation 1 systems allow the clinician electronic access of clinical data that may have been scattered across several paper record systems;
- Generation 2 systems build upon on the Generation 1 functionality by offering documentation capabilities;
- Generation 3 systems further help the clinician with basic care management and decision support;
- Generation 4 system incorporates greater decision support capability and intuitive workflow capabilities; and
- Generation 5 systems are envisioned as true 'colleagues' that can assist the clinician in all facets of care.

The VistA Evolution Roadmap shown in Figure A-14 defines a five-year period over which the VistA 4 Product will be delivered as a series of feature sets with Full Operational Capability (FOC) to be delivered in 2018 and it is expected to achieve and exceed Generation 3 capabilities. The roadmap details how VistA Evolution will evolve through time not merely as replacements for VistA/CPRS but as a complex clinical system that provides decision support, capable of not only catching potential errors and alerting clinicians but also of guiding clinicians in the implementation of improved treatment methodologies.

VistA Evolution is responsible for developing an entirely new user interface, clinical workflows and business logic, data access layers, terminology translation services, ancillary services and supporter interfaces to improve interoperability with DoD and private provider networks. The program is supported by the VistA Evolution Triad (described in Section 5 of this Assessment H report) which has oversight to develop several major components (i.e., eHMP, VistA Exchange, VSA, EMI) across 30-40 VA Independent Project Teams and DoD.

The current VistA/CPRS operating environment must be maintained while the VistA Evolution program simultaneously modernizes key components of those legacy systems and integrates them with newly developed software applications across the enterprise. As explained in Figure A-14, VistA Evolution will develop and deploy capabilities in four major feature increments over 5–6 years completing in FY 2018. All the interdependent technical project components must come together to achieve the health outcome described in the *Blueprint for Excellence* EHR objectives. (VA, 2014c)

Figure A-14. VistA Evolution Roadmap
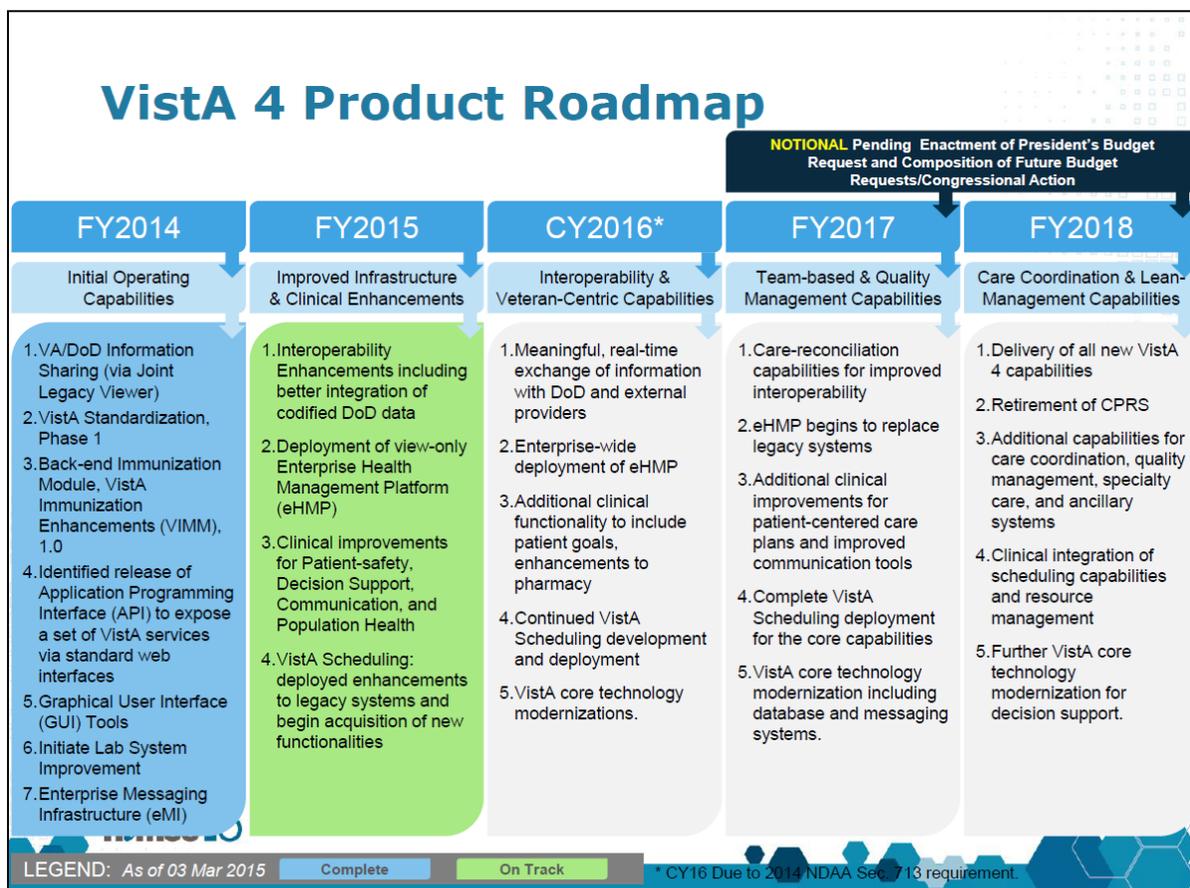
Source: Drew & Nebeker, 2015.

The enterprise Health Management Platform (eHMP) project is the CPRS replacement and is the core of the VistA Evolution program. From a clinical perspective, eHMP will provide the full range of EHR functionality to support ambulatory and inpatient care documentation, including

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workflow and activities management, clinical orders, encounter documentation, and clinical decision support.

This multi-year effort will develop a modern service-oriented EHR platform around the existing MUMPs and CACHE VistA system internals. The eHMP project provides several new capabilities including:

- New web-based user interface
- Clinical data services that assembles patient clinical data from federated VistA repositories and DoD data sources into an Enterprise Virtual Patient Record (eVPR)
- Synchronization system to handle all of the backend system to system data synchronizations
- Standard APIs, data services and Software Development Kit (SDK) interfaces to support open integration with other enterprise and external applications.

Figure A-15 shows the VistA Evolution program components.

Figure A-15. VistA Evolution Program Components

VE User Application Infrastructure & Services
- eHMP – viewer longitudinal/clinician User Interface
- VistA – Standardization & Module enhancements
- VistA Imaging

Initiatives
- Clinical Documentation Improvement (CDI)
- ONC EHR Certification and Meaningful Use
- Inpatient Med - Transderm & Pharmacy Safety Updates

Shared Services
- eHMP - VistA Exchange
- VistA Service Assembler (VSA)
- VistA Application Program Interfaces (APIs)
- Enterprise Messaging Infrastructure (EMI)
- Terminology Services
- WebSphere Service Registry and Repository (WSRR)
- Identity Access Management (IAM)

VistA Evolution

Clinical Applications & Services
- Clinical Decision Support (CDS)
- Clinical Workflow
- Orders Management
- Immunization
- Laboratory
- Radiology
- Pharmacy – Prescriptions,
- Medication
- Scheduling – VistA enhancements + New (MASS)

Data Access
- eHMP – eVPR Services, Data Model, Decision Support and Patient Data Cache
- HMP – Virtual Patient Record data structure
- FileMan 23

System Infrastructure
- Next Generation VA Wide Area Network

Interoperability
- Jmeadows
- BHIE Relay
- DoD Adapter
- Master Vet Index

Source: MITRE rendition based on VE team interviews and VA, 2015i.

The eHMP web application (i.e., GUI) is being developed from the ground up (Java, JavaScript, and HTML 5) to support a clinician at the point of care and will ultimately perform the functions of CPRS and more. The <u>system is unique in that it will provide a longitudinal view of patient data provided by eHMP's VistA Exchange synchronization engine.</u>

The web application is developed as a single page application with behavior logic contained within the web client, avoiding unnecessary communications across the network to improve performance and the user experience. As of March 2015 human-machine interface details were still being defined. The detailed interface design rules, inputs, outputs, and navigation hierarchy are being developed in accordance with a defined feature schedule but the detailed designs are subject to change as additional customer review cycles are held.

The eHMP web-based GUI is using an iterative design approach starting with functionality existing in the current patient record viewers (i.e., JLV, VistA Web). eHMP must build to the existing viewer features before it can migrate users to the new platform. eHMP V1.1 is the first step to incorporate existing software with read-only capabilities of patient records in the local VistA system. Future versions will evolve the application to become a full read-write application to replace CPRS and provide a view across all patient-centric actions and data sources. eHMP services will include: Clinical Decision Support (based on the openCDS initiative), Context Persistence, Orders Selection Service, Orders Management Service, Data Annotation Service, Clinical Workflow, Documentation and Text Search Services. Figure A-16 depicts the VistA Evolution transition in terms of changes in major system and software components.

Figure A-16. VistA Evolution Transition
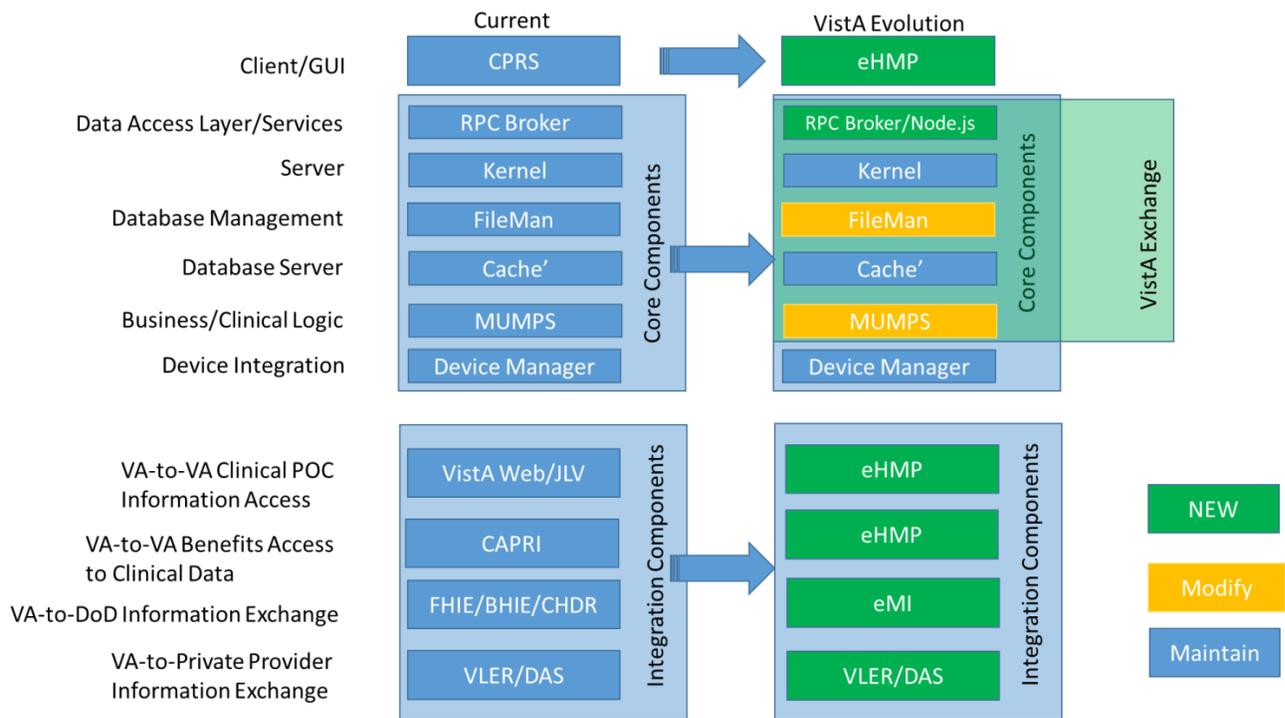
Source: MITRE summarization of architecture and design descriptions from VA (2015b), VA (2015i), and OI&T eHMP System Design Document, March 2015, V2.8.

VistA Evolution Access Services

VistA Exchange (VX) is a new software system component being developed that provides eHMP with a patient's longitudinal enterprise record by retrieving and combining data from one or

more of the existing approximately 130 VistA instances. As part of the synchronization services, VX will normalize incoming clinical data to meet VA data standards using standardized terminologies prior to being stored in a VistA Evolutions temporary data store.

VX is not a new data source, it retrieves data from the current VistA InterSystems Cache data store using existing MUMPs procedures (MUMPS RPC interface) based upon business triggers (such as an appointment, admission, or patient search). Additional logic will allow the system to identify other sources of patient data and route requests to those systems for the information through other VA integration systems.

VX is also developing web service APIs to standardize the way applications retrieve a patient record. VistA Evolution will provide both custom and HL7 standards-based FHIR web services and will integrate with a number of enterprise system services. Figure A-17 shows the planned VA service oriented architecture and enterprise system services to be implemented by the VistA Evolution program. The services are expected to provide a valuable way for developers to access the existing M-based data and business logic in VistA and other data sources using mainstream languages. They should also provide a potential pathway for VA and other open source developers to replace M-based implementations, module by module, with identical API functionality using mainstream languages.

Figure A-17. VA SOA Design Patterns and Enterprise System Services
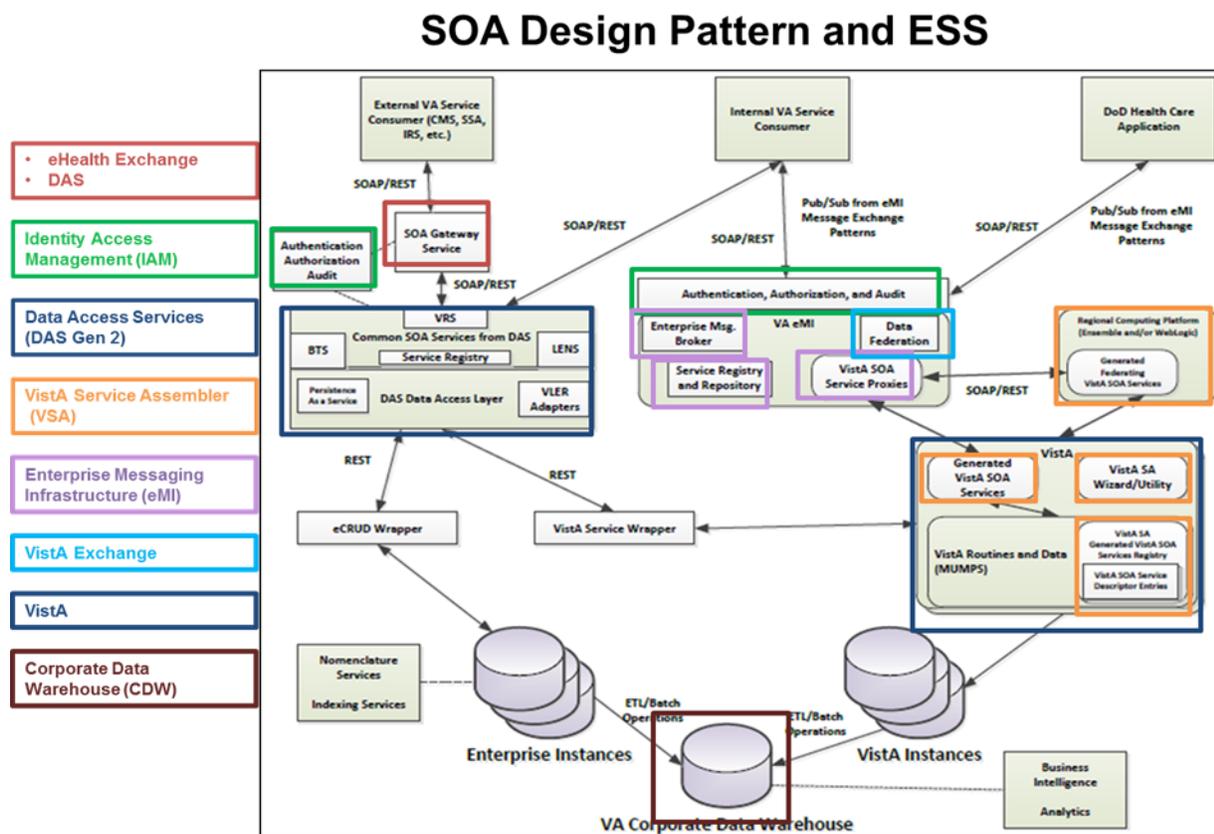
Source: - SOA Design Patterns for VistA Evolution: COTS Applications Office of the Chief Technology Strategist (TS) Architecture, Strategy, and Design (ASD) Office of Information and Technology (OI&T) Version 1.2, Date Issued: 15 April 2014.

The eHMP architecture and designs for patient health record access, user interface, data integration and access, and DoD/VA interoperability are in the process of being assessed and finalized. They must take into account the millions of lines of code and hundreds of VistA M-based modules. Several attempts have been made in the past to convert VistA in its entirety to more mainstream development environments and have failed, both within VA and in the open source community. (GAO, 2008) The tight coupling between M the language and the built-in M database provide unique and difficult challenges when translating M code into other programming languages. To address the data access complexity, VA plans to implement capabilities in four phases:

1. Read only local VistA system - Synchronization process initiates a subscription or checks for published events from VistA. It will connect to local VistA using a direct connection to the existing RPC Broker for a specific patient.
2. Read only local and remote VistA systems - Retrieval of patient data from remote VistA hosts. The subscription process performs a request by invoking a web service which in turn, invokes other VistA instances to retrieve data for that patient.

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3. <u>Read and write using MUMPS API</u> - VistA Exchange will utilize a direct RPC connection for performing writes. These writes will cover the domains of allergies, vitals, and problems. All of these writes will be to VistA.
4. Under a future release when VistA Service Assembler (VSA) is available, it is expected to <u>migrate the writes from direct RPC Broker connection to utilize VSA.</u>

This architecture requires eHMP data requests to cross several system boundaries and layers to access VistA data (VX to VSA to VistA MUMPS Interfaces) using several different software technologies (Java, JavaScript, MUMPS) and a new standard (VPR, FHIR). This greatly increases the complexity of the solution architecture and forces teams to maintain close integration and configuration management across three disparate projects (MUMPS API, VX, and VSA) without the support of a VistA Evolution lead integrator.

The following two observations provide detailed examples of this complexity and possible impact to performance and scalability.

Stateful session management in eHMP is a concern for system performance and scalability:
An example of a software session is when a clinician connects using their web browser interface to write notes and orders for a patient. In a stateful session the system maintains information on the status of each communications to match the clinician request to the data exchanges with the system. In this manner each subsequent activity (request or reply) relies on the result (i.e., state) of the previous activity. There are several activities that occur during a session to achieve an objective and once that is accomplished, the session is dissolved. Currently, CPRS is the client that creates a stateful connection to VistA that remains open during the entire session. As a Windows-client, CPRS communicates through a proprietary stateful protocol so it is not burdensome to keep the connection open.

Web-based systems have moved away from stateful sessions to resolve scalability problems that result from managing the context across enormous numbers of activities. The *stateless* architecture used by web-based systems has enabled its tremendous scalability. As eHMP moves to a web-based system, it will need to support an unprecedented number of users through mobile, telehealth, and other planned enhancements. Keeping stateful sessions open is expensive and may not scale. eHMP depends on VSA, which uses VistA's RPC Broker, the stateful mechanism used by CPRS to call the underlying business logic in VistA. VSA also provides the common federator logic within services to connect two of the VistA hosts and is another dependency for scalability. Stateful session management may not provide the performance and reliability to meet Veteran needs at scale.

eHMP will initially have a small user set as the transition from CPRS to eHMP begins so stateful sessions will not be an issue at first. However, when eHMP scales to thousands of users (perhaps millions with mobile and telehealth), stateful sessions will become unmanageable and require a significant architectural overhaul with the added complexity of a heavily used production environment.

The VSA team is scheduled to have a product ready to integrate with eHMP around the September 2015 timeframe. eHMP version 1.0 is using RPC Broker and is targeting integration with VSA in version 2.0. eHMP partially addresses the stateful session issue through limited

data write capability. Assessment H interviews and reviews of project risk documentation indicated that the project recognizes this is not a good long-term solution as the ability to create and update patient records is a vital capability.

eHMP is moving to a relatively new technology, Node.js, to mitigate scalability and integration issues: eHMP is using a Node.js-based solution to provide an interface (wrapper) around VistA's MUMPS packages that can potentially provide a mechanism to address the scalability issue raised by the VistA RPC Broker. Additional open source software will be used to integrate Node.js with the underlying database, allowing MUMPS data to be accessed from JavaScript.

Node.js is an open source JavaScript-based web server platform rapidly gaining popularity, based upon Google's V8 JavaScript engine, with an emphasis on non-blocking, event-driven I/O. JavaScript application interface libraries and utilities (i.e., Node) are available to work with VA's InterSystems Global and Caché products that provide VistA's underlying data capabilities.

Assessment H interviews indicated that very little is understood regarding the optimization that will be required to handle the load for a web-based system with data aggregation from multiple systems verses a single instance today. eHMP engineering teams have developed preliminary approaches to conduct end-to-end testing. They are conducting acceptance and integration testing now which includes all integrated tests related to functionality but not performance. eHMP is standing up a performance testing platform, trying to gain access to the enterprise testing center, and promoting development of joint, centrally funded, VistA Evolution test and production test environments. The VistA Evolution program needs to develop an end-to-end approach to address issues related to stateful sessions now before additional design decisions become difficult to address before eHMP adoption increases.

A.3.4.1   Improving Internal and External Sharing of Veteran Records

A key objective of the VistA Evolution Program is to enhance cross-Agency (DoD/VA) interoperability by providing all clinically relevant data at the point of care for Veterans. Improved interoperability will enhance communication among VA health care partners by ensuring that authorized beneficiary and medical data are accessible, usable, shared, secured and sufficient to meet the needs of Veterans and their care team in real-time (VA, 2015h).

VistA Evolution defines interoperability as "the ability of different EHR systems or software to meaningfully exchange information in real time and provide useful results to one or more systems." Interoperability capabilities will be achieved within the overarching VistA Evolution product delivery schedule. The path to interoperability evolves and builds upon existing progress year by year, with a goal to meet the FY 2014 NDAA directive to provide "seamless electronic sharing of medical health data" between VA and DoD by December 31, 2016. This seamless electronic sharing of data involves the creation of a unified lifetime health record for Veterans and Service members that can be accessed by clinicians at any point in time and regardless of where the information is stored.

The VistA Evolution program will evolve VA from its current forms of health information exchange to a more consolidated, centralized, and integrated design to minimize duplicative

functionality. VistA Evolution integration within VA, is briefly described below and in more detail in Assessment B, which assessed HIE as a capability to improve Veteran access to care.[31]

Current VA-VA Information Exchange

At present, using CPRS, most VA clinicians have access only to patient data that reside at a single VistA location. Figure A-18 shows how VA clinicians will be able to access patient data in other VistA locations.

Figure A-18. VA-VA Information Exchange Architecture
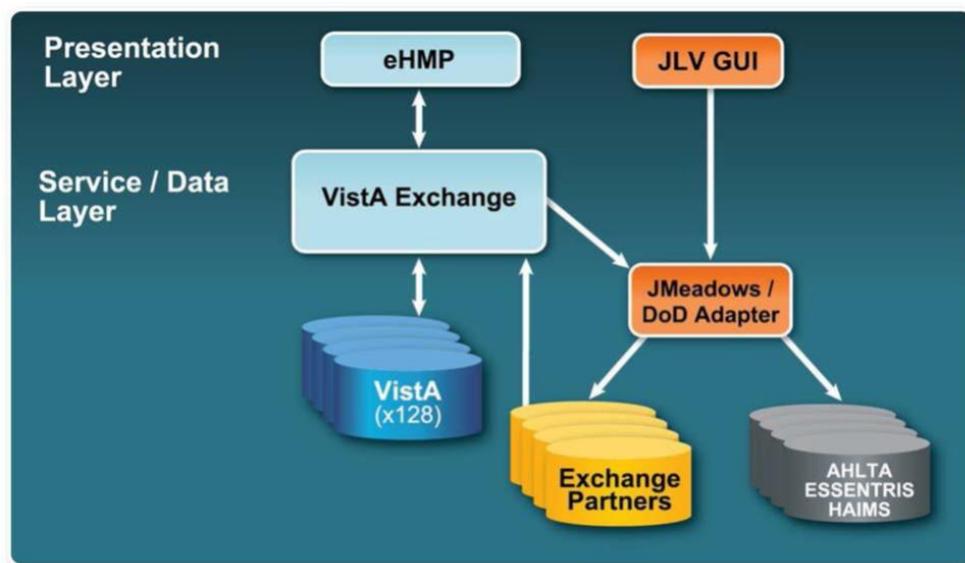
Source: VA, VistA 4 Product Architecture, January 27, 2015 Version 1.0.

Clinical data within each VA system are stored in a unified medical record and easily accessible to any facility within that region, which is similar to other large provider organizations. However, there are approximately 130 separate physical instances running the "same" version of VistA software on centralized servers. Data sharing across regions is currently available through the Remote Data Viewer (RDV), VistA Web, and most recently by the JLV (VA OI&T, 2014g).

Current VA-DoD Information Exchange

As shown in Figure A-19, VA clinicians have been able to access DoD data for many years through VistA Web and the CPRS portal using the same workflow that accesses data from other local VA systems. The JLV also enables HIE starting in 2013. JLV is a cloud-based medical records system that allows DoD and VA EHR data to be displayed on one screen. The data include medications, progress notes, and discharge notes. The FY15Q1 JLV deployment is the first major

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[31] OI&T, 2 Apr 2015. "VistA Evolution – Draft DoD/VA Interoperability Transition Plan (Primary Focus on BHIE)." Working draft, pre-decisional –Internal VA Use Only.

phase to modify the viewer capability. However, usage and usability data have not been captured or published since the application is still in the early stages of deployment and use.

Figure A-19. Current DoD-VA Information Exchange Architecture
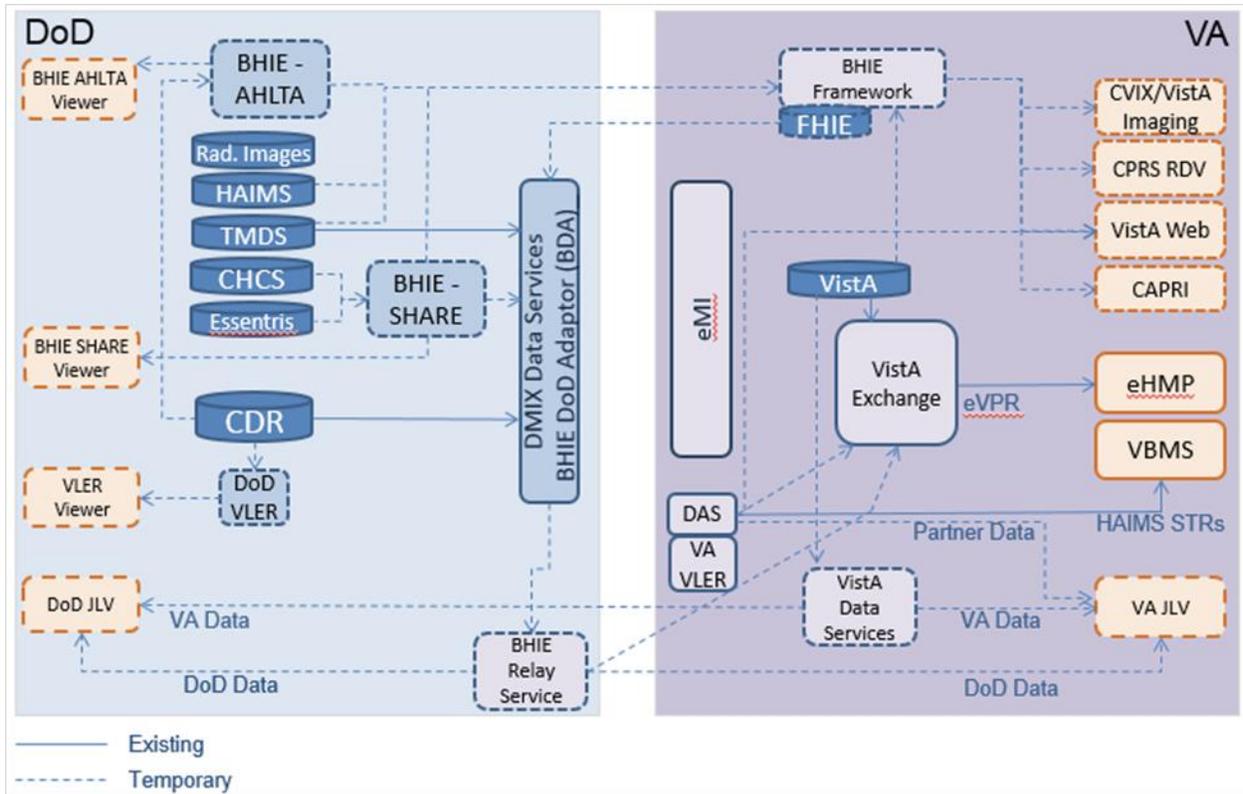
Source: VA OI&T, 2014g.

Figure A-20 shows the Future DoD-VA information exchange architecture. The joint goal of the Interoperability Enterprise Plan is to lay out a modernization process that is focused around the now legacy BHIE Framework set of systems. The plan lays out a step-by-step process to fully transition from this legacy BHIE Framework-centered environment to the new interoperability platforms that DoD and VA have established. The plan incorporates existing DoD and VA strategies and plans for DoD-VA interoperability data services and viewers into a single joint plan. Upon completion of the Interoperability Enterprise Transition, the infrastructure is expected to be greatly simplified with full semantic interoperability.

Figure A-20. Future DoD-VA Information Exchange Architecture
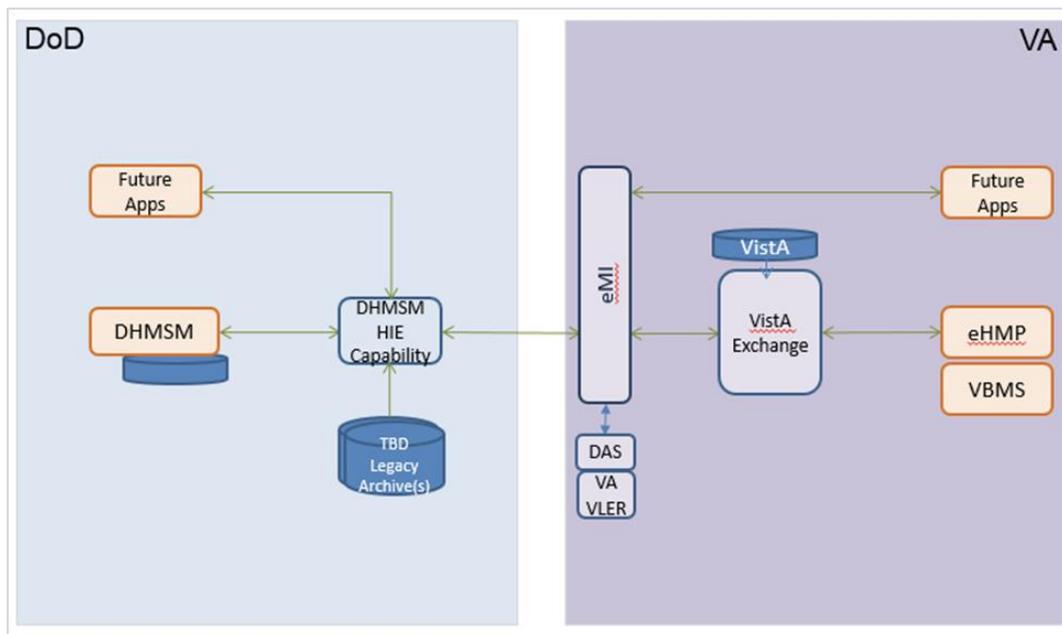
Source: VA, 2015e.

Current VA-Private Provider Information Exchange

The purpose of the Virtual Lifetime Electronic Record (VLER) project is to facilitate data exchange between VA and the private sector. The project has been in development for roughly five years, and includes eHealth Exchange,[32] Direct Secure Messaging, and exchange through Health Information Handlers (HIH). Future plans include FHIR and public APIs. VA is currently partnering with 50 external organizations through eHealth Exchange and has several active and planned use cases for secure messaging. VA providers may also be approved to access partners' HIE data through local health exchange organizations that are not currently participating in eHealth Exchange.

The VLER initiative is attempting to become a mature HIE initiative and a national leader in developing interoperability standards and standards-based information exchange. Several articles indicate that it has high user Veteran acceptance and high VA clinician acceptance and experience. (Byrne, 2014) However, It is difficult to evaluate the VLER project based on usage data because of the incomplete state of HIE usage measures, the poor evidence of value brought by HIEs, and the lack of user satisfaction metrics. There are a number of barriers to VA-private sector data exchange through VLER, several of which are discussed in Assessment B.

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[32] Formerly known as the Nationwide Health Information Network, the NHIN or NwHIN, is an initiative for the exchange of healthcare information. It is operational and securely exchanging data. It was developed under the auspices of the U.S. Office of the National Coordinator for Health Information Technology (ONC), and now managed by a non-profit industry coalition called HealtheWay.

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These include patient consent, time to retrieve documents through eHealth Exchange, and record matching rates needed to exchange information.

Based on inputs from VHA's Office of Informatics and Analytics, Strategic Investment Management Implementation of CCDA, 2011 standards commonly used in health record exchanges today had been delayed and generation and display of a full C-32 (older standard) has also been delayed. The 2011 standard is still not implemented; the older C-32 standard is not correctly implemented; as a result, exchange with private partners is not functioning, which, leads to the following issues:

- Of the 24 current active sites, only three have more than 100 transactions per month, and 13 have fewer than 25 transactions per month. Four of the active sites are at risk of shutting down. This reflects extremely low usage.

- Based on the VLER Health 2014 assessment report (June 2014) page 19, "Of particularly concern was the low frequency of VLER Health usage, approximately 5 retrievals per 1000 veteran encounters." Additionally from the report: "VLER Health program is in a high risk situation, as evidenced by both the average assessment score of 3.8 [out of 10 possible], and the fact that every metric category scored in the high risk range."

Based on Assessment H interviews and reviews of test reports, it is estimated that the VLER Exchange website generates approximately 800 incoming transactions and 3375 disclosures per month. The goal is to onboard 100 new partners at an average of 8.3 partners/month (linear growth assumption). The objective is to generate 1,125 total new transactions/month.

Through interviews, the Assessment H team was able to confirm several existing VLER performance issues originally identified in a May 2015 Capacity and Performance Engineering (CPE) Capacity Evaluation Report. The report observed that known performance issues between the eHealth Exchange and its interfacing systems remain unresolved as a Tiger Team continues to work the problems. The initial issue was outlined in a 30 September 2014 CPE Capacity evaluation report (OI&T/ESE, 2014). The report refers to an email from the Director of VFA/Service Integration Office (08/15/2014) stating that:

> VLER eHealth Exchange has been having infrastructure issues and other issues as they try to 'on-board' and move partners into production. Recently, they had to 'back-out' a brand new partner due to performance problems… We have lost tremendous credibility with our external partners because of these issues.

The report goes on further to state a concern that "The causes of disappointing VLER eHealth Exchange performance are many and complex, from architecture/implementation deficiencies to timeout issues, among other things. But one nagging concern persists: a lack of performance testing to ensure the system functions as designed. For example, since December 2009, we found about 80% of releases had no performance testing."

Unless the VLER project teams address this shortfall, VA could jeopardize its ability to deliver expected capabilities to support Veterans' needs, and significant risks remain that upcoming VLER releases could continue encountering challenges on-boarding external partners.

Summary of Future VA Health Information Exchange

The goals of VistA Evolution are to improve the technical infrastructure for health data interoperability while reducing overall system complexity, converting to standards-based services, formats, protocols and data models, and enabling expanded and improved data exchange with partner providers. The VistA Evolution program has been analyzing alternatives and has developed a draft Interoperability Enterprise Transition Plan that outlines an approach to transition of system components and data exchange services for DoD-VA interoperability through an iterative approach.

In developing the strategy and enterprise architecture for interoperability, VA and the VistA Evolution Program have decided to utilize a SOA, an Enterprise Service Bus (ESB) and RESTful services. This approach entails a significant shift in the current health information exchange architecture. Multiple changes to the overall HIE architecture will occur in rapid sequence over the next five years. The future high-level architecture is defined; however, there are numerous design decision that still need to be developed and agreed upon.

The final solution will retire the current clinical application's user interfaces (CPRS, VistA Web and JLV) and migrate to the eHMP. There are several stages of interoperability enhancements that will occur in VistA Evolution feature sets. VistA 4 feature sets 2 through 4 will incrementally make Interoperability enhancements to the health data information exchanges between VA and DoD, and between VA and external health care partners, improving the speed and accuracy of clinical decision making and ensuring that authorized medical data are accessible, usable, shared and secure. (VA, 2015e)

These enhancements will set the framework for data from all available sources to be integrated so that VA clinicians can easily access a patient's entire medical history. This transition of legacy DoD-VA query/response interoperability systems can be summarized in the following high level steps:

- Move consumers/users to new viewer/applications and data services
- Move unique content and required services off of legacy platforms
- Shut off legacy systems.

Figure A-21 shows a notional sequence of events to replace the current components with newly developed VistA Evolution and enterprise service capabilities.

Figure A-21. VA Interoperability Transition from Legacy Systems to eHMP
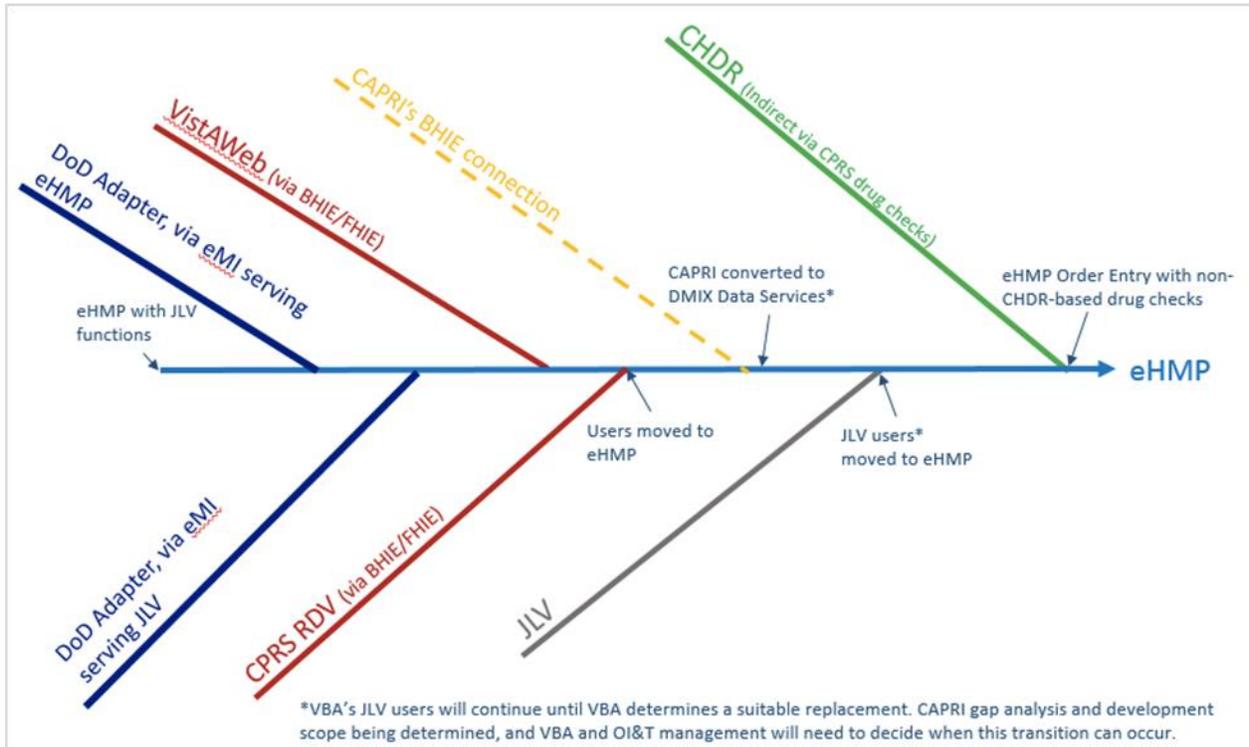
Source: VA, 2015e.

Appendix B   Assessment H Support Data

B.1   Industry Outreach

B.1.1   Overview

Eighteen technology leaders from both health care and non-health care institutions were interviewed to collect their insights on providing effective information technology services for large organizations. The list of CIOs who were interviewed can be found in Table B-1. These experts were selected because they developed and implemented innovative IT solutions. They provided valuable insights, lessons learned, and best practice IT strategies. Their thoughts provided some of the basis for assessing the Department's IT effectiveness.

Table B-1. Health Care Technology Leaders Interviewed

Organization Name	Interviewee	Title
Beth Israel Deaconess Medical Center	John Halamka, MD	Chief Information Officer
Brigham and Women's Health Care	Cedric Priebe, MD	Chief Information Officer
Citizens Memorial Hospital	Dennis McColm	Chief Information Officer
	Karrie Ingram	HCIS Manager
	Sherry Montieone	Network and Support Manager
Edward-Elmhurst Healthcare	Bobbie Byrne, MD	System Vice President & Chief Information Officer, Vice President, Facilities, Construction & Cancer Center Services
Georgia Regents University and Health System	Charlie Enicks	Vice President and Chief information Officer
Johns Hopkins Health System, the Johns Hopkins University, Johns Hopkins International	Stephanie Reel	Chief Information Officer
Legacy Health	John Jay Kenagy, PhD	Senior Vice President and Chief Information Officer
The MITRE Corporation	Joel Jacobs	Chief Information Officer

Organization Name	Interviewee	Title
Northwestern Memorial Hospital	Jay Anderson	Vice President, Quality and Safety
	Carl Christensen	Chief Information Officer, Northwestern Health System
Oregon Health and Science University	Bridget Barnes	Vice President and Chief Information Office
Partners Healthcare	Jim Noga	Chief Information Officer
Sparrow Health System	Michael H. Zaroukian, MD, PhD	Vice President & Chief Medical Information Officer
Surescripts	Mark Gingrich	Chief Information Officer
University of Iowa Health Care	Lee T. Carmen	Associate VP for Information Technology, Chief Information Officer
Vanderbilt University Medical Center	Thomas (Tom) Fricks	Interim Deputy CIO

The following sections contain the major comments and guidance from these health care technology leaders about effectively running a large health care system.

B.1.2 Planning and Governance

Strategic Planning

For strategic planning, most of these health care organizations develop a three to five year vision, which provides a high level of understanding and coordination for executing an associated one-year tactical plan. Nearly all organizations recognize that the three to five year strategic vision will change significantly in response to rapidly evolving information technologies and new clinical policies and approaches. Even with a rolling three-year strategic plan, the pace of change with technology usually requires changes to the plan after the first 18 months.

Investment Decisions

For the purposes of planning new health IT capabilities, the overwhelming majority of the industry leaders described a repeatable and well-understood process for prioritizing and executing investments. These processes and outcomes were widely communicated throughout their organizations. Further, their organizations provided a clear chain of command for assigning individuals to be responsible for the strategic outcomes, incremental improvements,

and operations. The organization's CIO was frequently in charge of communicating the IT plan throughout the organization.

The investment processes all included some form of requirements collection, and the CIO was typically responsible for developing the final blueprint explaining how the clinical and business requirements would be implemented into the IT systems. The CIO was typically responsible for communicating investments that were rejected and the rationale.

Most organizations allow the submission of requirements for new capabilities from anyone in the organization, not just physicians. Most hospitals included a type of steering committee to review the submissions for new health IT capabilities. The steering committees typically included representatives from across the services areas, such as hospital, ambulatory, long term care, and assisted living. When reviewing and prioritizing the requirements, most organizations prioritized improvements in the patient engagement including, patient relationships, reliability, outcomes, and satisfaction. Most of the health care organizations view their patients as "customers" who may go elsewhere if they are not satisfied with their health care experience.

The investment processes all included a public and repeatable schedule for making and communicating the investment decisions. Most organizations make large capital and initiative investments on an annual basis. Most organizations have a monthly meeting to review investment decisions, measure and manage risk, and potentially modify or terminate initiatives. The CIOs are expected to understand a significant amount of detail about high visibility and large investments to manage risk. For these annual investment processes, the CIO is frequently the final authority on the process to prioritize and sequence current and future projects. These decisions are made in collaboration with other executive leaders, such as the CMIO of the organization. However, the CIO is typically accountable for the final decision and the success of the implementation.

Escalation

Many of the leaders indicated their organizations needed to have a clear escalation process for IT investment requests. Escalation can be requested by anyone at any point in the process, with the organization CEO being the final decision maker. Although projects are rarely escalated to the highest levels of the organization, the existence of a documented, formal process provides a clear understanding regarding the roles and responsibilities of the champions of initiatives and the decision makers.

B.1.3   Electronic Medical Record (EMR) Adoption

When planning for capabilities, the CIOs at two large health systems had achieved "Stage 7" of the Healthcare Information Management Systems Society (HIMSS) Analytics EMR Adoption Model (EMRAM). Only 3.7 percent of U.S. health care organization have achieved this level of a virtually paperless system. One of the core principles of one organization was to use the latest version of the EMR provided by their COTS vendor. Since the COTS vendor releases one major version per year, this principle entails an annual update of the EHR. Because the new EHR version requires testing and validation, the organization usually needs about 6 months to

implement the annual upgrade. During the upgrade period, the IT organization typically implements no major new functionality (except for the features and capabilities inherently included in the new version of the EHR). Once the version is installed in production and stable, the IT organization may implement new features.

COTS EHR

The overwhelming majority of the leading health care hospitals are in the process or have completed a transition to a COTS EHR system. The primary reason provided for this change was to reduce the O&M costs of existing EHR systems, to comply with rapidly advancing federal regulations, to reduce the cost to upgrade infrastructure for future programs and policies, and to enable their IT staff to spend less time maintaining their EHR capabilities and to spend more time developing innovative capabilities. The interviewees indicated the majority of the internal resources used to support homegrown EHR solutions were allocated to support capabilities, which were viewed as neither transformative nor innovative for the organization. For example, the Meaningful Use program and its associated requirements for EHR technologies were widely viewed as an excessive burden for any internal development organization to implement in their EHR. The CIOs also emphasized that a single COTS EHR reduces the challenge of interoperability of health data. Although a COTS EHR does not ensure interoperability across a broad set of heterogeneous set of systems, COTS EHRs tend to greatly improve the exchange of patient data within an organization.

For those organizations that are either moving to or have moved to a COTS EHR, most CIOs say they will adopt commercial technology without customizing it to their needs. It may be tempting to customize the COTS EHR, but maintaining the changes as new versions of the EHR are released can be very expensive. Most COTS EHR vendors understand the need for flexibility and allow clinicians control to configure the user interface and workflow to meet their unique processes and needs. The most successful COTS EHRs accommodate this need as a configuration adjustment capability rather than require the development of software customization for each client. For one large health care organization, the plan to transition to a COTS EHR involved over 5000 clinicians in the configuration and deployment. The vendor selected by this organization introduced a disciplined approach to build an example workflow to a large audience of clinicians.

One organization found that their internally developed EHR system they created consumed all of their development funding just to maintain compliance with the bare minimum requirements for the large "Meaningful Use" program. This organization was unable to implement other needs such as upgrading to the ICD-10 coding system, and they were unable to introduce innovative new clinical capabilities. A COTS EHR vendor was able to demonstrate that the COTS EHR would provide all of the "Meaningful Use" requirements and still allow for organization-specific customization for a specific site's needs. This hospital made the strategic decision to shift their developers to configuring the COTS solution, which was less costly than maintaining their internally developed EHR.

The downside of a COTS approach is that these organizations no longer have direct control of their EHR. The vendors provide a distributed, complex governance process in partnership with other medical centers using the EHR. Currently, requests for most changes and configuration

enhancements can be addressed without long delays. But, change from the prior expectation of local control by the physicians was a rude awakening for some physicians. With an enterprise-wide EHR, some changes simply cannot be implemented if the priorities are not shared by other stakeholders. Under the new governance process, requests for changes enter a queue and this organization fully anticipates a backlog that may grow to months, or even years, to see new capabilities fully addressed. With that understanding, the organization implemented a communication and education program to provide expectation management with the clinicians.

Clinician Burden from New IT Systems

When reviewing IT requirements, one organization attempts to minimize the burden on physicians of new systems. The Meaningful Use program was cited as a burden on physicians because the processes require extra data entry and alter the physician's normal workflow. These changes reduce the physician's time with the patient. As a result, the data entry and workflows are reviewed to maximize data entry by administrative staff and maximize time with patients by physicians.

System response time metrics were also measured for physicians. One hospital discovered that a response time of greater than two seconds for any health IT application was considered unacceptable by physicians working directly with patients.

The CIOs interviewed did not have a consistent approach to measuring user satisfaction. One organization meets monthly with 10 to 20 "power users" that are effective in driving change. Another organization abandoned the collection of feedback from user groups because of an inability to implement the changes requested by the users. Most organizations did collect feedback through the use of surveys. For example, upon the closing of each help desk request, a user may be sent an email requesting feedback on the timing and adequacy of the fix.

Return on Investment (ROI)

Most of the CIOs indicated that measuring the return on investment (ROI) for health IT is very difficult. Some organizations are attempting to measure ROI and may speak of "soft returns" as well as "hard dollar returns" on their IT investment. Cost avoidance is one of the easiest returns to measure if processes can be automated. However, improvements in safety and patient satisfaction were also seen as valuable, albeit difficult to quantify financially.

Analytics

The workload for clinical reporting and analytics is growing for most organizations with the adoption of EHRs and a greater abundance of data to analyze. Because advanced analytics can create a substantial computer processing load and require analysts with advanced skills, one hospital outsources the data processing and report preparation to generate the Clinical Quality Measurement results.

Patient safety metrics was a common consideration that was readily identified by the leaders of almost all our hospitals. Patient safety measure anomalies become the highest priority to resolve. Patient safety and patient risk attributes are incorporated both during project work shaping, prioritization, development, operations, and even de-commissioning.

In particular, the electronic capture of health data allows organizations to become accountable to keep people healthy instead of just treating their health conditions. This is increasingly supported by increased visibility into population health.

Technical Reference Model

Some organizations have enacted rules to limit the technical platforms they use for all health IT systems. For instance one organization has assumed a prescriptive posture to only use web and mobile applications for all their health IT capabilities. This means no thick client applications are supported throughout that organization, allowing the IT to have more latitude in introducing future changes to the computer platforms used within the health care organization. Further, this organization ensures their web applications are browser neutral and always conform to standards. This approach also supports mobility to cloud-based hosting of these systems, again providing more flexibility for the CIO to introduce future change. For future planning of homegrown solutions, engineering guidelines on how to architect systems aligned with capabilities are well understood and accessible throughout most organizations.

Homogeneous health IT systems are always the desired approach by health care organizations, primarily because of inherent integrated capabilities. Heterogeneous systems are almost always a detriment for health IT as well as IT. These organizations consistently plan to move towards a homogenous set of tools that avoid duplication of functionality across the enterprise, to have a less complex IT environment resulting in lower O&M costs.

One hospital in Chicago views better health care data standards as the key to addressing gaps in health care data interoperability. In particular, they believe the FHIR standards from HL7 holds promise. A transport standard that was also cited was the DIRECT protocol for securely sending and receiving health data.

Accountable Care Organizations

Accountable Care Organizations (ACOs) are groups of doctors, hospitals, and other health care providers, who come together voluntarily to give coordinated high quality care to their patients. The goal of coordinated care is to ensure that patients, especially the chronically ill, get the right care at the right time, while avoiding unnecessary duplication of services and preventing medical errors. When an ACO is successful in delivering quality care and spending health care dollars carefully, it will share in the savings it achieves *(CMS,* http://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/ACO/index.html).

One of the leading ACOs in the country reiterated how critical it is for health IT systems to support a unified view of quality and risk of individuals and the population. The core of a successful ACO model is a focus on care management, quality of care, and cost of care, through risk modeling and risk adjustment using health IT. This needs to be tracked from the population level to the individual patient view.

This organization does not worry if a patient is part of an ACO, at risk, fee for service or uninsured, "we manage patient to the medical needs of a population" (i.e., the sickest). Health IT provides data to create registries with the information to identify these populations needing continued care.

One hospital cited the primary reason they are consolidating on Epic is to allow them to do full population management analysis and reporting for their ACO contracts.

Another describes IT capabilities necessary to support seven key processes necessary for an organization to function as an ACO:

1. Care Coordination

2. Cohort Management

3. Relationship Management

4. Clinician Engagement

5. Financial Management

6. Reporting

7. Knowledge Management.

This organization may perform a "gap analysis" between their current state IT systems and the capabilities described in *A Health IT Framework for Accountable Care* (CCHIT 2013).

B.1.4 Industry Leader Suggestions for VA

Broader Requirement Sources

When considering users' requirements and whether or not your services are meeting the users' requirements, the organizations interviewed have suggested that VA should consider measuring the user experience of a trusted community so that you can react to the needs and not whims. We have found help desk tickets are a significant source of collecting a wider spectrum of users' feedback.

Restrict Local Customizations

When asked about how much latitude should individual hospitals within VA have to implement their own capabilities, a large federated group of hospitals suggests VA be prescriptive and permit minimal to no latitude here. This federated set of hospitals has a 50 person meeting to aggressively monitor changes. Ticket information is analyzed to look at trends and help drive decisions. Sites are allowed to customize but they must go through a review process and receive explicit approval. This requires a well-defined and strict governance model. It cannot take 30 days to review and approve these types of requests. This organization has found that 95 percent of the requests can be "routinized" and don't need to be "local customizations". An example was provided that, "The infection control team wanted to buy a best of breed system citing its superior capabilities than the COTS vendor. The board asked them to take a hard look at that vendor's solution and determine why it couldn't meet their needs and wouldn't work. The team came back and determined that the vendor's option would be the better choice because of data integration across partners."

Meaningful Use Compliance

One expert commented that it merits some attention that VistA is still not a Meaningful Use certified system, yet there are numerous commercial EHRs supporting the Meaningful Use

program. This leader suggested that VA progress with MU certification is a lot slower than he would have expected, and that VA should understand why it has been difficult to see their health IT systems certified for the Meaningful Use program.

Software Development

At one organization software developers embrace highly tested procedures for everything they do. No software goes into production without meeting these processes and is highly tested. Failures with the internally developed capabilities are very painful, and trump all else with the organization's developer staff. Testing of software capabilities and integration with services is critical to their internal developer shop of 20 engineers.

Another hospital leader asked to highlight to VA that the Core VistA was designed to determine the Veterans eligibility level and optimize scheduling according to that eligibility. He suggests stopping wrapping clinical functionality around this outdated system. In particular, he encourages VA to move towards COTS and standardize where the patient is shared among areas (hospitals and clinics). This would allow better physician collaboration. Further, he feels VA should focus on informatics instead of software development, allowing for innovation in care delivery and then studying the outcomes to do comparative effectiveness and optimization.

Experimentation and Testing

After selecting and deploying COTS solutions, there is often still some level of modification and exploration with these external systems. Some industry leaders see some adoption of the notion of a "sandbox" with anonymous patient data. This sandbox is available to stakeholders with ideas to run a silent implementation and observe it before implementing a function. Several COTS solutions support this to allow for changes in the customization of their product to be explored without impacting the existing clinical workflow. If an idea does demonstrate some utility with this "sandbox," there is a process agreed upon with the COTS contractor to introduce new configurations and customizations to introduce this concept more broadly across the health care organization's enterprise. This ability is clearly defined in the COTS contract prior to selection of a tool by a health care organization.

VA Interoperability and Interaction

One hospital in the Midwest shared difficulty when exchanging data with VA systems. This is particularly difficult when a new VA patient is referred to them for services. Since they do not have the data, they need to re-document the patient status. Moving to data exchange in real time is critical to provide quality care to the Veteran.

When residents rotate thru a VA hospital in Chicago, some residents have gone out of their way to express a liking for the VA user interface with CPRS.

One hospital found the process to be a VA CHOICE Partner to be difficult and lengthy.

Transparency

Another hospital believes VA should strive for total transparency on access for patients, where patients can see the schedule and request, like airlines allow you to try to find times and open seats. This type of transparency would help build back trust in the VA community.

Academic Medical Centers

One industry leader felt that VA should consider developing relationships with the Academic Medical Centers so that health care data are more frequently exchanged and interoperability is expanded with non-VA commercial health IT systems. There is only a small window of time when the Veteran is transitioning from active duty that they need to interact with DoD. Academic Medical Centers can provide longer-term collaboration for the Veteran's needs.

B.1.5   Summary

As part of Assessment H evaluation, we reached out to hospitals and high performing health care systems to assess and document how they manage the challenges of providing health IT in their environments. They shared this information in support of VA and Veterans Choice Act Assessments. While we found variations in some practices, almost all reported a tight alignment between the strategic goals of the organization and the funding and priorities of for their health IT plan. Figure B-1 depicts the high level of best practices achieved by these organizations summarized in six IT function areas of planning, governance, performance, future, COTS and technical coordination.

Figure B-1. Industry Outreach: Adoption of Best Practice Measurements
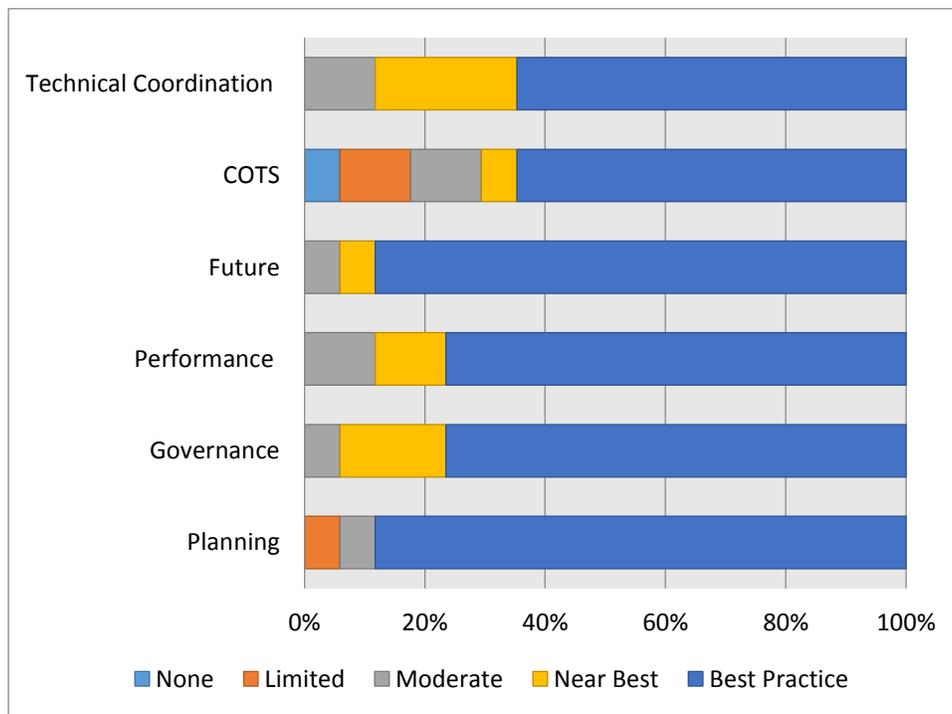
Source: MITRE rendition of industry data.

B.2   Common Failure and Success Factors for Large-Scale EHR Systems

B.2.1   Introduction

Adopting an electronic health record (EHR) is a huge undertaking for a health care provider. It involves more than just installing technology, it requires the practice to transform how it provides care in order to be successful. The Office of the National Coordinator suggests a six-step process for an EHR implementation (HealthIT.gov, 2013):

1. Assess Practice Readiness

2. Plan Your Approach

3. Select/Upgrade Your EHR

4. Conduct Training and Implement EHR

5. Achieve Meaningful Use

6. Continue Quality Improvement.

During each step of the EHR implementation process, there are factors that can lead to success or failure of the project. The goal of this paper is to summarize the main types of failures and success factors to mitigate failures as found in our literature review. We will categorize each of the failure and success factors by stage of the EHR implementation.

B.2.2   Literature Review

To support the Assessment H evaluation of EHR system implementations, we conducted a peer-reviewed literature search for articles related to health IT implementation success and failures. Our search yielded 14 articles which were read for insights on IT project failures and 15 articles that provided insight on successful, large EHR implementations.

B.2.3   Types of Implementation Failures

Our literature review found numerous types of implementation failures. The primary source of failure issues revolves around the planning phase of EHR implementation (Abouzahra, 2011). Failures post implementation are extremely troublesome as they impact patient welfare. (Abouzahra 2011) We removed the last two steps, as there were seen as not applicable to VA.

Table B-2 summarizes types of failures and successes at various stages of EHR system implementation.

Table B-2. Failures and Successes at Stages of EHR Implementation

Implementation Stage	Type of Failure	Type of Success
Assess Practice Readiness	Lack of Executive Support (Standish Group, 1995; Abouzahra, 2011; Glaser, 2005; Gauld, 2007)	Strong Leadership (Jones, 2006; Mooney & Boyle, 2011) Presence of a Champion (Jones, 2006)
Plan Your Approach	Lack of Resources (Standish Group, 1995; Abouzahra, 2011; Glaser, 2005)	Resources to Match Goals (Mooney & Boyle, 2011; Jones, 2006)
	Unrealistic Expectations/Time Frames (Standish Group, 1995)	
	Unclear Objectives (Standish Group, 1995)	Well-Defined Metrics for Success (Jones, 2006)
	Inadequate/Lack of Planning (Standish Group, 1995)	
Select/Upgrade Your EHR	Content Deficiencies/ Lack of User Input/ Technology Incompetence (Standish Group, 1995; Abouzahra, 2011)	Identify Requirements from All Stakeholders (Kaplan & Harris-Salamone, 2009) Clear articulation of desired functionality (Mooney & Boyle, 2011)
	Incomplete/Changing Requirements & Specifications (Standish Group, 1995; Abouzahra, 2011)	Adequate control of scope and changes (Noblin, Cortelyou-Ward & Ton, 2011)
Conduct Training and Implement EHR	Cost Overrun (Standish 1995; Abouzahra, 2011)	Control scope and changes (Noblin, Cortelyou-Ward & Ton, 2011).
	Time Overruns (Standish Group, 1995)	

Implementation Stage	Type of Failure	Type of Success
	Communication issues (Abouzahra, 2011)	Communication of vision and goals (Jones, 2006; Kaplan & Harris-Salamone, 2009)

B.2.4 Assessing Practice Readiness

When assessing practice readiness, a common failure is a lack of executive support (Standish 1995; Abouzahra 2011), which can cause project failures throughout the lifecycle of EHR implementation; it is, therefore, imperative to ensure support early on. Particular to VA, it is important to mitigate the amount of political interference in decision making, as that has been found to be a source of project failure, due to organizational and political complexities (Gauld 2007). In addition, it is important to get clinical support as well to ensure user acceptance of the new technology (Gauld 2007). Finally, project leaders need to avoid invisible progress to ensure executive support throughout the project (Glaser 2005); interim milestones and incremental stages that can showcase progress are crucial to keeping support.

Conversely, strong leadership is a key success factor in large-scale implementations. Leadership plays a key role in ensuring sensitivity to the needs of all stakeholders and ensuring adequate financial resources are dedicated to the implementation (Jones, 2006). Ensuring these resources are committed to the implementation is also key in subsequent steps of implementation. Senior leadership must communicate the goals and vision of the project relative to patient safety, quality, and efficiency. (Jones, 2006) Fully engaged leadership is described as a nonnegotiable during implementation. (Mooney & Boyle, 2011).

B.2.5 Planning the Implementation Approach

During the planning phase, there are four types of failure that need to be addressed. Once project leadership ensures appropriate resources are secured for the project to succeed, it is also important to ensure clear objectives are delineated so that resource planning is as accurate as possible (Standish 1995; Abouzahra 2011; Glaser 2005). Second, realistic expectations and timelines need to be set early in the project (Standish 1995). Third, it is important when setting timelines to anticipate short-term disruptions and incorporate that into your timeframes (Glaser 2005). Finally, as with all planning, it is important to respect uncertainty with your plans, recognizing that many decisions that need to be made are not known when you initial start the project (Glaser 2005).

To overcome the types of failures, success factors in this implementation step include developing well-defined metrics, developing the plan, and ensuring resources meet the metrics. Metrics for success should be defined before implementation begins and feedback on those metrics should be provided on a continuous basis (Jones, 2006). Once leadership identifies what they want to achieve from implementing an EHR, resources should be evaluated to ensure they

are sufficient to achieve success; not that resources needed may vary depending upon the identified metrics (Mooney & Boyle, 2011).

B.2.6   Selecting the EHR System

There are two major categories of failure when it comes to selecting or upgrading the EHR: content deficiencies and incomplete/changing requirements. Content deficiencies can arise from a number of failure factors. A lack of user input is most important in larger settings, such as hospitals, as there are numerous groups that all need to use the technology – such as doctors, nurses, clerks, patients, and visitors – and each has their own needs and requirements (Abouzahra, 2011; Peute, 2010). Frequent communication can help avoid a design-reality gap (Heeks, 2006) between users and designers. EHRs can collect data that are new and may not be directly related to patient care but more for management, so it is important to get clinical approval (Gauld, 2007). Finally, it is important to ensure that the EHR reflects an understanding of the current clinical workflow or that any changes to clinical workflow incorporate adequate redesign and testing (Peute, 2010).

The other major category of EHR selection/upgrade failures is incomplete or changing requirements and specifications (Standish Group, 1995; Abouzahra, 2011). Implementers to be certain that the product is appropriate for the task (Gauld, 2007). They need to define the problem and ascertain if the EHR is best equipped to answer the problem (Cresswell, 2013). It may be possible that new technology is not the answer for the problem, so they need to determine if the EHR can support these strategic goals and whether other approaches may also need to be considered (Cresswell, 2013). Similar to the other main category, if the project objectives and the needs of the users are not well defined, it leads to too much uncertainty or a misspecification of the requirements for the new system and thus a failed implementation (Gauld 2007).

Success factors were also identified to help mitigate failures when selecting and/or upgrading your EHR: identification of requirements from all stakeholders; articulation of desired functionality; and, control of the project scope. When identifying requirements from all stakeholders involved, individuals may not include all the necessary people within an organization, or these individuals may not know how to effectively communicate their desired requirements (Kaplan & Harris-Salamone, 2009). Stakeholders have their own ideal requirements and expectations for a system, so it is important to gather requirements from all stakeholders. Finally, project leadership needs to effectively control the scope based on requirements (Noblin, Cortelyou-Ward, & Ton, 2011).

B.2.7   Conducting Training and Implementing the EHR System

Finally, there are a number of failures possible when implementing the EHR and training users on the EHR. At this point, cost overruns can be a source of failure with an underestimation of the amount of integration needed between systems, especially in larger systems, a main cause of overruns (Standish 1995; Abouzahra 2011). The data may require processing prior to integration and needs to be accounted for; time overruns such as these are also a source of failure at this stage (Standish 1995).

To ensure success in this stage, carefully controlling the scope can help. Human resources are a large share of project costs due to the unique IT needs of implementation. Specialized team members are highly compensated and in high demand; therefore, maximizing their time and expertise is crucial to success (Noblin, Cortelyou-Ward & Ton, 2011). Project managers can control costs by monitoring human resources, investments in additional hardware, and other infrastructure (Noblin, Cortelyou-Ward & Ton, 2011).

B.3 Return on Investment in Health Information Technology

B.3.1 Introduction

In May 2014, the news media reported that a number of Department of Veterans Affairs (VA) Medical Centers were having problems scheduling appointments for Veterans. Other leadership and process issues surfaced in the following months. In August 2014, Congress passed the Veterans Access, Choice, and Accountability Act of 2014 (hereafter, the "Choice Act") to address many of these issues. Section 201 of Title II – Health Care Administrative Matters of the Choice Act calls for 12 assessments, identified as Assessments A through L. Recommendations from these assessments are intended to highlight areas in which services to Veterans can be improved.

Assessment H focuses on the assessment of VA's health IT strategies, including the weaknesses in, and opportunities provided by, the technology used by the Department, especially those related to clinical documentation of hospital care, as well as medical and other health care services, furnished by the Department in VA or non-VA facilities. Under Assessment H, clinical documentation includes images and associated text reports.

In typical assessments of health IT strategies, return on investment (ROI) is often included as an important factor to consider. For Assessment H, ROI in health IT is particularly important given the level of VA's IT expenditures. Thus, the purpose of this paper is to identify health IT financial benchmarks, as well as ROI models and metrics. Health IT benchmarks and ROI metrics identified in this paper can be compared against those which VA uses for its own purposes. Such comparisons can lead to refinements in their benchmarks and metrics and perhaps better measurement of the outcomes of their health IT strategies.

B.3.2 Methods

RTI conducted a search of the professional and grey literature (largely Google searches for the latter). In addition, we searched for relevant materials posted in the knowledge repositories of the American Health Information Management Association (AHIMA), American Medical Informatics Association (AMIA), and the Health Information Management and Systems Society (HIMSS). The search produced different types of artifacts, including comprehensive reviews of the literature; peer-reviewed articles, trade publications, and slide presentations reporting a single organization's costs and benefits of health IT; tool kits; and vendor reports and web pages of professional reviewers describing health system, hospital, or provider IT expenditure benchmarks at an aggregate level.

Though professional articles on ROI in health IT date back to the 1970's, we focused our literature search to cover the years 2000 to the present day. It is in this time period that relevant ROI information can be found for key systems (e.g., electronic health records [EHRs] and computerized physician order entry [CPOE]) and technologies (e.g., mobile health). In addition, though much of the literature we found focused on ROI in EHRs, we made deliberate attempts to gather information on other systems and technologies, so that this report is truly on ROI in *health IT*, not just EHRs.

Many of the artifacts described health IT implementation in a variety of settings, including national programs; health information exchange; as well as health system, large and small hospital, and large and small physician practice, implementations. Admittedly, not all of these settings are comparable to VA. Consequently, the actual figures they report (e.g., dollars or time saved) may not be directly applicable to VA's case. However, in those instances it is not the actual figures, but the metrics they report, that are important here. VA can apply these metrics to various levels of their system (i.e., VISNs, medical centers, or clinics), and are thus appropriate for VA to consider.

Most of the artifacts described individual costs and benefits of health IT in monetary terms, rather than return on investment—i.e., a single numeric figure representing the ROI benefit (numerator) over cost (denominator) ratio (see Figure B-2), or the difference between benefits and cost. Some of the artifacts contained non-monetary benefits, such as time savings. Admittedly, with additional effort, initially reported non-monetary benefits can be translated into dollars. However, in almost every instance the authors of the respective artifacts did not attempt to do so. Where benefits were not translated into monetary terms, we kept them in the category of non-monetary benefits.

The monetary and non-monetary benefits found in the artifacts we reviewed are too numerous to include in a synopsis paper. We selected the more salient metrics and organized them by monetary and non-monetary benefits, and summarized other key metrics in tables in the Supplemental Data section at the end of this article.

B.3.3   Results

ROI Models

Excellent models for calculating ROI, or identifying its components, exist. Each of these models follow the same general principles: (1) determine the goals of the organization and what technology could be implemented to achieve those goals; (2) determine how the organization will measure the impact; (3) determine the source of the data to calculate the estimates, including data needs that may be external to the organization; (4) collect the data; and, (5) compare the pre- and post-implementation data to determine ROI. Each of the models we found are different in format because they accomplish different objectives.

Garrido, et al. (2004), for example, describe a long list of ROI metrics to consider, following item (2) above. At the same time, HIMSS (2013) offers a Health IT Value Suite—essentially, a framework of metrics for Satisfaction, Treatment/Clinical (Care), Electronic Information/Data, Prevention and Patient Education, and Savings (STEPS) (see Table B-3).

Table B-3. HIMSS's Health IT Value Suite

Health IT Value STEPS™ and Subtypes	Documented Examples
S **Satisfaction:** Patient; Provider; Staff; Other	Improved communication with patients; improved patient satisfaction scores; improved internal communication
T **Treatment/Clinical:** Safety; Quality of Care; Efficiency	Improved patient safety; reduction in medical errors; reduced readmissions; improved scheduling
E **Electronic information/Data:** Evidence Based Medicine; Data Sharing and Reporting	Increased use of evidence-based guidelines; increased population health reporting; improved quality measures reporting
P **Prevention and Patient Education:** Prevention; Patient Education	Improved disease surveillance; increased immunizations; longitudinal patient analysis; improved patient compliance
S **Savings:** Financial/Business; Efficiency Savings; Operational Savings	Increased volume; reduction in days in accounts receivable; reduced patient wait times; reduced emergency dept. admissions; improved inventory control

Source: HIMSS, 2013.

Wang and Biedermann (2010) provide formulae to calculate ROI, following item (5) above. Similarly, the formula in the tool from the Health Information Technology Resource Center (HITRC, 2015) concisely accounts for a number of ROI components, as shown in Figure B-2. The HITRC tool calculates cost, as well as monetary (in dollars and percent reductions or gains) and non-monetary benefits depending on the numerator component in the formula.

Figure B-2. ROI Formula from the Health IT Resource Center

$$ROI = \frac{Benefits(Quality + Safety + Efficiency + Profitability + Quality\ of\ Work\ Life)}{Costs(Acquisition + Implementation + Annual)}$$

Source: HITRC, 2015.

In their review of 42 ROI studies, Bassi and Lau (2013) describe in depth the difficulties in comparing results when different assumptions, methods, and metrics are used. As a potential solution, Adler-Milstein, et al. (2014) provide a model that is both visionary, yet practical, in addressing those difficulties. As health care in the United States evolves more and more into a

learning health system (IOM, 2007), Adler-Milstein, et al. (2014) argue that a standard model for assessing ROI in EHRs becomes increasingly important. It is only through a standard model that comparisons of costs and benefits of EHRs and health IT can be made across different institutions, implementations, and technologies.

VA's methods for calculating ROI might be informed by the various models above, particularly the IOM's standard model. For VA's ease of use, we have extracted key ROI metrics found in our literature review and organized them using the IOM's standard model (see the tables in Supplemental Data).

Health IT Financial Benchmarks

Health IT financial benchmarks typically consist of a few key metrics, such as total IT expense and capital budgets as a percent of the institution's total budget. In rare instances, hospitals and health systems will report their ROI or individual cost and benefit metrics. Those which we were able to find are discussed below. Normally, hospitals and health systems do not want their competitors to know their actual figures to these metrics. Therefore, they will only disclose them for aggregate reporting where they can compare their figures against those of a cohort group. Thus, it may be difficult to compare VA's figures in these metrics with *identifiable* health systems of comparable size, such as Kaiser (including Kaiser Permanente, Kaiser Mid-Atlantic, etc.), Tenet Healthcare, and Hospital Corporation of America (HCA).

Aggregate health IT benchmark reports are generally produced as a member benefit by those entities that have access to a number of hospitals or health systems, such as group purchase organizations (GPOs)—including Premier, Inc. and University HealthSystem Consortium (UHC)—and HIMSS. The *2013 Annual Report of the U.S. Hospital IT Market* from HIMSS Analytics (2013) contains the typical health IT benchmarks (see Table B-4).

Table B-4. Health IT Benchmarks

	% of Total IT Operating Expense/Total Hospital Operating Expense-Overall			% of Total IT Budget/Total Hospital Expense–Overall			% IS Capital Expense/Total Hospital Capital Expense–Overall		
	2010	2011	2012	2010	2011	2012	2010	2011	2012
Average	2.40%	2.39%	2.74%	2.77%	4.87%	3.21%	17.32%	17.89%	20.22%
Median	1.93%	2.11%	2.27%	2.26%	3.92%	2.66%	10.27%	12.14%	14.10%
N	471	475	400	469	436	479	211	300	244

Note: The columns are derived from Tables HB1, HB2, and HB3, page 6 of the *2013 Annual Report of the U.S. Hospital IT Market* from HIMSS Analytics (2013).

It should be noted that annual increases in IT budgets is a clear trend. All 2012 IT budgets have increased from 2010. The only exception is Percent Total IT Budget (middle set of columns) where 2011 IT budgets were greater for 2011 than in 2012, yet 2012's budgets are still greater than the budgets for 2010. The spike in 2011 is attributed to the need for hospitals to prepare for Meaningful Use. IS Capital Expenditures (last set of columns) should also be noted. In a Premier survey, 49 percent of hospital executives report that their largest capital investment for 2015 will be in health IT (Gregg, 2014b). Further, whereas the IT Capital Expense as a Total of the Hospital Capital Expense is 20.22 percent for 2012 (see upper right most cell in the table above), a Standard and Poor's executive estimated that current IT capital budgets now range

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from 25–35 percent (Herman, 2014). In addition, Byrne, et al.(2010) examined similar benchmarks and found that VA's spending levels to be higher than the private sector, with the exception being IT capital spending to total spending. The likely cause is that, at the time of the study, VA was already implementing and maintaining their system whereas the health care industry was still in the early stages of adoption of certified HIT.

The above three metrics are broken down in the HIMSS Analytics (2013) report by three individual factors: bed size, type of hospital (e.g., academic vs. non-academic medical center, rural vs. urban, etc.) and region of the country. However, there are no nested break downs (e.g., bed size by region). These breakdowns are too numerous and lengthy to discuss in a synopsis paper. Nevertheless, VA may find these breakdowns quite useful in comparing its IT spending levels against the private sector bed size, type of hospital, and region benchmarks reported in the survey.

In their review of the state of health IT, Becker (2014b) reports other important findings relevant to VA:

- About half of all health care providers dedicate 3 percent or less of their IT budgets to information security and related systems (HIMSS, 2014).

- IT budgets for non-profit and government-owned hospitals were relatively consistent over the past four years. IT budgets for for-profit hospitals varied widely and increased significantly. The difference is attributed to the notion that for-profit organizations "are more vulnerable to 'disruptive events,' such as the implementation of the health care reform law."

- The total cost of purchasing and installing an EHR varies significantly, from $15,000 to $75,000 per provider, depending on whether an in-office EHR or a cloud-based EHR is installed. Total cost of ownership for cloud-based systems is less than in-office systems after five years (HealthIT.gov, 2015). A hospital review website reported that Duke University Health System reportedly paid $700 million for its EHR system and Kaiser Permanente paid $4 billion (Gregg, 2014a).

ROI Metrics

As previously mentioned, most artifacts report costs and benefits rather than a single ROI figure, perhaps because many organizations find measuring ROI too difficult to attempt (Baldwin, 2009). Below are ROI metrics broken down by monetary vs. non-monetary benefits.

Monetary Benefits

Monetary benefits can accrue to any health care stakeholders, most notably the patient, clinicians, provider organization as a whole, and relevant payers. Examples include:

- Reduced drug costs (Wang, 2003; Girosi, 2003; MedicaLogic, 2015; Fischer, 2009)

- Reduced lost inventory (Ekahau, 2013)

- Improved charge capture (Wang, 2003; Grieger, 2007; MedicaLogic, 2015; Miller, 2005)

- Increased patient volume (Grieger, 2007; Keshavjee, 2001; MedicaLogic, 2015; Miller. 2005; Garrido, 2005)

- Reduced transcription costs (Wang, 2003; Grieger, 2007; Girosi, 2005; MedicaLogic, 2015; Miller, 2005; HIMSS, 2007).

Non-Monetary Benefits

A number of non-monetary benefits were reported in the artifacts we reviewed. As previously mentioned, these benefits can be quantified, and with additional effort, translated into financial benefits (e.g., time savings in terms of dollars saved). However, the feasibility of recouping these benefits depends on how they are realized. For example, time savings may be sufficient to reduce staff and thus payroll. Yet, the time saved as a benefit of health IT implementation may be diverted to other activities that need to be performed within the clinical or office environment. Both the time saved as a result of health IT implementation and the increased productivity from time diverted to other activities would have to be calculated. However, both sides of this metric were not regularly reported in this manner.

Examples of non-monetary benefits include:

- Improved quality of care
    - o Reduction in adverse-drug events (Wang, 2003)
    - o Improved adherence to quality of care measures (MedicaLogic, 2015)
    - o Improved vaccination rates (Jha, 2003; MedicaLogic, 2015)
- Time-Savings
    - o Reduction in chart pulls (Wang, 2003; Grieger, 2007; Keshavjee, 2001; Girosi, 2005, MedicaLogic, 2015)
    - o Reduction in prescription filling time (Grieger 2007, MedicaLogic, 2015)
    - o Reduction in prescription renewal time (Corley, 2003; MedicaLogic, 2015; Keshavjee, 2001)
    - o Reduction in referral generation time (MedicaLogic, 2015)
- Overall Productivity (Alemi, 2011).

Although difficult to measure, other important non-monetary benefits are those realized by patients. As examples, electronic health records (EHRs) and other health IT products provide many benefits that patients appreciate, such as printed medication lists and care plans, improved access to their own health records, and facilitated communications with providers.

Both qualitative and quantitative benefits can be achieved utilizing health IT. Qualitative benefits are typically those that cannot be reduced to a number—e.g., improved patient satisfaction, improved work-life balance, better on-call record availability, better flexibility in chart location, and improved patient education (Baldwin, 2009).

There are also a number of costs that need to be captured for the denominator of the ROI equation. Many studies only include part of the costs, typically the cost of acquiring the system. Those acquisition costs typically include (Williams & Samarth, 2010):

- Hardware (e.g., computers, servers, printers, scanners, internet service, wireless network, maintenance costs)

- Software (e.g., customization, patient portals, annual fees).

However, other costs should be included, such as those associated with the installation of the systems (examples below):

- Initial planning & procurement (Williams & Samarth, 2010)
- Contract negotiation (Williams & Samarth, 2010)
- Staff training costs (Williams & Samarth, 2010)
- Paper records to EMR conversion (Fleming, 2011)
- System migration (Williams & Samarth, 2010)
- Installation (Williams & Samarth, 2010)
- Redesigning workflow to accommodate the EHR (Chaudry, 2006; Fleming, 2011)
- Support for launch (Fleming, 2011)
- Technical deployment (e.g., networking) (Fleming, 2011)
- Project management (Fleming, 2011).

B.3.4   Discussion

Unfortunately, except in rare instances (as reported below), it is difficult to obtain publicly available data on the ROI in health IT achieved by large organizations. Many organizations find measuring ROI to be too difficult to attempt (Baldwin, 2009). Perhaps the most complete study in the past few years was conducted by Adler-Milstein, et al. (2013). They found that the average physician adopting an EHR would lose roughly $44,000 over five years. Further, only 27 percent of the practices achieved a positive return on investment. An additional 14 percent achieved a positive return due to the bonuses from the EHR Incentive program. Practices that focused on using the EHR to improve revenue, primarily through seeing additional patients or improved billing, were the ones that had achieved a positive ROI.

The results from the Adler-Milstein, et al. study, however, should be considered with some circumspection. Their sample represented primarily smaller practices (four or fewer physicians) than what is typical of VA. In addition, the practices were using a range of EHR vendors rather than one system as is the case at VA. Finally, the practices each had their own motivations and intended usage of the system, in particular improved revenue generation that may not be applicable in a closed system like VA. More importantly, Adler-Milstein, et al. did not consider other types of benefits as part of their ROI equation. As Alemi, et al. (2011) stated "[s]elective inclusion leads to contradictory situations, where some costs, e.g., cost of training, is included and other related costs, e.g., cost of employees sitting in training sessions, is ignored. The resulting ROI ratio is a rosy forecast of what might happen."

ROI studies should thus include a wider range of benefits and costs. Byrne, et al. (2010), for example, examined ROI for VA from four different angles: IT spending benchmarks, IT adoption benchmarks, IT quality benchmarks, and cost and benefit estimation. For the IT spending benchmarks, they found that VA's spending levels to be higher than the private sector, except for IT capital spending to total spending. The likely reason for higher VA spending is that, at the

time of the study, VA was already implementing and maintaining their systems, whereas the health care industry was still in the early stages of certified health IT adoption. In support of that argument, the authors found that VA had a much higher level of health IT adoption than the rest of the industry. VA also had higher quality of care when compared to the Medicare HMO plans. Finally, the authors estimated the net value of the health IT for a subset of benefits related to CPRS (particularly CPOE), PACS, bar-code medication administration, and laboratory electronic data interoperability. Their models estimated the benefits to be three times greater than annual costs.

HIMSS (2001, 2004a, 2004b, 2011) provides a wealth of ROI information in their Annual Davies Award manuscripts. Since 2000, several of the awardees have reported the benefits they accrued after implementation of enterprise-level HIT. Such benefits include:

- Reduced duplicative testing and diagnostic procedures
- Avoidance of drug related adverse events
- Allergy checking
- Clinical and financial decision support
- Decreased transcription costs
- Better measurement of care and identification of opportunities for improvement.

The majority of sites reporting benefits have implemented systems from Epic™ Systems Corporation. We report here on a few such sites.

Allina Health

Allina Health is an 11-hospital, 65-clinic system in Wisconsin that began implementing Epic's Enterprise EHR in 2004. It is now used in all of its facilities. Its largest hospital at the time, then known as Evanston-Northwestern, with revenue of $700 million, recorded $24 million in clinical benefits and $31 million in revenue cycle improvements from 2005–2007. Its largest single clinical benefit was a $4.8 million decrease in adverse drug events, and its largest financial benefit was a $15.5 million decrease in denials.

Multicare

Multicare is a four-hospital system in the Tacoma, Washington, area that began its implementation of Epic in 2005. It reported a net benefit of $42.6 million from 2007 to 2009. Reported clinical improvements included a 13-percent decrease in adverse drug events, a 24-percent decrease in the time needed to fill stat orders, and an estimated 108 lives saved among diabetic patients. Financial benefits included $12 million in improved collections and a $5 million reduction in denied claims.

Sentara Health

Sentara is a seven-hospital system in Southeastern Virginia and North Carolina with 1,730 beds that began implementation of Epic at all of its hospitals in 2008 and went live in six of its facilities by the end of 2009. Anticipated (budgeted) benefits in 2009 were $16.6 million. Actual benefits realized totaled $37.3 million. The two largest categories were reduced length of

stay/reduced adverse drug events ($9.4 million) and increased unit efficiency/nursing retention ($9.4 million).

Table B-5 summarizes benefits for these health systems.

Table B-5. Financial Benefits after Implementation of an Epic Enterprise System

Clinical, Operational & Financial Benefits	Epic Enterprise Adopter				
	Allina (2004)	Multi-Care (2005)	Evanston Northwest (2001)	Sentara (2011)	Average
Clinical & Operating Efficiencies (Adverse drug, duplicate testing, drug utilization/cost, documentation workload, order processing HIM					
Clinical Process Improvements	12,400,000	3,721,000		4,900,000	
Reduced Hospital Acquired Conditiond		1,140,000			
Reduced Adverse Drug Events	4,800,000				
Reduced Medical Records/Transcription Cost	6,400,000	310,000	1,274,000	3,600,000	
Reduced IT Maintenance		640,000	1,161,000	3,600,000	
Operational Workflow Improvements	1,200,000		7,287,000	11,400,000	
Duplicate Testing	800,000				
Drug Utilization Cost	600,000			3,000,000	
Sub-Total Expense Reduction	$ 26,200,000	$ 5,811,000	$ 9,722,000	$ 26,500,000	$ 11,700,000
Revenue Cycle Improvement - Reduction in A/R, # FTE's, denial reduction, data quality, time to billing	31,537,000	10,524,000	2,682,000	9,000,000	
Estimated Annual Benefits	$ 57,737,000	$ 16,335,000	$ 12,404,000	$ 35,500,000	$ 121,476,000
Annual Revenues- 2009	$ 2,220,000,000	$ 1,100,000,000	$ 1,530,000,000	$ 2,500,000,000	$ 7,350,000,000
Expense Saving % of Revenue	1.2%	0.5%	0.6%	1.1%	0.7%
Revenue Increase % of Revenue	1.4%	1.0%	0.2%	0.4%	0.9%
Total % Improvement	2.6%	1.5%	0.8%	1.4%	1.6%

Source: HIMSS 2001, 2004a, 2004b, and 2011.

These analyses did not factor in certain costs required to obtain these benefits. Thus, they do not represent a true ROI. Nonetheless, these analyses provide some insight, albeit incomplete, into the types and magnitude of benefits that can be achieved.

Returning to the general case, the discussion is not complete without noting that the reimbursement model utilized has an effect on ROI, and can skew the results. An extreme example would be the following: Imagine an instance where an allergic reaction to a medication is avoided because of information available in the integrated system. Few would argue that avoiding an allergic reaction is not an improvement in care, yet the net impact on the hospital's revenue may be negative. While this is an extreme example, many of the benefits achieved by an integrated electronic health record produce no direct economic benefit in our current fee for service model. This could soon change. With payment reform we may soon be compensated on a more global basis for the quality and cost of the care rendered. In such models, costs avoidance becomes an opportunity for greater net revenue and the improved quality achievable with such systems and a basis for a more direct assessment of ROI.

B.3.5   Conclusion

There are many ways in which a provider can measure the ROI of its health IT investment— quantitative and qualitative, monetary and non-monetary. In addition, there are a number of models that can be used to calculate ROI, each with differing costs that can be included in the

calculations. Despite this, much of the published literature centers on a positive ROI regardless of how it is measured.

Based on the discussion in the Results section above and the Supplemental Data below, numerous individual cost and benefit metrics have been developed. None of the published metrics can be considered benchmarks for health IT as they have not been systematically used for comparison purposes. But that does not belie their usefulness as measures.

Prior research (i.e., Byrne, et al., 2010) found that VA achieved a positive ROI for its health IT. However, as that study was done five years ago, VA can embark on an updated study at the present time. An updated study can encompass the full range of health IT in use throughout VA today. For example, recent implementations such as the Blue Button can be included in ROI calculations. At a minimum, individual cost or benefit metrics can be used.

B.3.6   Supplemental Data

Key ROI metrics found in the documents reviewed for this assessment report are summarized below. The metrics are broken down into quantifiable health IT expenses and benefits. Table B-6 and Table B-7, which describe the metrics, follow the standardized framework put forth by the Institute of Medicine.[33]

Quantifiable Health IT Expenses

Expenses to estimate ROI are identified by category, including productivity loss, staffing and consulting costs, technology costs, maintenance, and training. These expense categories are organized into two types, initial implementation and ongoing, to differentiate between the one-time costs that are incurred upon initial investment, and those that will be ongoing expenses. These expense categories and descriptions are primarily based on EHRs but are applicable to all types of health IT projects.

Table B-6. Expense Types by Category for ROI Estimates

Category	Description (examples primarily based on EHR)
Expense Type: Initial Implementation	
Reduced Productivity	Implementation of the health IT decreases clinician productivity (both in inpatient and outpatient settings) until clinicians are able to "master" the new system, resulting in lost revenue due to lost throughput or increased staffing costs necessary to maintain historical volume during the learning period
Staffing Costs Related to Setting Up	Upfront staff time (both clinical and administrative) spent optimizing the health IT and incorporating it into clinical workflows and administrative

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[33] Adler-Milstein J, Gregory D, Grossmann C, Mulvany C, Nelson R, Pan E, Rohrbach V, Perlin J. (2014). Return on information: A standard model for assessing institutional return on electronic health records. Institute of Medicine (IOM), Washington, DC.

Category	Description (examples primarily based on EHR)
System Configuration	processes (i.e., billing, decision support). Includes staffing costs for data migration and mappings/remappings.
Consulting Cost	Expense related to consultant assistance during implementation (if not included in hardware/software costs) or if they are an incremental expense related to integrating EHR into clinical workflows and administrative processes
Hardware Cost	Additional servers, routers, cabling, desktops, local area networks, and other items required to implement HIT
Software Cost	Licenses for EHR and other software and associated analytical tools for data extraction, report writing/distribution and integrating with other systems (i.e., registration, billing, scheduling, lab)
IT Staff Cost	Staffing costs associated with health IT implementation, including project management, content development/customization, system interfaces (both internal and external), workflow mapping, building/quality assurance of interfaces, IT help desk and technical deployment
Networking Cost	Initial costs associated with connecting/integrating EHR/HIT with sites of care within a system and other providers within the community
System Design/ Product Evaluation Cost	Upfront costs for articulating the business goals and incorporating them into the system design. This includes both staff and consultant costs, associated research and evaluation of available alternatives, and staff travel and lost productivity related to specifying requirement development/gathering and product selection/design phase of implementing HIT.
Training Cost	Cost of initial staff training during system implementation. Includes salaries of trainers (newly hired or repurposed), opportunity cost for trainee staff time, and costs related to development of training materials.
Transition Cost	Cost of uploading existing medical records into the EHR. Includes non-labor costs for data migration and mappings/re-mappings.
Hardware Cost	Hardware costs associated with specific technologies that complement an EHR or other health IT (i.e., data warehouse environment, patient portal environment, etc.)
Software Cost	Software costs associated with specific technologies that compliment an EHR or other health IT (i.e., data warehouse environment, patient portal environment, business intelligence tools)
Reduced Productivity	Implementation of the health IT reduces revenue cycle productivity until new data and work flows are established. This results in lost revenue due to lost throughput or increased staffing costs necessary to maintain historical productivity during the learning period.

Category	Description (examples primarily based on EHR)
Expense Type: Ongoing	
Physical Plant Cost	Space in the server room and other IT-related square footage required host/support the HIT
IT Cost	Costs associated with disaster recovery plan and "downtime" support
Software Cost	Annual license renewal and/or upgrades for EHR/HIT software and associated analytical tools for data extraction and report writing/distribution and integrating with other systems (i.e., registration, billing, scheduling, lab)
Staff Costs Related to Changing Workflow	Ongoing staff time (both clinical and administrative) spent optimizing the health IT and incorporating it into clinical workflows and administrative processes (i.e., billing, decision support)
IT Staff Cost	Post-implementation IT staff required to support/maintain operations and associated technology investments (BI tools, data warehouse, patient portal)
Hardware Maintenance Costs	Cost for replacement or upgrades of servers, switches, etc.
Networking Cost	Ongoing costs associated with integrating the EHR/HIT with other providers within the community
Training Cost	Ongoing training for new capabilities or new clinical staff. Includes salaries of trainers (newly hired or repurposed), opportunity cost for trainee staff time, and costs related to development of training materials
Staff for Newly Created EHR/HIT Related Functions	Application coordinators, clinical content maintenance, reporting/data extraction
Knowledge Management	Includes costs related to knowledge management for development and maintenance of clinical decision support tools
Staff for Newly Created EHR-Related Functions	Costs associated with "medical scribes" (may even be nurses) replacing transcription
Performance Improvement	Costs associated with newly hired business process improvement teams
Utilities	Increased costs associated with electricity for powering and cooling the server room

Category	Description (examples primarily based on EHR)
Software Cost	Upgrade/replacement/licensing costs associated with specific technologies that complement an health IT (i.e., data warehouse environment, patient portal environment, business intelligence tools)
Hardware Cost	Replacement/upgrade hardware cost associated with specific technologies that compliment a health IT (i.e., data warehouse environment, patient portal environment, etc.)

Source: Health IT benefit strategic goals, types, and descriptions, based on Adler-Milstein et al., 2014

Quantifiable Health IT Benefits

Benefits are categorized by overall core strategic goals, including improved clinical performance, reduced overhead, improved operational performance, reduced inappropriate utilization, and support of clinical trials. These are then categorized by the type of benefit, such as reduction in administrative cost or improved use of disease management strategies. These include some benefits that can be easily attributed as directly to an EHR or other system (e.g., avoiding redundant lab tests), and others for which the EHR works importantly, but less directly, in achieving the improved outcome (e.g., reduced readmissions). It is recognized that the ability to capitalize on these benefits may differ based upon reimbursement type. For example, benefits may accrue to the provider based on reimbursement type, such as per diem or shared savings.

Estimates of ROI are based on adding the total quantifiable costs of the benefits for the specific health IT and comparing it to the total costs to implement, upgrade, or maintain the health IT. In addition, benefits can be reported as measures or metrics, independent of the costs. Examples of these metrics are provided in Table B-7. These measures typically reflect the marginal change due to the health IT, often reflecting reductions in costs associated with efficiencies, workflow improvements, less costly therapies, and avoided health care utilization costs due to the health IT.

Table B-7. Benefit Types by Category and Strategic Goals for ROI Estimates

Benefit Type	Description	Measures/Metrics Examples from Published Studies[34]
Core Strategic Goal: Improved Clinical Performance		
Supply-Chain Management	Health IT such as CDSS facilitates identification of less-expensive pharmaceutical alternatives	• Pharmaceutical costs, overall, per patient (e.g., due to increase in generic drugs prescribed) • Costs per new or refilled prescription

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[34] Common metrics for costs are per episode, discharge, covered life, enrollee, patient, and by setting.

Benefit Type	Description	Measures/Metrics Examples from Published Studies[34]
Improved Workflow—Staffing	EHR and other health IT can decrease clinician time spent on workflow such as documentation, allowing more patients to be seen in a day	• Time spent on documentation, improved efficiency • Calls for test results by patients (due to access to EHR data) • Average pharmacy department costs per patient due to CPOE
Improved Clinical Outcomes	Improved effectiveness of quality improvement projects that result from improved data gleaned from EHRs	• Estimated change in inpatient costs for preventable adverse drug events caused by inpatient medication administration errors • Average LOS
Patient Safety Initiatives	EHR/HIT can facilitate process improvements that reduce "never events" (i.e., medication errors, patient falls, pressure ulcers, wrong site of surgery) that typically aren't reimbursed and substantially increase episode costs and reduce cost to remediate harm	• Number of medication errors prevented • Inpatient costs for preventable ADEs caused by outpatient medications. • Estimated savings due to averted ADE-related utilization

Core Strategic Goal: Reduce Inappropriate Utilization		
Appropriate Site of Care or Therapeutic Pathway	• HIT such as CDSS facilitates ability to suggest therapeutic alternatives (i.e., watchful waiting for lower-back pain vs. immediate surgery) • EHR enables the use of phone and e-mail visits to address relatively minor issues that otherwise would have required an office visit • Data from a health system's EHR can identify	Costs associate with changes in utilization by: • Rates of ED visits • Rates of primary care visits • Rates of specialist visits Measures below are by number of visits/enrolled patients • Rates of red blood cell transfusions (overall or in settings such as pediatric ICU)

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	the highest-value (lowest cost for a given level of quality) setting to provide care for patients with certain conditions. Patients can then be routed to the most appropriate care setting.	• Costs as a result of increased use of alternative therapeutic approaches • Costs related to antibiotics prescribed, hospital antimicrobial costs
Reduce Duplicative Services	EHR and HIE info available on previous tests reduces laboratory and radiology costs for redundant and unnecessary tests	Costs associated with change in medical tests: • Rate of lab tests • Rate of diagnostic tests • Rate of radiology tests • Tests per patient over unit of time (e.g., tests per patient- day)
Disease/ Population Management Strategies	• HIT allows for development and management of clinical registries to improve care delivery and coordination • EHR facilitates automated reminders and alerts identifying those with chronic disease(s) and enables optimal care of these patients based on predefined protocols	• Average costs per patient (e.g., frequent ED user, nursing home resident with specific condition) • Rates of ambulatory sensitive ED visits and admissions per enrollees/patients
Core Strategic Goal: Overhead Reduction		
Offsetting	If health IT replaces existing systems that performed similar functions, the health IT ongoing maintenance costs should be offset by the legacy system maintenance costs	Change in IT maintenance costs
Core Strategic Goal: Improved Operational Performance		
Supply-Chain Management	EHR/HIT enables decision-support tools to identify less-expensive/ more-effective supply alternatives, reducing supply costs	Reduced supply costs

Supply-Chain Management	EHR/HIT can enable auto restocking/ ordering to support pre-defined par levels	Average supply costs per admission, discharge, visit, etc.
Reduced Capital Expenditures	EHR could reduce demand for imaging and lab services to a point that it reduces the need for new/replacement capital assets (CT machines, X-ray machine, lab equipment)	Capital costs avoided by reallocating space previously used for radiology, labs, MR, CT to other uses that would have otherwise required new space to either be built or leased
Reduced Operating Costs	EHR reduces need for printing X-rays and related radiological film supply costs	Costs in x-ray and radiology film supply costs with radiology system
Improved Workflow— Reduced Capital Expenditure	Clinical protocols/ pathways embedded in the EHR can enable reduced variability in care delivery in all settings, allowing facility to make greater use of fixed capacity (i.e., available beds through decreased average length of stay (ALOS), magnetic resonance imaging (MRI) machines, and surgery suites)	• Average inpatient LOS • Charges per discharge • ED LOS
Improved Workflow— Staffing	Clinical protocols/pathways embedded in health IT such as EHR, CPOE can enable reduced variability in care delivery in all settings allowing the facility to make greater use of step-fixed staffing resources (i.e., free-up floor staff through decreased ALOS, MRIs, surgery suites)	• Changes in patient flow such as admit to bed assignment, bed assign to ED exit, total ED boarder cycle time (LOS in minutes) • Rates of ED patients leaving without treatment • Inpatient transfer cycle • Average time from medication order written to med administration • Staff time to prescribe medication with health IT vs. no HIT • Change in time to make referral
Payer Management	Allows for decreased administrative costs related to payer prior authorization and utilization management/review activities	• Charges per discharge, covered life, encounter, patient • Average inpatient costs • Appropriate billed charges per patient, covered life, encounter, discharge • Claims denials

Reduce Repeat Hospitalizations	EHR can facilitate improved discharge process and improve care coordination across providers, reducing unnecessary readmissions	• Readmission ratio (actual/expected readmission rates) • Associated costs from avoided admissions attributable to HIT, avoided admissions times average cost per admission
Core Strategic Goal: Network Management		
Increased Labor Efficiency	Enables de-skilling strategies allowing organizations to take advantage of clinicians performing at the "top of their license"	Labor costs (per episode, patient, enrollee covered life visit, admission, etc.)
Improved Clinical Outcomes	EHR allows for provider profiling	Accurate and sensitive provider profiles

Core Strategic Goal: Overhead Reduction		
Reduced Capital Expenditures	Reductions in need for space with EHR/HIT and electronic information	Floor space related to radiology film library and medical records/chart rooms
Reduced Operating Costs	EHR reduces operating costs required to manage information that is not electronically stored	Film-processor and related maintenance costs due to reduced radiology tests
Improved Workflow—Staffing	EHR reduces need for staffing for pulling charts, transcription, laboratory order processing by technicians, as examples	• Time spent pulling charts, reduced transcription costs, time spent on laboratory order processing by lab techs • Inpatient nursing time
Administrative Costs	HIT-enabled quality-improvement efforts decrease medication errors and other "never events," leading to a reduction in malpractice premiums	Malpractice premiums (reduction)
Core Strategic Goal: Improved Quality Metric Reporting		
Metric Development/ Management	EHR allows for automation of quality reporting, reducing the need for manual chart abstraction	Chart abstraction (reduction)
Core Strategic Goal: Opportunity Costs		
Service Line Management	Data from a health system's EHR/HIT can better identify underperforming service lines and determine whether the quality/cost point can be improved or the organization should discontinue the service and pursue other opportunities with its resources	Changes in operating margin resulting from a reallocation of resources
Core Strategic Goal: Support Clinical Trials		
Revenue Opportunity/ Halo Effect	More easily provides data to support clinical trials conducted at the organization	• Changes in efficiency of clinical studies • Staff time to recruit participants

	or increases the opportunities for organizations to participate in clinical trials	

Source: Health IT benefit strategic goals, types, and descriptions, based on Adler-Milstein et al., 2014.

Appendix C   Assessment H Sites Visited

The Assessment H team visited five VISNs, nine VAMCS, and two CBOCs. At a high-level, the objectives were to understand the impact of the health IT strategies and systems on Veteran access to care, quality of care, and satisfaction with their care.

C.1   Objectives

The team's detailed objectives were to understand the site's views on:

- The effectiveness of health IT (HIT) strategies and systems in supporting Veteran access to care, quality of care, and satisfaction in their care to the clinical end users.
- The effectiveness of HIT strategies, systems and processes in supporting clinical documentation improvement (CDI).
- To what extent site users and planners are engaged in the design and development of new systems
- The most critical HIT requirements to meet local and strategic health objectives.
- How their critical HIT requirements are solicited and addressed.
- How the design, development, and deployment of IT systems could be improved.

C.2   Sites

We visited sites in rural areas in addition to urban areas and covered different regions of the country.

- VISNs
  - 1
  - 4
  - 11
  - 18
  - 19
  - 22.
- VAMCs
  - Boston/West Roxbury, Massachusetts
  - Carl T. Hayden – Phoenix, Arizona
  - Eastern Colorado – Denver, Colorado
  - Erie, Pennsylvania
  - John D. Dingwell – Detroit, Michigan
  - Lexington-Cooper, Kentucky
  - Long Beach, California
  - Togus-Augusta, Maine

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      o Oscar G. Johnson - Iron Mountain

      o Palo Alto, California

      o Pittsburgh, Pennsylvania.

- CBOCs.
  - o Menominee, Michigan
  - o San Jose, California

Note: Site visits to VISN 4, and VAMCs at Erie and Pittsburgh were primarily for the review of processes utilized by this site enabling them to be among the top performers at VHA and not as part of the Assessment H site visits.

C.3 Approach

Interviews were conducted with key personnel who could represent the various stakeholders impacted by health IT strategies and systems in accordance with the methodology and research questions outlined in Section 2 of this Assessment H report. Each interview lasted between 30 and 60 minutes. Interviews were requested and held with staff in the following roles:

- Director
- Associate Director
- Medical Chief of Staff
- Chief of Nursing
- Chief of Biomedical Engineering
- Lead for Clinical Engineering
- Chief/Director of Health Information Management
- Chief Health Information Officer (CHIO)
- Chief Information Officer (CIO)
- Chief Nursing Informatics Officer
- Department Chief (e.g., Chief Hospitalist, Chief of surgery, Chief of mental health)
- Representative group of providers (e.g., medical, surgery, cardiology, internal medicine, radiology)
- Representative group of nurses (e.g., ED, ICU, medical/surgical)
- HIM staff (e.g., medical records administrators, medical coding, documentation specialists)
- Quality managers, finance managers, and researchers using clinical data
- Clinical Applications Coordinator
- Telehealth Coordinator

Interviews were not conducted with this complete list of staff at each site because they were unavailable or the role did not exist at the VISN-level or CBOC-level. .

Sample interview questions were:

- What are the highest priority, measurable health care objectives? How do the current systems help you achieve these outcomes?
- What specific new health care capabilities have been deployed (at enterprise scale) in the past 5 years, and what was the measurable impact on the ability to manage and furnish health care?
- What are the major advantages/limitations of the current clinical systems?
- What are your top clinical system requirements?
- What and where is the 1-year, 2-year, and 3-year future states for IT defined, and what are the specific measures of effectiveness defined for verifying a measurable improvement to Access to Care and Quality of Care?
- How are "Users" engaged to identify and develop IT requirements to address gaps and for managing and furnishing health care?
- From an operational (clinical) perspective, has there been sufficient allocation of resources and sufficient planning associated with the incremental deployments (e.g., training)?

Additional data and documentation requested from the sites included:

- Clinical documentation improvement reports
- Help desk tickets for the health IT systems
- Strategic Plans.

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Appendix D   References

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Appendix E   Acronyms

AAMI	Advancement Association of Medical Technicians
ACAP	Access and Clinic Administration Program
ACI	Accelerated Care Initiative
ACO	Accountable Care Organization
ACP	Acceptance Criteria Plan
ACSC	Ambulatory Care Sensitive Condition
ADC	Association of Defense Communities
ADE	Adverse Drug Event
ADK	Application Development Kit
ADUSH	Assistant Deputy Under Secretary for Health
AEMS	Automated Engineering Management System
AERB	Architecture Engineering Review Board
AHIMA	American Health Information Management Association
AHLTA	Armed Forces Health Longitudinal Technology Application
AHRQ	Agency for Healthcare Research and Quality
aka	also known as
ALOS	average length of stay
AMIA	American Medical Informatics Association
ANSI	American National Standards Institute
AoA	Analysis of Alternatives
API	Application Programming Interface
App	Application
APT	Advanced Persistent Threat

ASD	Architecture, Strategy, and Design
ASMR	ASM Research
BCA	Business Case Analysis
BCMA	Bar Code Medication Administration
BDD	Behavior Driven Development
BHIE	Bidirectional Health Information Exchange
BI	Business Intelligence
BISL	Business Intelligence Service Line
BLUF	Bottom-Line Up Front
BMS	Bed Management Tools
BOE	Basis of Estimate
BPE	Business Process Engineering
BPFE	Blue Print for Excellence
BRAMP	Business Requirements and Architecture Management Plan
BRD	Business Requirements Document
BRP	Blue Ribbon Panel
C&P	Compensation and Pension
CAC	Clinical Application Coordinator
CAMH	CMS Alliance to Modernize Healthcare
CAP	Cross-Agency Priority
CAPRI	Compensation and Pension Record Interchange
CAO	Chief Acquisition Officer
CBO	Chief Business Office (VHA)

CBOC	Community Based Outpatient Clinic
CBX	Computer-Based Examination
CCDA	Consolidate Clinical Document Architecture
CCHIT	Certification Commission for Health Information Technology
CCMB	Clinical Capability Management Board
CDC	Centers for Disease Control and Prevention
CDI	Clinical Data Interface or Clinical Documentation Improvement
CDS	Clinical Decision Support
CDSS	Clinical Decision Support System
CDW	Corporate Data Warehouse
CEO	Chief Executive Officer
CFO	Chief Financial Officer
CH	Connected Health
CHDR	Clinical Health Data Repository
CHIO	Chief Health Informatics Officer
CIO	Chief Information Officer
CLIN	Contract Line Item Number
CM	Contract Management
CMIO	Chief Medical Information Officer
CMMI	Capability Maturity Model Integration
CMS	Centers for Medicare & Medicaid Services
COBIT	Control Objectives for Information and Related Technology
COE	Center of Excellence

COTS	Commercial off-the-shelf
CPE	Capacity and Performance Engineering
CPOE	Computerized Physician Order Entry
CPRS	Computerized Patient Record System
CPU	Central Processing Unit
CQM	Clinical Quality Measures
CRB	Contract Review Board
CRUD	Create-Read-Update-Delete
CSS	Cascading Style Sheet
CT	Computed Tomography
CTO	Chief Technology Officer
CVT	Clinical Video Telehealth
CVX	Clinical Vaccines Administered
DAS	Data Access Service
DBA	Database Administrator
DECC	Defense Enterprise Computing Center
DHCP	Decentralized Hospital Computer Program
DHMSM	DoD Healthcare Management System Modernization
DHS	Department of Homeland Security
DICOM	Digital Imaging and Communications in Medicine
DISA	Defense Information Systems Agency
DME	Development, Modernization, and Enhancement
DoD	Department of Defense

DQM	Document Quality Management
DSS	Decision Support System
EA	Enterprise Architecture
EAI	Enterprise Application Integration
eCQM	Electronic Clinical Quality Measures
ED	Emergency Department
EDIS	Emergency Department Integration Software
EE	Enterprise Edition
eHMP	Enterprise Health Management Platform
EHR	Electronic health record
EIA	Electronic Industries Alliance
EIPT	Executive IPT
EMI	Enterprise Messaging Infrastructure
EMM	Enterprise Mobility Management
EMR	Electronic Medical Record
EMRAM	EMR Adoption Model
EP	Eligible Provider
ER	Emergency Room
ESB	Enterprise Service Bus
ESE	Enterprise Systems Engineering
ESS	Enterprise Shared Services
ETA	Enterprise Technical Architecture
EUCOM	European Command
EVM	Earned Value Management

eVPR	Enterprise Virtual Patient Record
EWD	Enterprise Web Developer
EWL	Electronic Wait List
FBI	Federal Bureau of Investigation
FDA	Food and Drug Administration
FEMA	Federal Emergency Management Agency
FFRDC	Federally Funded Research and Development Center
FHIE	Federal Health Information Exchange
FHIR	Fast Health Interoperability Resources
FISMA	Federal Information Security Management Act
FITARA	Federal IT Acquisition Reform Act
FLS	Financial and Logistics System
FOC	Full Operational Capability
FTE	Full Time Equivalent
FTEE	Full-Time Equivalent Employees
FY	Fiscal Year
GAO	Government Accountability Office
GOTS	Government off the shelf (software solution)
GPO	Government Publishing Office
GPS	Global Positioning System
GSA	General Services Administration
GUI	Graphical User Interface
HCA	Hospital Corporation of America
HCIS	Healthcare Information Systems

HDR	Health Data Repository
HEDIS	Healthcare Effectiveness Data and Information Set
HeV	HealtheVet
HHS	Department of Health and Human Services
HI	Health Informatics
HI2	Health Informatics Initiative
HIE	Health Information Exchange
HIH	Health Information Handlers
HIM	Health Information Management
HIMSS	Health Information Management Systems Society
HIPAA	Health Insurance Portability and Accountability Act
HISP	Health Information Service Provider
HIT	Healthcare Information Technology
HITRC	Health Information Technology Resource Center
HL7	Health Level Seven International
HMO	Health Maintenance Organization
HPHS	High Performing Health Care Systems
HSR&D	Health Services Research & Development
HTML	Hyper-Text Markup Language
HTTP	Hyper-Text Transfer Protocol
HW	Hardware
IAM	Identity Access Management
ICD	International Classification of Diseases

ICS	Internal Controls Service
ICU	Intensive Care Unit
IDRP	Innovation and Development Request Portal
iEHR	Integrated Electronic Health Record
IETF	Internet Engineering Task Force
IG	Inspector General
IMS	Integrated Master Schedule
IOC	Initial Operational Capability
IOM	Institute of Medicine
IPM	Initiative in Precision Medicine
IPO	Interagency Program Office
IPT	Integrated Product Teams
ISIL	Islamic State of Iraq and the Levant
ISIS	Islamic State of Iraq and Syria
ISO	International Standards Organization
ITIL	Information Technology Infrastructure Library
IT	Information Technology
ITLB	IT Leadership Board
ITSM	Information Technology Systems Management
JDBC	Java Database Connectivity
JLV	Joint Legacy Viewer
js	javascript
json	Java Simple Object Notation
JSP	Java Server Page

KFM	Key FISMA Metrics
KM	Knowledge Management
KPI	Key Performance Indicator
KPP	Key Performance Parameter
LHS	Learning Health System
LOB	Line of Business
LOINC	Logical Observation Identifiers Names and Codes
LOS	Length of Stay
MAE	Mobile Application Environment
MAGB	Mobile Application Governance Board
MARA	Mobile Application Reference Architecture
MAS	Mobile Application Store
MD	Doctor of Medicine
MASS	Medical Appointment Scheduling System
MDM	Mobile Device Management
MDWS	Medical Domain Web Services
MERS	Medical Equipment Reporting System
Mgmt	Management
MHED	Mobile Health External Development
MHV	My HealtheVet
MOCHA	Medication Order Check Healthcare Application
MOU	Memorandum of Understanding
MR	Magnetic Resonance
MRI	Magnetic Resonance Imaging

MSP	Medical Scheduling Package
MTIPS	Managed Trusted Internet Protocol Services
MU	Meaningful Use
MUMPS	Massachusetts General Hospital Utility Multi-Programming System
MVAT	Managing Veterans Access Via the Telephone
MVC	Minimally Viable Capabilities
NCA	National Cemetery Administration
NCPDP	National Council for Prescription Drug Programs
NCS	National Cemetery System
NDAA	National Defense Authorization Act
NEJM	New England Journal of Medicine
NHIN	Nationwide Health Information Network
NIST	National Institute of Standards and Technologies
NLP	Natural Language Processing
NMCI	Navy Marine Corps Intranet
NRC	National Research Council
NRM	Non-Recurring Maintenance
NSD	National Service Desk
NSOC	Network and Security Operations Center
NSR	New Service Request
NTGB	National Telehealth Governance Board
NTTHD	National Telehealth Technology Help Desk
NVTC	Northern Virginia Technology Council

NUMI	National Utilization Management Integration
NwHIN	Nationwide Health Information Network
O&M	Operations and Maintenance
OA	Operational Analysis
OAP	Operational Acceptance Plan
OAR	Operational Analytics and Reporting
OCR	Office of Civil Rights
OED	Office of Enterprise Development
OEM	Office of Emergency Management
OHI	Office of Health Information
OI&A	Office of Informatics and Analytics, Veterans Health Administration
OI&T	Office of Information and Technology, Veterans Affairs
OIG	Office of the Inspector General
OIS	Office of Information Security
OMB	Office of Management and Budget
OneVA EA	OneVA Enterprise Architecture
ONC	Office of the National Coordinator
ONS	Office of Nursing Services
OPES	Office of Productivity, Efficiency, and Staffing
OPM	Office of Personnel Management
OR	Operating Room
OSEHRA	Open Source EHR Alliance
OSS	Open Source Software

OTS	Off The Shelf or Office of Technology Strategies
PaaS	Platform as a Service
PACS	Picture Archiving Communication Systems
PATS	Patient Advocate Tracking System
PCECS	Portland Center for the Evaluation of Clinical Services
PCP	Primary Care Physician
PCS	Patient Care Services
PD	Product Development
PDF	Portable Document Format
PDUSH	Principal Deputy Under Secretary for Health
PE	Product Effectiveness
PEO	Program Executive Office
PGP	Pretty Good Privacy
PHDSC	Public Health Data Standards Consortium
PHI	Personal Health Information
PHR	Personal Health Record
PIC	Portland Informatics Center
PIN	Private Industry Notification
PIT	Program Integrity Tool
PKI	Public Key Infrastructure
PM	Program Manager
PMAS	Project Management Accountability System
PMO	Program Management Office
POC	Point of Care

PPBE	Programming, Planning, Budgeting, and Execution
PPM	Product and Platform Management
PSCI	Patient Safety Center of Inquiry
PSI	Product Shippable Increments
PWS	Project Work Statement
QA	Quality Assurance
QIT	Quality Inspector Tool
QM	Quality Management
QSV	Quality, Safety and Value, The Office of the Assistant Deputy Under Secretary for Quality, Safety, and Value
RACI	Responsible, Accountable, Consulted, Informed
RATSR	Risk Analysis and Testing Scope Report
RDBMS	Relational Database Management System
RDV	Remote Data Viewer
RFC	Request for Comments
RFI	Request for Information
RFP	Request for Proposal
RMC	Resource Management Committee
ROI	Return on Investment
RPC	Remote Procedure Call
RRTF	Ruthless Reduction Task Force
RSA	Replacement Scheduling Application
RSD	Review Services Division
RSMR	Risk Standardized Mortality Rate

RSRR	Risk Standardized Readmission Rate
RTI	Research Triangle Institute
RTM	Requirements Traceability Matrix
SAFe	Scaled Agile Framework
SAIL	Strategic Analytics for Improvements and Learning
SAM	Scaled Agile Methodology
SDD	System Design Document
SDE	Service, Delivery and Engineering
SDK	Software Development Kit
SDLC	Software Development Life Cycle
SEI	Software Engineering Institute
SFS	Scholarship for Service
SHEP	Survey of Healthcare Experiences of Patient
SLA	Service Level Agreement
SME	Subject Matter Expert
SNOMED	Systematized Nomenclature of Medicine
SOA	Services Oriented Architecture
SOP	Standard Operating Procedure
SPC	Scheduling Program Council
SPSC	Scheduling Program Steering Committee
SUMPM	Safety Updates for Medication and Prescription Management
SW	Software
TACM	Telephone Access and Contact Management
TBD	To Be Determined or To Be Decided

TCO	Total Cost of Ownership
TCT	Telehealth Coordination Technician
TH	Telehealth
TIC	Trusted Internet Connection
TIU	Text Integration Utilities
TLS	Transport Layer Security
TPMG	The Permanente Medical Group
TRM	Technical Reference Model
TSS	Telehealth Scheduling System
TTPs	Tactics, Techniques and Procedures
UAT	User Acceptance Testing
UHC	University HealthSystem Consortium
UMA	User Managed Access
USAF	U.S. Air Force
USC	United States Code
USH	Under Secretary for Health
UX	User eXperience
VA	Department of Veterans Affairs
VACAA	VA Choice Act Assessment
VACI	VA Center of Innovation
VACO	VA Central Office
VAi2	VA Innovation Initiative
VAMC	VA Medical Center
VAMF	VA Mobile Framework

VAP	Veteran's Authorization and Preferences
VASI	VA Sensitive Information
VBA	Veterans Benefits Administration
VFA	Veteran Facing Applications
VHA	Veterans Health Administration
VHU	Vet Health University
VIMM	VistA Immunization Enhancements
VINCI	VA Informatics and Computing Infrastructure
VISN	Veterans Integrated Service Networks
VistA	Veterans Health Information Systems and Technology Architecture
VLER	Virtual Lifetime Electronic Record
VP	Vice President
VPR	Virtual Patient Record
VSA	VistA Service Assembler
VSE	VistA Scheduling Enhancements
VX	VistA Extension
WAN	Wide Area Network
WBS	Work Breakdown Structure
WSRR	WebSphere Service Registry and Repository
WWW	World-Wide Web
XML	eXtensible Markup Language

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Preface

Congress enacted and President Obama signed into law the Veterans Access, Choice, and Accountability Act of 2014 (Public Law 113-146) ("Veterans Choice Act"), as amended by the Department of Veterans Affairs (VA) Expiring Authorities Act of 2014 (Public Law 113-175), to improve access to timely, high-quality health care for Veterans. Under "Title II – Health Care Administrative Matters," Section 201 calls for an Independent Assessment of 12 areas of VA's health care delivery systems and management processes.

VA engaged the Institute of Medicine of the National Academies to prepare an assessment of access standards and engaged the Centers for Medicare & Medicaid Services (CMS) Alliance to Modernize Healthcare (CAMH)[1] to serve as the program integrator and as primary developer of the remaining 11 Veterans Choice Act independent assessments. CAMH subcontracted with Grant Thornton, McKinsey & Company, and the RAND Corporation to conduct 10 independent assessments as specified in Section 201, with MITRE conducting the 11th assessment. Drawing on the results of the 12 assessments, CAMH also produced the Integrated Report in this volume, which contains key findings and recommendations. CAMH is furnishing the complete set of reports to the Secretary of Veterans Affairs, the Committee on Veterans' Affairs of the Senate, the Committee on Veterans' Affairs of the House of Representatives, and the Commission on Care.

The research addressed in this report was conducted by Grant Thornton LLP, under a subcontract with The MITRE Corporation. Grant Thornton also subcontracted with Navigant Consulting to support the assessment.

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[1] The CMS Alliance to Modernize Healthcare (CAMH), sponsored by the Centers for Medicare & Medicaid Services (CMS), is a federally funded research and development center (FFRDC) operated by The MITRE Corporation, a not-for-profit company chartered to work in the public interest. For additional information, see the CMS Alliance to Modernize Healthcare (CAMH) website (http://www.mitre.org/centers/cms-alliances-to-modernize-healthcare/who-we-are/the-camh-difference).

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Executive Summary

Introduction

Assessment I of Section 201, Title II – Health Care Administrative Matters of the Choice Act, or "Veterans Choice Act," requires an independent assessment of the business processes of the Veterans Health Administration (VHA). Business processes refer to the revenue for direct "**VA Care**" (herein referred to as "VHA Revenue") and payment for private-sector **"Non-VA Care"** services. Per the legislation, this includes processes relating to furnishing non-department health care, insurance identification, third-party revenue collection, and vendor reimbursement, including mechanisms to avoid penalties, increase collections, and increase accuracy and timeliness to external providers and vendors. The business processes used to manage these functions are critical because they affect access, quality of care, and the overall patient experience for our Veterans and their families.

As the largest health care delivery system in the United States, VHA provides and pays for Veteran medical care. The cost of health care, similar to industry, continues to rise. The number of Veterans receiving care from VA has almost doubled since 1997.[2] In fiscal year (FY) 2014, VHA had over $156 billion in obligations and delivered direct VA Care to over 6.4 million unique Veterans. Direct VA Care alone cannot meet all Veterans' health needs; therefore, VHA outsources and pays for external providers, essentially acting as an "insurer" for medically necessary Non-VA Care that is unavailable at VHA facilities (Non-VA Care, in this report). In 2014, Non-VA Care treated approximately 1.2 million unique Veterans with more than 14 million claims valued at $5.5 billion (claims paid). This represents a 400 percent increase over the last ten years and, due to the Veterans Choice Act, the amount is expected to grow.

Financial health is critical for the long-term viability of the Veterans' health care system. To help offset the growing cost of care funded through congressional appropriations, legislation gives VHA authority as a provider to seek reimbursement from insurance companies for non-service connected treatment. Likewise, VHA has authority to seek out-of-pocket patient expenses for non-service connected care. In 2014, VHA billed approximately $6 billion for VA Care and collected almost $3.2 billion from third-party reimbursements. In 2014, VHA billed approximately $106 million and collected $85 million from Veteran (first-party) co-payments.

VHA's health care delivery system is unlike any other health system. VHA has a multitude of challenges driven by its unique combination of scale and scope, geographical dispersion, demographics served, funding model, regulation, benefit structure, and oversight. Nevertheless, the effective provision and payment of direct care and Non-VA Care services, and the business processes used to manage these functions, are critical because they affect access, quality of care, and the overall patient experience for Veterans and their families.

VHA business processes have evolved over the past several years to support VA's mission through operational improvements. VHA has historically addressed business process challenges

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[2] VERA Veterans Equitable Resource Allocation 2014, VA Under Secretary for Health, May 2104, Pg. 48.

through technology initiatives, changes in structure, and process standardization with many success stories on improving delivery of VA's mission through business processes. While improvements have been realized in recent years, additional work remains. Reports from the VA Office of Inspector General (OIG) and the Government Accountability Office (GAO) have identified weaknesses in VA's control and oversight of payments made to Non-VA entities, and have identified areas for improvement in revenue collection from third parties.

Methodology

The Assessment I team conducted interviews and discussions with executive leadership from the Chief Business Office (CBO)—which comprises both VHA Revenue Operations and Purchased Care, VHA Health Information Management Services (HIMS), and Patient Centered Community Care (PC3) vendors (Health Net Federal Services and TriWest). Additionally, we interviewed 107 VHA staff and conducted 30 process walkthroughs in the course of our site visits to the Health Administration Center (HAC), three Consolidated Patient Account Centers (CPACs), and eight VA Medical Centers (VAMCs). We analyzed 776 documents and datasets, including VHA policy documents; organization charts; financial reports; standard operating procedures; previous OIG, GAO, and internal VA Oversight reports; and other studies for insight into issues, best practices, and process improvements. Our data findings are based on available VHA data for the years 2012 to 2014. We analyzed and compared VHA performance against relevant industry benchmarks and high-performing practices to substantiate evidence-based conclusions and recommendations for improvements to VHA business financial management processes as outlined in the Choice Act. The following table lists the processes we assessed.

Table ES-1. Processes Assessed by Assessment I Team

VA Care (addresses Section 201, I, ii, and iii):	Non-VA Care (addresses Section 201, I, i, and iv):
▪ Scheduling, Pre-registration, and Registration	▪ Consults and Authorization for Care
▪ Clinical Documentation and Coding	▪ Claims Adjudication
▪ Patient Accounting	▪ Payment Processing

This assessment was conducted during a period of significant change in organizational responsibility for Non-VA Care. Section 106 of the Veterans Choice Act "[transferred] the authority to pay for hospital care, medical services, and other health care furnished through non-Department of Veterans Affairs providers from the VISN and medical centers of the Department of Veterans Affairs, to the CBO of the Veterans Health Administration of the Department of Veterans Affairs."[3]

The implementation resulted in the consolidation of claims processing staff, provided CBO with the authority to standardize processes and procedures to pay Non-VA claims, and enforce

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[3] Veterans Access, Choice, and Accountability Act of 2014

related rules and regulations across VAMCs nationally. The transfer of authority and responsibility to CBO occurred on October 1, 2015. As the timing of our assessment coincided with this transition, we encountered business processes that were in varying stages of consolidation, redesign, and standardization. We also note that due to timing, most of the data we collected and analyzed related to Non-VA Care was for claims paid before CBO accepted operational responsibility as provided by the Choice Act.

Summary of Findings

VHA Revenue—VHA is Not Optimizing Revenue Due to Ineffective Veteran Insurance Identification, Clinical Documentation and Coding, and Cultural Barriers.

Ineffective Veteran-facing (front-end) VAMC processes for insurance identification, and clinical documentation, and outpatient coding issues result in CPAC staff members having to address issues "after-the-fact." The issues correspond to $581 million in denials from insurance companies in 2014.

For first-party (Veteran) co-payments, VAMC staff members are not collecting the co-payments at the point-of-service and CPACs must collect the co-payments weeks to months after the date of service. Further, based on feedback from VAMC leadership, Veterans do not always understand the need to provide insurance information and VHA staff can be reluctant to ask for it.

Revenue processes span across VAMCs and CPACs; however, only the CPACs are accountable for revenue collection and the associated performance outcomes. VAMC commitment is required to monitor and correct issues early in the process to reduce collections delays and denials.

Non-VA Care Payments—VHA Does Not Have Adequate Infrastructure and Streamlined Processes to Pay Non-VA Care Claims Timely and Accurately.

VHA's complex and disparate processes for paying Non-VA Care claims are confusing to Non-VA providers and VHA staff, resulting in inconsistencies in authorization and payment practices. VHA's mechanisms to pay Non-VA claims timely and avoid delinquent payments, particularly at select VISNs. However, inadequate data analytics indicate the issues could be more widespread. VHA mechanisms to avoid delinquent payments to external providers are inadequate putting VHA at risk for significant interest penalties.[4]

Inadequate claims submission guidance discourages widespread use of electronic claims submission. VHA receives only a small percentage of non-VA claims electronically, which increases workload, manual processing, and the likelihood for payment errors. Low staff retention and a 20 percent vacancy rate further exacerbate delays and errors in claims payments.

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[4] There is an ongoing VA Office of General Counsel review of the universe of payments to which the Prompt Payment Act applies.

VHA established Patient Centered Community Care (PC3) to expand Non-VA care access by entering into national contracts with Healthnet and TriWest to provide Veteran health care on a fee for service basis. Feedback from VA employees interviewed indicate that PC3 is experiencing challenges due to gaps in the non-VA provider network.

Information Technology—Lack of Automation and Integration Prevent VHA from Optimizing Performance in both Collections and Payments.

VHA will not be able to make necessary improvements in their billing and collection processes without modern, automated technology. Antiquated systems used to support the revenue collection processes for third-party reimbursements and first-party (Veteran) co-payments do not provide needed functionality. These systems require significant manual intervention and processing that creates an environment prone to human error and delayed claims payments from insurers.

VHA software tools and functions do not interoperate across clinical and revenue management systems and their limited interoperability with other internal and external systems inhibits VHA's ability to bill and collect revenue accurately and rapidly.

Few Non-VA providers submit their claims to VHA electronically, relying instead on paper claims, which reduces payment timeliness and accuracy. In addition, staff members process claims manually compared to private-sector benchmarks of 79 percent automation.

Oversight and Metrics—VHA Lacks Certain Performance Reporting to Provide Effective Oversight and Proactive Process Improvements for Collections and Payments.

VHA lacks standard national reporting of key performance metrics for timely insurance identification and verification across VHA, inhibiting visibility into VAMC insurance capture performance of VAMCs. In addition, VHA cannot establish effective productivity standards and monitor Non-VA Care staff performance because processes are inconsistent across VAMCs and VISNs. Current decision support capabilities are not sufficient to provide oversight and management of Non-VA Care claims processing and payment. Proactive and retrospective processes are in place to find inaccurate payments, but these practices are highly manual.

Summary of Recommendations

Below is a summary of high-level recommendations, accompanied by duration estimates for completion.

Recommendation 1—VHA: Develop a long-term comprehensive plan for provision of and payment for non-VA health care services (180 days).

The expansion of Non-VA Care over the last decade has resulted in a combination of programs that lack sufficient infrastructure to successfully perform the business functions today or meet the demands of the future. The demand for Non-VA Care will be determined, in large part, by the decisions made regarding VHA care and, in turn, by VHA's capacity to meet demand for services. For example, decisions about VHA facilities and workforce will affect demand for Non-

VA Care, as will changes in the demographics and clinical needs of Veterans. VHA should adjust the plan as necessary depending on ongoing studies regarding VHA's capacity.

Recommendation 2—VHA: Establish a formal governance model that allows CBO and VISN leadership to converge, aligning interests and accountability (90 days).

The growth of both VHA and Non-VA Care requires an increased focus on business processes to sustain care for an increasing Veteran population. An organizational structure that balances central management with local autonomy is vital to VHA. VHA must align accountability and interests at the leadership level of CBO and the VISNs. Under the current alignment, CBO is dependent upon the VAMCs and VISNs to execute core business functions. With CBO and VISNs reporting separately to the VHA Office of the Under Secretary, VAMC priorities do not always align with CBO's. Placing both organizations under a single governance structure will promote convergence of interests, accountability, cooperation, and coordination.

Recommendation 3—VHA: Standardize policies and procedures for execution of Non-VA Care, particularly the Choice Act, and communicate those policies and procedures to Veterans, VHA staff, VHA providers, and Non-VA providers (90 days).

Examination of the claims processing protocols and operations revealed opportunities to standardize the manner in which VHA implements Non-VA Care and the Veterans Choice Act across the organization. Standardization will enable VHA to communicate processes and benefits effectively to both patients and Non-VA providers.

Recommendation 4—VHA: Employ industry standard automated solutions to bill claims for VHA medical care (revenue) and pay claims for Non-VA Care (payment) to increase collections, to improve payment timeliness and accuracy (2 years).

The growth of both VHA and Non-VA Care over the last decade has produced a combination of programs that lack sufficient technology to support the execution of routine business functions. In large part, these deficiencies result in a high degree of manual intervention required to bill and pay claims. The focus on automation should expand to include integration with front-end processes such as scheduling, insurance identification and verification, medical records, and coding.

Recommendation 5—VHA: Consider and further evaluate aligning the Patient Intake and Health Information Management Service (to include Coding) functions under CBO (180 days).

An emerging practice in private-sector health care is to align all components of the revenue cycle under the Chief Financial Officer (CFO) linking job responsibilities to financial performance. VHA's revenue cycle activities currently owned by the VAMC/VISN are Scheduling, Pre-Registration, Registration and Coding—all primary functions for identifying and verifying insurance, and ensuring accurate and timely first- and third-party collections. The private sector has recognized that aligning these functions under a single organization improves accountability and revenue cycle performance. Our findings indicate that the separation between business process and organizational structure within the VHA revenue cycle processes has resulted in a lack of coordination and consistency in these functional areas. Given the size

and complexity of VHA compared to the private sector, any realignment needs to be carefully considered. Added to this, the VHA CBO recently completed a very large organizational consolidation of Non-VA Care employees and adding significantly more responsibility to the CBO at this time may be difficult for the CBO to absorb in the near-term.

Recommendation 6—VHA: Align performance measures to those used by industry, giving VHA leadership meaningful comparisons of performance to the private sector (6 months).

VHA should continue its progress toward implementation and management reporting of common industry performance measures. Once these practices are in place, VHA should identify performance standards that balance meeting VHA requirements with achievable, incremental performance improvements. This approach would immediately allow VHA to leverage common industry measures and benchmarks to conduct analysis, make informed decisions, and help to bring VHA performance into congruence with private-sector benchmarks.

Recommendation 7—VHA: Simplify the rules, policies, and regulations governing revenue, Non-VA Care, eligibility, priority groups, and service connections, educate all stakeholders, and institute effective change management (2 years).

Simplifying the rules, policies, and regulations will allow VHA to execute business processes uniformly, and to communicate clearly with all stakeholders.

Recommendation 8—VHA: Identify, share and institutionalize best practices across the agency (6 months).

There are numerous examples of business practices in VHA (as described in section 4 of this report) that produce results that significantly exceed VHA averages. VHA should develop a recurring process to examine these peer organizations' "positive deviants" and determine where successful practices apply to VHA business processes. Doing so will enable VHA to not only standardize, but also improve upon current best practices.

Moving Forward

Our recommendations reflect our independent assessment of the effectiveness of ongoing operations, and opportunities to improve financial management of payments, reimbursements, and collections for VA and Non-VA Care. We believe these recommendations provide the next steps in building business operations that support VHA's overall health care delivery mission, and improve the relationship with business partners and Veterans alike.

Assessment I Report Organization

This report includes ten chapters and seven appendices.

Chapters 1 through 3 provide an introduction, an overview of our study methodology, and a summary of the VHA organizations that we examined during our assessment.

Chapter 4 identifies some of the best practices we encountered during our site visits and provides recommendations that can assist in spreading these best practices across VHA.

Chapter 5 summarizes the overarching findings, key sub-findings, and associated recommendations that are the core of our assessment report. This chapter also includes some additional considerations for the longer term.

Chapters 6 through 9 provides details of our analysis, including topical background information to enhance reader understanding, explicit references to the data-driven evidence, interview results, and findings and conclusions from our financial analyses. We also identify strategic and actionable, tactical-level recommendations and actions that VHA can take to improve their processes and outcomes.

- Chapter 6 covers VA Revenue—Billings and Collections.
- Chapter 7 covers Non-VA Care—Payments.
- Chapter 8 addresses Information Technology.
- Chapter 9 discusses Oversight and Metrics.
- Chapter 10 concludes the report.
- Appendices A through F provide additional details for further review and information.

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1 Introduction

Assessment I of Section 201, Title II – Health Care Administrative Matters of the Choice Act, or "Veterans Choice Act," requires an independent assessment of the business processes of the Veterans Health Administration (VHA). Business processes refer to the revenue for **VA Care** ("VHA Revenue") and payment for private-sector **"Non-VA Care"** services. The business processes used to manage these functions are critical because they affect access, quality of care, and the overall patient experience for our Veterans and their families. This report assesses VHA's business processes.

VHA, a separate administration with the Department of Veterans Affairs, or "VA," seeks to achieve key outcomes from this assessment such as improved patient health and well-being, increased patient satisfaction, and increased cost-effectiveness. To do this, VHA must modernize business processes by making improvements in people management, processes, and technological advances.

Health care costs for Veterans are increasing just as health care costs are rising across the industry. The number of Veterans receiving care from VHA has almost doubled since 1997.[5] In Fiscal Year (FY) 2014, VHA had over $156 billion in obligations and approximately 325,000 full-time equivalent (FTE). VHA maintains the largest integrated health care delivery system in the United States and provides Veterans with direct care provided by VHA clinicians in a VHA facility (VA Care in this report). In FY 2014, VHA delivered direct VA Care to over 6.4 million unique Veterans, including 600,000 inpatients nationwide at 152 VA Medical Centers (VAMCs), 820 Community Based Outpatient Clinics (CBOC), and several other clinics/centers (VSSC, 2014).[6,7]

Direct VA Care alone cannot meet all Veterans' health needs; therefore, VHA outsources and pays for external providers, essentially acting as an "insurer," for this medically necessary care that is unavailable at VHA facilities (herein referred to as "Non-VA Care"). In 2014, there were approximately 1.2 million unique Veterans treated through Non-VA Care with over 14 million claims valued at $5.5 billion. According to VA's CBO, this is a 400 percent increase over the last ten years in Non-VA Care claims. Per the interviews we conducted, Non-VA Care is expected to grow, particularly due to the Veterans Choice Act.

Financial health is critical for the long-term viability of the Veterans' health care system. To help offset the growing cost of care funded through congressional appropriations; United States Code (USC) 1729, Title 38 provides VHA authority as a provider to seek reimbursement for direct VA Care from third-party payers (e.g., Blue Cross, Aetna, and other insurance companies) for non-service connected treatment. VHA also has the authority to collect co-payments for VA Care from Veterans for non-service-connected[8] disability medical care. In 2014, VHA billed

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[5]VERA Veterans Equitable Resource Allocation 2014, VA Under Secretary for Health, May 2104, Pg 48.

[6]VA 2014 Performance and Accountability Report, VA Office of Management, November 2014, Pg 1.

[7]U.S. Department of Veterans Affairs. (2015, May 11). Where do I get the care I need? [Veterans Health Administration] Retrieved from http://www.va.gov/health/findcare.asp

[8]Note: Non-service connected disability medical care refers to care for a Veteran discharged from active military duty without a VA-adjudicated illness or injury incurred in or aggravated by military service.

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approximately $6 billion for VA Care and collected almost $3.2 billion from third-party reimbursements in accordance with USC 1729, Title 38. In 2014, VHA collected an additional $85 million from Veteran (first-party) co-payments. Figure 1-1 illustrates the business process flow for both VA and Non-VA Care.

Figure 1-1. First- and Third-Party Interaction across the Revenue Cycle[9]
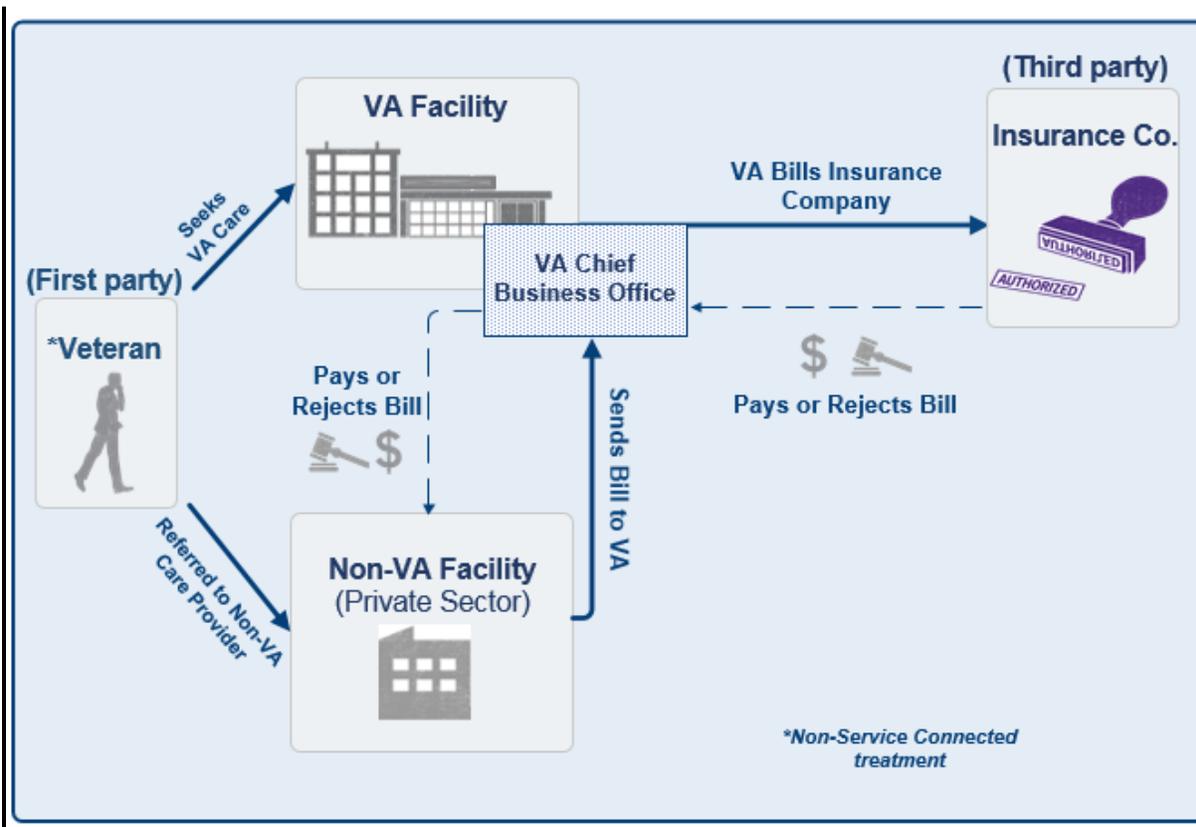
Source: Grant Thornton's rendition of VHA's Business process flow

As the largest integrated health care delivery system in the country, VHA has a multitude of challenges driven by the organization's size, magnitude of care and services, and geographical dispersion. To compare with a private-sector provider considered one of industry's best in class, Kaiser Permanente is responsible for millions of "lives," similar to VHA. In contrast with VHA, Kaiser's responsibilities are concentrated in a few distinct areas, while VHA's responsibilities are geographically dispersed across the country, in Puerto Rico, the Philippines, and other locations where Veterans live abroad. This assessment provides insight into VHA financial management by focusing on business process challenges and identifying opportunities to increase revenue reimbursement collection for direct VA Care and to minimize payment issues to external Non-VA Care providers.

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[9]Note: Under the Veterans Choice Act, the Non-VA Provider also bills Third Party Insurance.

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1.1 Scope

As defined in Paragraph (I), Section 201, Title II – Health Care Administrative Matters of the Choice Act legislation, *Business processes of VHA includes processes relating to furnishing non-Department health care, insurance identification, third-party revenue collection, and vendor reimbursement, including an identification of mechanisms as follows:*

i. *To avoid the payment of penalties to vendors*

ii. *To increase the collection of amounts owed to the Department for hospital care, medical services, or other health care provided by the Department for which reimbursement from a third party is authorized and to ensure that such amounts collected are accurate*

iii. *To increase the collection of any other amounts owed to the Department with respect to hospital care, medical services, and other health care and to ensure that such amounts collected are accurate*

iv. *To increase the accuracy and timeliness of Department payments to vendors and providers*

To meet the legislation, Assessment I (Business Processes) established goals and identified questions to determine the effectiveness of and identify improvement opportunities for VHA financial management of payments, reimbursements, and collections for VA and Non-VA Care processes.

Note: Throughout this report, the term "providers" refers to physicians, and "clinicians" is the broader reference to physicians, nurses, therapists, and medical professionals.

1.2 Assessment I Relationships to Other Assessments

Assessment I (Business Processes) has relationships with other assessment areas due to overlapping processes and tools that required cross-assessment coordination and collaboration. As appropriate, we refer to the following assessment reports for further analysis and additional details.

- **Assessment C—Care Authorities:** Assessed the legislative mandates and VA/VHA directives that drive many of the required processes for revenue collection and claims payments. We coordinated with C to address relevant Non-VA Care drivers and constraints.
- **Assessment E—Workflow – Scheduling:** Assessed the processes for scheduling appointments at each medical facility. Scheduling, part of the Patient Intake process, directly affects the collection of Veterans' insurance and other information needed to collect the Veteran co-payments and third-party reimbursements in Assessment I's scope.
- **Assessment F—Workflow – Clinical:** Assessed the workflow processes and tools for inpatient medical services and care. Clinical coding and documentation workflow processes and tools affect third-party reimbursement collections for VA Care under Assessment I (Business Processes).

- **Assessment H—Health Information Technology:** Assessed the IT strategies that support clinical documentation and enterprise-wide applications for management of care and business operations. IT and automation support are essential for I's business processes.

1.3 Limitations

This assessment has several important limitations including that we conducted the assessment under an abbreviated timeframe, conducted a small sample of site visits, and were limited to the data available from VHA. We interviewed stakeholders at all levels of the agency across both the Chief Business Office (CBO) and VHA. While this approach offered tremendous insight, we recognize that the perspectives are limited to the sample of stakeholders.

As described in Chapter 7, this assessment was conducted during a period of significant change in organizational responsibility for Non-VA Care. Section 106 of the Veterans Choice Act "[transferred] the authority to pay for hospital care, medical services, and other health care furnished through non-Department of Veterans Affairs providers from the VISN and medical centers of the Department of Veterans Affairs, to the CBO of the Veterans Health Administration of the Department of Veterans Affairs."[10] The implementation resulted in the consolidation of Non-VA Care claims processing staff, provides the CBO with the authority to standardize processes and procedures to pay Non-VA Care claims, and enforce related rules and regulations across VAMCs nationally. As the timing of our assessment coincided with this transition, we encountered business processes that were in varying stages of centralization, redesign, and standardization. Our approach was to assess the current state of business processes, while providing perspectives into VHA's planned and ongoing transition activities. We also note that due to timing, most of our data analysis did not contain substantive data on business processes as impacted by the Choice Act. Our data largely reflects the legacy structure and responsibilities for Non-VA Care.

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[10]Veterans Access, Choice, and Accountability Act of 2014

2 Methodology

Our methodology includes analytical principles supported by sound evaluation, process assessment, and qualitative data collection practices that led to evidence-based findings. We conducted discovery and analysis activities, generated findings and developed unbiased, data-driven conclusions, and made recommendations to improve VA's business processes. Our methodology has three phases: Planning and Discovery, Site Visit and Data Analysis, and Findings and Recommendations.

2.1 Phase 1: Planning and Discovery

Design Assessment: We conducted a broad-based examination of the business processes and identified areas of potential risk and opportunities for improvement. Key activities include:

- Analyzed legislation requirements and identified key study areas.
- Defined the baseline environment of current processes and IT infrastructure and identified anticipated, future needs driven by process and technical improvements.
- Identified qualitative and quantitative assessment effects on engagement, revenue billing, clinical data exchange, experience of providers, and relevant Veteran experience.

We also conducted an analysis that focused on the assessment activities, prioritized our efforts, and validated all activities. Key activities include:

- Designed site survey assessments to highlight commonalities and gaps, and on-site assessments to develop a first-hand understanding and the ability to answer questions and conduct interviews.
- Identified commercial benchmarks that most closely align to VHA business processes and analyzed gaps between VHA and commercial processes.
- Coordinated with VHA to provide input and validate our assessment design and process. Revised the design to meet the people, technology, and process objectives.

Discovery and Data Collection: We identified data sources and information required to conduct the assessment, including necessary policies, procedures, organizational information, prior assessments, audit reports, operational information, key performance indicators, and other required information. Our data findings are based on available VHA data for the years 2012 to 2014. In coordination with VHA stakeholders, and thanks to their proactive and responsive efforts, we obtained about 90 percent of the data we requested. The remaining datasets we requested either were not fully available or did not exist. Refer to Appendix C for more background on our data requests. We also conducted a VAMC-wide data call for insurance capture buffer exceptions to assess advance insurance verification for scheduled patients and pre-registration rates to measure progress in collecting required patient information at time of check in. We were very successful with the data call and received an 88.5 percent response.

Despite the magnitude of recent analyses and reports previously completed for VHA, we carefully reviewed the data and information we collected related to VHA's business processes. Refer to Appendix E for the listing of VA Care and Non-VA Care reports that we reviewed.

During this phase, we established criteria and selected the sites, as summarized in Table 2-1, to visit for our assessment. The condensed timeframe of this assessment required that we use a sampling approach based on our selection criteria. Refer to Appendix B for additional details.

Table 2-1. Site Selection Criteria

Team	Criteria
VA Care	**Consolidated Patient Account Center (CPAC)** • 1 Small, 1 Medium, and 1 Large based on claims volume **VA Medical Center (VAMC)** • 4 VAMCs supported by CPACs above and/or a range of performance on VHA metrics
Non-VA Care	1 Health Administration Center (HAC) VAMC—1 High Performing (High Volume of Claims, Exceptional Timeliness Metrics) VAMC—2 Average Performing (both accuracy and timeliness) VAMC—1 Low Performing VAMC (High Interest Rates, Poor Timeliness)

2.2 Phase 2: Site Visit and Data Analysis

Our team evaluated the people, process, and technology aspects of VHA Revenue and Non-VA Care Payment business processes. As part of each assessment, we conducted document reviews, data analyses, site visits, interviews, and process walkthroughs.

Site Visits: We conducted site visits at the seven VAMCs, three CPACs, and HAC, and examined key functions for both VA Care and Non-VA Care processes as shown in Table 2-2. As part of the site visits, our team conducted interviews with process performers, clinicians, and business managers. We developed our interview questionnaires for our site visits based on industry standards, protocols, and best practices.

Table 2-2. Site Visits Performed and Processes Evaluated

Process	Sites	Key Functions
VA Care	3 CPACs	Billing and Collections
VA Care	4 VAMCs	Scheduling, Registration, Insurance Capture, Documentation, and Coding
Non-VA Care	1 HAC	Non-VA Care Guidance, Policy and Procedures, Training, and Data Analytics
Non-VA Care	4 VAMCs	Non-VA Care Authorization, Receipt of Claim, Processing (e.g., Edit checks, Pricing), and Payment

Data Analysis: In addition to the site visits, we conducted a series of expert stakeholder interviews, reviewed VA materials such as policy documents, organization charts, and standard operating procedures, analyzed and compared VHA performance against relevant industry

benchmarks, and reviewed and analyzed previous studies and reports for additional insight into issues, best practices, and potential process improvements.

We tracked, collected and analyzed 77 documents and datasets from our VHA stakeholders, and collected another 645 documents from our own search efforts. We also reviewed and analyzed 54 documents and datasets that we collected through joint requests with other teams. Through these efforts, we obtained Performance and Operations Web-Enabled Reports (POWER) and Informatics reports with volumes of performance and financial data, which we analyzed and compared against the benchmarks and VHA standards. We also analyzed the insurance capture and verification data we received from the VAMC-wide data call. Table 2-3 summarizes the activities we conducted for this assessment. Refer to Appendix D for more detail on standards and benchmarks.

Table 2-3. Interviews, Benchmarks, and Prior Studies

Interviews and Site Visits Conducted	**Executive Leadership**	• Chief Business Office, including Revenue Operations and Purchased Care • Health Net Federal Services and TriWest • Health Information Management Service (HIMS)
	Site Visits	• Visited 3 CPACs, 1 HAC, and 8 VAMCs • Interview 63 staff members for VA Care • Interviewed 44 staff members for Non-VA Care • Conducted 30 process walkthroughs
Analysis of Industry Benchmarks	**VA Care**	• Healthcare Financial Management Association (HFMA)
	Non-VA Care	• American Health Insurance Plans (AHIP) • American Medical Association (AMA) • RSM McGladrey • Medicare/Medicaid
Analysis of Previous Studies	**VA/Non-VA Care**	• Office of Inspector General (OIG) Reports • Government Accountability Office (GAO) Reports • Internal VA Oversight Reports (e.g., Internal Controls, Improper Payments) • Industry White Papers (e.g., National Academy of Public Administration)

Benchmarks and VHA Standards: For VA Care revenue collection processes, we used the private-sector Healthcare Financial Management Association's (HFMA) benchmarks and best commercial practices for evaluating VHA performance, to the extent possible. For example, we used payment denial rates as a benchmark in our evaluation. If required, and possible, we adjusted the data in order to conduct an "apples-to-apples" comparison. For VHA data/metrics that could not align to commercial metrics, we used VHA standards of performance for our analysis. For example, VHA metrics for coder productivity did not fit the HFMA benchmark, so we used VHA's standard for coding turnaround time for our evaluation criteria. For more detail, refer to Appendix D.

For Non-VA Care, we used the private-sector American Health Insurance Plan (AHIP), American Medical Association (AMA), RSM McGladrey, Medicare and Medicaid benchmarks to the extent

possible. For payer-related benchmarks, we sought to include Sherlock data[11] in our assessment, but were unable to obtain the necessary licensing rights. We adjusted VHA's data for a good comparison against the industry benchmarks, as needed. We used VHA's standards when we could not make an adequate comparison. We examined process metrics including payments, accuracy, timeliness, interest payments, and mode of claims submissions. Refer to Appendix D for more detail on standards and benchmarks.

2.3   Phase 3: Findings and Recommendations

In this phase, we analyzed the collected data, comparing VHA data against previous studies and industry benchmarks, and evaluated the interviews and site visits results to identify findings and potential recommendations. We synthesized our findings to highlight those that are most important and developed strategic and tactical recommendations. We based these recommendations on best practices and industry standard practices used by other providers to improve their processes and outcomes.

We reviewed and analyzed several GAO, VA OIG, and prior studies and investigations conducted to evaluate VHA revenue collection and claims payment processes. Several findings in our report reflect historical issues as identified in previous reports. We conducted specific root-cause analyses of these findings and went beyond strategic, high policy-level guidelines typically found in prior reports and identified tactical-level, actionable recommendations that assist with near-term, incremental improvements.

We also considered input from an independent Blue Ribbon Panel, comprised of executive-level health care industry leaders, who provided expert opinion and input throughout the assessment activities. The panel members possessed a thorough understanding of health care industry best practices and provided advice and feedback on the emerging findings and recommendations.

The results address performance across VHA business processes to improve revenue and payment with key recommendations to help achieve critical outcomes of improving the Veteran experience, decreasing Veteran medical costs, and ensuring the long-term viability and success of VHA's Veteran health care program.

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[11] Note: Sherlock is a well-known, industry standard used by large insurance plans, Medicare and others for benchmarking, staffing and budgeting.

3 Key Organizations and Stakeholders Examined

Several key VHA organizations have major roles and responsibilities to execute and oversee the business processes related to collections for VA Care and claims payments for Non-VA Care. This section identifies and explains the key organizations that influence VHA's business processes related to revenue and payment.

Figure 3-1 illustrates the key VHA organizations and the following paragraphs describe their related roles in more detail.[12] VHA is a separate administration under VA. Within VHA, the Office of the Deputy Under Secretary for Health for Operations and Management (DUSHOM) leads VHA operations and operates VHA health care systems, VAMCs, systems of clinics, and outpatient clinics. The Assistant DUSH for Administrative Operations manages 12 components that provide administrative and operational support services for the VHA health care system, with the CBO being most relevant for this assessment.

Figure 3-1. Key VHA Organizations Assessed Relevant to Revenue Collection and Claims Payments
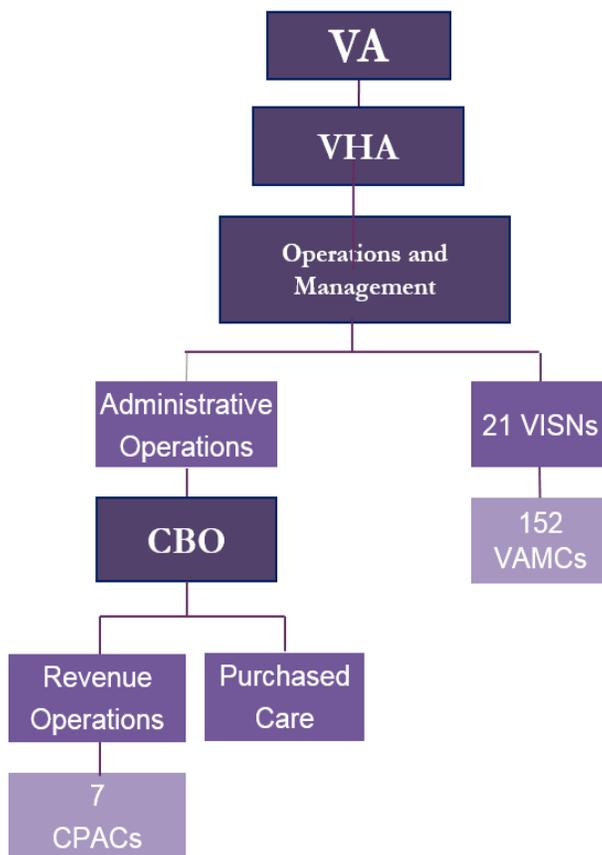
Source: Grant Thornton's rendition of key VHA organizations that are relevant to revenue collection and claims.

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[12] Note: VA 2014 Functional Organizational Manual—v2.0a, Description of Organization Structure, Missions, Functions, Tasks and Authorities, is the primary source for the summarized information in this section.

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3.1 Chief Business Office (CBO)

Located in Washington, D.C., the CBO is responsible for all VHA Business Operations, including Purchased Care and Revenue Operations. The CBO develops policies, procedures, and training for VAMCs and provides overall direction and guidance for advancing business practices that support patient care and health benefits delivery. This group is responsible for compliance with business standards and requirements, including implementing appropriate internal controls and performance measures. The CBO manages three business lines: Revenue Operations, Purchased Care, and Member Services with the first two relevant to this assessment.

3.1.1 CBO Revenue Operations

The CBO Revenue Operations business line manages the following responsibilities:

- Administering first- and third-party collections
- Developing and providing overall direction, guidance, procedures, and training for the CPACs
- Standardizing processes and providing technical expertise in revenue processes
- Conducting metric-based, operational analysis.

Revenue Operations is also responsible for eBusiness Solutions and Business Information, not shown above. The Office of eBusiness Solutions develops and implements leading electronic Data interchange applications throughout VHA. The Business Information Office provides data and analysis to support VHA's legislative and process-improvement initiatives.

Consolidated Patient Account Centers (CPAC) – The CPACs standardize and coordinate activities related to billing and collections for all health care services furnished to Veterans for non-service-connected medical conditions. The CPACs are chartered to apply commercial industry standards for measures of access, timeliness, and performance metrics with respect to revenue enhancement of the Department.[13] The CPACs generate bills from VAMC-coded non-service connected disability health care admissions and encounters, send them to third-party insurance carriers, then collect and process payments. To improve coordination and communication between the VAMCs and the CPACs, staffs are located in the facilities as well as each regional CPAC. CPACs perform back-end revenue processes while each of the VAMCs maintain ownership of key Veteran-facing revenue functions.[14]

> *CPACs perform back-end revenue accounting processes, while VAMCs own key front-end Veteran-facing functions.*

There are seven CPACs assigned to cover different regions throughout the country. The CPAC locations are: Asheville, NC (Mid-Atlantic—MACPAC); Middleton, WI (North Central—NCCPAC); Smyrna, TN (Mid-South—MSCPAC); Lebanon, PA (North East—NECPAC); Orlando, FL (Florida &

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[13] Public Law 110-387, Section 406.

[14] VA 2014 Functional Organizational Manual—v2.0a, Description of Organization Structure, Missions, Functions, Tasks and Authorities, Pg 133.

Caribbean—FCCPAC); Leavenworth, KS (Central Plains—CPCPAC); and Las Vegas, NV (West—WCPAC). Additional background and history of the CPAC is located in Section 6.

3.1.2   CBO Purchased Care (CBOPC)

Located in Denver, CO, CBOPC is the center of external Non-VA Care and associated claims payment processes. CBOPC is responsible for the delivery of health care benefits through enterprise program management and oversight of Purchased Care functions. This includes overall management of Health Care Payer Programs, including development, implementation and oversight of legislative, regulatory, and policy standards for the program areas. CBOPC oversees the Non-VA Medical Care (Fee) Program and manages business and systems support for the program areas.

- CBOPC is responsible for the development of administrative processes, policy, regulations and directives associated with the delivery of the Non-VA Care program. Section 106 of the Veterans Choice Act directed VHA to transfer the authority to pay for hospital care, medical services, and other health care furnished through Non-VA providers from the VISN and VAMCs to the CBO. CBO is now responsible for all claims processing and payment operations and staff. Supervisors and claims clerks manage and conduct the day-to-day activities of the Non-VA Care program. These activities include scanning claims, reviewing administrative eligibility, processing claims for payment, answering Non-VA provider inquiries.

CBOPC manages offices responsible for the following activities:

- Administering VistA Fee, Central Fee, Fee Payment Processing System, and Fee Basis Claims Systems (FBCS)
- Developing and maintaining contractual relationships with Non-VA (private-sector) providers, including Patient-Centered Community Care (PC3) relationships
- Processing claims and payments, and adjudicating benefits.

3.2   Veterans Integrated Service Networks (VISN)

VHA designed VISNs to be the basic budgetary and planning unit of the VHA. There are 21 VISN offices organized by geographic regions throughout the country, with each VISN providing a shared system of care to provide Veterans better and greater access to care. Each VISN delivers medical care through a network of VAMCs, CBOCs, and related facilities located within their geographic region. Each VISN has budget and administrative responsibilities, including contract services, long-term care, sharing-agreements, and operational oversight for associated facilities.

3.2.1 Department of Veterans Affairs Medical Center (VAMC)

There are 152 VAMCs functioning as the primary care delivery operations within VA's structure.[15] Each VAMC is associated with a VISN in its geographical region and supported by a regional CPAC. As it relates to revenue collection, VAMCs are responsible for the patient registration, scheduling, clinical documentation, and coding.

- When VAMCs are unable to provide the needed care, VAMCs refer Veterans to private-sector providers, often referred to as "Non-VA providers." VAMC clinicians generate the referrals for Non-VA Care. VAMC authorization staff members are responsible for reviewing these referrals, creating authorizations, and scheduling appointments for Veterans in the community.

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[15] U.S. Department of Veterans Affairs. (2015, May 11). Where do I get the care I need? [Veterans Health Administration] Retrieved from http://www.va.gov/health/findcare.asp

4 Best Practices

VHA has seen significant opportunities for improvements across business processes. Our site visits and interviews revealed several best practices across VHA. We conducted root cause analyses for sites where performance results significantly exceeded VHA averages. VHA should examine these peer organizations' best practices to determine applicability across other sites. This section summarizes some of the proven ideas and initiatives that could help VHA achieve some needed process improvements throughout the organization. This section also includes recommendations that can help "institutionalize" these improvements throughout VHA.

4.1 Identified Best Practices

1. **Nation-wide implementation of CPAC structure following successful MACPAC pilot: VHA opened the first Consolidated Patient Account Center (CPAC) in October 2009 as a successful pilot facility.**

   - Following successful implementation of the MACPAC, all VAMCs transitioned their Patient Accounting operations to one of seven CPACs. The transition to the CPAC structure is industry-modeled to centralize and enhance billing and collection activities. The consolidation of traditional revenue program functions into regionalized centers closely aligns VHA billing and collections activities with industry best practices. The CPAC consolidation enabled VHA to structure and standardize key billing and collection functions.

2. **Non-VA Care claims timeliness improved due to new workload distribution approach.**

   - Sixty days after implementing the Fee Basis Claims System (FCBS), the Minneapolis VAMC within VISN 23 had a backlog of claims exceeding 30 days as the FBCS process required claims distributed alphabetically to each processor. By changing the process and giving the supervisor control over the flow and distribution of claims, the unit optimized productivity as the supervisor assigned claims to processors based on workload.

3. **Although manual, pre-authorization and pre-payment reviews reduced Non-VA Care error rates.**

   - To ensure accuracy of claims payment, the Minneapolis VAMC developed a workaround to conduct pre-authorization and pre-payment reviews of each claim. In the absence of an ideal automated solution, the workaround resulted in an FY2014 error rate of less than one percent.[16] When the pre-authorization and pre-payment reviews identify errors, a supervisor works with the clerk to provide corrective training and ensure finalization of the payment. This process, although manual, is beneficial until automation of the claims payment process is achieved. The end state best practice is for an automated review with the appropriate analytics followed by a manual review of a sample of claims to achieve an error rate of less than one percent. Note that these claims reviews require subject matter expertise on the Non-VA Care program.

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[16] Note: The error rate of less than one percent was identified by using raw data from the 2014 IPERIA report.

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4. **High and Accurate VAMC Insurance Capture Rates Improved Associated CPAC Revenue Collection.**
   - Through an evaluation of our site visits and compiled data, we noted three CPACs and their supported VAMCs were using specific leading practices regarding VMAC insurance capture processes to enable better revenue collection performance. The MACPAC in Asheville, NC, the NCCPAC in Middleton, WI, and the FCCPAC in Orlando, FL, had the lowest error rates in insurance capture (based on a VAMC-wide data call) and, as a result, are leading performers in revenue collection. Insurance identification errors are missed opportunities for VAMC Patient Intake clerks to capture Veteran's insurance information.
     - *Centralized check-in and VAMC leadership support improves insurance identification:* The Asheville VAMC conducts insurance identification through a centralized check-in station allowing patients to register in one location. The Asheville VAMC Director requires all patient intake clerks to ask for third-party insurance cards at the central check-in station. In reviewing Asheville's collections-to-billings indicator, they are performing at 52.2 percent, which significantly exceeds other VAMC's 35–45 percent performance range. The use of centralized check-in and the VAMC Director's support of insurance capture requirement contribute to high collections-to-billing performance at the associated CPAC and is consistent with industry practice.
     - *CPAC and VAMC insurance identification monitoring improves performance:* VISN 8 in North Florida/South Georgia developed an insurance identification report that monitors insurance capture by VAMC department and patient intake clerk.[17] VAMC management monitors this report to identify and correct low insurance identification performers and resolve the insurance capture challenges. In reviewing performance indicators, the FCCPAC is the third best CPAC in insurance capture performance and collections as a percent of billings performance metrics. The regular VAMC use of insurance identification tools positively affects CPAC performance in billings and collections.
     - *CPAC and VISN teaming streamlines Accounts Management workflow processes to improve revenue collection:* The NCCPAC Accounts Management team teamed with VISN 10, 11, and 12 to create a structure that assigns Accounts Management clerks to specific VISNs within the CPAC. This allowed CPAC staff to improve communication and coordination with VAMC Patient Intake staff. CPAC Accounts Management staff achieved a better understanding of the specifics for a particular VISN (e.g., facility revenue, payers and specific denials) and, as a result, addressed issues better and more quickly. The Accounts Management team also generates site-specific data reports to identify tactical challenges. The streamlined workflow processes are a best practice that contributes to NCCPAC's performance as second of all CPACs at insurance capture and the best at collections to billings.

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[17] Note: Most VAMCs do not monitor insurance capture by department or patient intake clerk; VAMCs typically monitor insurance capture by site.

4.2 Recommendations for Expanding Best Practices

As described in Section 4.1, our site visits and interviews revealed several best practices for VAMCs, CPACs, and VISNs; however, the national adoption of these best practices is inconsistent. We recommend that VHA develop mechanisms for regular examination of best practices to determine where successful practices apply and implement these practices across similar VHA business functions. For example, VHA and CBO should leverage existing PMO meetings across both Purchased Care and Revenue Operations to include an action item to identify, share, and institutionalize best practices across VHA. Sharing and institutionalizing best practices will allow VHA to improve upon them as business processes continue to evolve.

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5 Overarching Findings and Recommendations

5.1 VHA Revenue: VHA is Not Optimizing Revenue Due to Ineffective Veteran Insurance Identification, Clinical Documentation and Coding, and Culture Barriers.

This finding relates to the billing and collection processes associated with the direct medical care VHA provides in its facilities (VA Care). Commonly referred to in industry as the "revenue cycle," the requisite processes are - *Patient Accounting* (Billing and Accounts Management), that are highly dependent on activities that include *Patient Intake* (Scheduling, Pre-registration, and Registration), and *Clinical Administration* (Clinical Documentation and Coding). At VHA, the VAMCs are responsible for the Patient Intake and Clinical Administration activities while the CPACs own and execute the Patient Accounting activities. From beginning to end, all parts of the revenue cycle must be coordinated to effectively and properly bill and collect revenue from insurance companies (third party) and co-payments from Veterans (first party) for non-service connected medical treatment.

As the cost of Veteran care continues to rise, increased emphasis on collections is integral to ensure long-term financial viability for the Veterans' health care program. VHA opportunities to increase collections offers a stark contrast between a disciplined and coordinated private-sector revenue cycle and the revenue cycle that VHA employs.

Major Sub-Findings

The following points summarize the root causes and major sub-findings that contribute to this overarching finding. Chapter 6, VHA Revenue, includes the detailed analyses, evidence, and data sources required for a more complete understanding.

- **Ineffective Insurance Identification and Verification:** The current process is for VAMC Patient Intake staff to ask for insurance information from the patient. Once insurance is identified, the CPAC insurance verification teams verify insurance coverage (patient dates of eligibility, service coverage, and pre-certification/authorization requirements). When insurance is not identified appropriately, this results in CPAC staff collecting and verifying the patient's insurance "after-the-fact." Ineffective insurance identification and verification of insurance during the Patient Intake results in delayed insurance verification by CPAC staff and denials from insurers. Accurate Veteran insurance identification is a key predecessor to bill and collect payments from third-party insurers. This current process has led to significant collection delays and denials. For example, in 2014, 54.6 percent of denials were related to the Patient Intake function, with non-covered charges representing the largest (35.8 percent) portion.

- **Delays in Coding and Clinical Documentation:** Delays in VAMC clinical documentation and outpatient coding impede timely revenue collection. Clinical documentation and coding drive the services and amounts necessary to bill and collect from insurers. Delays in clinical

documentation across VHA, coupled with a lack of certified coders, reduce collections. In 2014, clinical documentation and coding issues were associated with $14.2 million in denials. VHA has not mandated participation in the national Clinical Documentation Improvement (CDI) program to improve documentation practices and fewer than half of VAMCs have a CDI program. Inadequate documentation forces VHA Coders to exhaust energy and resources rectifying gaps in documentation. This results in coding backlogs. VHA is also at risk for ICD-10 readiness if clinicians are not trained on documentation requirements, and coders are too busy to keep up.

- **Longstanding Cultural Barriers:** According to interviews with VAMC leadership, Veterans and VHA staff do not consistently understand Veterans' financial obligations, resulting in inconsistent insurance identification and co-payment collections. Congress gave VHA authority to collect reimbursements for direct VA Care from third party payers and to collect co-payments for non-service connected care. Many Veterans believe they are entitled to "free care for life," some VHA staff are uncomfortable asking for insurance or do not believe it is appropriate to bill insurance for Veteran care. Based on feedback from VAMC leadership, culture barriers prevent VHA from maximizing collections due to Veterans not always understanding the need to provide insurance information and reluctance from VHA staff to ask for it.

- **Organizational Challenges:** Separate lines of accountability for revenue processes across VAMCs and CPACs negatively affects collections. VHA executes Patient Intake, Clinical Administration, and Patient Accounting business processes across the VAMC and CPAC. However, only the CPACs are accountable for revenue collection and the associated performance outcomes.

- **Ineffective First-Party Collections:** Lack of one-on-one interaction with the Veteran during registration/check-in processes to offer financial education inhibits VHA's ability to increase first-party collections. Veterans who do not understand why and how much they owe for non-service connected treatment are less likely to pay owed amounts.

Major Recommendations

The following recommendations are key actions and process improvements that VHA should take to address the long-standing, systemic issues with revenue cycle processes to achieve enhanced, overall performance, increase revenues, and, ultimately, increase Veteran satisfaction.

- **Identify Insurance Information at VAMCs:** VHA should immediately mandate and incentivize all VAMCs to identify insurance and obtain signed release of information as necessary during the Patient Intake process. VHA should document best-practice insurance capture guidelines and incorporate them into standardized procedures. CPACs should assign and co-locate a Facility Revenue Technician (FRT) with the VAMC Patient Intake clerks to assist with insurance questions and financial questions. VAMCs and CPACs should monitor

the best practice reports to identify progress and proactively work issues. For the longer term, VHA should enhance kiosk functionality to identify and verify insurance.

- **Enforce Clinical Documentation Requirements:** VAMCs should enforce the existing policy that directs 24-hour turnaround for all clinical documentation and encounter closeouts. VAMCs should use performance pay agreements to assist with enforcing and rewarding clinician compliance. VHA should also standardize the CDI program and mandate use across all VAMCs. VHA should provide designated CDI specialist funding to VAMCs to enable use of this essential role. VHA should also use the CDI program to enhance ICD-10 readiness and implementation.

- **Minimize Cultural Barriers:** Near-term actions include increasing communication to Veterans and VHA staff through an immediate push using VAMC Town Hall meetings, website resources, and existing staff and Veteran training as mechanisms to emphasize the insurance collection requirement. Include this education in mandatory, periodic refresher training for all VHA staff. To address the larger cultural barriers, VHA should incorporate education of Veterans, their families/caretakers, all levels of VHA staff, key stakeholders (including Congress and state/local government agencies, Veterans' groups), and the public into their Strategic Communications Plan. The education should focus on the legislative requirements for third-party insurance identification and collection to support the long-term financial viability of VHA's health care program.

- **Assign Revenue Accountability to VAMC/VISNs:** VHA should assign VAMCs shared responsibility with the CPAC for revenue outcomes and include specific goals in management/staff performance plans as a near-term improvement. Longer term, an emerging practice in private-sector health care is to align all components of the revenue cycle under the Chief Financial Officer (CFO) linking job responsibilities to financial performance. VHA's revenue cycle activities currently owned by the VAMC/VISN are Scheduling, Pre-Registration, Registration and Coding—all primary functions for identifying and verifying insurance, and ensuring accurate and timely first- and third-party collections. The private sector has recognized that aligning these functions under a single organization improves accountability and revenue cycle performance. Our findings indicate that the separation between business process and organizational structure within the VHA revenue cycle processes has resulted in a lack of coordination and consistency in these functional areas. Given the size and complexity of VHA compared to the private sector, any realignment needs to be carefully considered. Added to this, the VHA CBO recently completed a very large organizational consolidation of Non-VA Care employees and adding significantly more responsibility to the CBO at this time may be difficult for the CBO to absorb in the near-term.

- **Reduce Complexity of Rules:** Congress and VHA should undertake a complete review of the Veteran eligibility, service connection, non-service connection and benefits rules and

categories in order to develop a single, comprehensive, easy-to-understand set of guidelines that align with industry standards (where possible). VHA should support automated business rules and enforce simplified rules that are understandable and implementable by staff at all levels. In addition, we believe that the complex billing processes require higher graded staff levels for billers than the GS5 level currently employed.

- **Automate and Integrate Technology:** VHA must recognize and allocate sufficient funding to acquire and implement the automated technology needed to address the significant manual-process issues that plague and prevent VHA from achieving the needed improvements in revenue collection. The technology needs to integrate dependent functions (front, middle, and back end) to execute routine business processes seamlessly across functional areas.

5.2 Non-VA Care: Payments—VHA Does Not Have Adequate Infrastructure and Streamlined Processes to Pay Non-VA Care Claims Timely and Accurately.

This finding relates to VHA payments for private-sector (Non-VA) care when required care is not available in VHA facilities. Infrastructure, in this finding, includes the lack of documented guidelines and procedures, inadequate technology and tools, insufficiently trained staff, and an inadequate number of staff. Private-sector providers (herein referred to as Non-VA Care providers) submit claims to VHA for the authorized care they provide to Veterans and VHA is required to process and pay those claims. Non-VA Care claims processes are complicated significantly by the number of multiple parties, complex procedures, and manual tasks required. Inadequate technology has a major effect on the outcome of these processes due to the volume and manual nature of work required. In 2014, VHA processed 14 million claims, which could rise to 19 million claims in 2015 if the trend continues.

The effective execution of Non-VA Care activities, both from timeliness and accuracy perspectives, is essential to maintaining the network of providers necessary to keep America's health care promise to our Veterans.

5.2.1 Major Sub-Findings

The following list summarizes root causes and major sub-findings that contribute to this overarching finding. Timeliness, accuracy, and penalties are addressed first, followed by the infrastructure and related challenges. Chapter 7, Non-VA Care, includes the detailed discussion, evidence, and data sources required for a more complete understanding.

- **Accuracy and Timeliness Issues:** VHA has widespread, significant issues with payment accuracy. Only six of 21 VISNs met VHA's standard and industry benchmark for payment accuracy. Since 2009, VHA improvements have increased accuracy rates from 83 percent to 91 percent in 2014; however, that is still lower than the VHA standard of 98.5 percent. Two

VISNs, different than the VISNs with timeliness issues, are well below the average rates at 78 and 83 percent accuracy rates. The same underlying issues with infrastructure, technology and process complexities discussed above also apply.

Issues exist with paying Non-VA Care claims timely. The backlogs, as detailed in Chapter 7, reflect this. Additionally, the manner in which VHA tracks payment timeliness is not entirely reliable. For example, there are indications that due to the claims backlog, claims are not date-stamped timely. Consequently, this affects the ability to assess timeliness performance accurately. According to VHA-provided data, 16 percent of claims (approximately 239,000) are 31-60 days late and 1 percent (approximately 12,000) are more than 180 days late, causing significant financial effect to select providers.

- **Penalties Assessed:** VHA mechanisms to avoid penalty payments to vendors are inadequate. Currently, VHA's interest penalties are minimal; in 2014, VHA incurred $292,217 in interest penalties on $5,580,590,777 of paid claims, however, VHA's payment practices are under review by VA's Office of General Counsel (OGC). If OGC finds that VHA must pay back interest, then it will be significant based on conducted interviews. VHA tracks interest penalties at the national level and does not consistently communicate interest penalties down to the CBO staff at the VAMCs. Improvements are necessary in payment timeliness and accuracy to avoid penalties that will accrue for late and inaccurate payments.
- **Inadequate Non-VA Provider Guidelines:** Inadequate Non-VA Care claims submission guidance prohibits widespread use of electronic claims submission and increases workload and payment errors. Non-VA Care providers only submitted 28.6 percent of their claims electronically for fiscal year 2014, significantly less than the 94 percent of electronic claims for commercial payers. High levels of paper claims affect accuracy and timeliness. Non-VA providers lack access to VHA's detailed billing, authorization, and clinical documentation requirements, leading to increased workload for VHA and Non-VA staff, and inadvertent duplicate billing and payment. Lack of provider education increases the risk of erroneously billed claims, affecting claims backlogs as the Non-VA providers resubmit for unpaid services.
- **Complex Policies:** High risk of improper payments due to complex rules and Non-VA Care claims submission requirements causes confusion, inefficiencies, and increases errors. Complex rules and disparate processes result in inconsistencies in authorization and payment practices. Without common, standardized processes and procedures, claims clerks conduct claim assessments inconsistently across VAMCs, potentially leading to inaccurate payment. Unclear authorizations lead to confusion among Non-VA providers and potential risk of improper payment for services not authorized.

- **Staff Vacancies and Poor Retention:** High staff vacancy rates and poor retention contribute to delays and errors in claims payment.[18] During the implementation of the Veterans Choice Act in October 2014, CBO leadership reported there were 295 vacant positions (out of 1,982 authorized positions) for Non-VA Care claims clerks, supervisor, and support positions, such as clinical staff and budget technicians.[19] Since the implementation of the Veterans Choice Act, CBO has indicated some progress reducing the number of staff vacancies; however, during our site visit interviews, we found staffing retention and vacancy rates to be a significant and widespread challenge facing local Non-VA Care operations.[20] Vacancy rates and staffing shortages lead to higher overtime costs, inexperienced staff, and a constant focus on employee recruitment, training and retention, which negatively affect the timeliness and accuracy of claims payments.

- **Patient Centered Community Care (PC3) Challenges:** PC3, comprised of HealthNet and TriWest, is a recently implemented network that VHA uses to supplement access to Non-VA Care. PC3 experiences challenges due to inadequate provider enrollment and stringent clinical documentation requirements. According to the OIG, PC3 has not met the PC3 contract requirements for full implementation of the networks in six provider regions by April 2014 (OIG, 2015). Existing local VAMC contracts that frequently pay higher rates with less administrative burden further challenges PC3. Additionally, PC3 does not consistently return contractually required medical documentation in a timely manner. We note that the PC3 contract requirement to collect medical records for every claim prior to payment is burdensome in comparison to industry best practices.

5.2.2 Major Recommendations

The following recommendations are key actions and process improvements that VHA should take to address the significant issues existing with the Non-VA Care payment processes to enhance payment timeliness and accuracy, avoid penalties, and develop positive relationships with network providers. VHA must address the underlying issues and take action on these recommendations to ensure Veterans have the needed access to the Non-VA care network of providers.

- **Establish Single Set of Guidance:** Adopt a single set of practices and guidance for authorizing and paying Non-VA claims. Review and evaluate the existing authorization and claims processing procedures at high performing facilities and interview industry experts to determine best practices. Increase electronic claims submission rates by creating

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[18] CBO Purchased Care Operations Directorate indicated that they began tracking staff turnover rates; however, they only began tracking this data in October 2014, limiting our ability to draw comprehensive conclusions. In addition, CBO tracks and reports turnover data on a pay period basis.

[19] Per CBOPC OPS FTEE by VISN.xlsx prepared by CBO Purchased Care Operations Directorate

[20] As of August 2015, there are currently 83 vacancies within Non-VA Care; however, over that same time, CBO transferred a number of positions to other departments, reducing the total number of authorized positions in Non-VA Care to 1,871. The CBO provided the updated number of staff vacancies and authorized positions but the data was not independently validated.

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provider manuals, known in the industry as 837 companion guides, to give Non-VA Care providers the information needed to submit electronic claims successfully. Also, encourage, through contract provisions and preferential contacting approaches, Non-VA Care providers to submit electronic rather than paper claims. Standardize the Non-VA Care claims processing methods and train claims clerks accordingly.

- **Reduce Complexity:** Similar to VHA Revenue, Congress and VHA should undertake a complete review of the Veteran eligibility, service-connected, non-service connected and many benefits rules and categories and develop a single, comprehensive, easy-to-understand set of guidelines that align as much as possible to industry standards.

- **Establish Common Reimbursement Structure and Methodology:** Develop and implement a common reimbursement structure and process for Non-VA Providers that eliminates the multitude of individual and different contracts with providers and that simplifies the entire process. Revise contracts with HealthNet, TriWest, and other Non-VA providers to incorporate a common reimbursement methodology.

- **Establish Transparent Reporting of Interest:** Accountability at the facility level is necessary to ensure process improvements to payment processes to eliminate or reduce interest payments. Stronger coordination between Corporate Office and VAMC level management over interest penalties will provide the ability to analyze and identify root causes of interest penalties on an ongoing basis, and proactively develop corrective actions.

5.3 Information Technology—Lack of Automation and Integration Prevent VHA from Optimizing Performance in both Collections and Payments.

This finding relates to the information technology (IT) tools and applications that VHA uses to support the various processes involved with the VA Care revenue cycle and the Non-VA Care claims payments. We address VA Care and Non-VA Care processes and associated tools separately due to their magnitude and significant differences.

It is important to note for our technology review that VA established the Office of Information Technology (OIT), under the Chief Information Office (CIO) to centralize the development, delivery, operation, and management of IT capabilities across the Department. In the past, while VHA worked with OIT to prioritize IT needs, OIT ultimately set the funding priorities.[21]

Information technology, automation of manual processes and other applications and tools are essential in effectively and accurately processing and meeting the substantial requirements for revenue collection and claims payments. The current state of automation within VHA presents many opportunities for improvements.

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[21] Assessment H provides a more detailed discussion on the OI&T centralization.

The following sections summarize the root causes and major sub-findings that contribute to this overarching finding. Chapter 8, Information Technology, includes the detailed discussion, evidence, and data sources required for a more complete understanding.

5.3.1 Major Sub-Findings—Information Technology: VHA Revenue

- **Inadequate Technology:** Systems for revenue collection require significant manual intervention, causing errors and delays. VHA will not be able to make the needed improvement in their billing and collection processes without integrated, automated technology. Antiquated systems used to support revenue collection for third-party reimbursements and first-party (Veteran) co-payments require increased spot checks and manual intervention. For example, VHA executes the coding and billing functions on separate platforms inhibiting synchronization of information. The lack of system integration also prohibits sharing of information across clinical and revenue management systems. Additionally, VHA's clinical systems do not automate clinical documentation and coding functions as efficiently as private-sector systems.

  - The systems require significant manual intervention and processing that creates an environment prone to human error and delays billing**.** For example, CPAC billing staff members manually review 100 percent of bills to third-party insurance (also referred to as claims), subsequent to automated edits. In the private sector, clerks manually review only 10 to 20 percent of claims, subsequent to automated edit and correction. In addition, manual processes are required to verify that Veteran care bills are compliant with the third-party insurance contracts.

5.3.2 Major Recommendations—Information Technology: VA Care Revenue

- **Fund and Implement an Integrated Patient Accounting System:** VHA should continue efforts they have initiated to begin planning for an integrated and automated billing system.[22] VHA, in coordination with VA OIT, should prioritize funding and accelerate efforts to implement an integrated patient accounting system that supports synchronization of information, minimal work processes, and automated decision-making. VHA should prioritize the integration of tools (and functions) across patient intake, clinical administration, and billing systems. In particular, we recommend VHA to integrate medical records, coding, and billing systems under one login to facilitate expedited claims generation and payment. One integrated system will allow billers and coders to access the information they need from one site rather than multiple sites, reducing human error, and time needed to complete tasks. Once a new integrated solution is developed and put into place, VHA should revaluate staffing levels to account for the change in workload and reallocate personnel accordingly.

  - Evaluate technology that will allow Patient Intake staff to access patient's out-of-pocket responsibilities real time. Invest in technology that allows for generation of enhanced

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[22] Based on interview with the Deputy Director of Revenue Systems Management.

itemized statements for patients including information related to third-party payers billed, detail of charges (description, quantity, and amount), payments and adjustments, and contact information for billing and other questions. Evaluate a solution for calculating the optimum payment plan for each Veteran based on the patient's ability to pay and the organization's payment plan guidelines.

5.3.3   Major Sub-Findings—Information Technology: Non-VA Care Payments

- **Inadequate Technology:** Manual payment process for Non-VA Care providers negatively affects timeliness and accuracy. The high rate of manual intervention is in contrast to the private sector, where payer systems typically carry an edit status or disposition. An additional systems complication is that Non-VA Care claim processing system is not able to process all types of Non-VA Care claims. For example, VHA cannot process dental and contract nursing home claims through the current Non-VA Care claims processing system (FBCS). These claims require a much higher level of manual effort.

- **Missing Claims Status:** VHA lacks an online resource for Non-VA Care providers to check claims status. Modern workflow tools routinely provide a capability for online status; such as, checks of orders, payments, shipping. Most major payers provide claims status updates online, which is quickly becoming an industry standard that increases provider satisfaction. Providing online claim inquiry will also eliminate duplicate claims submitted by Non-VA Care providers with a subsequent reduction in manual claims processing.

- **Decentralized Claims Processing:** The Non-VA Care claims processing system is not centralized, leading to inconsistencies in claims processing across VAMCs. Consequently, there are discrepancies among deployed technical processes and local instances of the FBCS. These differences have also limited VHA's ability to create keystroke-level training and desk-level procedures, which affects both timeliness and accuracy.

- **High Staffing Levels:** The process to pay Non-VA providers requires higher staffing levels relative to other payers. VHA's Non-VA Care claims processing system is heavily reliant on manual processes when compared to health plans. Currently, the Non-VA Care claims processing system auto-adjudicates zero percent of claims compared to private-sector payer benchmark of 79 percent.

5.3.4   Major Recommendations—Information Technology: Non-VA Care Payments

- **Strategic Planning:** Develop and implement both a short-term and a long-term plan to reduce the degree of manual intervention in claims adjudication and other manual processes related to Non-VA Care business processes. Automation will lead to provider satisfaction and reduce the burden on the Non-VA Care claims staff, which will increase claims payment timeliness.
- **Claims Status:** Create a provider portal so that providers can routinely check the status of submitted claims, and a centralized call center with dedicated staff to answer Non-VA provider questions.

- **Funding:** VHA and CIO/OIT should work in close, coordinated partnership and within required regulation guidelines to address IT challenges for improving both collection and payment processes and, ultimately ensure funding to help secure the long-term viability of the Veterans' health program. Short-term fixes do not do justice for VHA staff or the Veterans they serve.

5.4 Oversight and Metrics—VHA Lacks Certain Performance Reporting to Provide Effective Oversight and Proactive Process Improvements for Collections and Payments.

The processes to effectively monitor and oversee collections and payments are essential to sustain process improvements across VHA. The findings and recommendations in this section address opportunities to benefit from stronger national reporting, leveraging private-sector benchmarks, more insightful decision support, common productivity standards, and management over timely payments. The findings also address program integrity tools, through which CBO is realizing results and should continue using to identify systemic issues. Chapter 9 includes the detailed discussion, evidence, and data sources required for a more complete understanding.

5.4.1 Major Sub-Findings—Oversight and Metrics: VHA Revenue

- **Lack of Insurance Capture Reporting:** VHA lacks standard national reporting of key performance metrics for timely insurance identification and verification across VHA, inhibiting visibility into insurance capture across VAMCs. Insufficient national reporting on Patient Intake key performance metrics hinders visibility into the Patient Intake functions of VAMCs and contributes to lack of accountability by all responsible parties.

- **Inconsistent Performance Measures:** Reporting in the current patient accounting system (VistA) is not comparable to private sector, inhibiting the identification of areas for improvement. For example, Days to Bill, GDRO, and contractual adjustments are all calculated and reported differently in the private sector.

- **Lack of Oversight of Regional Contracts:** Regional contracts with payers lack the necessary support from VHA's Revenue Operations Payer Relations Office. Local CPAC Payer Relations staff manages VHA's regional contracts with minimal oversight from the Revenue Operations Payer Relations Office. This arrangement limits the opportunity for local regional contracts to reap the benefits and negotiating strengths of the Revenue Operations Payer Relations Office. Without effective payer contracting and oversight in place at the regional level, mechanisms to ensure payment accuracy is diminished. Further, loss of revenue may occur, directly affecting the collection of amounts owed to VHA for care provided.

5.4.2 Major Recommendations—Oversight and Metrics: VHA Revenue

- **Elevate Reporting:** Evaluate the current reporting capabilities of the patient accounting system and perform a gap analysis with equitable private-sector reports. This would

further enhance VHA's ability to identify the root causes for process improvement areas and knowledge from which to develop and act on resolution plans. VHA should align performance measures to those used by industry, giving VHA leadership meaningful comparisons of performance to the private sector.

- **Perform Realignment:** CPAC Payer Relations staff should report to the Revenue Operations Payer Relations Office. This will allow VHA to optimize reimbursement rates leveraging economies of scale. A standardized approach should allow for flexibility at the CPAC/regional level, while addressing issues promptly with national advantage, particularly payer negotiations. Payer Relations staff should remain co-located at the CPAC to better understand regional influences and maintain a local presence.

5.4.3 Major Sub-Findings—Oversight and Metrics: Non-VA Care Payments

- **Lack of Productivity Standards:** As of April 1, 2015, VHA cannot establish effective productivity standards and monitor employee performance because its processes are not consistent across VAMCs and VISNs.[23] For example, at some VAMCs claims clerks work closely with the authorization personnel and are involved in care coordination, while others do not.

- **Inadequate Decision Support:** Current decision support capabilities are not sufficient to support oversight and management of Non-VA Care claims processing and payment. The analytical deficiencies across claims processing and payment prevent VHA from effectively assessing the performance and management of the processing system. Due to this deficiency, VHA is unable to analyze enterprise-wide denials.

- **Labor Intensive Oversight:** Proactive and retrospective processes are in place to find inaccurate payments, but some practices are manual. Reviews and audits to monitor improper payments are largely retrospective in nature; therefore, for any overpayments identified through these reviews and audits, VHA must invest time and money to recoup overpayments to Non-VA providers.

- **Lack of Oversight of Interest Penalties:** Currently, VHA's oversight of interest penalties is limited to VHA Corporate Office and not locally at VAMCs. As a result, VHA inconsistently communicates interest penalties down to the CBO staff at the VAMCs. Lack of accountability at the local level prevents needed improvements in payment timeliness.

5.4.4 Major Recommendations—Oversight and Metrics: Non-VA Care Payments

- **Establish Standardized Productivity Standards:** Establish standardized Non-VA Care productivity standards for staff across VAMCs and VISNs. VHA should employ these standards to project staffing needs and evaluate staff performance to assure sufficient staff

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[23] Since the time of our review, the CBO indicates that they have made significant improvements to implement these standards. The timing of this information was out of the scope of our review; therefore, the Assessment I team could not validate this statement.

to support the claims processing process. As Non-VA Care continues to evolve, continually assessing VHA staffing levels is critical in leveraging human resources necessary to improve the accuracy and timeliness of claims processing.

- **Improve Review and Oversight:** Build upon and improve current pre- and post-payment review and oversight practices, so that VHA is using the most effective and highly automated tools and practices with emphasis on automated pre-payment edit techniques.

- **Establish Transparent Reporting of Interest:** Accountability at the facility level is necessary to ensure process improvements to payment processes to eliminate or reduce interest payments. Stronger coordination between VHA Corporate Office and VAMC level management over interest penalties will provide the ability to analyze and identify root causes of interest penalties on an ongoing basis, and proactively develop corrective actions.

5.5 Additional Considerations

While conducting research for this study, we gained many insights regarding VHA Revenue and Non-VA Care. We provide below some additional considerations for VHA's business processes.

5.5.1 Holistic, Long-term Planning

VHA should develop a long-term holistic plan for provision of and payment for health care services (180 days).

Rationale: The growth of Non-VA Care over the last decade has resulted in a combination of programs that, as evidenced by our report, do not have sufficient infrastructure to successfully perform the business functions today nor meet the demands of the future. The demand for Non-VA Care will be determined, in large part, by the decisions made regarding VA Care and, in turn, VA's capacity to meet demand for services. For example, decisions about VHA facilities and workforce will affect demand for Non-VA Care, as could changes in the demographics and clinical needs of Veterans. VHA should supplement the plan with the results of VHA's ongoing capacity and other ongoing studies. This will also allow VHA to evaluate whether areas that are suffering from under capacity are using PC3 more than other areas. Furthermore, Non-VA Care or other approaches to outsourcing could present opportunities for VHA to adopt best and emerging practices in health program administration, care management, preferred or tiered provider networks, provider payment and other areas.

To be successful, the long-term plan should account for the factors discussed above and allow for adoption of best practices from the private sector and other government sectors (e.g., the Medicare program, related to pricing, contracting, privatization, value-based purchasing, management, and oversight). Plans should also allow for adaptation at the local and regional levels, to reflect regional and local differences in provider supply, Veteran needs, and marketplace characteristics, among other factors.

VHA should establish formal governance model that allows CBO and VISN leadership to converge, aligning interests, and accountability (90 days).

Rationale: An organization structure that balances central management with local autonomy is vital to VA. In order to do so effectively, accountability and interests should align at the leadership level. Concerning business processes, the execution of core CBO functions is often dependent on coordination with VAMC and VISN actions. Under VA's current organization, since CBO and VISNs report separately to the VHA Office of the Under Secretary, VAMC priorities do not always align with CBO's. The significance of both VA and Non-VA Care requires an increased focus on business processes to sustain care for the Veteran population. Aligning both organizations under a single governance structure will converge interests and accountability resulting in the necessary cooperation and alignment to enable success.

5.5.2   Choice Act Implementation

VHA should standardize policies and procedures for execution of the Choice Act and communicate those policies and procedures to Veterans, VHA providers and staff and Non-VA providers (180 days).

Rationale: Our study was limited in scope to Non-VA Care claims payment timeliness and accuracy and interest penalties; however, examination of the claims processing protocols and operations revealed apparent opportunities to standardize the manner in which the Choice Act is implemented across VAMCs and VISNs and to improve VHA communications about Choice Act-related developments. Standardization will enable VHA staff members to communicate processes and benefits effectively to both patients and Non-VA providers. For the PC3 program, there appears to be tremendous confusion for both the providers of care (VA and Non-VA providers) as well as VHA staff, providers, and patients regarding authorization requirements, networks, out of pocket responsibilities, etc. VHA should determine outreach efforts that best optimize the message (e.g., newsletters, town hall meetings to help internal and external stakeholders understand the policies and processes related to PC3 and The Choice Act).

5.5.3   Non-VA Care Contracting and Oversight

VHA should identify opportunities to align payment and incentives among Non-VA Care programs and contracts and to strengthen the terms and oversight of those contracts, and VHA should centralize and inventory local contracts with Non-VA providers across all VAMCs (1 year).

Rationale: Our study was limited in scope to Non-VA Care claims payment timeliness and accuracy and interest penalties; however, examination of the claims processing protocols and operations revealed apparent opportunities for VHA to improve many aspects of its Non-VA Care contracting. Under the current model, VHA processes claims twice—once by the PC3 vendor and a second time by VHA to determine payment amounts. This is not reflective of typical Third Party Administrator arrangements and result in additional costs.

It appears that PC3 contracts and the oversight of those contracts, as well as VAMC contracts with providers, could strengthen through increased alignment, adoption of best practices in private sector and government health care contracting, and coordinated and rigorous management and oversight of those contracts. Private-sector and other government payers are increasingly adopting performance incentives, value-based purchasing, tiered or narrow

networks, transparency, and data analytics to drive provider and member behavior change through outreach and education. We also noted inconsistencies regarding the number and types of contracts established at the local (VAMC) level.

With more insight into the breadth and depth of contracted services, the negotiated requisite fees, and the performance of the contracted entities, VHA will be better positioned to make more informed contracting decisions such as, but not limited to:

- Restructuring contracts if rates are not competitive with other payers and are affecting PC3 contractors' leverage in the marketplace
- Mandating that VAMCs use PC3 vendors for particular costly medical services
- Revisiting performance requirements for Non-VA providers.

6 Analysis of VHA Revenue

6.1 VHA Revenue—Introduction

Congressional appropriations fund the care and treatment provided to Veterans. Congress provided VHA with the authority to bill Veterans and health insurance companies for Veterans' non-service connected care to help defray the cost of delivering medical services.[24] VHA considers a Veteran's health care "billable" if the care provided is non-service connected and if the Veteran's third-party health insurance policy covers the treatment. The Omnibus Budget Reconciliation Act of 1990 established standard out of pocket co-payments for billable treatment.

Many Veterans qualify for free health care and/or prescriptions based on service-connected conditions, special eligibility factors, and specific services exempt from inpatient and outpatient co-payments (e.g., counseling). All remaining Veterans with private-sector insurance coverage pay co-payments to help offset the cost of care.[25] VHA's non-service connected co-payment amount is limited to a single charge per visit regardless of the number of health care providers seen in a single day. VHA bases the co-payment amount on the Veteran's income and highest-level clinical service received on the date of service.[26]Note, if the insurance company pays VHA an amount that exceeds the co-pay, VHA reimburses the co-pay amount back to the Veteran. VHA uses this process to incentivize Veterans to provide insurance information.[27]

The Balanced Budget Act of 1997 stipulates that VHA must deposit all payments from health insurance companies and Veterans into the Medical Care Collections Fund (MCCF) to offset the cost of care funded through congressional appropriations. VHA considers services that are billable to the Veteran as "first party" (i.e., co-payments) and those that are billable to an insurance company as "third party." MCCF funds return to the VHA health care facility that provides the care for the Veteran. Table 6-1 outlines the first- and third-party collections and estimates for FY2011–FY2015.

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[24] Note: The Consolidated Omnibus Budget Reconciliation Act of 1985 (P.L. 99-272), enacted into law in 1986 established means testing for Veterans seeking care for non-service-connected conditions.

[25] Note: Under the Choice Act, insured Veterans are explicitly required to provide insurance.

[26] U.S. Department of Veterans Affairs. (2015, June 5). Health Benefit Copays [VHA Benefit Information]. Retrieved from http://www.va.gov/HEALTHBENEFITS/cost/copays.asp

[27] Based on review of 38 CFR Part 17, RIN 2900-AP24. Expanded Access to Non-VA Care Through the Veterans Choice Program. November 5, 2014.

Table 6-1. Total First and Third-party Collections, FY2011-2015 ($ in thousands)[28]

	FY2011 Actual	FY2012 Actual	FY2013 Actual	FY2014 Actual	FY2015 Estimate[29]
First-party co-payments[30]	956,461	970,180	923,508	885,228	939,762
Third-party insurance Collections	1,754,875	1,770,911	1,940,014	2,169,932	2,424,677

6.1.1 VHA Revenue—History

VAMCs initially performed all revenue cycle functions, including billing and collections. While this approach achieved momentum in supplementing congressional appropriations, it lacked coordination and standardization, which hindered VHA's ability to maximize revenue. Multiple OIG and GAO reports have documented performance issues, as discussed in the past findings and recommendations section of this report. In 2008, Public Law 110-387 passed, requiring VHA to consolidate business office operations so VHA patient accounting activities, billing and collections, are aligned with health care industry best practices. As a result, VHA opened the first Consolidated Patient Account Center (CPAC) in October 2009, as a pilot facility in Asheville, NC. Table 6-2 shows the growth in MCCF collections from fiscal year 2006 to 2012.

Table 6-2. Total MCCF Collections, FY2006-2012 ($ in thousands)[31]

	FY2006	FY2007	FY2008	FY2009*	FY2010*	FY2011*	FY2012*
MCCF Collections –FYTD[32]	1,958,759	2,176,625	2,419,157	2,734,950	2,773,968	2,711,336	2,741,091

*In 2009, VHA first consolidated patient accounting functions at the Mid-Atlantic CPAC in Asheville, NC. Six remaining CPACs followed, with the final CPAC operationalizing on September 24, 2012. VHA placed the CPACs under the Central Business Office (CBO). Figure 6-1. CPAC & VISN Regional Alignment depicts the CPACs, dates operationalized, and associated regions.

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[28] National Collections (2015). Fiscal Year 2011-2015 First and Third Party Collections. [POWER collections data]. Retrieved from CBO.

[29] Note: FY2015 estimates are based on data from October 2014- April 2015, annualized using the equation: ((Total Collections/7)*12).

[30] Note: First-party co-payment totals include co-payments for pharmacy, inpatient and outpatient care, and long-term care.

[31] MCCF Collections (2015). FYTD 2006-2012 MCCF Collection Actual FYTD to Expected Results. [CBO MCCF collections data] Retrieved from CBO.

[32] Note: This collection data contains both first and third party collections.

Figure 6-1. CPAC & VISN Regional Alignment

CPAC	VISN(s)	Transition Year	Host Location
Mid-Atlantic	5,6,7	2009	Asheville, NC
Mid-South	9,16,17	2010	Smyrna, TN
North Central	10,11,12	2010	Middleton, WI
Florida	8	2011	Orlando, FL
North East	1,2,3,4	2012	Lebanon, PA
Central Plains	15,19,23	2012	Leavenworth, KS
West	18,20,21,22	2012	Las Vegas, NV
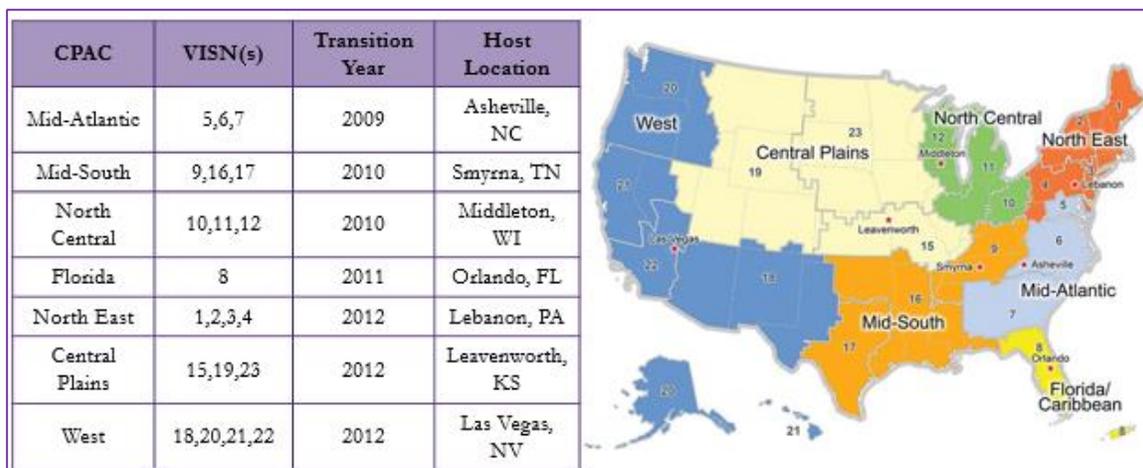
Source: Grant Thornton rendition based on CBO feedback. Note: VISNs 13 and 14 do not appear on this figure because they were combined into VISN 23.

Each VAMC is located in a VISN, and all VISNs are assigned to one of seven regional CPACs. CPAC staff members are located both at the regional CPAC and at each VAMC to improve coordination and communication between the two entities. Chapter 3 describes the roles of VISNs, VAMCs, and CPACs in revenue cycle operations in more detail.

This industry-modeled, CPAC implementation:

- Centralized and enhanced billing and collections activities across VHA, which maximized economies of scale, and provided continuity and standardization
- Consolidated traditional revenue program operations into regionalized centers, closely aligning VHA billing and collections activities with industry best practices
- Placed ownership of revenue cycle processes deemed to be patient-facing at the VAMC level (front end)
- Transferred billing and collection activities to the CPACs (back end).

6.1.2   VHA Revenue—Current State

The transition to the CPAC structure drove standardization and coordination across Patient Accounting functions. Since the completion of the national CPAC implementation, national collections have increased by 14 percent to $3.1 billion for calendar year 2014, while the related national billings increased by 17 percent.[33]

Today, VAMCs continue to execute the "front end" and "middle" (Patient Intake and Clinical Administration) operations, and the CPACs, perform "back end" (billing and accounts management) operations. Together, these operations comprise VHA's revenue cycle. Figure 6-2

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[33] CBO. (2015). *Total Collections to Billings, Calendar Year 2012-2014*. Retrieved from POWER.

illustrates VHA's revenue cycle responsibilities and aligns the responsibilities to the CPAC or VAMC.

Figure 6-2. Process Areas and Key Components
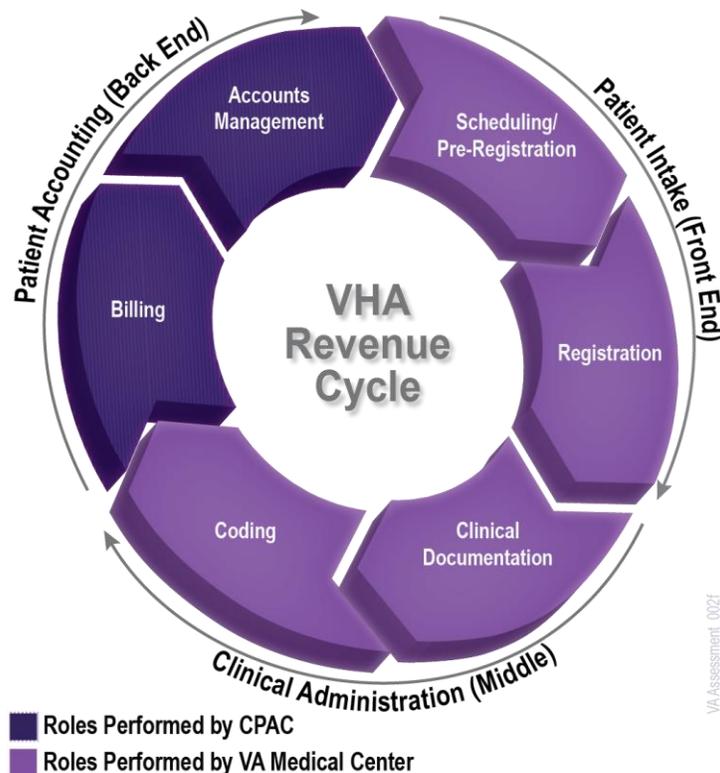
Source: Grant Thornton's rendition of the VHA Revenue Cycle

- *Patient Intake*: Patient Intake activities occur at the beginning of a Veteran's interaction with a VHA provider. These activities typically include scheduling, pre-registration, registration, point-of-service collections, insurance identification and verification, and financial counseling. At VHA, the Patient Intake functions reside at the VAMCs, referred to as Patient Administration Services (PAS), Hospital Administration Services (HAS), or Medical Administration Service (MAS)—the name varies depending on the VAMC visited. Currently, VAMCs are responsible for identifying insurance, while the CPAC is responsible for verifying insurance. The CPAC cannot verify insurance if it is not identified and communicated by the VAMC.

- *Clinical Administration*: Clinical Administration activities occur after a VHA clinician has treated a Veteran. During this phase, the clinician completes all clinical documentation and signs off on the encounter. Subsequently, VHA coders review the encounter's clinical documentation, assign appropriate codes, and submit the validated and coded encounter to billing for submission to third-party payers. Clinical Administration functions reside at the VAMCs and are performed by both clinicians and coders (also referred to as Health Information Management Services [HIMS]).

- *Patient Accounting*: At VHA, CPACs oversee all Patient Accounting functions, which include billing, accounts receivable (AR) management, follow up, denials management, first-party follow up, cash applications and adjustments, regional payer relations, and customer service.

6.2 VHA Revenue Assessment Approach

6.2.1 Data Sources and Analysis

As described in the methodology of this report (Chapter 2), our approach comprised of information collection, analysis, interviews and process walkthroughs. We collected a variety of qualitative and quantitative data that directed our findings and recommendations. This data includes: (1) billing and collection performance data (2) coding turnaround time/backlog data, (3) clinical documentation latency data, and (4) a VAMC-wide data call for insurance identification and pre-registration data. Additional data sources include interviews with more than 63 VHA revenue staff members as well as several executive interviews with VHA leadership. Our data collection and analysis focused on assessing the key components of VHA's revenue cycle. Table 6-3 outlines the key components, examined by our assessment, and the VHA functions that perform each component.

Table 6-3. Key Components of VHA Revenue Cycle

Process Area	Key Components	Performed By

Patient Intake	▪ Scheduling/Preregistration/Registration
	   ○ Insurance identification
	   ○ Veteran eligibility
	   ○ Demographics
		VAMC

Clinical Administration	▪ Clinical Documentation
	   ○ Timeliness and accuracy
	   ○ Response to physician queries
	▪ Coding
	   ○ Receipt of clinical documentation
	   ○ Coding all inpatient and billable outpatient encounters
	   ○ Health Information Management Services (HIMS)
		VAMC

Process Area	Key Components	Performed By

Patient Accounting	▪ Insurance Verification
	▪ Revenue Utilization Review
	▪ Billing
	   ○ First and third-party billing
	   ○ Bill editor/edit checks
	   ○ Submission to payer
	▪ Accounts Management
	   ○ Payment Posting
	   ○ Cash Collection
	   ○ Payer Relations (payment compliance)
	   ○ Follow up and denials management
		CPAC

We used leading private-sector HFMA benchmarks and best commercial practices to evaluate VHA performance. For example, we used HFMA benchmarks to analyze VHA performance in denial management, pre-registration, and first party collections (HFMA, 2012). For VHA data/metrics that did not align to commercial metrics, we used VHA standards of performance for our analysis. For a summary of the data and benchmarking used for this assessment, refer to Appendix D.

6.2.2 Past Findings and Recommendations

A key part of our approach was the review of findings and recommendations outlined in prior assessment reports. Since 2002, VHA has received several assessments on insurance identification and third-party revenue collection performance. These assessments have identified several challenges, including difficulties with identifying patients with third-party insurance (OIG, 2012),[34] clinical documentation limitations (OIG, 2012),[35] and ineffective billing and accounts management processes (GAO, 2008). Our team outlined a sample of key findings from these assessments in Table 6-4. The assessments are included in the References provided in Appendix E. Note that these examples illustrate the type of factors identified in recent years, and are not intended to be a comprehensive listing.

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[34] Department of Veterans Affairs Office of Inspector General. (2012). Audit of VHA's Medical Care Collections Fund Billing of VA-Provided Care. Report No. 11-00333-254. Retrieved from http://www.va.gov/oig/pubs/VAOIG-11-00333-254.pdf

[35] Ibid.

Table 6-4. Previous VHA Care Report Findings

Process Area	Cited Findings	2002	2005	2007	2008	2012
Patient Intake	Lack of timely third-party insurance identification	OIG				OIG
	Pre-registration functions are not being performed	OIG				
	Patients are not educated on the value of third-party insurance collection	OIG				OIG
	Limitations in insurance identification training for clinical administration staff	OIG				OIG
Clinical Administration	Clinical documentation practices are inconsistent	OIG			GAO	OIG
	Residents and attending physicians are not appropriately documenting encounters			OIG		
Patient Accounting	Failure to develop and use metrics to track timely and accurate billing performance		GAO		GAO	
	Accounts management follow-up processes are not following VHA standards	OIG	GAO		GAO	
	Non-billable encounters are not being reviewed to maximize billing opportunities				GAO	OIG

VHA's revenue cycle functions have not received the same level of evaluation as other direct patient care areas of VHA, however, VHA has received feedback on methods to improve insurance identification and third-party collections. These past assessments have tended to provide broad compliance oriented recommendations. In contrast, our assessment tries to take an end-to-end view of the challenges in VHA's revenue operations and identify recommendations that would specifically address each challenge.

In reviewing the recommendations presented in past reports, the majority focused on the following recommendations:

- Providing additional guidance on insurance identification to clinical administrative staff and implementing methods to monitor their compliance

- Promoting the importance of insurance identification to Veterans and staff by demonstrating how third-party collections benefit VHA's ability to provide medical services to Veterans

- Improving clinical documentation practices to ensure appropriate coding and billing of encounters

- Ensuring adequate documentation of resident-provided care and timely submission of attending notes for appropriate billing

- Evaluating encounters determined to be non-billable to ensure that VHA maximizes billing opportunities for VHA-provided care

- Requiring the development and use of management reports on the accuracy and timeliness of billing performance

- Ensuring that AR staff members perform the first follow-up on unpaid claims within 30 days of the billing date and establishing procedures for monitoring compliance.

6.2.3 Revenue Operations Strategic Plan

We reviewed the CBO Revenue Operations Way Forward Strategic Plan (2014–2016) and noted a number of initiatives to maintain and improve upon collections exist in support of their strategic goals to:

1. Realize a "Best in Business" revenue program—increasing collections and achieving industry performance standards.
2. Streamline revenue operations and enhance supporting technology—reducing the Cost to Collect.

The initiatives associated with these goals pertinent to our findings and recommendations are:

Table 6-5. Key Intersections with Way Forward Strategic Plan

Initiative	Strategic Target
Implement a Customer Relationship Management system to track Veteran interactions and provide seamless customer service	FY 2015/Q1
Support the implementation of International Classification of Diseases version 10 (ICD-10) to ensure continuity of operations and minimize revenue loss during transition	FY 2015/Q1
Identify, support and promote opportunities to improve clinical documentation	FY 2015/Q4
Establish process improvement task forces and enhanced procedures for insurance identification, clinic setup and non-MCCF revenue functions	FY 2015/Q4
Maintain commitment to "Gold Standard" Quality Assurance and Internal Control Programs	FY 2016/Q4
Implement an automated billing system (ABS) that will result in a "touch-by-exception" environment	FY 2016/Q4

Initiative	Strategic Target
Increase process automation through Enterprise Workflow Management Engine (EWME)	FY 2014/Q4
Deploy VistA Remote Access Management (VRAM) software to provide access to multiple VistA systems using a single set of credentials	FY 2014/Q2
Integrate HIM reporting with revenue workflow tools	FY 2014/Q4
Expand guidebooks to include standard operating procedures, detailed process models and quality standards for all revenue functions	FY 2014/Q3
Conduct outpatient consolidated coding feasibility study	FY 2016/Q4
Implement a comprehensive individual development program (IDP) that targets advancement against established competency models	FY 2015/Q2
Implement an interactive Knowledge Management System (KMS)—providing on-demand access to business information, training materials and operational support documents via self-service	FY 2016/Q4
Deploy a national revenue training and education delivery system to support virtual and self-paced instruction	FY 2014/Q2

The purpose of our assessment is to evaluate the status of current operations. We reviewed relevant plans and previous studies; however, an evaluation of the adequacy and status of these initiatives was beyond our scope. Please contact CBO or Revenue Operations for the status of completed, in process, or future initiatives listed in this plan.

6.3 VHA is Not Optimizing Revenue Due to Ineffective Veteran Insurance Identification, Clinical Documentation and Coding, and Culture Barriers.

6.3.1 Insurance Identification—Ineffective and Inconsistent VAMC Processes for Identification of Veteran Insurance Negatively Impacts Third-Party Collections.

Third-party collections involve the collection of amounts owed from insurance companies for care Veterans received from VHA. Key enablers of third-party collections include insurance capture and coverage determinations during Scheduling, Pre-registration, and/or Registration processes (collectively referred to as "Patient Intake"). Visibility into these key components allows for the assessment of performance in insurance identification and the associated collection of amounts due from third parties. This section addresses VHA's performance across the key Patient Intake functions in identifying and verifying insurance.

6.3.1.1 Scheduling

The separate Veterans' Choice Act Assessment E (Workflow – Scheduling) provides a complete, detailed analysis of the scheduling function at VHA. Our team reviewed the scheduling function

as it relates to insurance identification, verification, and pre-authorization. During our site visits, we conducted structured interviews with the PAS, HAS, or MAS departments that were responsible for scheduling patients' appointments. Additional assessment activities included viewing the systems and tools used by VA scheduling staff and reviewing VHA policies and guidebooks that were specific to scheduling.

Table 6-6. Scheduling

Scheduling Defined:
Point of entry for non-emergency care is through the scheduling of an appointment (for both inpatient and outpatient services).
Impact:
Effective scheduling allows for accurate and timely insurance identification, verification, and pre-authorization. Each of these components are key drivers to maximize third-party collections.
Industry Best Practices:
Schedule all non-emergent patients in advance to ensure the timely and accurate collection of demographic and insurance information. Centralized and standardized scheduling processes and procedures enable insurance identification and eligibility verification, prior to scheduled services. By using online technology tools, VHA can further facilitate verification of coverage prior to service.
VHA Key Finding:
1. VHA lacks standard scheduling practices and the requirement to identify insurance at the time of scheduling, inhibiting timely insurance capture.

Finding 1

1. **VHA lacks standard scheduling practices and the requirement to identify insurance at the time of scheduling, inhibiting timely insurance capture.**

   • The scheduling function is inconsistent and highly decentralized at each VAMC responsible for scheduling patients. Even within the same VAMC, scheduling practices are further decentralized and the practices vary across departments (i.e., Surgery versus Internal Medicine).

   • We noted a lack of consistent insurance identification during the scheduling process, which is attributable to limited standard policies, procedures, and scripts.[36] Scripts should have a set of common questions for clerks to ask, including those related to the existence of third-party insurance coverage.

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[36] Qualitative interviews at three VAMCs indicated that this was an issue.

- Assessment E surveyed the patient registration staff at VAMCs and the results were as follows:[37]

  o As shown in Figure 6-3, out of 325 patient registration staff surveyed, 61.2 percent responded "No" or they were "Unsure" if insurance information was collected when patient visits are scheduled.[38]

Figure 6-3. Patient Registration Staff Survey

Is insurance information collected at the time when patient visits are scheduled?
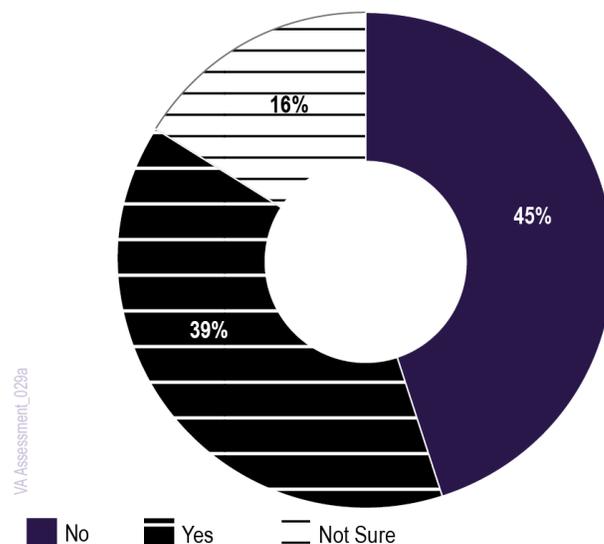
Source: Patient Registration Assessment E Survey Results

  o Another 61.1 percent (approximately two-thirds of surveyed VAMCs) responded "No" or they were "Unsure" when asked if they were aware of policy, procedure or other guidance regarding insurance capture that guided the scheduling process.

- We also learned that not all VAMCs are consistently using the VistA scheduling packages.[39] This has a significant impact on revenue, as CPAC Revenue Utilization Revenue (RUR) nurses cannot obtain the necessary preauthorization for scheduled inpatient and outpatient services if patients are not scheduled using the VistA scheduling package.

- VHA's scheduling function primarily focuses on obtaining demographic information and ensuring that the patient is enrolled for VHA benefits. Interviewees noted that when staff members do not capture insurance during scheduling, they cannot always bill third party insurance in a timely manner, or there can be delays to obtaining the necessary pre-authorization medical procedures (if at all).[40] Reimbursements may be lost as the CPAC is

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[37] Assessment E Data Call. (2015). Survey of VAMC Patient Registration Staff. Unpublished raw data.

[38] Note: Survey of Patient Registration staff at VAMCs was a not a random or representative sample survey. Survey respondents were wholly self-selected.

[39] Qualitative interviews at one CPAC indicated that this was an issue and consistent with Assessment E.

[40] Qualitative interviews at three CPACs indicated that this was an issue.

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unaware of the insurance company to bill, missing a timely billing statute when staff members identify the insurance late, or not obtaining required pre-authorization for services.

Recommendations

- **CBO/VAMC Task Force**: Update VHA Directives to require the identification of third-party payer coverage at the point of scheduling. Specifically, when schedulers establish or confirm appointments with the patient. Develop detailed scripts for VAMC schedulers to follow. These scripts will also be valuable for use in training sessions for Patient Intake staff.

- **VHA/VAMC**: Add insurance identification to scheduling staff performance plans.

- **CBO/CPACs**: Develop and implement a reminder tool/feature to give the scheduler a notice to ask for insurance information.

- **VAMC**: Verify all identified insurance using the electronic Insurance Verification (eIV) tool prior to the patient's appointment date. Coordinate with insurance verification teams at the CPACs to resolve discrepancies.

- **VHA/VAMC**: Develop and enforce same requirements for insurance identification and verification for non-scheduled patient walk-ins and patients arriving in the Emergency Department. This should occur as early as is practical for the situation (i.e., before, during, or immediately after the encounter, if possible), without unnecessarily interfering with the provision of care.

- **VAMC**: For recurring patient care (i.e., therapy patients, chemotherapy patients, etc.), re-verify (using the eIV tool) the Veteran's insurance every 30 days. Patient Intake staff should confirm insurance has not changed each time a Veteran checks in.

6.3.1.2   Pre-Registration and Registration

We assessed pre-registration and registration activities through a review of VAMC policies and procedures, VHA directives, structured interviews, and viewing tools used during patient check-in with staff from PAS, HAS or MAS (Patient Intake staff) and the CPAC (insurance verification).

Table 6-7. Pre-registration and Registration

Pre-registration and Registration Defined: Pre-registration of scheduled patients is the second contact, where the patient provides insurance and demographics information. Prior to the patient's appointment, insurance information is verified and any necessary pre-authorizations are obtained. Registration activities follow when the patient checks-in for their scheduled appointment. At this time, staff verify insurance information and demographics if the patient was not pre-registered or presents in the Emergency Department.

> **Impact:**
>
> Effective pre-registration allows for accurate and timely insurance verification and pre-authorizations, which increases cash collections and net revenue and reduces third-party denials.

> **Industry Best Practices:**
>
> All patients are pre-registered one to three days in advance of their scheduled appointment. Staff verify insurance benefits and pre-authorizations 72 hours prior to the patient's appointment using online technology tools. Registration should occur during appointment check-in to verify the patient's insurance and demographics information if they were not pre-registered.

> **VHA Key Findings:**
>
> 1. Limited and ineffective pre-registration processes before the date of service across VAMCs, resulting in potential inaccuracies and timeliness issues for capturing demographic and insurance information.
> 2. Training on Patient Intake procedures vary across VAMCs, and within VAMCs, inhibiting timely insurance identification.
> 3. VHA relies on costly back-end processes and outside contractors to identify insurance

Finding 1

1. **Limited and ineffective pre-registration processes before the date of service across VAMCs, resulting in potential inaccuracies and timeliness issues for capturing demographic and insurance information.**

- We noted a lack of national standardized processes related to pre-registration and the capturing of demographic and insurance information in Patient Intake.[41] These activities are essential to insurance capture, in addition to obtaining pre-authorization from the insurance carrier prior to date of service, as is typically required. For scheduled patients with insurance on file, CPAC RUR nurses (located at VAMCs) will obtain authorization for episodes of care per insurance policy requirements to prevent payment denials. CPAC RUR staff cannot effectively obtain timely authorizations if VAMC's do no consistently pre-register the Veteran (prior to date of service).

- A VHA Pre-Registration Directive issued in February of 2007 mandated the use of pre-registration processes and systems to "achieve maximum collection potential." However, the directive expired on February 28, 2012.[42] Based on interviews, we understand that some VAMCs implemented the 2007 Pre-Registration Directive to varying degrees of success. Our research revealed that a Patient Information Collection Management directive was issued on January 2011, which rescinded the 2007 Pre-Registration Directive

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[41] Qualitative interviews at four VAMCs indicated that this was an issue.
[42] VHA Directive 2007-007 (February 2007). Pre-Registration Directive.

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and provided pre-registration policy and procedures to VAMCs.[43]It appears based on discussions with VAMC staff; they are unaware of this updated directive or do not find it specific enough to drive processes.

- VHA does not calculate standard pre-registration rates consistently across VAMCs.[44] HFMA's best practice pre-registration rate is defined as the number of patient encounter's pre-registered (demographic and insurance information obtained and verified) divided by the number of scheduled patient encounters. The HFMA pre-registration rate is greater than or equal to 98 percent (HFMA, 2012)

- Since 'pre-registration rates are not available nationally, we requested and obtained this information as part of a national VAMC data call.[45] We learned that certain VAMCs calculate the pre-registration rate using the collection of information at check-in (not in advance of check-in). For this reason, we are not able to compare VHA's pre-registration rate with the industry benchmark.

Recommendations

- **VAMC**: Implement and enforce a standard pre-registration policy and process for all VAMCs to follow. The process should be coordinated between the scheduling functions at VAMCs and the insurance verification teams at the CPACs to ensure the identification and verification of insurance and demographic information.

- **VAMC**: Establish and enforce a national pre-registration rate as a standard key performance metric. Report the metric nationally and hold Patient Intake staff and VAMC leadership accountable for achieving it. Standard performance metrics must be aligned across VISNs, VAMCs, and CPACs and support an overarching metric of total collections. We understand that each CPAC has collections goals communicated to the respective VAMC leadership. Performance against collection goals should be communicated to both VAMC and CPAC staff, and aligned to individual performance. This is particularly important for Patient Intake staff to understand to improve performance in this area.

Finding 2

2. **Training on Patient Intake procedures vary across VAMCs, and within VAMCs, inhibiting timely insurance identification.**

- Interviews with VAMC staff revealed a shortage of national training on standard Patient Intake policies and procedures.[46] This lack of standard training has created variability in

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[43]VHA Directive 2011-003 (January 2011). Patient Information Collection Management Processes (PICM).

[44]Qualitative interviews with two VAMCs indicated that this was an issue.

[45]Source: For calendar year 2014, a pre-registration rate was obtained via a VAMC-wide data call. 123 VAMCs responded and provided data on the "Number of Unique Outpatients Pre-Registered" and the "Total Number of Unique Patients Treated During Scheduled Visit." We analyzed this VAMC data at the CPAC level to obtain an average pre-registration rate for calendar year 2014.

[46]Qualitative interviews at four VAMCs indicated that this was an issue.

the methods Patient Intake clerks use to obtain demographic and third party insurance information.

- While Patient Intake staff at VAMCs complete training sessions to learn about updates to systems and policies, this training is not standardized and differs in content and complexity across VAMCs. For example, some VAMCs reported that Patient Intake staff were required to attend detailed training sessions led by PAS, HAS, or MAS leadership, while other VAMCs reported that training for Patient Intake is primarily focused on shadowing more experienced employees.

Recommendations

- **VAMC and CPAC**: Develop a formal training program managed by Patient Intake and Revenue Operations leadership. As part of this training program, Patient Intake staff should complete standard, recurring training sessions to learn about updates to systems and policies. This recommendation includes the following:
    - o Create a national training program for the Patient Intake function and provide updated national policy and procedure guidebooks for all Patient Intake staff.
    - o Develop detailed scripts to accompany standard policies and procedures for use during training sessions.
    - o Require that new hires complete a comprehensive training program that includes insurance identification training, point of service collection training, financial counseling training, computer and systems training, and on-the-job training.

Finding 3

3. **VHA relies on costly back-end processes and outside contractors.**

- VHA relies on a contracted vendor to perform insurance identification and verification for missing insurance at a cost of $14.75 for each billable policy identified and verified as in effect for the applicable date of service. This service resulted in identifying 254,672 billable insurance policies for calendar year 2014 at a cost of $3.7 million to VHA.[47] Collections associated with these activities was not readily available. The vendor finds the patient's billable insurance and uploads it to VistA on the first day of every month.

- The reliance on back-end (CPAC) insurance verification, coupled with insufficient insurance identification and verification processes in Patient Intake, creates situations where insurance verification is being performed post the visit and too late, payers are not being billed, and payments are reduced or denied.

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[47]CBO (2015). *HMS Monthly Uploads Costs by CPAC, CY2014*. Data was received by CPAC (and associated VAMC) and included month/year, total billable policies, and invoice amount. National totals for Calendar year 2014 total were calculated by adding totals across all CPACs.

Recommendations

- **CBO**: Conduct cost benefit analysis for use of contracted vendor for insurance identification and verification compared to an in-house solution.
- **CBO**: Continue current efforts to upgrade and further develop the eIV tool that allows for insurance verification prior to the date of service. Doing so generates additional benefits not only for meeting precertification requirements, but also by eliminating third-party contractor service costs for missing insurance capture.
- **VAMC**: Standardize and enforce use of eIV tool for all non-service connected treatment in Patient Intake.

6.3.2 Coding and Clinical Documentation—Delays in VAMC Clinical Documentation and Outpatient Coding Backlog Prevent Timely Collections.

Clinical documentation and coding, categorized as "Clinical Administration" occur subsequent to Registration. After treating a patient, the clinician completes all clinical documentation and signs off on the encounter. Coders review the clinical documentation, assign appropriate codes, and submit the validated and coded encounter to billing for submission to third-party payers. To make sound coding decisions, leading practices are for coders to be certified.[48] Clinicians and coders should receive ongoing training to promote accurate and timely clinical documentation and coding as well as training on any major systems or coding changes. More details regarding VHA's clinical documentation and coding processes for inpatient care are located in the Assessment F (Clinical Workflow) Report.

For the purposes of our assessment, we reviewed clinical documentation and coding processes for billable inpatient and outpatient encounters. We did not conduct an independent audit of the appropriateness of coding assignments and documented diagnoses and services. We examined industry leading practices in clinician and coder coordination and training, as well as, the tools and systems used to support correct code assignment.

Table 6-8. Clinical Administration

Clinical Administration Defined:
After providing medical services, a clinician completes and signs clinical documentation, indicating that the patient encounter is "closed." Coding staff review and validate the completeness and accuracy of the encounter's clinical documentation and assign requisite codes related to the patient diagnosis and procedures performed.
Impact:
Clinical documentation and coding is essential to the accurate assignment of clinical and billing codes enabling accurate third-party reimbursement.

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[48]Note: The American Health Information Management Association (AHIMA) is one of the major coding credentialing entity. Certified Coding Specialist (CCS). http://www.ahima.org/certification/CCS.

> **Industry Best Practices:**
>
> Clinicians typically complete clinical documentation within 24 hours. Clinicians should enter charges, assign codes, and close encounters in less than four days for inpatient encounters and six days for outpatient encounters. Clinicians should then submit coded patient accounts to billing so that claims are ready to submit to third-party payers.[49]
>
> **VHA Key Findings:**
>
> 1. Delays in clinical documentation turnaround time are inhibiting timely coding, billing and third-party revenue collection.
> 2. VHA is not consistently implementing and enforcing the national initiative around improving clinical documentation practices.
> 3. VHA is unable to code outpatient encounters promptly, resulting in outpatient coding backlog across VHA and preventing accelerated billing and collections.

Finding 1

1. **Delays in clinical documentation turnaround time are inhibiting timely coding, billing, and third-party collections.**

- Three factors contributing to this finding are (1) clinicians are not completing clinical notes and closing patient files on time, (2) clinical documentation issues are requiring significant coder follow-up, and (3) residents are not getting their attending physicians to cosign their encounters. Interviews with VAMC leadership indicated that were was a lack of clinician accountability for completing their clinical notes and patient files within VHA's targets and standards.[50]

- Figure 6-4 outlines VHA's documentation and coding processes for all billable encounters. VHA coders review and code all billable and non-billable inpatient admissions and inpatient surgeries as well as all billable inpatient professional services.[51]For billable outpatient encounters, VHA coders validate the accuracy of the clinician assigned code(s) by reviewing the encounter's clinical documentation. If the clinician's code(s) do not match the encounter's documentation, then VHA coders will adjust per the documentation. CPAC staff assigns patient encounters flagged as being billable to third-party insurance to VAMC coders for coding. When staff identifies billable insurance after the patient's encounter, the encounter assigns to the coder as a "new insurance late check-out" and is coded and sent to the CPAC for billing.

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[49]Per Grant Thornton industry subject matter expertise.

[50]Qualitative interviews at four VAMCs indicated that this was an issue.

[51]Discussion with HIM leadership.

Figure 6-4. VHA's Documentation and Coding Process Map for Billable Encounters

Source: Grant Thornton's rendition of the VHA Documentation and Coding processes.

- VHA clinical documentation targets are for clinicians to complete patient a history and physical note within 24 hours of admission and to sign and close the patient's medical record within seven days of discharge or outpatient visit.[52] In the private sector, leading practices include clinicians completing clinical documentation within 24 hours, entering charges and codes, and closing the encounter in less than four days for inpatient encounters and six days for outpatient encounters.

- Table 6-9 summarizes clinical documentation delays from November 2014 to March 2015 for all billable outpatient encounters. The data revealed a delay in approximately 13 percent of billable outpatient encounters due to issues with clinical documentation (i.e., missing documentation, documentation with errors, or open outpatient encounters). This data supports interview findings.[53]

- Interviewees consistently reported challenges with clinical documentation, specifically that clinicians were late in closing out their encounters and were submitting missing or incomplete documentation.[54] One site noted that many clinicians work part time at VAMCs, which significantly delays documentation turnaround when clinicians do not have remote access capacity to complete patient files or to answer coder's questions.[55] Table 6-9 shows documentation latency percentages for outpatient encounters.

Table 6-9. Clinical Documentation Latency[56]

Clinical Documentation Latency as % of Insured Outpatient Encounters (November 2014 – March 2015) is Impacting Collections						
	Nov '14 (%)	Dec '14 (%)	Jan '15 (%)	Feb '15 (%)	Mar '15 (%)	5 Month Avg*
Outpatient Encounters Requiring Clinical Action *(Not Including Closing Out)	3.79%	3.78%	4.55%	5.06%	4.41%	4.32%

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[52]Note: Per VHA Directive 2011-025, workload closeout for all monthly updates to VHA corporate patient data files must be accepted by AITC no later than 7 days from the date of the Patient Treatment File (PTF) discharge and the inpatient or outpatient encounter.

[53]Qualitative interviews at four VAMCs indicated that this was an issue.

[54]Qualitative interviews at four VAMCs indicated that this was an issue.

[55]Qualitative interviews at one VAMC indicated that this was an issue.

[56]CBO. (2015). *Clinical Documentation Latency in Insured Outpatient Encounters, November 2014-March 2015.* Unpublished raw data.

Clinical Documentation Latency as % of Insured Outpatient Encounters (November 2014 – March 2015) is Impacting Collections						
	Nov '14 (%)	Dec '14 (%)	Jan '15 (%)	Feb '15 (%)	Mar '15 (%)	5 Month Avg*
Outpatient Encounters with Documentation Errors *(Not Including Closing Out)	5.40%	2.79%	3.25%	3.78	2.74%	3.59%
Outpatient Encounters Not Closed Out in 7 Days	5.94%	6.09%	5.34%	5.19%	4.04%	5.32%
Total Billable Outpatient Documentation Latency	15.13%	12.66%	13.14%	14.03%	11.19%	13.23%

Source: CBO. (2015). Clinical Documentation Latency in Insured Outpatient Encounters, November 2014-March 2015. Data and percentages were obtained from CBO. Five-month average was calculate by averaging November-March.

- When CPAC staff members submit late and incomplete encounters, this requires coders to spend significant time following up with clinicians to finalize an encounter's documentation. For example, coders review physician query reports to identify encounters requiring clinician action (e.g., coder questions, documentation with errors). These activities delay coding turnaround time and the submission of coded encounters for billing to third-party payers.

- HIMS tracks inpatient and outpatient coding turnaround time. In reviewing the national HIMS inpatient metrics for calendar year 2014, VHA is performing above standard and in line with leading practices by coding billable and non-billable inpatient encounters within four days, ahead of VHA's seven-day standard.[57]

> Inpatient Coding: VAMC coders are consistently outperforming VHA standards for inpatient coding turnaround time by an average three days.

- However, VHA is performing approximately nine days below its own standard for the HIMS outpatient turnaround time metric for Calendar Year 2014. VHA is completing the turnaround time for outpatient encounters within an average of approximately 23 days as compared to the 14-day VHA target.[58] Since VHA coders are only reviewing and coding billable outpatient encounters while industry standard is to bill all encounters, this turnaround time delay and failure to meet national HIMS targets is notable. Interviewees at all visited VAMCs noted the timeliness of receiving clinical documentation as a root cause of the turnaround time delay.[59] VHA understands the importance of timely coding and the impact on the revenue cycle. The

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[57]HIMS. (2015) *Calendar Year 2014 Inpatient Coding Turnaround Time.* Monthly VHA averages were received from HIMS and a national VHA average was calculated for calendar year 2014 based on the monthly VHA average.

[58]HIMS. (2015). *Calendar Year 2014 Outpatient Coding Turnaround Time.* Monthly VHA averages were received from HIMS and a national VHA average was calculated for calendar year 2014 based on the monthly VHA average.

[59]Qualitative interviews at four VAMCs indicated that this was an issue.

The views, opinions, and/or findings contained in this report are those of Grant Thornton should not be construed as an official government position, policy, or decision.

CBO Strategic Plan identified that VHA will conduct an outpatient consolidated coding feasibility study in Q4 of FY 2016.[60] The study will include the development of a work group to focus on current coding processes, workforce, costs, governance, and organizational alignment.

- During site visits to two of four visited VAMCs, interviewees reported challenges with resident physicians appropriately documenting encounters and getting their attending physicians to provide the required counter signatures. Interviewees reported that it was common for residents to treat patients and complete their rotation without ensuring the completion of a patient's treatment file or counter signing by an attending physician. VHA's internal policies and agreements with third-party payers state that they cannot bill a third party without an attending physician cosigning an encounter's documentation for resident-provided care. The 2007 OIG Report identified challenges with enforcing resident documentation compliance and third-party revenue losses (OIG, 2007). OIG recommended that VAMCs ensure resident and attending clinician compliance with the existing VHA Handbook for Resident Supervision.[61]

- VAMC personnel we interviewed during a site visit noted success with including incentives for clinical documentation performance in clinician's performance pay agreements.[62]

- The issues in clinical documentation and coding illustrate that the mechanisms to ensure the accuracy of third party collections is inadequate.

Recommendations

- **VAMC Leadership**: Enforce existing national targets for clinicians to complete notes within 24 hours of admission and to sign and close the patient's medical record within seven days of discharge or outpatient visit. VHA should apply and enforce these requirements for all clinicians, full time and part time, as well as residents and their attending physicians and include them in performance plans.

- **VAMC Leadership**: Use performance pay agreements to assist with enforcing clinician compliance. Tie turnaround time compliance with performance ratings for VISN and VAMC Directors and Medical Directors. Inconsistent provider compliance with clinical documentation requirements could be resolved with appropriate penalties, such as reduced performance pay. Investigate increasing the weight placed on administrative elements in clinician's performance pay agreements, such as clinical documentation timeliness and accuracy.

- **VAMC**: Provide standard clinical documentation training to all clinicians. A CDI specialist should deliver this training and highlight the importance of clinical documentation in accurate and timely coding.

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[60]CBO. The Way Forward (February 2014). Revenue Operations Strategic Plan. February 2014. Pg 52.
[61]VHA Handbook 1400.01. Resident Supervision. Page 1-31.
[62]Qualitative interviews at one VAMC indicated that this was a successful approach to address clinical documentation challenges.

- **VAMC**: Provide clinicians with remote access to VHA email/systems so that they can make updates to clinical documentation and respond to coder queries when offsite.

Finding 2

2. **VHA is not consistently implementing and enforcing the national initiative around improving clinical documentation practices.**

- VHA coders are spending excessive time querying clinicians to make corrections or updates to their clinical documentation, rather than providing corrective training. Some VAMCs use CDI programs to address challenges in clinician's documentation (Advisory Board, 2014). Dedicated CDI specialists are staff members that implement CDI programs, review patient charts, and train clinicians to improve their documentation practices.[63] VHA HIMS is providing national level guidance to VAMCs implementing CDI programs.[64] However, despite the availability of guidance, CDI programs are not mandated and only 46 percent of VAMCs reported having a CDI program.[65]

- The inconsistent use of CDI programs and lack of national initiative around improving VHA documentation may be a contributor to the number of controllable medical necessity denials initially received. During calendar year 2014, there was $14.2 million dollars of medical necessity denials initially received (or 1.3 percent of all denials initially received).[66] The submission of timely and accurate clinical documentation is required to bill an encounter and without an enforced national initiative around improving clinical documentation practices, VHA risks the collection of amounts owed from third parties.

- Lack of standardized clinical documentation practices poses a risk for VHA's ICD-10 readiness. The nationally mandated change in coding requirements from ICD-9 to ICD-10 is significant. It requires both clinicians and HIMS to adjust the way encounters are documented and coded, which will result in revenue that is more accurate. In October 2015, all providers will be required to be compliant with the new coding guidelines as mandated by CMS.[67] If clinicians do not document per new specificity guidelines, the appropriate code cannot be applied which will result in lost revenue from third-party payers. During site visits, we learned that there are national level ICD-10 preparation activities occurring and that VHA coders have started dual coding in ICD-10. In the private sector, leading ICD-10 preparation activities have included using CDI programs to train and educate coders and clinicians, streamlining ICD-10 communications, and optimizing the use of available clinical documentation and coding tools. HFMA has estimated that providers could see a 100-200 percent increase in denials and a 20–40 percent increase in

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[63]Note: CDI specialist role is focused on promoting clinical documentation improvement through ongoing measurement and provider education. Specialists will review medical records for incomplete or conflicting information and provide follow-up training. Previous coders or nurses with coding knowledge often fill these positions.

[64]CBO. The Way Forward (2014). Revenue Operations Strategic Plan. pg 35 & VHA CDI Program Guide

[65]HIMS (2014). *VAMC CDI Program Adoption Data*. Received this percentage from VHA HIMS.

[66]CBO. (2015).*Total Initial Denials Received, CY2014*. [Data file and code book]. Retrieved from POWER.

[67]45 CFR Part 162.

The views, opinions, and/or findings contained in this report are those of Grant Thornton should not be construed as an official government position, policy, or decision.

days in AR concurrent with ICD-10 implementation (HFMA, 2013). VHA's denials will likely increase significantly after ICD-10 implementation, which may negatively affect MCCF collections.

Recommendations

- **VAMC/HIMS Leadership**: Standardize the CDI program and mandate use across all VAMCs. VHA should provide designated CDI specialist funding to VAMCs to promote use of this essential role. These actions would improve the quality of clinical documentation, meet industry standards, and increase VHA's ability to collect appropriate third-party reimbursement. A standardized CDI role will also allow VAMCs to manage their controllable medical necessity denials and to provide corrective training to clinicians to improve their documentation.

- **VAMC/HIMS Leadership**: Perform tests of readiness using a national steering committee to ensure that VHA mitigates risk ICD-10 implementation. We understand VHA has taken steps to ensure ICD-10 technology and training is available to staff members. VAMCs should continue their local preparation activities and use a CDI program to train clinicians on ICD-10's more stringent clinical documentation requirements.

Finding 3

3. **VHA is unable to code outpatient encounters promptly, resulting in outpatient coding backlog across VHA and preventing accelerated billing and collections.**

- We identified an outpatient coding backlog at all VAMC site visits, which is significant considering that VHA coders only validate the accuracy of clinician assigned code(s) and apply correct codes as necessary for *billable* outpatient encounters, while the private sector codes and validates every patient encounter.[68] Figure 6-5 depicts the average monthly outpatient backlog at each visited VAMC for calendar year 2014, as reported by HIMS.[69] We estimated the average days' worth of backlog using the daily coder productivity standard of 70 outpatient records per coder found in VHA Directive 1907.03 (2012). In reviewing backlog data, we found that VAMCs are keeping up with their inpatient coding volume but have significant outpatient coding backlogs.

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[68]Note: The assessment requested national level backlog data. However, this data was not readily available and backlog data from each visited VAMC for calendar year 2014 was used instead.

[69]Note: Interviews with Miami HIMS and Compliance staff revealed a significant outpatient backlog during part of Calendar Year 2014 due to high turnover among coding staff. The backlog was resolved with contracted coders and new coders have since been hired.

Figure 6-5. CY 2014 Average Monthly Outpatient Coding Backlog[70,71]

Average Monthly Outpatient Backlog at the VAMCs Visited as Part of our Assessment is Impacting Collections

Gulf Coast (V16) — (8.1 Days)
Ann Arbor (V11) — (24.7 Days)
Hines (V12) — (32.2 Days)
Miami (V08) — (113.6 Days)
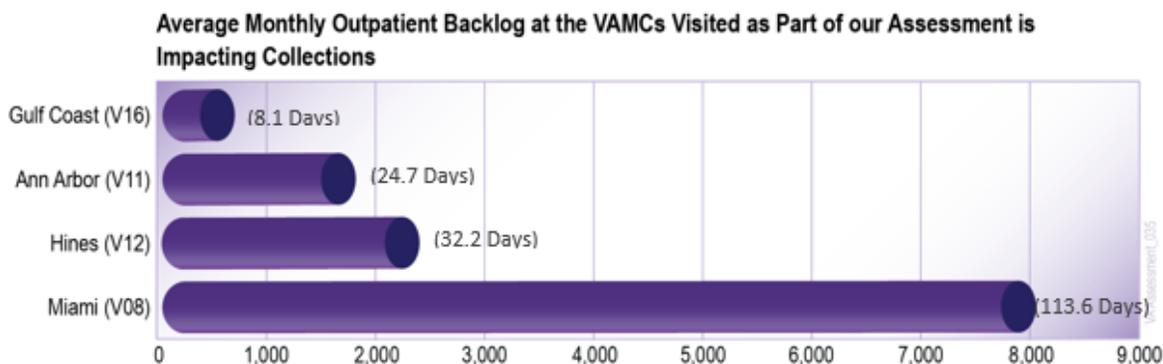
Source: HIMS (2015). Calendar Year 2014 Outpatient Coding Backlog at Miami, Ann Arbor, Biloxi, and Hines. VSSC data. The HIMS backlog data contained monthly totals for calendar year 2014 that was separated by VAMC site. A twelve-month average was calculated by the assessment and excluded months where backlog data was not reported by the site.

Note: Interviews with Miami HIMS and Compliance staff revealed a significant outpatient backlog during part of Calendar Year 2014 due to high turnover among coding staff. The backlog was resolved with contracted coders and new coders have since been hired.

- To reduce their outpatient backlog, VAMCs often resort to using coding contractors. [72,73] We found three factors contributing VHA's outpatient coding backlog: (1) There is a national shortage of certified coders, (2) VHA coders are responsible for more administrative duties than private-sectors coders, and (3) VHA coder training is insufficient.

- There is currently a national shortage of certified coders and VHA struggles to compete with their private-sector peers to attract and retain high performing coders (Heubusch, 2008). VHA's 2015 Workforce Report identified an increase in the loss rate for coders (identified as Medical Records Technicians) from 6.8 percent in FY 2012 to 8.5 percent in FY 2013.[74] Interviews identified high turnover among existing coding staff and VHA's Workforce Report reported an increase in quit rates among coders from 2.6 percent in FY 2009 to 3.4 percent in FY 2014.[75] VHA's clinical coding procedures do not require the

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[70]HIMS (2015). *Calendar Year 2014 Outpatient Coding Backlog at Miami, Ann Arbor, Biloxi, and Hines*. VSSC raw data.

[71]Note: Interviews with Miami HIMS and Compliance staff revealed a significant outpatient backlog during part of Calendar Year 2014 due to high turnover among coding staff. The backlog was resolved with contracted coders and new coders have since been hired.

[72]Qualitative interviews at two VAMCs and one CPAC indicated this.

[73]Note: The average hourly rate for an outsourced coder is $16.15.
http://www.payscale.com/research/US/Job=Medical_Coder/Hourly_Rate

[74]VHA Workforce Management & Consulting Office. *VHA Workforce Planning Report 2015*. Page 59-60.

[75]VHA Workforce Management & Consulting Office. *VHA Workforce Planning Report 2015*. Page 59-60.

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hiring of credentialed coders, which departs from private sector leading practices.[76] Non-certified coders require additional training and supervision and may present an ongoing risk of compliance to VHA with the implementation of ICD-10. Qualitative interviews also revealed that VHA loses top coding candidates to the private sector because of slow hiring processes, increased responsibilities at VA, and a lack of competitive compensation.

- We also noted that VHA requires coders to perform administrative activities not required of private-sector coders. For example, since VHA providers do not routinely check VistA email, coders are forced to use various time consuming methods (phone calls, drop-ins, notes on charts) to obtain responses to documentation requests. Since coders are already coding much more than their private-sector counterparts (due to VHA's antiquated charge master system as explained in Section 8), VHA coders' additional administrative duties are significant and prevent them from working outpatient-coding backlogs.[77] Interviews revealed that coders are required to review open encounters and to follow up with clinicians to clarify or update their documentation (e.g., to identify or correct diagnosis and treatment information).[78] Coders are often responsible for providing ad hoc training to clinicians when they identify errors or inconsistencies in their documentation practices.

- VHA's HIMS coding procedures states that a qualified coder should review clinician-assigned codes and that the clinicians who are maintaining an acceptable accuracy rate only require random compliance reviews.[79] We found that VHA coders were reviewing all evaluation and management (E&M) codes, rather than conducting sample reviews for compliance. This approach deviates from private-sector leading practices, which are for certified coders to conduct a coding review of a sample of E&M codes per month by provider. Private-sector providers are trained on proper E&M assignment and use robust coding tools such as Computer Assisted Coding (CAC) devices to ensure codes are correct. Lack of adequate clinician training and CAC tools available nationally at VHA cause additional administrative burden for coders and contributes to the outpatient-coding backlog and high coder turnover.[80]

- Interviews with coding supervisors and new coding employees revealed an over reliance on informal training practices, such as shadowing experienced employees.[81] We found that the reliance on informal training for coding staff places a heavy burden on more experienced staff who are required to train new employees as well as meet their ongoing performance metrics. The ineffective coder training and inconsistent hiring of certified coders contributes to the number of controllable wrong procedure code denials received.

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[76]VHA Handbook 1907.03. *Health Information Management Clinical Coding Program Procedures.* (2012, September). Page 2.

[77]Qualitative interviews with HIM and CBO staff revealed that this was an issue.

[78]Qualitative interviews at four VAMCs indicated that this was an issue.

[79]VHA Procedures. Health information Management Services (HIMS) Clinical Coding Program Procedures. Pg 4.

[80]Qualitative interview findings with three VAMCs indicated that this was an issue.

[81]Qualitative interviews at two VAMCs indicated that this was an issue.

During calendar year 2014, there was $33.6 million dollars' worth of wrong procedure code denials initially received (or 3.2 percent of all denials initially received).[82]

- This outpatient coding backlog delays the billing of a third party and risks denials for untimely submission, which directly affects the collection of amounts owed to VHA. More details regarding VHA's inpatient coder workload and productivity are located in the Assessment F (Workflow – Clinical) Report.

Recommendations

- **VA/VHA Leadership**: Collaborate with the Office of Personnel Management (OPM) to streamline the process for sourcing, interviewing, and hiring new certified coders to compete with the private sector. VHA could favorably influence their wrong procedure code denials by requiring VAMCs to hire only certified coders and by standardizing national coder training. These efforts may require VHA to engage with unions on new coder certification requirements.

- **VAMC**: In recent years, VHA has made significant advancements in virtual and self-paced training and education programs delivered via online platforms. VAMCs should leverage these platforms to train coders but consider virtual training as supplemental to formal in-person trainings. Experienced subject matter experts (SMEs) should deliver the formal in-person coding training.

- **VAMC**: Hire administrative staff members well versed in medical terminology to support coders by performing non-coding functions. Administrative staff could review open encounter reports and follow up with providers to meet documentation needs. This will allow VHA's coders to focus on coding and managing any coding backlog so that VA can avoid using coding contractors to resolve their backlog. Continue to explore the use of contracted coding staff based on demand.

- **VAMC**: Reduce coding data validation reviews for clinicians maintaining VHA's acceptable accuracy standard of 95 percent.[83] Coding should move toward conducting a sampling of a number of clinician-coded encounters to promote continued accuracy and compliance. Prior to initiating the coding data validation review, VHA should confirm the proper training, availability of education materials, and instruction of clinicians on clinical documentation requirements. If there are ongoing issues with compliance and a lack of confidence in the providers' documentation and coding, VHA should use CDI specialists to provide training to noncompliant clinicians.

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[82]CBO. (2015).*Total Initial Denials Received, CY2014*. [Data file and code book]. Retrieved from POWER.
[83]VHA Procedures. Health information Management Services (HIMS) Clinical Coding Program Procedures. Pg 4.

6.3.3 Cultural Barriers—Veterans and VHA Staff Members Do Not Consistently Understand Veteran Financial Obligations, Resulting in Inconsistent Insurance Identification and Collections.

Based on interviews with VAMC leadership, cultural barriers have a significant role in the identification of Veteran's insurance information by VAMC Patient Access staff. VHA must have a culture of synchronized organizational functions for both VAMC Patient Intake and CPAC Patient Accounting that work toward a common goal of caring for Veterans and supporting the appropriate collection of first- and third-party revenue as outlined by Congress. A lack of shared goals contributes to weak culture and inhibits collaboration, resulting in poor outcomes. While VHA has improved its efforts to obtain insurance information from the patient, cultural barriers remain. The follow section outlines VHA's current cultural barriers in insurance identification among Veterans and VHA staff.

Table 6-10. Cultural Barriers

Cultural Barriers Defined:
Informal values, norms, and beliefs that prevent an organization from achieving its mission.
Impact:
A strong (organizational) culture is necessary to synchronize all business processes and work toward a common goal. Lack of shared goals contributes to weak culture and inhibits collaboration, resulting in poor outcomes.
Industry Best Practices:
Strong cultures are adaptable to change, build loyalty and commitment, effectively communicate with customers, and tie operational tasks to mission accomplishment. In leading hospitals, all business processes across departments are coordinated, enabling better collections.
VHA Key Findings:
1. Cultural barriers, coupled with administrative challenges, prevent VHA from maximizing collections. Veterans do not understand the need to provide insurance information, and some VHA employees do not agree with VHA's authority to bill insurance companies for non-service connected health care.

Findings

1. **Cultural barriers, coupled with administrative challenges, prevent VHA from maximizing collections. Veterans do not understand the need to provide insurance information, and some VHA employees do not agree with VHA's authority to bill insurance companies for non-service connected health care.**

Fifty-four point six percent of denials from insurers in 2014 were related to the Patient Intake functions, where issues with insurance verification and authorization are prevalent. Notably, non-covered charges represented the largest (35.8 percent) portion of those denials (additional

detail located in Section 6.3.5 Denials).[84] When VHA does not identify or verify insurance prior to providing scheduled services, VHA is unable to properly bill third-party insurance and perform necessary pre-authorization services, which results in denied or delayed payment for services. While VHA has improved its efforts to obtain insurance information from the Veteran, cultural barriers remain. In interviewing Patient Intake staff members, we learned two key issues that prevent timely insurance capture. These are as follows:

   a. Many Veterans do not understand why insurance information is required (many recall being promised 'free care for life') and refuse to provide insurance information. Other Veterans do not understand their out-of-pocket responsibilities, the CPAC refund process, or are afraid of being charged by their insurance co-payments.[85] Veterans do not understand that providing third-party insurance information and paying amounts due allows VHA to provide medical care and services to other Veterans. Interviewees reported that many Veterans are reluctant to provide insurance information or pay co-payments.[86]

   b. Registration clerks do not feel comfortable asking for insurance and engaging the Veterans in this sensitive discussion. Further, some VHA staff members do not ask for insurance information because they do not believe it is appropriate to bill insurance companies for Veteran care.[87] Due to staff members not understanding the reasons to ask for insurance, lack of enforcement or Veterans unwillingness to provide this information, they do not capture insurance consistently for each Veteran.

The VAMCs run an insurance capture buffer exceptions report that indicates each time they were unable to obtain updated insurance information from a Veteran. An exception occurs when a Veteran's health insurance requires updating and Patient Intake staff did not obtain the information from the Veteran. As depicted by Figure 6-6, VAMCs are struggling to meet VHA's national insurance capture metric, implying an opportunity to increase performance.[88]

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[84] Source: National Initial Denials Received from CBO, CY2014.

[85] Qualitative interviews at two CPACs and three VAMCs indicated that this was an issue.

[86] Qualitative interviews at two CPACs and one VAMC indicated that this was an issue.

[87] Qualitative interviews at one CPAC and one VAMC indicated that this was an issue.

[88] Assessment I Data Call. (2015). *Insurance Capture Error Rate Survey of 123 of 139 VAMCs*. Unpublished raw data.

Figure 6-6. Insurance Capture Error Rate

VAMC Insurance Capture Error Rate is Impacting CPAC Collections
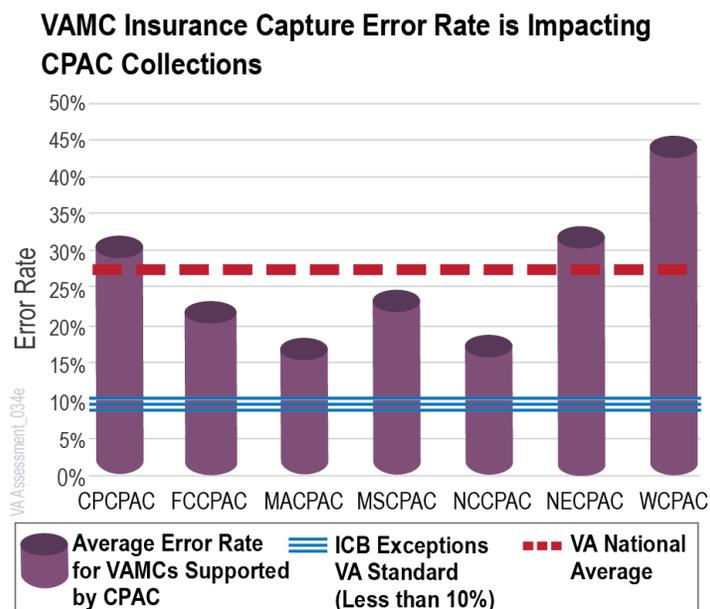
Source: VAMC Insurance Capture Error Rate Data Call Results. ICB exception rate data for Calendar Year 2014 was obtained via a VAMC-wide data call. There were 123 VAMC respondents that provided their error rate. An average error rate for VAMCs support by CPAC was calculated at the CPAC level.

- Our finding is consistent with a 2012 OIG Report, which found that VHA needed to improve their processes for identifying Veterans with third-party insurance (OIG, 2012). Per the 2012 OIG Report: [89]

  o "VA medical facility revenue staff did not bill approximately 400,000 or three percent of over 16 million unbilled episodes of care because Veterans or their spouses' insurance policies were not identified at the time of treatment or within the insurance billing time frame."

- OIG recommended that VHA implement mechanisms to monitor insurance identification and to train clinical administrative staff on third-party insurance identification policies and procedures. In reviewing VHA's insurance capture data and interviews with CPAC and Patient Intake staff, it appears that the OIG's 2012 recommendations were not implemented effectively.

Recommendations

- **VHA**: Near-term actions include increasing communication to Veterans and VHA staff using VAMC Town Hall meetings, website resources, and existing staff and Veteran

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[89] Department of Veterans Affairs Office of Inspector General. (2012). Audit of VHA's Medical Care Collections Fund Billing of VA-Provided Care. Report No. 11-00333-254. Retrieved from http://www.va.gov/oig/pubs/VAOIG-11-00333-254.pdf

training as mechanisms to emphasize the insurance collection requirement. Include this education in mandatory, periodic refresher training for all VHA staff.

- **VHA**: Institute and mandate a process to identify third-party payer coverage at or near the point of scheduling, or at a minimum within 72 hours of the scheduled service. Doing so will reduce the risk of not capturing insurance until later in the process (e.g., Patient Intake).

- **VHA**: To address the larger cultural barriers, VHA should incorporate education of Veterans, their families/caretakers, all levels of VHA staff, key stakeholders (including Congress and state/local government agencies, Veterans' groups), and the public, into their Strategic Communications Plan. The education should focus on the legislative requirements for third-party insurance identification and collection, and the importance for Veterans to ensure the long-term viability of the VHA health care program.

- **VAMC**: Consistently communicate the benefits of insurance identification and verification to both Veterans and VHA staff. Patient Intake and Scheduling staff need to understand how important insurance information is to their own VA Medical Center's financial standing, and that allows it them to better serve Veterans. It is important for any communication efforts to help Veterans understand how insurance works at VHA, how co-payments are collected and reimbursed, and how funds are used to provide additional services for Veterans. Veteran training should include financial responsibilities in the benefits information sent to each Veteran, potentially through issuance of a card (that details co-payment amounts).

- **VAMC**: Invest in recurring training program to reinforce to Patient Intake staff the benefits to the VAMC of collecting third-party insurance information. For example, help new clerks understand the amounts collected are ultimately returned back to the VAMC. Better-informed clerks will enable the confidence required to inquiring about and obtaining Veteran insurance information, leading to improved collections for VHA.

6.3.4 Patient Accounting—Opportunities to Increase Collections Exist.

At VHA, the CPACs oversee all billing, accounts management, claims follow up, denials management, first-party follow up, cash applications and adjustments, customer service, vendor management, insurance verification, utilization review, and payer relations.[90] We evaluated VHA's key performance metrics for comparison to the private sector, the performance between the CPACs and the performance against the VHA standard. We evaluated the collections to billings and GDRO metrics for Patient Accounting. Appendix D, Standards and Benchmarks, provides our summary of key private-sector benchmarks compared to related VHA measures. Additionally, we attempted to evaluate days to bill as a key performance indicator; however, we did not evaluate this metric due to lack of comparability to the private-sector benchmark.

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[90]Note: Regional payer relations is covered in Chapter 9.

Table 6-11. Patient Accounting

Patient Accounting Defined:
Patient Accounting is comprised of Billing, Accounts Management, and Payer Relations. VHA refers to the submission of claims to the first-party (Veteran) and third-party (insurance company) as billing. Accounts Management activities occur after billing and focus on timely follow-up and payment of unpaid amounts (aged AR) from payers. Payer Relations is the provider function responsible for establishing contracts with third-party payers, negotiating payment rates, and ensuring the accuracy and compliance of third-party payments in accordance with negotiated contracts.
Impact:
Billing the correct amount and ensuring amounts billed are collected promptly are key drivers to overall financial performance of the revenue cycle. Additionally, Payer Relations negotiates reimbursement terms with contracted payers and supports enforcing third-party payer adherence to agreed-upon terms (including payment terms).
Industry Best Practices:
Claims are billed with automated tools that support ensuring accuracy and appropriateness of billed amounts. Accounts management teams, organized by large and small balance units, follow-up with payers on unpaid bills and ensure timely payment.
Payer Relations negotiate contracts to create uniform agreements that allow for standardization and automation of patient accounting functions. An integrated billing and payer contracting system exists to systematically verify bills comply with payer contracts.
VHA Key Findings:
1. VHA collections, as a percent of billings, has decreased over the last three years despite the growing maturity of the CPACs (the last CPAC was operationalized in 2012).
2. While the CPACs have improved standardization of billing and collection processes, process inefficiencies and talent management issues were evident.

Finding 1

1. VHA collections, as a percent of billings, has decreased over the last three years despite the growing maturity of the CPACs (the last CPAC was established in 2012).

- The CPAC model has improved performance across key revenue cycle functions as it matured over time. However, a key metric, the percent of third-party collections to billings decreased from 39.2 percent to 36.5 percent over the three-year period from January 2012 to December 2014.[91,92] As the amount of billings rose by nearly $200 million during that time, we would typically anticipate that collections would trend in a similar

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[91]CBO. (2015). *National Third Party Collections as a Percent of Billings, CY2012-CY2014*. [Data file and code book]. Retrieved from POWER.

[92]Note: Based on private sector calculation (Collections to Billings percent = Total Collections/ Total Billings) for a given time period.

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manner. We understand additional variables affect this trending, such as price increases, changes in reimbursement terms, new payer contracts, changes in payer mix and/or changes in the volume and types of services provided. Evaluating the effect of these variables was not within the scope of this assessment.

- The 2014 third-party national collection to billings percentage was down to 34.8 percent from 35.7 percent in 2013; however, it slightly improved from the 2012 performance of 34.3 percent.[93]

- Figure 6-8 represents the CPAC's performance of collections as a percent of billings for calendar year 2014. The North Central CPAC with a collection rate of 40.8 percent has the highest collection rate in relation to the other CPACs.

Figure 6-7. Collections Related to Billings – CY2014[94,95]
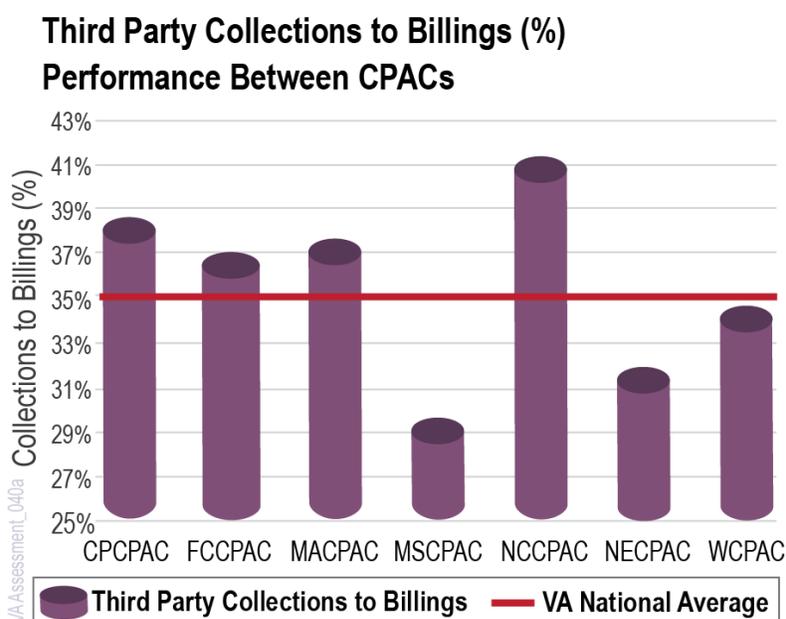
Source: CPAC Third Party Collections to Billings from CBO, CY2014

- VHA measures collections to billings as a key performance indicator in their revenue cycle reporting tool; however, due to calculation variations from industry standard, we could not effectively analyze this metric. CBO tracks third-party collections to billings by comparing collections to the bills to which they directly correlate. VHA excludes uncollected bills from the calculation. This is not consistent with the industry standard

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[93]CBO. (2015). *National Third Party Collections as a Percent of Billings, CY2012-CY2014*. [Data file and code book]. Retrieved from POWER.

[94]CBO. (2015). CPAC Third Party Collections to Billings, CY2014. [Data file and code book]. Retrieved from POWER.

[95]Note: Billings and Collections data based on calendar year 2014. National average of 34.8 percent calculated using data from same timeframe. San Juan is excluded from FCCPAC analysis due to unique payers not on electronic billing.

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calculation that includes total billings in a given timeframe and not just collected billings. By calculating the metric using the industry standard, the third-party collections to billings ratio for calendar year 2014 was approximately four percent lower than when calculated using the VHA method. This percentage difference is accounted by billings that are unpaid and in AR or potentially adjusted/written-off.

Recommendations

- **CBO/VHA/CPAC/VAMC**: If VHA addresses and standardizes the issues and recommendations listed in this report, it will improve the CPAC's collections as a percent of billings.[96]

- **VHA/CBO**: Calculate and report collections to billings using traditional industry approaches.

Finding 2

2. **Patient accounting experiences process inefficiencies and talent management issues.**

- A common theme across our interviews was that billers could not keep up with their productivity goals and accounts management requires a significant amount of rework.[97] Billing staff turnover is an issue due to the low pay grade of the positions. Interviewees noted that many billers view their positon as a stepping-stone to another role with a higher pay grade, leading to high turnover and a constant need to train new staff. VHA billing technicians are currently a GS5 on the federal pay scale, which is a lower rating than other CPAC departments and in turn leads to employee turnover. Billers move into other departments as opportunities arise.

- Another process inefficiency that negatively affects the time to collect is the division of work within accounts management follow up, where the distributed workload does not follow designated dollar thresholds.[98] The accounts management "follow up" team is currently split in two teams: (1) the "follow up" team whose designated dollar threshold to work billed claims with accounts receivable balances between $251 and $4,999, and (2) the denial management team whose designated dollar threshold is to work billed claims with accounts receivable balances greater than $5,000. Routed work load does not follow these designated thresholds as low dollar issues are routed to the high dollar denial management team work queue (e.g., underpayments, providers, and coding issues are primarily low dollar issues < $1,500 that are funneled to the high dollar denial management team work queue).

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[96]Note: Similar to the private sector, collections as a percent of billings are also influenced by trends such as price increases, changes in reimbursement terms, new payer contracts, changes in payer mix, and/or changes in the volume and types of services. CBO should consider these factors as it evaluates collections as a percent of billing at each CPAC going forward.

[97]Qualitative interviews at three CPACs VAMCs indicated that this was an issue.

[98]Qualitative interviews at three CPACs VAMCs indicated that this was an issue.

- In addition to distribution of work duties, we would not expect to see as many billing FTEs as compared to the accounts management follow up FTEs. This is partially explained by the high number of biller FTEs that are required due to manual nature of generating bills. For example, at the time of our site visit, the North Central CPAC had 64 billing FTEs (not including 10 vacancies), 24 "follow up" FTEs working balances between $251 and $4,999, and eight denial FTEs working balances greater than $5,000. As a result of the division of labor, more FTEs are billing claims and focused on low dollar claim follow up versus high dollar account balances.[99]

Recommendations

- **VHA**: Reevaluate the appropriate GS level to perform the billing function and collaborate with the Office of Personnel Management (OPM) to change the requisite pay grade level.

- **CPAC**: Reorganize the accounts management team so that the large balance unit is proactively working and resolving approximately 80 percent of the AR dollar balance. The small balance unit should reactively work and resolve 20 percent of the dollar balance of AR (typically comprised of 80 percent of account volumes), as is the industry standard. The number of accounts assigned to large balance and small balance should reflect private industry standards whereby large balance personnel are assigned lower volumes of accounts than small balance personnel. If resources exist, consider further organizing the large balance unit and small balance unit by payer to develop rapport and expertise with a payer that accelerates resolution of outstanding claims.

- **CPAC**: Continue to explore and evaluate contracting out routine follow up functions.

6.3.5 Denials

The CPAC is responsible for tracking and responding to denials from third party insurers. Third-party denial rates depict bills for medical services provided which a payer (the insurer) has rejected. Denials result in decreased collections and occur for myriad reasons. CPAC staff assigns each denial a rejection code, and typically aligns the denial to a function within the providers' revenue cycle. As such, third-party denials provide a strong indication on the effectiveness of an organization's business operations and the health of a revenue cycle program. A denied claim has the potential to represent lost or delayed collections from a third-party insurer and illustrates the accuracy and efficiency of VHA's revenue cycle.

The Accounts Management team at the CPACs receive denials from third-party insurers and conduct root cause analyses to understand and resolve the denial. A Denials Management Specialist in the quality department at the CPACs performs root cause analyses of denials and works with the business functions (both at the CPAC and VAMCs) to remediate and prevent denials from recurring. Coordination between business functions is necessary to resolve most denials.

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[99]Qualitative interviews at three CPACs VAMCs indicated that this was an issue.

Table 6-12. Denials

Denials Defined:
Denials occur when a third-party payer initially refuses to pay a claim due to a provider not adhering to specific policies/procedures or the payer requests additional information.
Impact:
Analyzing and correcting claims from the denial resolution process represents opportunities to increase collections, and prevent mistakes from recurring.
Industry Best Practices:
Seamless coordination across Patient Access, Clinical Administration, and Patient Accounting functions prevent a majority of denials. Effective denials management practices include regular reviews of denials by a denial management committee of key revenue cycle and administrative stakeholders, standardizing recovery processes, efficient third-party contacts management, and developing approaches to resolve frequently recurring denials proactively. These activities are key to improving financial performance.
VHA Key Findings:
1. Third-party collections delayed or denied by insurers due to ineffective insurance identification in Patient Intake.
2. Third-party collections are delayed or denied by insurers due to issues that arise from a lack of coordination across VHA's revenue cycle.
3. Patient Intake, Coding, and Patient Accounting functions are not integrated resulting in disparate processes and lack of coordination across the revenue cycle.

Table 6-13 depicts a summary of the total denials for calendar year 2014 received by all seven CPACs.[100] The table includes a comparison of VHA's initial denial received rate of 22.9 percent versus the Healthcare Financial Management Association's (HFMA) leading practice metric of 4 percent.[101] This large variation highlights a significant opportunity for improvement within VHA's revenue cycle processes.

Table 6-13. Total Initial Denials Received – CY2014[102]

CY 2014 Total	$/%
Total Billed ($)	$5,992,545,661
Total Initial Denials Received ($)	$1,371,836,531

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[100]CBO. (2015).*Total Initial Denials Received, CY2014*. Retrieved from POWER. Reported in POWER by CPAC and totaled to report Total Initial Denials Received for calendar year 2014.

[101]Notes: The Healthcare Financial Management Association (HFMA) is a well-recognized source of revenue cycle management benchmarks for the health care industry.

[102]For CY 2014 $3,176,041,415 was received in collections. Denials presented are denials initially received versus denials posted

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CY 2014 Total	$/%
Total Initial Denials Received (%)	22.9%
HFMA Initial Denial Rate (%)	4.0%
Variance from Best Practice (%)	18.9%
Variance from Best Practice ($)	$1,132,134,705

Source: Total Initial Denials Received from CBO, CY2014

Figure 6-8 depicts a summary of the calendar year 2014 denials received by all seven CPACs and includes the dollar and percentage of the top 80 percent denials received. A large proportion of VHA's denials is controllable and could be resolved through enhanced upfront insurance identification and verification. The lack of accurate and timely insurance identification and verification results in non-payment due to issues with pre-authorization, coordination of benefits, patient insurance coverage period termed, non-covered charges, and patient not eligible or covered by insurance at date of service.[103] Refer to Appendix A-1 for a summary of denial categories, the definition, the corrective action and our recommendations to correct the business processes surrounding the denial category.

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[103]Note: Note all denials are attributable to VHA. Denials for maximum benefit reached and non-covered charges may not be reimbursed. These denial categories may be due to the patient's insurance plan, charge description master issues, payer contracting issues, and other categories.

Figure 6-8. Reasons for VHA Payment Denials (CY 2014)

Approximately 54.6%, or $580.9M of $1.06B, in denials received are primarily attributable to Patient Intake processes in the revenue cycle

Provider-Based Eligibility | $39,747,605 | 3.7%

Information Requested | $173,728,353 | 16.3%

File Limit Expired | $5,495,794 | 0.5%

Duplicate | $216,000,485 | 20.3%

Wrong Procedure Code | $33,596,895 | 3.2%

Medical Necessity | $14,239,431 | 1.3%

Authorization Issue | $50,122,775 | 4.7%

Coordination of Benefits | $66,158,136 | 6.2%

Coverage Period Termed | $67,845,178 | 6.4%

Maximum Benefit | $8,889,433 | 0.8%

Non-Covered Charge | $381,043,005 | 35.8%

Patient Eligibility | $6,849,616 | 0.6%

Source: Author Rendition based on National Initial Denials CY2014 data provided by CBO

Figure 6-8 displays the distribution of the top 80 percent, based on dollar amount, of VHA denials received nationwide for calendar year 2014. VHA received a total of $1.372B worth of denials in 2014, the top 80 percent of these denials totaled $1.063B. VistA tracks all transactions with an insurer on a claim. When a line item or specific charge denial is received from an insurer the total balance of the claim is counted as a denial; therefore, denial amounts may be artificially inflated.

Finding 1

1. **Third-party collections are delayed or denied by insurers due to ineffective insurance identification, verification, and preauthorization in Patient Intake.**

- VHA's third-party denials initially identified as primarily attributable to Patient Intake/VAMC processes make up $508.9 million or 54.6 percent of the top 80 percent of denials received in calendar year 2014.[104]

- In reviewing VHA's denial category data, we found that high denial rates are occurring because Patient Intake staff did not obtain and identify patients' information (demographic and insurance).

- When Patient Intake staff members do not identify and update insurance information, billing errors result in third-party payment denials. Such denials require additional efforts to resolve and may result in lost revenue.

- Patient Intake staff members, as is customary in private sector, do not complete preauthorization prior to a Veterans appointment. Furthermore, due to late insurance identification, the CPAC Utilization Review Nurse does not routinely obtain pre-authorization *before* treatment is rendered, resulting in payment denials.

Recommendations

- **VAMC** Leadership: Require the identification of third-party insurance at scheduling and pre-registration by VAMC Patient Intake staff. Electronically verify all insurance prior to date of service to allow CPAC nurses to obtain necessary preauthorization timely.

- **CPAC**: Perform a regular root cause analysis of non-covered charges related to Patient Intake issues. This analysis should include identification of charges not covered that relate to only a portion of services provide, charge not covered due to charge description master issues, payer contracting issues, and other categories. The results of this would be to identify common trends in non-covered charge denials and develop preventive work plans to prioritize correctly.

- **VAMC**: Enhance the patient self-service kiosks with technical capabilities to scan insurance cards and to include system rules that prevent the patient from completing the registration process if the insurance information on file is missing or expired.

6.3.6 Organizational Alignment – Separate lines of accountability for Revenue Processes across VAMCs and CPACs negatively affects collections.

The revenue processes span across VAMC and CPAC responsibilities and processes; however, only the CPACs are responsible for revenue collection and the associated performance outcomes.

Finding 1

1. **Third-party collections are delayed or denied by insurers due to issues that arise from a lack of coordination across VHA's revenue cycle.**

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[104]CBO. (2015).*Total Initial Denials Received, CY2014*. Retrieved from POWER. Reported in POWER by CPAC and totaled to report Total Initial Denials Received for calendar year 2014.

- We learned through interviews that Billing, Accounts Management/follow up, and insurance verification units, which are located at the CPACs, do not communicate and coordinate enough with Patient Intake and Coding at the VAMCs.[105]While we understand communication has improved in recent years, the lack of accountability across these key revenue cycle functions inhibits optimal collaboration on systemic issues.

Recommendation

- **VAMC and CPAC**: Create a cross-functional denial management committee at each VAMC to increase collaboration between the professionals in Patient Intake, Coding, and Billing. Consistent with private-sector best practices, the committee should meet monthly at a minimum and comprise of the key stakeholders in Patient Intake, Clinical Administration and Patient Accounting.

Finding 2

2. **Patient Intake, Coding, and Patient Accounting functions are not integrated resulting in disparate processes and lack of coordination across the revenue cycle.**

- The VAMC/VISN currently owns Patient Intake and Coding activities. VHA's national Health Information Management Service, comprised of Coding leaders do not have authority over coders. Coders report locally, to VAMC leadership. Patient Accounting is an activity within the revenue cycle that is dependent on successful execution of Patient Intake and Coding functions. Patient Accounting reports to CBO, unlike Patient Intake and Coding. Driven by the separation between business process and structure within the revenue cycle, there is a lack of coordination across the revenue cycle continuum.[106]

Recommendations

- **VHA**: Assign shared responsibility between Patient Intake and Clinical Administration (e.g., coding) with Patient Accounting for revenue collection outcomes and include specific goals in management/staff performance plans as a near-term improvement.

- **VHA**: In the longer term, consider and evaluate the benefits of aligning patient intake and coding functions under CBO. Evaluation should consider the benefit of aligning coding under VHA's national HIMS and subsequently, HIMS under CBO. Organizationally aligned business functions provide greater opportunity for successful performance management and establishment of organizational accountability. Private-sector leading practices are to align all components of the revenue cycle under the CFO linking job responsibilities to financial performance.

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[105]Qualitative interviews at three CPACs and two VAMCs.
[106]Qualitative interviews at three CPACs and four VAMCs.

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6.3.7 First Party Collections – VHA Could Increase First Party Collections through Financial Education and Point of Service Collections.

First Party collections refers to co-payment amounts due from the patient. Effective financial counseling is a significant component of Patient Intake, directly influencing Veteran satisfaction and first-party collections. Industry leading practices are to train Patient Intake personnel to appropriately identify and communicate out of pocket responsibilities and alternatives for covering expenses to patients. Patients are instructed to be prepared to meet financial obligations *prior* to or on the day of the scheduled appointment.

Table 6-14. First Party Definition

First Party Defined: First party refers to the patient/Veteran
Impact: Patients need to understand their roles and responsibilities in regards to benefits and out of pocket expenses. Educating Veterans will increase collections to the provider of non-service connected care if the Veteran has other health insurance. Without financial education to help the patient understand his/her insurance coverage and financial responsibility for health care services, loss of revenue may occur, directly affecting the collection of amounts owed to VHA for non-service connected care.
Industry Best Practices: Out of pocket amounts due should be collected on the date of service. VHA should provide financial counseling prior to services performed to assist patients in understanding costs and alternatives for covering such expenses.
VHA Key Findings: 1. VHA provides inconsistent education on financial responsibilities to Veterans at point of service, inhibiting understanding of their financial obligations at VAMCs upon check-in and negatively affecting first party collections. 2. Collections are not maximized due to VHA's inability to collect release of information forms (ROI) from Veterans at the point-of-service.

VHA begins first-party collections at the CPAC after encounters are complete. If the patient care is not service connected and out-of-pocket expenses are owed, a patient bill is automatically generated 90 days after services are rendered (the 90 day period was established to allow time to identify third-party insurance) and sent to the patient.[107] Following the initial 90-day period, VHA provides the Veteran with three statements over a 90-day period. Each statement reflects total amounts due and directs the Veteran to where they can get help with questions.

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[107] Note: VHA does not bill a Veteran before the date of their service.

Additional detail regarding co-payments and eligibility is located in Appendix 10A.2.5.2 Eligibility and Coordination of Benefits.

Figure 6-9 depicts the national collection rate of first-party payments compared to first-party billings for the period January 1, 2012 to December 31, 2014.[108] On average, VHA collects first-party payments between 30-60 days after VHA releases the initial bill. VHA's collection performance has remained relatively stable over the past three years. The annual rise of collections during the month of March corresponds to increased collections from Veteran's upon filing federal and state taxes, and setting up repayment plans with the CPACs. After approximately 90 days, VHA sends any nonpaid Veteran bills to VHA's Debt Management Center (DMC) for collection. If collection efforts remain unsuccessful, DMC transfers the bills to the Treasury Offset Program (TOP). Both programs contribute to VHA's first-party collection performance.

Figure 6-9. National First Party Billings and Collections[109,110]
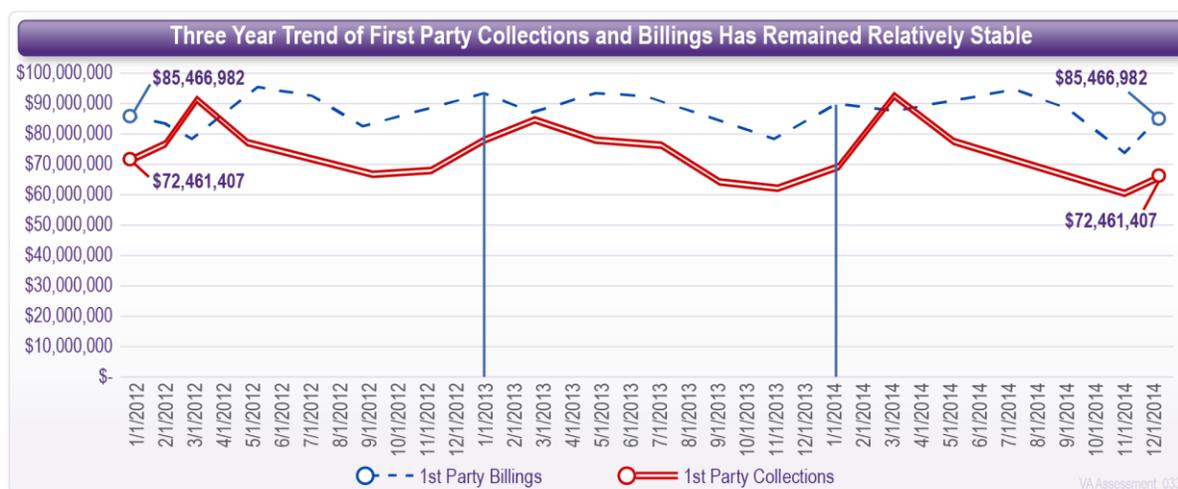
Source: National First Party Billings and Collections from CBO, CY2012-2014

Figure 6-9 reflects the total first-party collections as a percent of billings for calendar year 2014 by CPAC and as a national average. In Figure 6-9, CPCPAC (Central Plains) is reflected as the top performer amongst the CPACs in 2014 in comparison to VHA's national average. The MACPAC had the lowest performance of the seven national CPACs. Performance may vary between the CPACs given the population of Veteran's, the Veteran's ability to pay, Veteran education and influence of other factors (e.g., local economy).

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[108] CBO. (2015). *National First Party Collections and Billings, CY2012-CY2014*. [Data file and code book]. Retrieved from POWER. Reported in POWER by CPAC and totaled to report National First Party Billings and Collections for calendar year 2014.

[109]CBO. (2015). *National First Party Collections and Billings, CY2012-CY2014*. [Data file and code book]. Retrieved from POWER.

[110]Note: First party billings and collections include inpatient, outpatient, pharmacy, and long term care co-payments.

Per HFMA, private-sector hospitals should strive to collect 65 percent of patient pay (or first-party) balances prior to inpatient discharge and 75 percent of patient pay balances prior to outpatient service (HFMA, 2012). The private-sector metric is not an appropriate baseline for VHA's First-party process for three reasons: (1) VHA collects well after the service is provided, (2) VHA waives co-payments for Veterans with insufficient financial means, and (3) VHA waives the co-payment for Veterans within Priority Groups (see Appendix 10A.2.5.2 Eligibility and Coordination of Benefits).

Figure 6-10. First-party Collections as a Percent of Billings for CY2014[111]

First Party Collections to Billings Performance Shows Variation Between CPACs
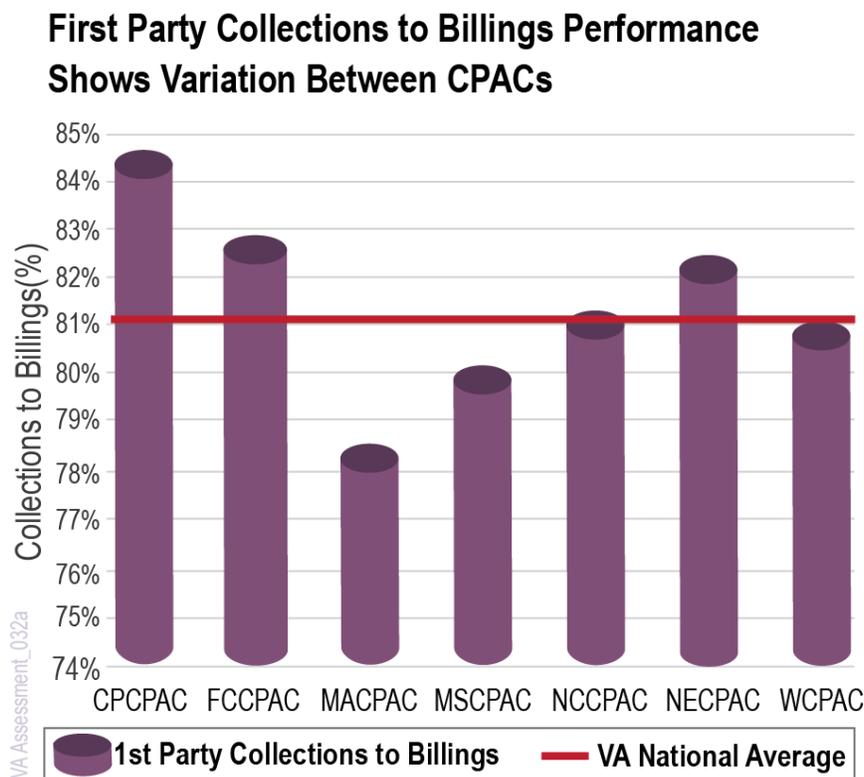
Source: CPAC First Party Collections to Billings from CBO, CY2014

Finding 1

1. **VHA provides inconsistent education on financial responsibilities to Veterans at point of service, inhibiting understanding of their financial obligations at VAMCs upon check-in and negatively affecting first party collections.**

- Due to differences in Veteran's co-pay amounts based on service connectedness and priority groups, Veterans have varying co-payment obligations when seeking care at VHA. This can become confusing for Veterans and VHA staff. During interviews, we noted some VHA staff lack a full understanding of patient obligations due to inadequate training and

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[111]CBO. (2015). *CPAC Collections and Percent of Billings, CY2014*. [Data file and code book]. Retrieved from POWER. Data was reported by CPAC.

inconsistent communication from VHA. Further, staff members do not always ask correct follow-up questions when speaking with a Veteran (OIG, 2012).

- VHA bills patients for VHA co-payments 90 days after their date of service. Co-payments are not collected at point-of-service, as is customary in private sector.[112] We understand this is due in part to service connected determinations, late insurance identification and outdated income verification (VHA refers to as "means test").

- Based on sites visited, we also found that VAMCs provide insufficient financial counseling to non-service connected patients. Financial counseling is an in person, one-on-one interaction with the Veteran to explain out of pocket responsibilities. There are CPAC staff members (Facility Revenue Technicians) stationed at each VAMC to counsel patients if they have a question or complaint regarding a bill, but the Facility Revenue Technicians (FRT) are separated from the registration desk/area and do not provide proactive financial counseling to all patients. Similarly, the OIG identified missed First-party collection opportunities during point-of-service encounters due to inadequate staff training and Veterans not understanding their financial obligations. The OIG reported that registration clerks were not educating patients on their financial responsibilities (OIG, 2012).

- Two of the VAMCs we visited offer patients the one-time opportunity upon enrollment to participate in an optional educational class at the VAMC to receive financial counseling. In the private sector, readily available one-on-one counseling is customary.

Recommendations

- **VHA/CBO**: Upon implementation of related recommendations in this report (i.e., Culture, Simplification of Rules, Organizational Alignment), CBO should ultimately plan to collect co-payments at point of service, prior to treatment. Develop and implement a standard point-of-service collections policy directing VHA staff members to identify and request co-payments at each appointment prior to the patient leaving the facility.

- **CBO**: Standardize policies to ensure that if late insurance is identified, collection efforts on First-party obligations begin with written communication no later than 30 days after date of service. Communication should occur over routinely a 90 to 120 day period.

- **CBO**: Invest in online tools for pre-registration and registration that allow for real time explanation of Veteran out-of-pocket expenses. Technological solutions should account for Veteran's service connected status, priority group and diagnosis when relaying out-of-pocket expenses. The technological solution should be coupled with the issuance of a card to each Veteran with individual co-payment information encoded.

- **VHA Leadership**: Reexamine VHA's co-pay policy and structure within the Veteran Priority Groups to determine if simplification is feasible (refer to Appendix A Background VHA Care Revenue-First-party Collections) as well as improve the tracking and monitoring payments to VHA co-payment guidelines. For instance, we understand VHA has mandated

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[112]Qualitative interviews at three CPACs provided this process overview. Private-sector co-payment collection standard is based on feedback from industry subject matter experts.

that all co-payments to be refunded to Veterans once insurance companies pay billed amounts exceeding the co-payment. The intent is to incentivize Veterans to provide insurance information for non-service connected treatment. Upon implementation of culture and organizational recommendations, we suggest VHA explore avenues to cease the manual and cumbersome co-payment refund process (additional detail in the IT section). Further, a streamlined approach to service connected determinations, means testing, and financial counseling will result in increased first party collections.

- **CPAC**: Evaluate staffing requirements for FRTs at each VAMC, evaluate FRT's workload, and prioritize responsibilities amongst the FRTs and their managers. Make available a FRT at Patient Intake of each VAMC to provide direct, one-on-one financial counseling for non-service connected treatment in an effort to enhance Veterans' understanding of their financial responsibilities.

- **VAMC**: Standardizing Patient Intake staff training materials, including scripts that highlight out-of-pocket obligations for all VHA staff that interact with Veterans. This will allow all Veterans to receive a uniform response regardless of the VHA staff with whom they speak.

- **VAMC**: Leverage existing Veteran outreach and education programs, as well as collaborate with outside Veteran Service organizations (e.g., VFW), to publish financial responsibilities regarding out-of-pocket expenses and CPAC financial assistance policies. This information should also be readily available on VHA's web site with a 1-800 telephone number for Veteran questions, in addition to printed material at Veteran Service organizations and VAMCs. Consider consolidating all Veteran education material in a pocket-sized format, which would allow Veterans to have all pertinent information in an easy to access guide.

- **VAMC/CPAC**: Standardize the one-time Veteran education class. The material should cover Veteran co-payment requirements and rates, overview of Veteran health benefits and eligibility, as well as financial distress programs to assist Veterans pay co-payment requirements.

Finding 2

2. **Collections are not maximized due to VHA's inability to collect Release of Information forms (ROI) from Veterans at the point-of-service.**

- 38 USC §7332 and implementing regulations (sections 1.460- 1.499) requires VHA to obtain a patient release of information for all care related to drug abuse, alcoholism or alcohol abuse, infection with the human immunodeficiency virus, or sickle cell anemia. ROI forms (VA Form 3288) are created by VHA to authorize the release of the Veteran's information to third-party insurance carriers. Veterans complete the ROI forms post care and currently they are not being completed promptly.

- VHA cannot submit a claim to the third-party payer until after receiving a signed ROI form. When a Veteran does not sign it, this results in lost revenue for VHA. VHA does not currently have the ability to report the amount of lost revenue from missing ROI forms, but interviews at the CPAC indicate it is substantial.

Recommendations

- **VAMC**: Conduct mass mailing of VA Form 3288 (ROI form) to all Veterans currently enrolled to obtain Release of Information signatures. Implement process for Veteran to sign one all-inclusive ROI that is attached to the 10-10EZ (Application for Health Benefits). Veteran would be required to sign this during initial VHA enrollment, and is all - encompassing., and upload forms to VistA where scheduling and registration staff can verify and change. Additionally, develop and implement a standard registration/check-in procedure directing VAMC Patient Intake staff to collect a completed ROI form for those who have not previously signed it.[113]

- **VHA/CBO Leadership**: Make ROI forms available online and build all-inclusive ROI functionality into the check-in kiosk system. Patients should be prompted to complete and authorize the form, but not be required to, when using the kiosks prior to being seen by a provider. This added functionality would support further automation of key VHA systems and improve administrative efficiencies for VHA staff.

- **VHA/CBO**: If ROI issues persist after implementing these recommendations, align ROI completion compliance to performance standards for patient intake and VAMC leadership staff to drive accountability.

6.4   Summary of Findings and Recommendations

The following table summarizes the findings and recommendations presented in this chapter, providing further detail to identify each finding's significance and each associated recommendation's timeline and effect.

Table 6-15. Summary of Findings and Recommendations

FINDINGS	RECOMMENDATIONS	SIGNIFICANCE	TIMELINE	IMPACT
Cultural barriers, coupled with administrative challenges, prevent VHA from maximizing collections.	Increase communication to Veterans and VHA staff. Institute and mandate a process to identify third-party payer coverage at or near the point of scheduling.	Tier 1	Short	Process, People, Technology
Third-party collections delayed or denied by insurers due to ineffective insurance	Require the identification of insurance at scheduling and pre-registration by	Tier 1	Short	Process, Technology

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[113]Note: VA staff referred us to Title 38, Section 1.576, stating that it prevents them from proactively collecting ROIs prior to services. However, our review of the legislation did not confirm this.

FINDINGS	RECOMMENDATIONS	SIGNIFICANCE	TIMELINE	IMPACT
identification in Patient Intake.	VAMC Patient Intake staff.			
VHA lacks standard scheduling practices and the requirement to identify insurance at the time of scheduling, inhibiting timely insurance capture.	Update VHA Directives to require the identification of third-party payer coverage at or near the point of scheduling.	Tier 1	Short	People, Process, Technology
Delays in clinical documentation turnaround time are inhibiting timely coding, billing, and third-party revenue collection.	Enforce national targets for clinicians to complete notes within 24 hours and medical records within seven days, and use performance pay agreements to assist with enforcement.	Tier 1	Short	People, Process, Technology
VHA is not consistently implementing and enforcing the national initiative around improving clinical documentation practices.	Standardize the CDI program and mandate use across all VAMCs by providing designated CDI specialist funding.	Tier 1	Short	Process, Technology
Third-party collections are delayed or denied by insurers due to issues that arise from a lack of coordination across VHA's revenue cycle	Assign shared responsibility between Patient Intake and Clinical Administration (i.e., coding) with Patient Accounting for revenue collection outcomes and include specific goals in management/staff performance plans as a near-term improvement	Tier 1	Medium	People, Process
Patient Intake, Coding, and Patient Accounting	Assign shared responsibility between	Tier 1	Medium	People, Process

FINDINGS	RECOMMENDATIONS	SIGNIFICANCE	TIMELINE	IMPACT
functions are not integrated resulting in disparate processes and lack of coordination across the revenue cycle	Patient Intake and Clinical Administration with Patient Accounting. Align the Patient Intake and Coding functions under CBO.			
Patient accounting experiences process inefficiencies and talent management issues.	Reevaluate the appropriate GS level to perform the billing function. Reorganize the accounts management team	Tier 2	Medium	People, Process
Limited and ineffective pre-registration processes before the date of service across VAMCs.	Implement a standard pre-registration policy and process for all VAMCs.	Tier 2	Medium	People, Process, Technology
Training on Patient Intake procedures vary across VAMCs, and within VAMCs, inhibiting timely insurance identification.	Develop a formal training program managed by Patient Intake and Revenue Operations leadership.	Tier 2	Short	People, Process, Technology
VHA relies on costly back-end processes and outside contractors.	Continue current efforts to upgrade and further develop the eIV tool.	Tier 2	Medium	Technology
VA is unable to code outpatient encounters promptly, resulting in outpatient coding backlog across VHA and preventing accelerated billing and collections	Collaborate with OPM to streamline the process for sourcing, interviewing, and hiring new certified coders. Hire administrative staff members to support coders by performing non-coding functions.	Tier 2	Medium	People, Process

FINDINGS	RECOMMENDATIONS	SIGNIFICANCE	TIMELINE	IMPACT
VHA provides inconsistent education on financial responsibilities to Veterans to help them understand their financial obligations.	Develop and implement a standard point-of-service collections policy.	Tier 2	Medium	People, Process, Technology
Collections are not maximized due to VHA's inability to collect ROIs from Veterans at the point-of-service.	Conduct mass mailing of VA Form 3288 (ROI form) to all Veterans currently enrolled to obtain Release of Information signatures.	Tier 2	Short	People, Process, Technology

Legend

Significance   Tier 1 = Direct affect to payment and billing timeliness and accuracy

Tier 2 = Supporting actions to improve payment and/or billing timeliness and accuracy

Timeline   Short Term=0-2 years, Medium=3-4 years, Long Term=>4 years

Impacts   People   Process   Technology

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7 Analysis of Non-VA Care Payments

7.1 Non-VA Care Introduction

The introduction section contains a description of the background of Non-VA Medical Care, hereafter referred to as "Non-VA Care," legislative authorities, payment processes, and disbursement details and key findings related to Non-VA Care claim timeliness, accuracy, and interest payments. Additional detail regarding processes and detailed descriptions are included in the appendices following the main body of this report.

7.1.1 Non-VA Care – History

Non-VA Care, referred to as 'Non Departmental' care in the Veterans Choice Act, provides an option for eligible Veterans to seek care outside of VHA facilities. There are two broad categories of Non-VA Care: preauthorized care and emergent care. VHA approves preauthorized care prior to the Non-VA provider delivering care. VHA can approve preauthorized care for the following reasons:[114]

- VHA cannot provide the care
- VHA facility is not geographically accessible
- VHA facility cannot provide the service in a timely manner
- The Veteran cannot safely travel to VHA facility

Due to its nature, VHA conducts retrospective clinical and administrative reviews for emergent care to ensure it meets the requirements of the authority to purchase care outside of VHA facilities. Table 7-1, Types of Non-VA Care, outlines the types of Non-VA Care and eligibility requirements under the related care authority. Additional detail is located in Appendix 10A.2.2 Overview of Care Authorities. A separate assessment (Assessment C) examines Care Authorities in depth.

Table 7-1. Types of Non-VA Care

Type of care	Description and relevant payment authority	FY 2014 Spending Breakout[115]
Preauthorized Care	Services with prior VHA authorization meeting criteria under 38 U.S.C. § 1703 (e.g., cancer treatment, mammography)	$4,974,209,147

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[114] 38 Code of Federal Regulations (CFR) Section 17.53 – Limitations on use of public or private hospitals

[115] Per Paid Data and Timeliness FY12-14 v2.xlsx prepared by CBO Department of Informatics; excludes Manila and VAMCs with less than 1000 claim lines

Type of care	Description and relevant payment authority	FY 2014 Spending Breakout[115]
Emergency care	Services without VHA preauthorization (e.g., heart attack care, treatment of injuries from a motor vehicle crash). Includes emergency care for service-connected disabilities (38 USC 1728 – Unauthorized Care) and non-service connected care (38 USC 1725 – Mill Bill). Refer to Chapter 0 for more information regarding Veteran eligibility.	$554,617,762

The process for authorizing care requires numerous steps by the local VAMC. Figure 7-1 illustrates the Non-VA Care Process.

Figure 7-1. Rendition of Non-VA Care Process Flow
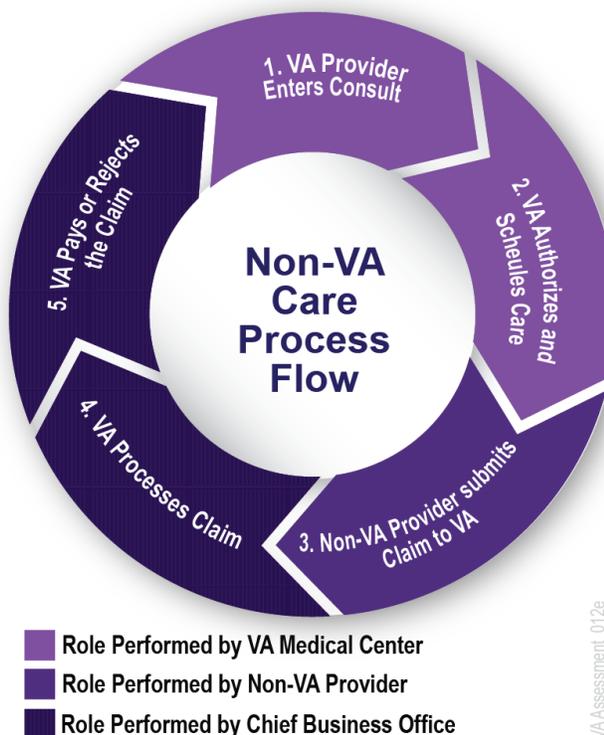
Source: Grant Thornton rendition of Non-VA Care Process Flow based on CBO feedback.

1. Non-VA Care initiates when a VHA provider determines the Veteran requires or requests care outside of VHA. The VHA provider sends a request for a consult or referral to the VAMC authorization department. An authorization clerk reviews the request for Veteran eligibility, as defined in the care authorities in Table 7-1. Upon verifying the Veteran's eligibility, the clerk generates an authorization and sends it forward for approval.

2. Either the chief of staff or the designated service line chief approves the request for care, after which the authorization clerk creates an official authorization guaranteeing payment for specific services and schedules an appointment a Non-VA Care provider.

3. The Non-VA Care provider sends an electronic or paper claim to VHA for processing and payment after rendering services.

4. Upon receipt, a VAMC claims clerk (CBO staff located at the VAMC) puts the claim through automated system and manual edits. Edits include, but are not limited to determination if the claim corresponds to the authorized services, or in the case of emergent services, eligibility and a host of other requirements outlined in detail in Assessment C. Emergent service claims also require documentation, which VHA clinicians review for medical necessity. Documentation is not required for review and payment of authorized care. Once the edits and reviews are complete, and the clinician determines everything is appropriate, they apply correct reimbursement rate and approves the claim for payment.

5. If the claim does not meet all requirements, the claim clerk denies payment, and a remittance is sent to the provider informing them of the reason for the denial.

Note, for extended emergent care the Non-VA Emergency Department is to notify VHA within 72 hours of patient admission so the VAMC may authorize retroactively and monitor treatment.

7.1.2 Non-VA Care—Current State

Non-VA Care experienced significant growth during the last decade. It has grown from a small, seldom-used alternative method of care to a multi-billion dollar program that supplements care provided at VHA facilities. CBO reports Non-VA Care claims have increased over 400 percent over the past 10 years and expenditures have increased from $1.37 billion in FY 2004 to $5.5 billion in FY 2014. Refer to Figure 7-2 for the spending trend lines. Over the same time, the number of unique Veterans treated through Non-VA Care increased 250 percent from 501,258 to 1,250,698.[116] In 2014, this program processed over 14 million claims using FBCS. Because of the increase in need and legislative changes, VHA actions have been reactive, not proactive. Consequently, VHA has implemented short-term solutions for Non-VA Care processes, staffing, training, and technology.

Over the past year, efforts to improve Veteran access to care have increased the utilization of Non-VA Care. In March 2014, 1.1 million claims were received; for the same month in 2015 the claim volume was approximately 1.6 million, a 45 percent increase.[117] Initiatives to accelerate access to care through Non-VA care is forcing VHA to manage resources retroactively.[118]

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[116] National Academy of Public Administration (NAPA) VHA Fee Program White Paper, September 2011

[117] Per Paid Data and Timeliness FY12-14 v2.xlsx prepared by CBO Department of Informatics; excludes Manila and VAMCs with less than 1000 claim lines

[118] Note: At the time of this report, VA had not prepared future projections of Non-VA Care spending.

Figure 7-2 Unique Veterans Served Compared to Total Non-VA Care Spending and Timelines of Key Non-VA Care Events[119]
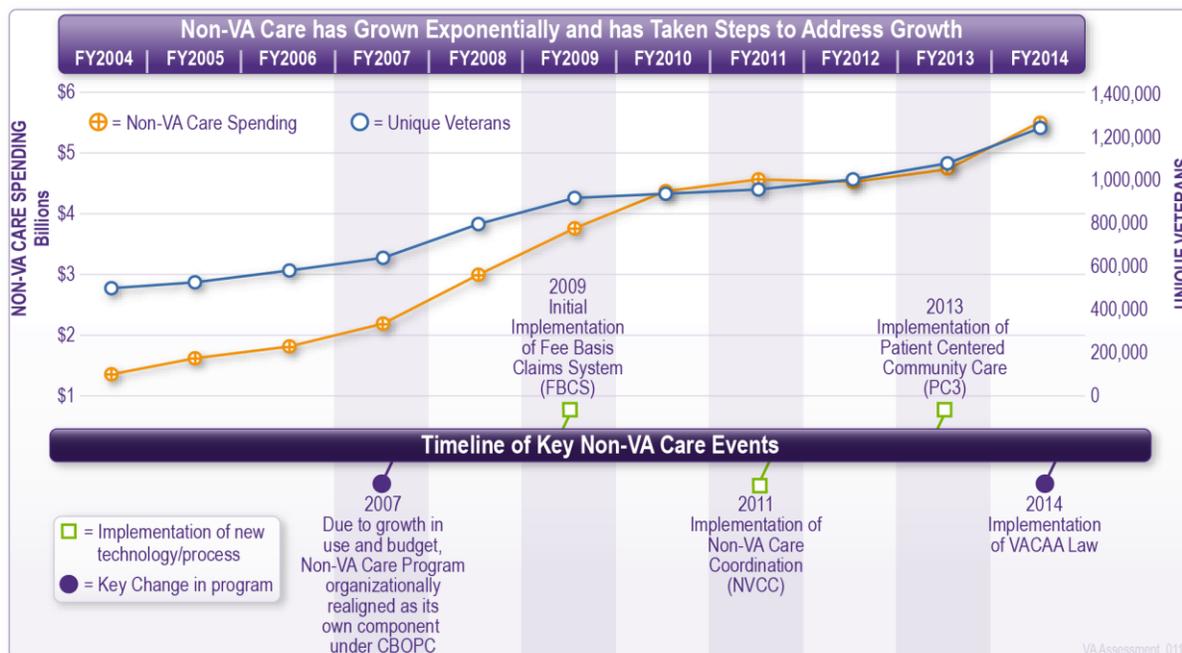
Source: Paid and Timeliness FY12-FY14 Data

At approximately $5.5 billion in annual payments, Non-VA Care is comparable to a number of sizable commercial and federal health insurance programs and is larger than 23 of the 50 states' Medicaid programs. In comparison, Medicare (excluding Part D) processes about $365 billion annually through Medicare Administrative Contractors (MACs) using a decentralized, but highly standardized process. Figure 7-3 shows the Non-VA Care spending comparison.

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[119] Per Paid Data and Timeliness FY12–14 v2.xlsx prepared by CBO Department of Informatics; excludes Manila and VAMCs with less than 1000 claim lines.

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Figure 7-3. Non-VA Care Spending Comparison[120,121]
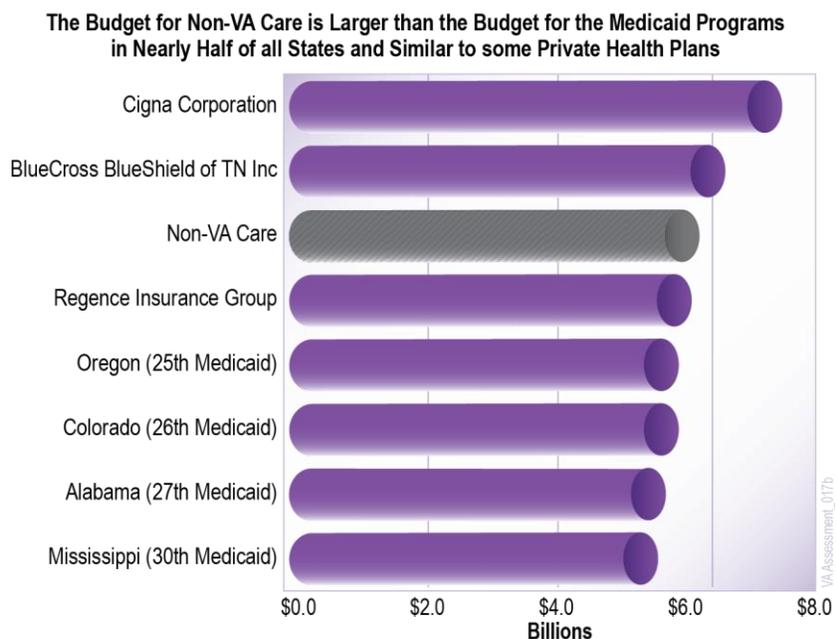
The Budget for Non-VA Care is Larger than the Budget for the Medicaid Programs in Nearly Half of all States and Similar to some Private Health Plans

The following sections provide an overview of new initiatives relevant to Non-VA Care. For more details on each program, refer to Assessment C.

Patient Centered Community Care (PC3)

Launched in 2013, Patient-Centered Community Care (PC3) contracts with vendors to develop a network of health care providers to deliver care to Veterans. Coverage includes primary, inpatient, outpatient, mental health, emergency (limited), newborn (limited in duration and female Veterans following delivery), and skilled home health care as well as home infusion therapy. Care is available through PC3 when local VHA Medical Centers cannot readily provide services, when demand exceeds capacity, geographic inaccessibility or other limiting factors.[122]

To improve access to care, VHA contracted with HealthNet Federal Services ("HealthNet") and TriWest Healthcare Alliance ("TriWest") to expand their Nov-VA provider network and administer the program. These PC3 vendors develop and manage their network of providers,

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[120] Non-VA Care spending available per Paid Data and Timeliness FY12-14 v2.xlsx prepared by CBO Department of Informatics. State Medicaid spending data is available per Kaiser Family Foundation for FY13 - http://kff.org/medicaid/state-indicator/total-medicaid-spending/. The private-sector spending data for Cigna, BlueCross Blue Shield of TN, and Regence Insurance Group is available per SNL Financial for FY14.

[121] Note: Non-VA Care spending does not include funding through Veterans Choice Act for the Choice Program.

[122] Per Description PC3 on CBO's website: http://www.va.gov/PURCHASEDCARE/programs/veterans/nonvacare/index.asp#PC3

The views, opinions, and/or findings contained in this report are those of Grant Thornton should not be construed as an official government position, policy, or decision.

coordinate care for the Veteran, and reimburse providers for care. 10A.2.7 and Assessment C provide additional background on PC3.

Effects of Veterans Access Choice and Accountability Act (VACAA) Legislation on Non-VA Care

Choice Program and Related Eligibility

Title I, Section 101 of the Veteran's Choice Act authorized the expansion of medical care through agreements with Non-VA entities.[123] The Choice Program allows Veterans to seek care in the community if the Veteran:

- Was unable to schedule any appointment with VHA for hospital care or medical services within VHA's "wait-time goals."

- Resides more than 40 miles from any VHA medical facility.

- Resides more than 20 miles from any VHA medical facility if his or her state of residency lacks a VHA medical facility providing hospital care, emergency services, or inpatient surgical care.

- Resides 40 miles or less from any VHA medical facility but either is required to travel by air or water to all VHA medical facilities within the 40-mile limit or is faced by an "unusual or excessive burden" in accessing those facilities due to "geographic challenges" as defined by VA (Sec. 101[b][2]).[124]Residing 40 miles or less from any VHA medical facility but is either required to travel by air or water to all VHA medical facilities within the 40-mile limit, or is faced by an "unusual or excessive burden" in accessing those facilities due to "geographic challenges" as defined by VA (Sec. 101[b][2]).

In addition, the law includes a $10 billion fund for Non-VA Care as part of the Choice Program. The Choice Program is expected to operate for a period of three years or until allocated funds are exhausted. VHA expanded the scope of their contracts with HealthNet and TriWest to help administer the Choice Program.

VHA mailed Veterans thought to be potentially eligible for the Choice Program cards and a letter explaining the program; however, this lead to confusion, as all Veterans were not immediately eligible.

Policies regarding third-party coverage also cause confusion for both providers and Veterans. Rules regarding primary and secondary payers and Veteran co-payments vary depending upon the basis of the Veteran's coverage (Choice versus Non-VA Care). Understanding the basis of eligibility (such as service connectedness) adds additional complexity. Assessment C, Authorities and Mechanisms for Purchased Care at the Department of Veterans Affairs, describes the

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[123] Note: Eligible Veterans must have been enrolled in VA health care on or before August 1, 2014 and/or eligible to enroll as recently discharged combat Veteran within 5 years of separation in addition to meeting the standards described below.

[124] Assessment C, Authorities and Mechanisms for Purchased Care at the Department of Veterans Affairs.

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ongoing changes to VA's authorities and mechanisms for purchasing care. Assessment C's team points out that the full landscape of VHA purchase care is complicated, and they highlight the drawbacks of a piecemeal approach absent a guiding orientation and strategy for VHA.[125]

Transfer of Non-VA Care Payment Authority from VAMCs and VISNs to CBO

CBO Purchased Care manages the Non-VA Care Program, in addition to care for Veterans' dependents, Veterans overseas, and Veterans of Indian or Alaskan heritage. Prior to the Veterans Choice Act CBO did not have formal authority over operations at the VAMC. While CBO provided overall guidance to the field, each VAMC held responsibility for administering the Non-VA program. Section 106 of the Veterans Choice Act "[transferred] the authority to pay for hospital care, medical services, and other health care furnished through non-Department of Veterans Affairs providers from the VISN and medical centers of the Department of Veterans Affairs, to the CBO of the Veterans Health Administration of the Department of Veterans Affairs."[126]

The implementation resulted in the consolidation of claims processing staff, and VHA initiated an assessment of roles and responsibilities to determine re-organization under CBO. This consolidation provides CBO with the authority to standardize processes and procedures to pay Non-VA claims, and enforce related rules and regulations across VAMCs nationally. The transfer of authority to CBO was a significant challenge due to a compressed schedule, and CBO continues to work through the transition.

Special Purpose Funding[127]

In addition to consolidation of staffs, CBO now manages the Non-VA Care funds. Congress classifies these as 'special purpose' funds, meaning they cannot be used for other purposes. CBO obligates the funds and the VAMC records the obligation and accounts for the funding.

Prior to the implementation of the Veterans Choice Act, Non-VA Care funds were general purpose and included in the VAMCs' operating budget.[128] The VAMCs flexibility to shift funds is limited as a result of the special purpose funding. For example, if Non-VA Care authorizations decrease the VAMC no longer has the ability to direct funds towards other patient care initiatives.[129]

VAMCs continue to be the primary source of Veteran care. When VAMC care is not feasible or accessible VHA providers are required to seek care at other government medical facilities prior to seeking care to the private sector. As shown in Figure 7-4, VA has defined a hierarchy for care.

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[125] Assessment C, Authorities and Mechanisms for Purchased Care at the Department of Veterans Affairs.

[126] Veterans Access, Choice, and Accountability Act of 2014

[127] Note: Further analysis of the Non-VA Care funding mechanisms was out of scope of this assessment.

[128] Qualitative Interviews with four VAMCs (Salt Lake City, Philadelphia, San Francisco, and San Antonio)

[129] Qualitative Interview with one VAMC (Salt Lake City)

Figure 7-4. Designated Sequence Order for Obtaining Care through VHA[130]
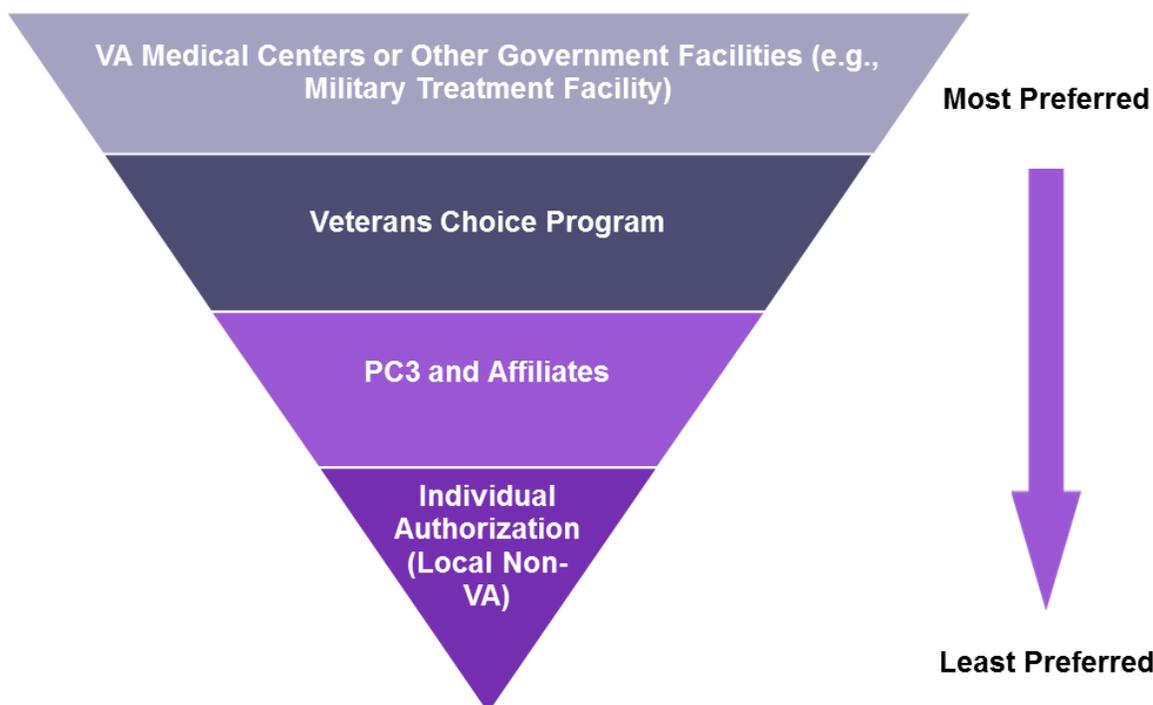
Source: Grant Thornton's rendition of VHA's designated sequence order for care based on qualitative interview

VHA has a long-standing collaborative relationship with the U.S. Department of Defense (DoD) to provide health care services to Veterans. Under a resource sharing arrangement between VA and DoD, Veterans may receive purchased care services at a DoD facility. In their report, Assessment C states in FY 2013 DoD purchased $152 million in services from VHA; and DoD provided $119 million in medical resources to VHA. While referrals to DoD facilities and providers are preferred, the location and security requirements of DoD installations limit the ability to refer Veterans to them. (See Assessment C for a detailed description of the VHA's arrangement with DoD and other government agencies.)

PC3 is the preferred method of contracting for care in the private sector. VHA centralized contract administration of the PC3 program with the intent to replace their local provider contracts. VISN and VAMC leadership is encouraged not to renew or establish local provider contracts outside of PC3. Each VAMC uses this hierarchy of care to prioritize treatment options.

7.2   Non-VA Care Assessment Approach

7.2.1   Data Sources and Analysis

As described in the methodology of this report (Chapter 2), our approach consisted of information collection and analysis. We collected a variety of qualitative and quantitative data that directed our findings and recommendations. This data includes: (1) payment timeliness

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[130] Qualitative Interview with CBO Purchased Care Leadership in Denver, CO.

and accuracy data, (2) interest penalties data, (3) staffing and productivity data, and (4) IT systems data. Additional data sources include interviews with more than 44 Non-VA Care staff members as well as several executive interviews with VHA leadership.

7.2.2 Past Findings and Recommendations

A key part of our approach was the review of the findings and recommendations outlined in prior assessment reports. Previous reports, including VA OIG, White Papers, and Improper Payment Elimination and Recovery Improvement Act Reports, have identified weaknesses in VA's control and oversight of payments made to Non-VA entities. Our team has outlined a sample of key findings from these assessments in Table 7-2. Note that these examples illustrate the type of factors identified in recent years, and are not intended to be a comprehensive listing.

Table 7-2. Previous Non-VA Care Report Findings

Process Area	Cited Findings	2009	2010	2011	2012	2013	2014	2015
Technology	Little automation of systems affect efficiency and accuracy			White Paper				
	A centralized claims processing system will improve payment accuracy and processing timeliness						VA	
	Inefficiencies due to the fee program's decentralized structure and labor intensive payment system		OIG					
	Inefficient fee program leading to error rates than benchmarked organizations		OIG					

Process Area	Cited Findings	2009	2010	2011	2012	2013	2014	2015
	Manual data input and decentralized structure						VA	
	Manual nature of claims processing, decentralized structure of claims processing operations				IPERIA	IPERIA	IPERIA	
Process	IPERIA[131] reported a 27.18 percent of all improper payments were attributed to clerks selecting the wrong payment schedule						IPERIA	
	Lack of clear oversight responsibilities and procedures	OIG						
People	Lack of comprehensive policies and procedures, and identified core competencies	OIG						
	Failure to define roles, responsibilities, and processes was contributing factor to organizational failure							VA[132]

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[131] Improper Payment Elimination and Recovery Improvement Act (IPERIA)

[132] VHA (2015) Task Force on Improving Effectiveness of VHA Governance, Report to the VHA under Secretary for Health

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Process Area	Cited Findings	2009	2010	2011	2012	2013	2014	2015
	Mandatory training requirements for fee staff	VA						

7.3 VHA Does Not Have Adequate Infrastructure and Streamlined Processes to Pay Non-VA Care Claims Timely and Accurately.

As mandated in Section 201 of the Veterans Choice Act, our review focused on the timeliness, accuracy, and associated interest penalties of payments to Non-VA Care providers. The following sections describe high-level findings related to these processes.

7.3.1 Timeliness – Issues with Paying Claims Timely Exists throughout VHA

The inability to pay Non-VA Care claims timely results in a multitude of issues. Paying claims in a timely fashion is essential to attracting and retaining the community-based providers necessary to augment VA Care.

Prompt claim payment is also essential to the coordination and quality management of Veterans' health care. Most Veterans accessing Non-VA Care also receive care at VHA facilities; thus, a Veteran gets better care if VHA providers are knowledgeable about the Non-VA services the Veteran received. As Non-VA providers generally submit medical documentation with or as follow-up to their claims, this information is generally available.

Late claims payment creates liability for VHA. With Non-VA Care growing as a percentage of the total VHA budget, tracking Non-VA Care claims liabilities, including interest payments, will be increasingly important.

According to VHA policy, "90 percent of all Non-VA health care claims are processed within 30 days of the date the claim is received by the facility."[133] Our analysis shows VHA is processing approximately 70 percent of claims within 30 days, 20 percent below VHA claims payment timeliness standards. Further examination of claims payment timeliness reveals on average VHA is paying claims within 34.2 days; however, this statistic does not reflect the underlying significant variation in claims payment timeliness. With VHA's high claim volume, even a small percentage of late claims payment translates to hundreds of thousands of claims at any given point in time. Not only does this create interest penalties, it also stresses relations with the provider community, and draws negative attention that overshadows overall performance. For example, in recent testimony by Vince Leist, a representative for the American Hospital Association, before the House Subcommittee on Health for Veterans Affairs on June 3, 2015,

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[133] VHA Directive 2010-005 – Timeliness Standards for Processing Non-VA Provider Claims.

Mr. Leist described that VHA has yet to pay an Arkansas medical center for 215 claims totaling more than $750,000 and dating back to 2011.[134]

As revealed by Table 7-3, in FY 2014, VHA paid 20.7 percent of claims 35 days or more after receipt.[135]

Table 7-3. Percent of Claims Line Items Paid by Number of Days After Receipt, FY2012 through FY2014[136]

Fiscal Year	Days										
	5	**10**	**15**	**20**	**25**	**30**	**35**	**40**	**45**	**60**	**90**
FY12	0.6%	1.3%	2.2%	2.9%	33.7%	67.1%	73.4%	77.8%	81.5%	88.1%	93.9%
FY13	1.0%	1.4%	2.8%	3.8%	34.6%	69.4%	77.0%	81.6%	85.8%	92.3%	97.3%
FY14	0.7%	1.1%	2.5%	3.7%	35.9%	70.3%	79.3%	84.0%	87.3%	92.5%	96.8%

Source: Paid and Timeliness FY12-FY14 Data

When evaluating Non-VA Care claims payment timeliness, several factors must be considered:

- VA money management policy slows claims payment and affects VHA's timeliness metrics. According to CBO, VHA holds payment of processed claims 25 days from date of receipt.[137] Table 7-3 identifies the percentage of claim lines paid by number of days for FY 2012 through FY 2014 and illustrates that VHA pays very few claim lines within 20 days of receipt.

- VHA date stamp policy results in miscalculation of processing timeframes for Non-VA Care claims. VHA policy states, "All claims should be date stamped with the date the claim is received at the facility and in those instances when the date of claim is unknown, the postmark date or date of invoice, whichever is later, should be used as the receipt date."[138] Effectively, when counting days to process a claim, the date of receipt "starts the clock" and the date the claim is approved for payment or returned to the Non-VA provider "stops the clock." When VHA returns the claim to the Non-VA provider for additional information or corrections, the clock resets to zero.

- According to interviews, due to inadequate staff and increased claims volume, VHA has experienced backlogs in scanning paper claims into FBCS. This creates the risk of an

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[134] Testimony of Vince Leist on behalf of the American Hospital Association before the Subcommittee on Health of the Committee on Veterans' Affairs – June 3, 2015

[135] Per Paid Data and Timeliness FY12-14 v2.xlsx prepared by CBO Department of Informatics; excludes Manila and VAMCs with less than 1000 claim lines

[136] Per Paid Data and Timeliness FY12-14 v2.xlsx prepared by CBO Department of Informatics; excludes Manila and VAMCs with less than 1000 claim lines

[137] Qualitative Interview with VA's Financial Services Center (FSC). The FSC is responsible for finalizing and releasing payment to Treasury.

[138] VHA Directive 2010-005, Timeliness Standard for processing Non-VA provider claims

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inaccurate receipt date, or possibly losing the claim. If a claim is not date stamped or scanned when received, VHA will not capture the true date of receipt with a subsequent inaccurate calculation of claims timeliness. To mitigate some of these risks, CBO implemented a daily certification in late 2014 that requires VAMCs to acknowledge having scanned all claims received that day into FBCS.

- Non-VA Care's timeliness standard for "clean" claim payment is not comparable to industry practice.[139] Per CMS, a "clean" claim is one that does not require the carrier to investigate or develop external to their Medicare operation on a prepayment basis." We note that the industry timeliness benchmark is for clean claims. Since VHA measures timeliness for all claims and not for clean claims,[140] the industry benchmark is not directly relatable to VHA; however, we have included it in Appendix D-1 as a point of reference.[141]

To better understand the variation in claims payment timeliness, we analyzed the status of in-process[142] claims (i.e., claims that VHA has received and entered into the claims processing system but has not yet finished processing) as of February 27, 2015. Our analysis measured the number and percentage of claims and days outstanding; claim value was not available. This examination revealed nearly 70 percent of claims entered the system within 30 days of receipt and had potential to be paid timely. Notably, we presume the remaining claims will be paid late.

As illustrated in Table 7-4, approximately:

- 16 percent of claims were 31-60 days old.
- 13 percent of claims were 61-180 days old.
- 1 percent of claims were more than 180 days old.

Notably, approximately 25 percent of claims are delinquent 31 to 120 days and require targeted focus.

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[139] Medicare Claims Processing Manual Chapter 1 - General Billing Requirements, section 80.2 http://www.cms.gov/Regulations-and-Guidance/Guidance/Manuals/Downloads/clm104c01.pdf.

- "[Clean claims] have all basic information necessary to adjudicate the claim, and all required supporting documentation"

- Clean claims do "not require external development (i.e., are investigated within the claims, medical review, or payment office without the need to contact the provider, the beneficiary, or other outside source)"

[140] Qualitative Interview with CBO Purchased Care Operations Directorate

[141] Note: The calculation of claims timeliness rates: Most commercial benchmarks use in the denominator a count of clean claims only; they do not count in the denominator claims that were incomplete or submitted with invalid values, known as "dirty" claims. VA, in contrast, may not distinguish between clean and "dirty" claims when counting claims for the denominator. Counting clean and "dirty" claims in the denominator inflates the denominator and could explain in part why VA's claims processing timeliness rates are low relative to commercial benchmarks.

[142] Note: Non-VA Care refers to these claims as "Pending Claims." Industry uses the term "pending claims" to refer to claims that have been suspended due to the need for additional information from an external source such as the health care provider, facility or the member.

The skewed distribution of this claims aging report shows how over 30 percent of providers experience delays in payment and VHA is well below its claims payment timeliness performance standard of paying 90 percent of claims within 30 days.

Table 7-4. Number and Distribution of Non-VA Care Claims In-Process as of February 27, 2015[143],[144]

Days Since Receipt of Claim	Number of Claims	Percent of Claims
0-30 days	1,045,044	69.94%
31-60 days	239,740	16.04%
61-90 days	106,284	7.11%
91 to 120 days	52,340	3.50%
121 to 150 days	26,876	1.80%
151 to 180 days	10,944	0.73%
181 to 210 days	5,967	0.40%
211 to 240 days	2,516	0.17%
241 to 270 days	1,544	0.10%
271 to 300 days	620	0.04%
301 to 330 days	540	0.04%
331 to 365 days	382	0.03%
More than 365 days	1,376	0.09%
All Claims In Process	1,494,173	100.00%

VHA must consider timeliness in the context of payment accuracy, discussed further in the next section. Unless the underlying infrastructure, technology and process complexities issues are addressed, risks are high that the timeliness and accuracy issues will grow and become even more widespread. Additional analysis related to VHA timeliness of non-VA Care payments is located in the Appendix, Section A.2.3.

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[143] Per Paid Data and Timeliness FY12-14 v2.xlsx prepared by CBO Department of Informatics; excludes Manila and VAMCs with less than 1000 claim lines

[144] Note: CBO could not readily provide the dollar values associated with these claims. CBO indicated they could provide the billed amount, but this is not reflective of amount VA pays to the Non-VA provider. As previously stated the high dollar amount would demonstrate the point above – while the percent is low, the number [and value] of the claims is high.

Table 7-5. VHA Timeliness: Percentage of Claims Processed within 30 days

	VHA Performance: Timeliness[145] All Claims	VHA Performance Standard[146] All Claims	Commercial or Other Payer Benchmark[147] "Clean" Claims
2012	66.9%	90%	96%
2013	69.3%	90%	96%
2014	70.2%	90%	96%
Note: The commercial benchmark uses "clean claims," (i.e., claims that do not require additional documentation from the Non-VA provider. VHA's benchmark uses all claims and VHA cannot track clean claims; therefore, VHA is unable to generate claims payment timeliness statistics in the same manner as industry).			

7.3.2 Accuracy – VHA Payment Accuracy is Lower than Private-Sector Benchmarks.

Only six of 21 VISNs met VHA standard and the industry standard benchmark for payment accuracy. Since 2009, VHA improvements have increased accuracy rates from 83 percent to 91 percent in 2014; however, that is still lower than the VHA standard of 98.5 percent.[148]

Paying claims accurately is essential to VHA's financial management, in addition to disciplined stewardship of taxpayer dollars. Overpayments result in unnecessary expenditures; whereas underpayments could result in unanticipated claims liabilities and higher administrative costs associated with payment adjustments.

In addition, inaccurate payments further hinder relationships with Non-VA providers, requiring the provider to spend, for example, time on the phone with provider services staff tracking claims status and correcting and resubmitting claims. Frustrated community-based providers may not be willing to treat Veterans if issues persist.

Accuracy rates were calculated as part of the Improper Payment Elimination and Recovery Improvement Act (IPERIA) reports based upon the rate of inaccurate payments on a statistically valid sample.[149] Our team compared the accuracy of Non-VA Care claims payment to commercial health care industry standards and practices and to IPERIA performance standards. We summarize VHA's performance in claims payment accuracy in Table 7-6.

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[145] "Timeliness" rate derived from Informatics team email: "RE: Data Request and discussion regarding denial data" on 3/4/2015: Accuracy as % of paid = "Claims < 30 days" /"Total claims"

[146] VHA Directive 2010-005, Timeliness Standard for processing Non-VA provider claims

[147] RSM McGladrey 2013 Report of Lead Regulators, UnitedHealthcare

[148] FY 2009 VA Performance and Accountability Report (PAR): http://www.va.gov/budget/report/

[149] FY 2014 Improper Payment Elimination and Recovery Improvement Act Report identifies a listing of events categorized as inaccuracies.

Table 7-6. VHA Accuracy of Payment

FY	VHA Payment Accuracy[150]	VHA Performance Standard	Commercial or Other Payer Benchmark[151]
2012	88.0%	98.5%	97%
2013	90.35%	98.5%	97%
2014	90.76%	98.5%	97%

Figure 7-5. Payment Accuracy Rate by VISN[152]
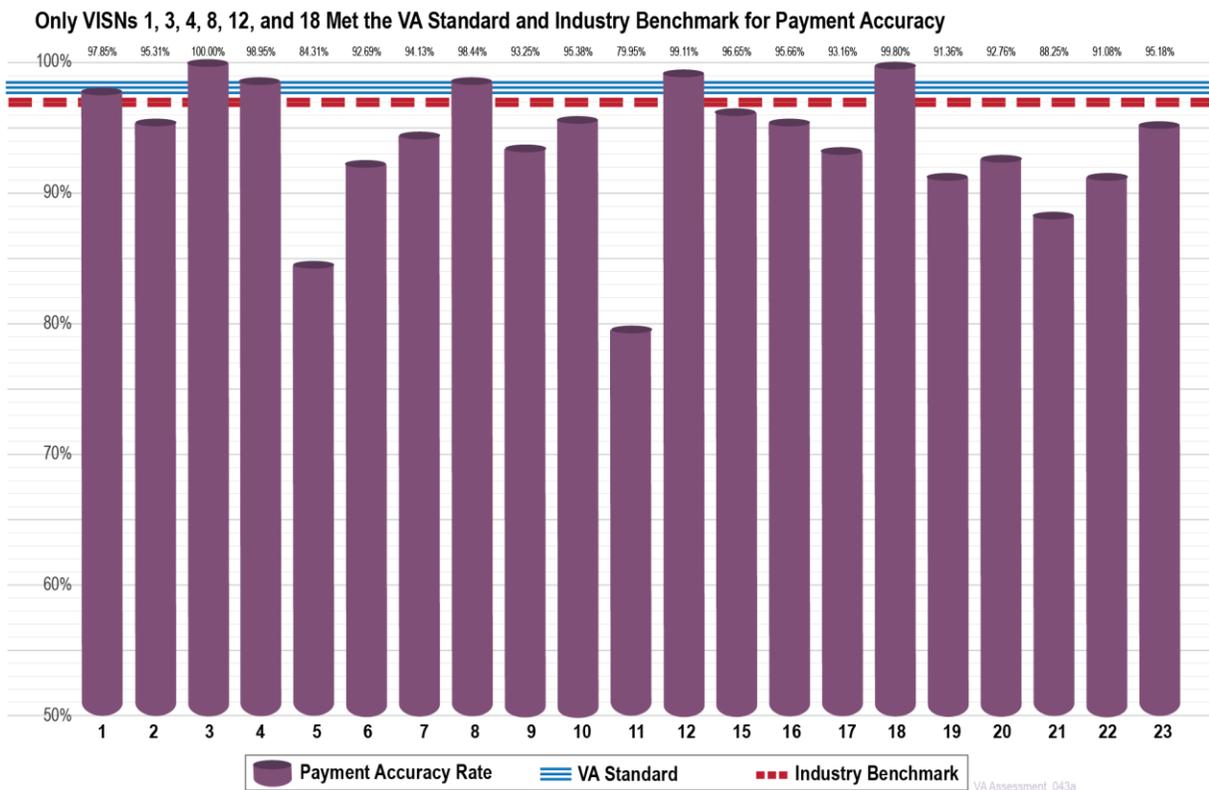
Source: FY2014 IPERIA Data

VHA's low rate of payment accuracy is attributable to the high degree of manual intervention required to process a claim. Currently, VHA does not have the capability to "auto-adjudicate" a claim, meaning VHA staff make are required to make complex decisions regarding eligibility and

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[150] Accuracy (IPERA Reports 2012-2014) claims payment processing compliance with established VA pricing and payment methodologies, policies, handbooks, and regulations.

[151] RSM McGladrey 2013 Report of Lead Regulators, UnitedHealthcare

[152] Per Request-Accuracy.xlsx. This workbook includes FY2014 IPERIA data for each sample reviewed. To arrive at these figures from the raw IPERIA testing data, the team divided the sum of the improper payment amount by the sum of the amount sampled/paid for each VISN.

The views, opinions, and/or findings contained in this report are those of Grant Thornton should not be construed as an official government position, policy, or decision.

pricing. Furthermore, VHA staff members make these decisions without comprehensive and standardized procedures guides.[153] Refer to sections 7.6 and 8.4 for more information regarding the root-causes of payment errors.

To ensure accuracy of claims payment, one VAMC within VISN 8 conducts extensive pre-authorization and pre-payment reviews of each claim, resulting in an FY2014 error rate of less than one percent.[154] While this is a best practice, these reviews require Non-VA Care program subject matter expertise and they may not be repeatable at all VAMCs. A comprehensive training program for supervisors would increase the likelihood of successful implementation at other VAMCs.

On March 2, 2015, VA's Inspector General reported as of August 2014, VHA had spent $73.8 million of the $92.8 million required to develop and implement a new processing system to correct many of these issues. Work ceased upon discovery that incorrect funding appropriations were allocated for this procurement. The report indicates VHA established a target date of June 30, 2015 for correcting the appropriations issue.[155] The outcome of this was not available at the time of publishing.

7.3.3 Findings and Recommendations for Timeliness and Accuracy

The processes and effective execution of key activities, both from timeliness and accuracy perspectives, are essential to maintaining the network of providers necessary to keep America's health care promise to our Veterans. The infrastructure part of this finding includes the lack of documented guidelines and procedures, inadequate technology and tools, and insufficiently trained and inadequate number of staff coupled with the highly complex, and inconsistent rules spread across VHA and outlined in Assessment C.

The following section discusses root causes and major sub-findings that contribute to this overarching finding, as well as our recommendations for improvement to timeliness, accuracy, and penalties discussed above. The drivers of Non-VA claims payment performance on timeliness, accuracy, and interest payments are people, process, and technology, as illustrated in Figure 7-6. The following section discusses people and process findings and recommendations. Chapter 8 discusses Non-VA Care technology.

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[153] FY 2014 Improper Payment Elimination and Recovery Improvement Act Report identifies a listing of events categorized as inaccuracies. Per Interviews with CBO Business Systems Management Directorate and four VAMCs.

[154] Ibid.

[155] OIG Report 14-00730-126, Reviewed of Alleged Misuse of VA Funds to Develop the Health Care Claims Processing System, March 2015

Figure 7-6. People, Process, and Technology Tied to Timeliness, Accuracy, and Interest Payments
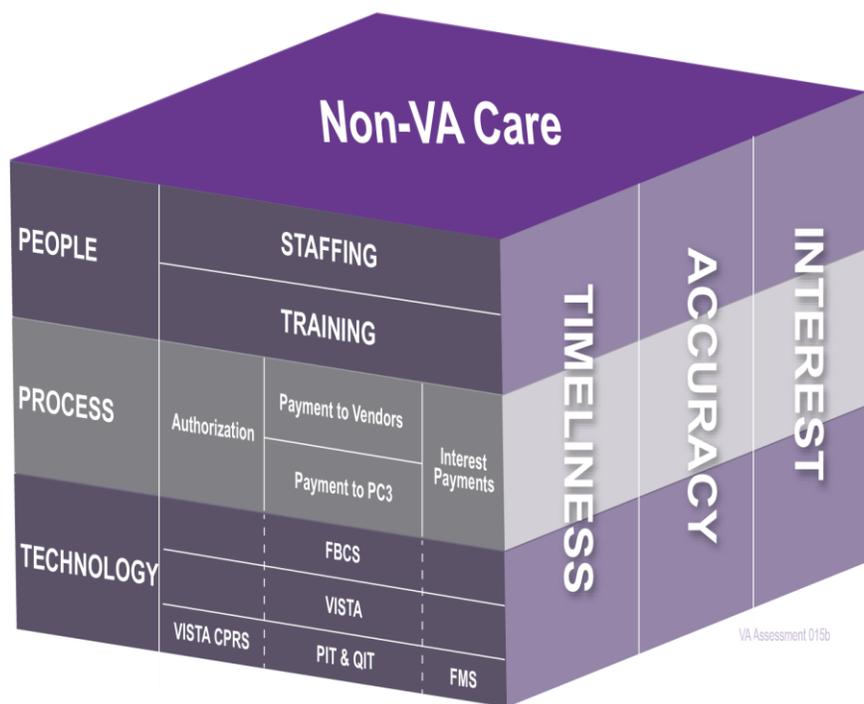
Source: Grant Thornton's rendition of VHA's people, process, and technology component for Non-VA Care

Non-VA Care procedures for processing claims are complex, often confusing, and lead to the inaccurate and untimely claims payments. Assessment C provides detailed information on the complexities of care authorities. Unlike the insurance industry Non-VA claims processing staff must manually determine eligibility, interpret authorities (benefits), apply the correct payment rate, and interpret system edits. The authorities governing Non-VA Care and service connected disability determination require careful interpretation and are difficult to translate from requirements to operations. We organize our findings and recommendations for timeliness and accuracy into the sections below:

- 7.3.4 Claims Submission Requirements
- 7.3.5 Process for Authorizing Non-VA Care
- 7.3.6 Patient Centered Community Care (PC3)
- 7.3.7 Preventing Inaccurate Payments.

7.3.4   Claims Submission Requirements

In the typical provider and a payer transaction, payers are responsible for furnishing guidance on claims submission requirements. This includes specialized instructions for unique rules relevant to the payer. Private-sector payers typically develop a Provider Manual (often referred to in the industry as an 837 companion guide) to describe detailed instructions on how to submit claims for reimbursement. These manuals are often hundreds of pages, available online

with search capabilities, and address comprehensive and detailed requirements and billing scenarios. [156]

Findings

1. **Inadequate Non-VA Care Claims Submission Guidance Contributes to Increased Workload and Payment Errors.**

- Non-VA providers lack access to VHA's detailed billing, authorization and clinical documentation requirements, leading to increased workload for VHA staff and Non-VA staff, and inadvertent duplicate billing and payment. Lack of provider education increases the risk of erroneously billed claims and affects claims backlogs as the Non-VA providers resubmit for unpaid services. VHA does not publish a provider or a billing manual. If a provider inquires about instructions to bill VHA staff typically recommend following Medicare guidance, which is not completely applicable to Non-VA Care. CBO understands the need to create a provider and billing manual, however a manual is not in development and we were unable to determine a date for publishing one.

- Non-VA providers are directed to CBO's website which includes a link to the VHA Provider Guide, an overview of how to work with VHA.[157] While the VHA Provider Guide documents high-level instructions to bill VHA, it does not provide billing instructions related to the multitude of scenarios and requirements facing Non-VA providers. We asked Non-VA Care supervisors for the guidance given to providers, and they referenced the VHA Provider Guide. The Provider Guide instructs providers to bill based on Medicare requirements; however, there are some critical differences between VHA and Medicare, specifically regarding eligibility and documentation requirements.

Table 7-7. Examples of Billing Differences between VHA and Medicare

Type of Claim	Medicare Policy	VHA Policy
Dental Claims	"Medicare doesn't cover most dental care, dental procedures, or supplies, like cleanings, fillings, tooth extractions, dentures, dental plates, or other dental devices. Medicare Part A (Hospital Insurance) will pay for certain dental services that you get when you are in a hospital. Part A can pay for inpatient hospital care if you need to have emergency or complicated dental procedures, even though the dental care is not covered."[158]	VHA pays service-connected dental claims.

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[156] Peter Kongstvedt "Essentials of Managed Care" Fifth Edition, 2007 Pg 393.

[157] Working with Veterans Health Administration: A Guide for Providers - http://www.va.gov/PURCHASEDCARE/docs/pubfiles/programguides/NVC_Providers_Guide.pdf

[158] Medicare Dental Information http://www.medicare.gov/coverage/dental-services.html

Type of Claim	Medicare Policy	VHA Policy
Maternity Claims	Most people on Medicare are age 65 and older so the program is not usually associated with childbearing. As a result, Medicare guidance for maternity related claims is minimal.	VHA will reimburse for maternity care.

- Lack of provider education increases the risk of erroneously billed claims, resulting in claims backlogs as the Non-VA providers resubmit for unpaid services. Multiple VAMCs indicated that some Non-VA providers periodically resubmit the claims until VHA pays.[159] This adds to the backlog of claims, increases processing time, and the risk of paying for the same services twice. According to paid and denial data provided by CBO, VHA paid 54.1 percent of submitted claims in calendar year 2014, meaning 45.9 percent of claims were returned to Non-VHA providers to correct an error on the claim.[160] One Non-VA provider's billing staff indicated that VHA denies 58 percent of that Non-VA provider's claims.[161] Figure 7-7 shows the percentage of submitted Non-VA Care claims paid by each VISN.

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[159] Note: VHA currently does not have a standard for the percentage of claims (or claim lines) that should pay. The commercial benchmark cited here is for professional claim (i.e., CMS-1500 claims submitted by medical practitioners) lines, whereas VHA's performance is based on all claims (i.e., professional, facility, dental and pharmacy claims). We could not directly compare VA's performance to the commercial benchmark because of limitation in the data available.

[160] Per CBO File "Paid Denied or Rejected data thru 4-30-15.xlsx". See previous discussion on performance compared to commercial benchmark.

[161] Qualitative Interview with Non-VA provider billing staff in Salt Lake City, Utah

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Figure 7-7. CY 2014 Percentage of Submitted Claims Paid[162,163]

VHA Denied or Rejected 45% of Claims
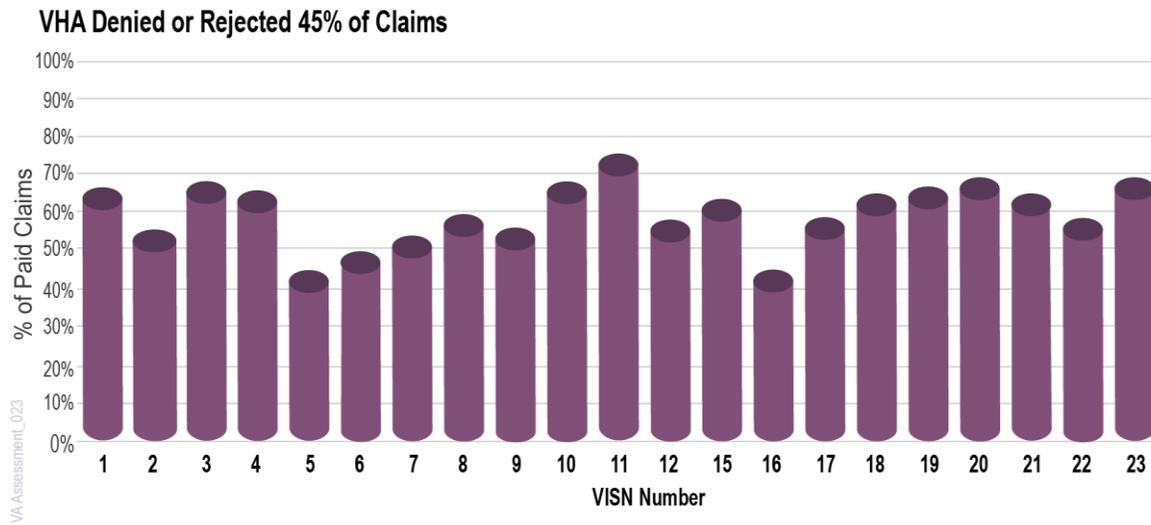
Source: CY14 Paid, Denied, or Rejected Data

- Policies regarding third-party coverage have also caused confusion for both providers and Veterans.[164] Rules regarding primary and secondary payers and co-payments vary depending upon the basis of the Veteran's coverage (Choice versus Non-VA Care, for example) and understanding the basis of eligibility (such as service connectedness) adds further confusion.

- Duplicate claims unnecessarily increase volume and workload for Non-VA Care staff and exacerbate VHA claims payment timeliness issues. Non-VA Care providers submit duplicate claims because they:[165]

  o Cannot determine the status of a claim

  o Are not paid on time

  o Are instructed to submit the claim to the VAMC closest to the Veteran's home Zip Code regardless of which VAMC is responsible for processing that claim

  o Resend claims when they submit medical record documentation to support the original claim.

2. **Policy complexity for Staff and Non-VA Providers Results in a High Risk of Improper Payments and Causes Confusion, Inefficiencies, and Errors in a Manual Environment.**

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[162] Per CBO File "Paid Denied or Rejected data thru 4-30-15.xlsx". See previous discussion on performance compared to commercial benchmark.

[163] Note: Paid, denied, and rejected claims were not tracked for the entirety of FY 2014; therefore, CY 2014 was the only full year of data available.

[164] Per Interviews with four VAMCs and two Non-VA provider billing staffs

[165] Ibid.

- Complex rules and disparate processes result in inconsistencies in authorization and payment practices. Without standardized processes and procedures claims clerks conduct complex assessments inconsistently across VAMCs, potentially leading to inaccurate payment. Unclear authorizations lead to confusion among Non-VA providers and potential payment for unauthorized services.

- According to the 2014 IPERIA report, 27.2 percent of all improper Non-VA Care payments were the result of claims clerks selecting the wrong payment schedule. The second highest cause of improper payment was incorrect assessments regarding Veteran eligibility) 10.7 percent). The third highest case of improper payment was selection of the wrong care authority at 7.8 percent.[166] In addition, claims clerks have to interpret, and in many cases override, complex system edits without any point of reference, such as a procedure guide due to system limitations. One site developed a local "cheat sheet" to help guide the claims clerk through these scenarios.

- A 2009 OIG report on VHA's patient fee care program states "VHA does not have a centralized source of comprehensive, clearly written, current policies and procedures for the [Non-VA Care Program]. Instead, Non-VA Care supervisors and staff rely on an assortment of resources that contain some policy, technical guides for the VistA Fee system, training materials, and informal guidance, such as conference call minutes."[167] Since the 2009 OIG audit, VHA reported all recommendations and proposed actions were completed. However, we observed VHA continues to struggle with these challenges, indicating lack of sustainability in changes implemented. The recent transfer of responsibility to CBO under the Veterans Choice Act provides an excellent opportunity for VHA to develop and successfully implement standardized processes and procedures.

- The lack of standardized processes and procedures prohibits VHA from developing consistent keystroke-level training on a national scale. While there is general, high-level training and guidance to help the claims clerk understand Non-VA Care, there is no detailed training to instruct the claims clerk on how to process and pay claims. Every location, whether a local VAMC or consolidated VISN payment center, processes claims with slight variations; therefore, every location has unique training needs. The best practice is to have detailed and standardized internal processes and procedures.[168]

- VHA cannot establish productivity standards and monitor employee performance because its processes are not consistent across VAMCs and VISNs. For example, some VAMCs appear to have the claims clerks work closely with the authorization personnel and involved in care coordination, while others do not. Some claims clerks are more involved in "provider relations" activities than others. Additionally, claims clerks work on all types

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[166] FY 2014 IPERA Report (Final) Pg. 6

[167] OIG Audit of Veteran's Health Administration's Non-VA Care Outpatient Fee Program, Report No. 08-02901-185, August 3, 2009

[168] Essentials of Managed Health Care, Fifth Edition By Peter Reid Kongstvedt Page 413 "Discreet policies and procedures are required for all claims capability tasks…They should be thorough in that they account for every single step in a process. Thoroughly reviewing and documenting processes helps to reveal inconsistencies or gaps in claims processes that compromise quality and/or efficiency"

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of claims that require varying levels of effort. Some claims clerks process only authorized claims while others work both authorized and unauthorized. In some cases, even outpatient and inpatient claims are divided among claims staff.

- Inconsistencies extend beyond processes and procedures to department naming conventions. From facility to facility, departments with the same operational responsibilities often have varying names and position descriptions, leading to Non-VA provider confusion. For example, four VAMCs referred to the authorization and scheduling department for Non-VA Care by four different names: Patient Administration Services (PAS), Health Administration Services (HAS), Business Service, and Non-VA Care Coordination.

- Adding to the complexities that characterize traditional Non-VA Care, VHA staff now struggle to understand new Patient Centered Community Care (PC3) and Choice Program requirements. Although the same vendors operate PC3 and Choice, the procedures and related legislative requirements are inconsistent across these two programs. For example, VHA creates the authorization for PC3-related care, whereas HealthNet or TriWest creates the authorization for Veterans Choice Program-related care. These nuances create confusion for VHA staff, vendors and Non-VA providers, leading to risk of untimely and/or inaccurate payment.

- VHA has not updated official Non-VA Care employee handbooks since 2008, and the best practice is to update the official handbooks continuously.[169] CBO officials indicated they are in the process of creating standardized processes and procedures, but the extensive vetting process of draft guidance (e.g., reviews by General Counsel, CBO, and Program Offices delays the issuance of any guidance). To mitigate the lack of updated handbooks, CBO developed operational plans and procedures, which do not require the same degree of vetting; however, CBO does not enforce these plans and procedures. Ultimately, the lack of clear direction, at a national level, leaves individual facilities to develop their own, individualized processes.

Recommendations

To address these findings, CBO should:

- Develop a comprehensive online Provider Guide (that includes an 837 companion guide and billing manual) to offer Non-VA Care providers detailed instructions about how to bill VHA. Doing so will reduce duplicates, rejections, inquiries, administrative burden on Non-VHA providers, and increase timeliness and accuracy of payment. When a claim is submitted correctly the first time, the claims clerk can spend more time processing payments instead of following up with Non-VA Care providers. Non-VA Care provider billing manuals will ultimately lead to better relations with Non-VA providers.

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[169] Peter Kongstvedt "Essentials of Managed Care" Fifth Edition, 2007 Pg 413 "One cannot overstate the value of thorough, well-written, cross-functional, current, and accessible policies and procedures"

- Create a provider portal so that providers can routinely check the status of submitted claims.

- Create a centralized call center with dedicated staff to answer Non-VA provider questions. The frequency and purpose of the calls, as well as the call notes and outcomes, should be available across VHA so that claims clerks, supervisors, and authorization staff can access that information if they need to. Creating a centralized call center will allow claims clerks to focus more time on the processing and payment of claims, leading to improved timeliness and accuracy.[170]

- Leverage existing Veteran education programs, using multiple media and mediums to reach Veterans. Several changes affecting Non-VA Care processes have occurred since implementation of the Choice Act, such as the consolidation of staff under CBO and the implementation of the Choice Program and its related business processes.

- Adopt a single set of practices and guidance for authorizing and paying Non-VA claims (including PC3 and Choice Program requirements). Review and evaluate the existing authorization and claims processing procedures at high performing facilities and interview industry experts to determine best practices. Develop sustainable keystroke-level training to reinforce practices and guidance.

- Conduct ongoing compliance reviews to ensure effective implementation of the processes and procedures.

- Apply consistent naming standards across departments responsible for authorization and payment.

- Explore alternative business models to address administrative portions of Non-VA Care claims processing.

7.3.5 Process for Authorizing Non-VA Care

Finding

1. **Authorization requirements for Non-VA Care are unclear and inconsistent among VAMCs.**

- The authorization directs the Non-VA provider to render the treatment the Veteran requires and approved by VHA.[171] Authorizations should be clear and concise to ensure there is no misunderstanding between VHA and the Non-VA provider. Considerable claims do not reflect care authorized, leading to risk of improper payment. Unclear

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[170] Peter Kongstvedt in Essentials of Managed Care cites, "The advantage of a centralized call center is that the customer service representatives are trained to respond to all sorts of issues, not just claims-related problems, and a disadvantage is that additional extensive training on how claims are adjudicated may be needed to fully prepare customer service representatives to respond to claims inquiries. Furthermore, care must be taken to segregate claims adjudication production task from call center task to ensure appropriate focus."

[171] VHA requires 100 percent authorization, whereas industry best practice does not. Other organizations of similar size authorize a very small percentage of care.

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authorizations lead to confusion among Non-VA providers and potential risk of improper payment for unauthorized services. CPT codes are the most widely used medical nomenclature used to document medical procedures and services.[172] Currently, authorizations include a brief, qualitative description of the authorized services, whereas industry best practice is to include the applicable Current Procedural Terminology (CPT) code or range of CPT codes. The CPT codes will allow the Non-VA provider some flexibility in treating the patient, but will eliminate any questions with regard to the care authorized.

- The use of vague language in authorizations can lead to misinterpretation by the provider delivering the care and VHA staff paying the claim. When Non-VA providers deliver and bill for services outside of the care authorized by VHA, improper payments result in use of resources that otherwise would be available to provide Authorized Care to Veterans. Over-payment recovery increases VHA's administrative overhead.

Recommendations

To address these findings, CBO should:

- Incorporate applicable CPT codes or ranges of CPT codes on the authorization to provide more clear and concise direction to the Non-VA provider. Adopting this industry best practice will enable VHA to reduce potential misinterpretation and risk of paying for services not authorized.

- Analyze and routinely report the reasons for referrals for Non-VA Care nationally. There is a standardized list of categories for authorizations for Non-VA Care. Analyses of these referral reasons will help VHA assess the need for Non-VA Care by clinical category, VAMC, and VISN. These analytics will also help inform VHA about clinical shortages, the demand for Non-VA Care, the need to expand the PC3 networks, and anticipate increases in Non-VA Care claims volume, staffing requirements and resource allocation.

7.3.6 Patient Centered Community Care (PC3)

Since PC3 is an evolving program, we assessed relevant business processes. We supplemented results of our site visits and data analysis with insight from both PC3 vendors, TriWest and HealthNet. The following are related findings and recommendations.

Finding

2. **Patient Centered Community Care (PC3) is experiencing challenges in scheduling appointments and meeting administrative requirements of the PC3 vendor contracts.**

- VHA created PC3 to expand care to Veterans, especially in rural areas, and facilitate collection of medical documentation. We found the PC3 vendors experience challenges

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[172] Per American Medical Association. (2015). About CPT. Retrieved from http://www.ama-assn.org/ama/pub/physician-resources/solutions-managing-your-practice/coding-billing-insurance/cpt/about-cpt.page?

similar to those of traditional Non-VA Care—difficulty in arranging Non-VA Care for Veterans and retrieving medical documentation related to care provided outside of VHA facilities.

- HealthNet and TriWest have yet to establish adequate networks in to handle the volume or type of authorizations from VHA, resulting in an increased administrative burden and delayed access to care.[173] For example, of the 156 referrals one rural VAMC sent to the PC3 vendor, approximately half returned without action as the vendor's network of providers was unable to accommodate to the appointment. The 2015 OIG report on PC3 supports this point:

   "Neither PC3 contractor had established adequate provider networks. The PC3 contracts required full implementation of the networks in all six provider regions by April 2014. However, the PC3 Contracting Officer issued corrective action letters faulting the respective contractors for inadequate provider networks in February, May, and September 2014." The report continues, "At one VHA medical facility, staff stated they only authorized non-urgent care such as ophthalmology under PC3 because they could not rely on the PC3 contractor to schedule appointments for other medical services due to a shortage in network providers."[174]

Three of four VAMCs visited indicated many providers are reluctant to join the PC3 network because of low reimbursement rates.[175] Assessment C indicates the PC3 vendors reimbursement rates are below Medicare.[176]

- When HealthNet or TriWest are unable to schedule an appointment, they return the authorization to VHA. VHA is ultimately responsible for providing the care or using alternative Non-VA Care means. This adds to VHA's administrative burden and delays the Veteran's access to care while the PC3 vendor determines whether it has an available provider.

- HealthNet representatives indicated challenges building a network because it has to compete with already established local contracts with VHA facilities. These contracts often pay a higher percentage of Medicare reimbursement and have fewer administrative requirements than PC3.[177,178] To mitigate this issue, CBO directed local VAMCs not to enter into any new agreements with local Non-VA providers. This will reduce competition among VHA's Non-VA Care programs once the local contracts expire.

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[173] Note: The evaluation of the adequacy of the PC3 agreements was beyond the scope of this assessment.

[174] VA OIG Review of VA's Patient-Centered Community Care (PC3) Contracts' Estimated Cost Savings Report – April 28, 2015

[175] Per interviews with three VAMCs

[176] Assessment C, Table 1-1

[177] Qualitative Interviews with HealthNet and TriWest Leadership

[178] Note: VHA pays Medicare rates for services unless they have a pre-established contract with a provider.

- HealthNet and TriWest do not return medical documentation to VHA in a timely manner, leading to payments that are inconsistent with the terms of the PC3 contract. The PC3 contract stipulates, "For [medical services] claims to be considered for payment they must include required medical documentation."[179] The contract goes on to stipulate, "All submitted claims must have sufficient medical documentation to support the payment of the claim."[180] According to the Return of Medical Documentation audit, the vendors provided only 79 percent of the documentation in accordance with the contract.[181] They submitted 19 percent late and did not submit 2 percent of the required documentation. Failure of the PC3 vendor to provide medical documentation prevents VHA physicians from having up-to-date clinical information. In addition to the contract compliance issues lack of medical documentation can affect coordination of care and future clinical services.[182]

- One PC3 vendor reported challenges administering the PC3 program due to inconsistencies in business process across VAMCs. For example, the vendor reported authorizations differ from one location to another and, as a result, the same documentation issued by two different VAMCs can reflect two different intents. Thus, the vendor faces challenges interpreting the authorizations and applying standardized business processes nationwide.

- Assessment C provides a detailed overview of the challenges associated with administering the Non-VA care programs.

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[179] Per VHA Contract with HealthNet - B.3 PWS Section 2. Healthcare Resource Network i. Return of Medical Documentation

[180] Per VA's contract with HealthNet, page 21 and PC3 Contract page 45 which states, "Medical documentation recording an authorized episode of outpatient care (see section 2.h.iii Quality Assurance and Surveillance Plan) shall be submitted to VA within 14 calendar days after completion of the initial appointment. If additional appointments are conducted, medical documentation shall be submitted to VA within 14 calendar days upon completion of the episode of care. Medical documentation recording an authorized episode of inpatient care shall be submitted to VA within 30 days after discharge. Critical findings have sooner report requirements as described in section 2.g.iii.1 of this PWS. The authorization may request medical documentation be returned sooner than 14 calendar days based on clinical need. Communication of information by telephone may be required when results or clinical findings necessitate an urgent response. This shall be followed up by submission of complete medical documentation within 14 calendar days. Contractors shall not bill VA until they have submitted medical documentation for both inpatient and outpatient care to VA. VA will consider exceptions for highly unusual circumstances. This process will be audited on a regular basis. Contractors may request access to VA's Computerized Record System (CPRS)". See Section B.4 for IT contract security requirements.

[181] CBO Departments of Audits and Internal Controls (DAIC) Patient Centered Community Care Review of PC3 for Return of Medical Documentation, September 4, 2014

[182] Per VA contract with HealthNet, VA did not provide a copy of Attachment A, which details Implementation Plan and Performance Based Payment Milestone Schedule, so we are unable to assess the degree to which these claims processing performance issues might affect incentive payments paid or performance penalties were assessed by VA to PC3 vendors.

Recommendations

To address these findings, CBO should:

- Review the terms of VHA's contracts with HealthNet and TriWest to verify documentation of network adequacy and medical documentation requirements, and VHA has the ability to hold them accountable. If so, VHA should enforce the terms governing network adequacy, billing and the provision of documentation. For example, VHA should hold PC3 payment until it has received the medical documentation corresponding to the claim at hand. If VHA's PC3 vendor contracts do not contain network adequacy and medical documentation performance standards and penalties, they should be amended to include them.

- Work with VAMCs to ensure standardization and centralization of provider contracting. Assessment C notes the need to assign responsibilities to organizations at the appropriate level of VHA's administrative hierarchy, and argues for central management of contracts (such as those under Choice and PC3).[183]

- Allow PC3 vendors to enter electronic medical documentation received from Non-VA Care providers directly into the VHA system. Doing so would eliminate the additional processes of printing, scanning, and uploading these documents by the Non-VA Care staff.

- Assess alternatives for increasing utilization of Medicare's network of providers, expanding the network of physicians and potentially reducing the expense of developing a separate network for different sets of government beneficiaries.

7.3.7 Preventing Inaccurate Payments

Driven by its manual claims adjudication process, VHA is at risk for making improper payments. To mitigate those risks, VHA has implemented a number of oversight and quality assurance practices such as internal reviews and sophisticated claims scrubbers. To understand the breadth of processes in place to reduce improper payments we requested all post payment audits and reviews conducted by VHA oversight groups for the last three fiscal years.

Findings

1. **Proactive and retrospective processes are in place to find inaccurate payments, but these practices are highly manual and there is little evidence to show how effective some mechanisms are.**

- VHA generates routine reports on claims accuracy. Internal audit teams routinely review processes and procedures to further reduce and prevent fraud, waste and abuse, and improve payment accuracy. The audit teams follow up with the VAMCs understand the root cause of errors and assist in the implementation of corrective actions. These reviews and audits monitor improper payments they are retrospective in nature; therefore, VHA

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[183] Assessment C.

must invest time and money to recoup overpayments to Non-VA providers identified through these reviews and audits.

- There are a number of edit checks and quality reviews prior to payment, such as those performed with the Quality Inspector Tool (QIT) and Program Integrity Tool (PIT). These tools represent positive steps toward improving program integrity and accuracy, but they are labor intensive and can distract from claims processing, leading to an increase in the backlog. According to one VAMC, the QIT tool requires manual retrieval of two separate reports from FBCS that can take as long as four hours per day. One VAMC indicated that it has dedicated a full FTE with the sole responsibility of running the QIT tool. Another VAMC questioned whether the QIT tool identified the full spectrum of errors. This particular VAMC implemented a more robust pre-payment review process and as a result had an improper payment rate of less than one percent for FY2014.[184] This performance is a best practice among VAMCs; however, the processes are reliant on Non-VA Care subject matter experts and may not be repeatable among all sites.

- While there are a number of pre- and post-payment review and oversight practices in place, they are the result of the manual process for adjudicating claims. With a more automated approach, edits are performed automatically in the system; thereby, reducing manual intervention and risk of improper payment.

Recommendations

To address these findings, CBO should:

- Improve current pre- and post-payment review and oversight practices so VHA is using the most effective technological tools and practices with emphasis on automated pre-payment edit techniques.

7.4   Penalties – VHA is at Risk for Penalty Payments to Vendors Due to Timeliness Issues.

Federal and state laws mandate health insurers pay provider claims promptly. The Prompt Payment Act requires federal agencies to pay vendors in a timely manner and stipulates interest penalties be applied to late payments. When VHA enters into a contractual agreement with a Non-VA provider, it is subject to the Prompt Payment Act. If VHA does not reimburse the contracted provider within 30 days of submitting a <u>clean</u> claim, VHA must pay the state mandated interest rate for each day the payment is delinquent.[185]

The contract between the insurer, in this case, VHA, and the provider submitting the claim may contain provisions regarding claims payment timeliness and penalties for late payments. Driven

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[184] Per Request-Accuracy.xlsx. This workbook includes FY2014 IPERIA data for each sample reviewed.

[185] Note: Interest payments are calculated automatically in FMS based on Prompt Payment Act requirements. Interest rates may vary every six months.

by these prompt payment requirements, interest penalty payments are another indicator of an insurer's timeliness of claims payment.

Minimizing interest penalty payments is important in effectively managing the finances of VHA. These penalties are expenditures that otherwise could be used for patient care. Commercial payers typically monitor interest payments very closely to ensure minimal costs and effective financial management. VHA does not track or monitor interest payments at the VAMC level. CBO staff at the VAMCs should be aware of the claims that are subject to interest.

VHA measures interest penalty payments in terms of dollars and as a percent of claim payments. VHA's current standard with regard to interest is $300 per $1 million, or .03 percent, in paid claims. We compared Non-VA Care interest payments to commercial health care industry standards and to other government payers. Table 7-8 also shows interest payments as a percent of total claim payment during the past three fiscal years. Interest payments have decreased in the last three years from $425,704 in FY12 to $292,217 in FY14. In 2014, VA incurred $292,217 in interest penalties on $5,580,590,777 of paid claims.

Table 7-8. Interest Penalties on Late Payments

FY	VHA Performance: Interest Percentage[186]	VHA Performance Standard	Commercial or Other Payer Benchmark[187]
2012	.009%	.03%	0.8%
2013	.004%	.03%	0.8%
2014	.005%	.03%	0.8%
Note: VA's Office of General Counsel is reviewing whether VAMC business practices where rates for individual authorizations are not negotiated are considered a contract subject to interest penalties. If VHA is found liable, it would be subject to pay retrospective interest penalties to Non-VA providers operating under individual authorizations and subject to greater interest penalties in the future.			

7.4.1   Process for Oversight of Interest Penalties

The Prompt Payment Act requires federal agencies to pay vendors in a timely manner. The Act stipulates that interest penalties apply when agencies pay vendors after the due date. When VHA enters into a contractual agreement with a Non-VA provider it is subject to the Prompt Payment Act. If a claim is not paid within 30 days of receipt, VHA must pay the applicable interest rate for each day the payment is delinquent.[188] To evaluate penalties our team interviewed stakeholders at CBO and at VAMCs. We analyzed penalty data supplied by CBO. We also discussed penalty processing with the Financial Services Center (FSC) in Austin.

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[186] Per CBO Interest.xlsx 2014, "Penalties as % of Paid" = "Penalties" / "Paid Amount"

[187] AHIP Center for Policy and Research, Update: A Survey of Health Care Claims Receipt and Processing Times, 2013

[188] Note: Interest payments are calculated automatically in FMS based on Prompt Payment Act requirements. Interest rates may vary every six months.

Finding

1. **VHA does not conduct sufficient management and oversight activities to understand, manage, and prevent interest penalties paid to Non-VA providers.**

- In 2014, VHA incurred $292,217 in interest penalties on $5,580,590,777 of paid claims. Of these interest penalties, 39.9 percent were paid on contract nursing home and dental claims, which are not processed in FBCS. [189] VHA processes nursing home and dental claims manually in the VistA system.

Figure 7-8. Total Paid Claims and Percentage of Penalties[190]
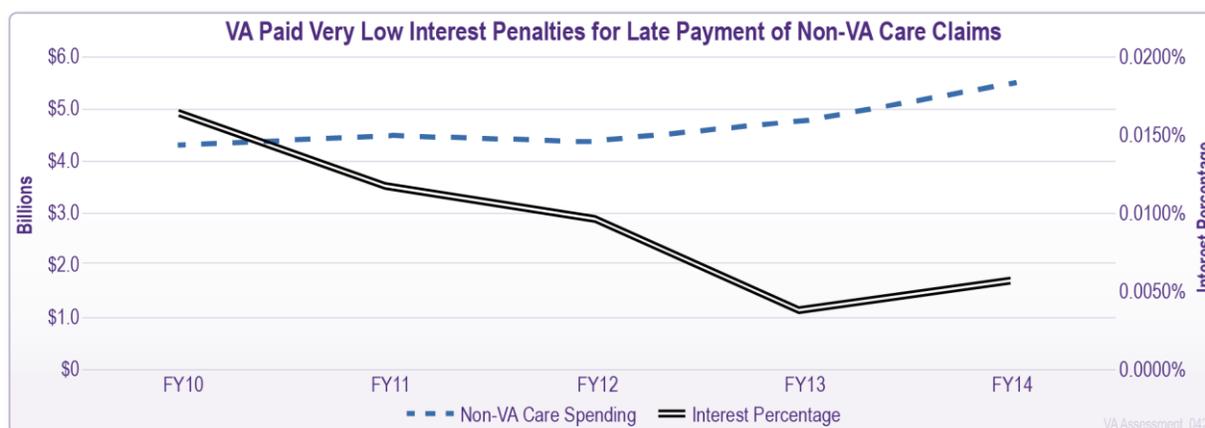
- According to one benchmark for commercial payers, 0.8 percent of claims paid include a penalty or interest for late payment.[191] While the 0.005 percent interest paid as a percent of claims paid for Non-VA Care compares favorably to the private sector, a significant portion (approximately 50 percent) of Non-VA Care is provided through individual authorizations and not local contracts or national contracts such as PC3.[192] These individual authorizations with Non-VA providers serve as a guarantee VHA will pay for the services identified. However, because reimbursement rates are not negotiated VHA has not considered the authorizations to be a contract subject to the Prompt Payment Act. As a result, VHA did not pay interest on individual authorizations.

- In response to complaints from Non-VA providers regarding timely payment and requests for interest, VA's Office of General Counsel reviewed the process of individual authorizations to determine what constitutes a contract between the two parties. Now,

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[189] Per Paid Data and Timeliness FY12-14 v2.xlsx prepared by VA informatics team; $112,359 interest in "Payment Category" "Community Nursing Home"; $4,191 in "Payment Category" "Dental". Total is $116,550, which is 39.9% of the total interest paid ($292,207).

[190] Per Paid Data and Timeliness FY12-14 v2.xlsx prepared by VA informatics team and Interest Report. The percentage of interest paid is calculated as "Penalties as % of Paid" = "Penalties" / "Paid Amount"

[191] AHIP Updated Survey of Health Insurance Claims Receipt and Processing Times, 2011

[192] Per CBO Purchased Care Operations Directorate

CBO considers individual authorizations, for which the rates are negotiated, the provider is identified, and services are identified as a contract. CBO recently released guidance to VAMCs instructing them that interest policies apply to these individual authorizations. OIG is reviewing whether interest should be back-paid for late payments on individual authorizations from prior years. CBO is currently awaiting the final decision of this review. If VHA is found liable, it would be subject to pay retrospective interest penalties to Non-VA providers operating under individual authorizations and subject to greater interest penalties in the future.[193] Future contracting trends such as expansion of PC3 may also affect VHA's exposure.

- While interest penalties are lower than commercial benchmarks VHA is at risk due to lack of oversight of interest at the facility level. VHA tracks the interest penalties imposed on each facility at the national level, but it is not communicated to the VAMCs. Several VAMCs indicated the inability to break down interest penalties by program. As a result, VAMCs may not be aware of how many penalties they have incurred to date.[194] The finance department at each VAMC monitors an interest report that includes payments for all products and services; however, finance department staff indicated challenges deciphering Non-VA Care specific interest. VHA organizes the report by obligation number; therefore, the finance staff must identify Non-VA Care obligations and extract them individually.

Recommendation

- Establish transparent reporting of interest at the facility level and stronger coordination between national and VAMC level management over interest penalties. Improving transparency at all levels will provide the ability to analyze and identify root causes of interest penalties on an ongoing basis, and proactively develop corrective actions.

- Modify reporting capabilities to report interest penalties at the program level. This will provide transparency into interest at the detailed level, and accelerate corrective actions in identifying and addressing root causes of interest charges.

- Define roles and responsibilities of staff who can drive avoidance of interest penalties. This addresses the need for awareness at the VAMC levels of the issues and risks that drive interest penalties.

- Develop an ongoing root-cause analysis and feedback program across VHA addressing interest penalties. Interest penalties are the result of process breakdowns in the claims payment process. Therefore, is it critical that the VAMC community has continuous visibility into what is working to eliminate interest penalties, and how to apply successful approaches to local requirements.

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[193] Per CBO Purchased Care Operations Directorate

[194] Per Interviews with CBO Operations Directorate and four VAMCs

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7.5   People

Our review of the people component of Non-VA Care identified themes centered on staffing and training. We detail our findings related to these functions in the following sections.

7.5.1   Staffing

To improve claims processing timeliness and accuracy in the face of increasing claims volumes, VHA needs to emphasize productivity of Non-VA Care claims processing staff. Effective staffing practices include assessing available resources, workload, and staff to develop and implement a structure that meets the organization's goals.[195] In addition to interviews across all levels of CBO and the VAMC, we observed staff interaction with FBCS to understand effects to productivity. Based upon our site visits and reviews, the following sections provide detail on our findings and recommendations related to people.

Findings

1. **The process to pay Non-VA providers requires higher staffing levels relative to other payers.**

- FBCS is heavily reliant on manual processes when compared to private sector health plans, which negatively affects timeliness and accuracy. FBCS auto-adjudicates zero percent of claims compared to private sector insurance benchmarks of 79 percent.[196]

- The inconsistencies in job responsibilities and functions contribute to the variations in claims timeliness and accuracy results across the country. Across VA, there are inconsistent practices regarding the responsibilities of Non-VA Care staff. In some locations, claims clerks and supervisors are involved in care coordination and work closely with the clinical staff responsible for authorizations, in addition to their claims processing responsibilities. A report released in early 2015 cited the system's failure to define roles, responsibilities, and processes as a contributing factor in organizational failure.[197] *Essentials of Managed Care* states, "Interruptions with telephones calls severely impedes claims adjudication productivity and quality if both tasks are assigned to the same at the same person."[198]

- The multitude of duties required of Non-VA Care staff contributes to higher staffing levels, an increase in processing errors, and slower manual processing of claims. Private sector plans more clearly segregate duties and have separate staff to perform ancillary tasks.

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[195] Minnesota Department of Management and Budget, Strategic Staffing Guidebook, "The effective development and implementation of Strategic Staffing and its subsequent strategies and actions require the involvement and commitment of individuals who both participate in and access resources from the human resource function."

[196] AHIP (2013) Center for Policy and Research, Update: A Survey of Health Care Claims Receipt and Processing Times

[197] VHA (2015) Task Force on Improving Effectiveness of VHA Governance, Report to VHA under Secretary for Health

[198] Peter Kongstvedt "Essentials of Managed Care" Fifth Edition, 2007 Pg. 397

Currently, VHA staffs approximately 1.35 FTE per 1,000 Veterans using Non-VA Care services, not including current vacancies. [199,200] Industry experts estimate commercials payers staff at about .6 FTE per 1,000 members.[201,202] We recognize direct comparisons of Non-VA Care staffing levels against private sector health insurance plans is challenging due to the additional tasks Non-VA Care staff perform. For example, most private sector health plans employ provider relations staff to outreach to the health care provider community to facilitate issues affecting timely and accurate claims processing; and VHA does not. Other payers also employ member services staff dedicated to responding to member inquiries related to claims and eligibility; again, VHA does not. VHA claims clerks answer both provider and Veteran inquiries in addition to their claims processing responsibilities. Lack of automated technology also requires additional staff to process and pay claims.

- High staff vacancy rates and poor retention contribute to delays and errors in claims payment, which is further exacerbated since VHA does not have adequate technology. [203] Staff vacancies lead to higher overtime costs, inexperienced staff, and a constant focus on employee recruitment, training, retention, and negatively affects the timeliness and accuracy of claims payments. During the implementation of the Veterans Choice Act in October 2014, CBO leadership reported there were 295 vacant positions (out of 1,982 authorized positions) for Non-VA Care claims clerks, supervisor, and support positions, such as clinical staff and budget technicians.[204] Since the implementation of the Veterans Choice Act, CBO has indicated some progress reducing the number of staff vacancies; however, during our site visit interviews, we found staffing retention and vacancy rates to be a significant and widespread challenge facing local Non-VA Care operations.[205] In addition, CBO staff noted that Non-VA Care spends $1.7 million per year on claims processing staff overtime.[206]

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[199] Calculation: Number of claims processing staff (1,687) divided by the number of unique Veterans that received Non-VA Care (1,252,710) x 1,000. The source of the claims processing staff is the CBO Purchased Care Operations Directorate and the source for the Veterans that received Non-VA Care is per Paid Data and Timeliness FY12-14 v2.xlsx prepared by CBO Department of Informatics; excludes Manila and VAMCs with less than 1000 claim lines.

[200] MITRE attempted to acquire Sherlock Benchmarks particularly for staffing, but was not able to come to an agreement with Sherlock.

[201] The volume of NVC claims represents a subset of all services rendered to the Veteran who access Non-VA Care. In contrast, commercial payers process claims for all services their members use. This difference in the calculation of this measure further demonstrates the disproportionate staffing levels at VA.

[202] Per Navigant Consulting industry subject matter expertise

[203] CBO Purchased Care Operations Directorate indicated that they began tracking staff turnover rates; however, they only began tracking this data in October 2014, limiting our ability to draw comprehensive conclusions. In addition, CBO tracks and reports turnover data on a pay period basis.

[204] Per CBOPC OPS FTEE by VISN.xlsx prepared by CBO Purchased Care Operations Directorate

[205] As of August 2015, there are currently 83 vacancies within Non-VA Care; however, over that same time, CBO transferred a number of positions to other departments, reducing the total number of authorized positions in Non-VA Care to 1,871. The CBO provided the updated number of staff vacancies and authorized positions but the data was not independently validated.

[206] Per Interviews with CBO Purchased Care

- CBO Purchased Care's headquarters has significant staffing vacancies. The requisite staff members are responsible for the oversight and administration of the overall Non-VA Care program. When leadership and key positions are vacant the implementation of necessary process improvement falters, and negatively affects claims processing performance.

- Due to limited availability of VA Care services and clinical staffing, VHA staff reported increases in Non-VA Care claims volume for some services, particularly behavioral health. At one VAMC staff noted that authorizations for behavioral health services have more than quadrupled, and described challenges with getting Non-VA behavioral health specialists to see VHA patients. The authorization process and the claims processing for behavioral health are often more complex and time consuming than more clearly defined medical or surgical services. Because of these complexities, many commercial payers outsource the management of behavioral health to firms that specialize in that field. The increase in Non-VA Care claims volumes requires adequate staffing and/or outsourcing to process claims timely and accurately.

Recommendations

To address these findings, CBO should:

- Refine job responsibilities so claims staff can specialize in core claims processing functions.[207] These roles and responsibilities should be standard across all VAMCs.

- CBO is assessing staffing levels across Non-VA Care. An objective of this process is the development of enterprise wide productivity standards. The study is scheduled to be completed in June 2015, and the results were not available at the time of this report.[208] We support CBO's efforts and recommend as Non-VA Care continues to evolve continually assessing staffing levels are appropriate to ensuring the accuracy and timeliness of claims processing.

- Continue to build the tiger team and deploy resources to alleviate claims backlogs, assist VAMCs or VISNs with vacancies and focus on timeliness and accuracy problems. [209] To manage spikes in claims volume and to work Choice claims, CBO trained clerks who can provide assistance to Non-VA Care departments across VHA. When deployed to assist VAMCs these teams are called VHA Tiger teams.

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[207] Peter Kongstvedt's book Essentials of Managed Care discusses the advantages and disadvantages of dividing the roles and responsibilities of claims processors and member and provider focused delivery services. One advantage of claims clerks taking calls is the ability to resolve errors on claims and suspended claims and a potential disadvantage is that the caller may be inquiring about other issues that require transfer to a member or provider service representative. Kongstvedt also argues that constant interruptions of calls with members and providers would deter the accuracy and timeliness of the auto-adjudication process.
[208] Per Interviews with CBO Purchased Care
[209] Tiger teams can remotely access the FBCS system at local VAMCs to process claims.

- Review 2015 timeliness and accuracy data from all 21 VISNs, identify underperforming VAMCs, and utilize tiger teams to improve the timeliness and accuracy of processing Non-VA Care claims.

7.5.2 Training

Training is integral to improving timeliness and accuracy when paying claims. Effective training increases job satisfaction and improves work performance, particularly if training is tied directly to the mission.[210]

Leading practices are to provide mandatory onboarding training that introduces policies, procedures, and necessary skills. Onboarding programs include various activities that expose new hires to the culture of the organization and expectations based on roles and responsibilities. A report released by the Society for Human Resources Management suggests, "Formal orientation programs help new employees understand many important aspects of their jobs and organizations, including the company's culture and values, its goals and history and it is power structure."[211] Newly hired Non-VA Care staff members are assigned mentors who provide hands-on training, particularly on IT systems used to complete tasks. Due to the complexities of Non-VA Care claims processing, training is particularly essential to prevent deficiencies in Non-VA Care claims payment timelines and accuracy.

Finding

1. **Training for Non-VA Care claims payment staff is inconsistent not comprehensively applied across VHA.**

- Lack of consistent, comprehensive training requirements across Non-VA Care affects VHA's capability to ensure that CBO training reaches the intended audience and improves claims timeliness and accuracy. CBO leadership indicated adequate training is available for claims clerks and training materials are regularly updated; however, this training is not mandated for staff (aside from training on one FBCS Patch, which is a system upgrade/improvement to the FBCS).[212] At all four of the VAMCs we visited, Non-VA Care staff indicated that training was inconsistent. Claim clerks and supervisors indicated differences in how claims are processed at each VAMC. Assessment C noted that, "Existing VA guidance pertaining to purchased care is scattered, sometimes outdated, and inconsistent in setting clear standards, leaving local facilities to develop their own policies and procedures."[213]

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[210] Per University of Rhode Island (2003). [Labor Research Center] Job Satisfaction. Retrieved from http://www.uri.edu/research/lrc/scholl/webnotes/Satisfaction.htm. "An employee's attitudinal response to his or her organization. As an attitude, job satisfaction is summarized in the evaluative component and composed of cognitive, affective, behavioral components. As with all attitudes, the relationship between satisfaction and behavior, most specifically job performance"
[211] Society for Human Resources Management (SHRM), Onboarding New Employees: Maximizing Success
[212] Per Interviews with CBO Purchased Care and VAMCs
[213] Assessment C - Page vi

- At present, VHA does not offer training programs for monitoring and managing Non-VA Care targeted to supervisors. A report released by the Office of Inspector General in 2009 presented similar findings, "VHA has not developed current and comprehensive fee policies and procedures, identified core competencies and established mandatory training requirements for fee staff, and implemented clear oversight responsibilities and procedures for the Fee Program. Furthermore, while the National Fee Program Office offers training for fee staff and supervisors, VHA does not require these employees to take the training."[214]

- One fee supervisor told our team it can take up to a year to train someone to properly process claims. With proper desk-level procedures, VHA can shorten the training window.[215]

- As noted above, the lack of a centralized claims processing system and the lack of standardized business processes hamper VHA's ability to develop standardized or keystroke training for all claims clerks. Since keystroke-level training and desk-level procedures are not available CBO and local VAMCs are forced to engage in one-on-one training efforts that are lengthy and not in uniform across VHA. Extended training periods result in timeliness and accuracy issues during these transition periods.[216]

- Additionally, VHA lacks an FBCS testing sandbox (training environment) for onboarding claims clerks; a clerk's first exposure to keying claims is with live claims in the production system.[217] A testing sandbox is a training tool for new hires to learn and understand the system without affecting live claims.

Recommendations

To address these findings, CBO should standardize the Non-VA Care claims processing methods and train claim clerks on the new methods by following the six recommendations below.

- Emphasize FBCS training and capabilities. In addition, when there are changes to policy, system, or procedures, CBO should include these changes in a recurring training program for all affected staff. The implementation of a structured training program will enable consistency across all Non-VA Care claims processing. Best practices include emphasizing the importance of onboarding training, particularly ensuring that new hires understand the organization's role of business, products, and the meaning of the systems processing instructions.[218]

- Identify and share positive deviant VAMCs Non-VA Care claims processing through analyses of the IPERIA reports and other audits. CBO should coordinate with VAMCs to

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[214] OIG Audit of Veteran's Health Administration's Non-VA Care Outpatient Fee Program, Report No. 08-02901-185, August 3, 2009

[215] Per Interview with Salt Lake City VAMC

[216] Per Interview with CBO Learning and Development Directorate and four VAMCs

[217] Per Interview with CBO Learning and Development Directorate

[218] Peter Kongstvedt "Essentials of Managed Care" Fifth Edition, 2007 Pg. 397

facilitate targeted training programs that communicate leading internal practices to underperforming VAMCs, and provide the necessary training to improve payment timeliness and accuracy.

- Develop and conduct training in customer service skills for claims processors whose roles also include call center duty. Claims clerks and call center representatives require different training.

- Create a training program focused on the supervisory skill set needed by Non-VA Care supervisors. VHA should initiate and implement training focused on staff retention and professional development.

- Create a FBCS environment for staff to train on before keying live claims.

- Formulate a training plan that includes training methods that are interactive, engaging, and conducted consistently. In accordance with industry best practice, VHA should develop a comprehensive training program that includes classroom, web-based and CD-ROM courseware, conference calls, webinars, online simulations training in conjunction with their mentors. In addition, assessing the effectiveness of training is also as important to measure the effect of training staff competency and improvement.

7.6   Non-VA Care Summary of Findings and Recommendations

The following table summarizes the findings and recommendations presented in this chapter, providing further detail to identify each finding's significance and each associated recommendation's timeline and effect.

Table 7-9. Summary of Findings and Recommendations

FINDINGS	RECOMMENDATIONS	SIGNIFICANCE	TIMELINE	IMPACT
Patient Centered Community Care (PC3) is experiencing challenges in scheduling appointments and meeting administrative requirements of the PC3 vendor contracts.	CBO should work with VAMCs to ensure standardization and centralization of provider contracting has been realized. Consider allowing PC3 vendors to directly enter electronic medical documentation received from Non-VA Care providers into the VHA system	Tier 1	Short	Process, Technology

FINDINGS	RECOMMENDATIONS	SIGNIFICANCE	TIMELINE	IMPACT
VHA does not conduct sufficient management and oversight activities to understand, manage, and prevent interest penalties paid to Non-VA providers.	Analyze and identify the root cause of interest penalties and provide these analyses to VAMCs on a regular basis to ensure VHA tracks interest penalties appropriately, and, when penalties exist, implements corrective action.	Tier 1	Short	People, Process, Technology
Proactive and retrospective processes are in place to find inaccurate payments, but these practices are highly manual, in nature, and there is little evidence to show how effective some mechanisms are.	Improve current pre- and post-payment review and oversight practices, so that VHA is using the most effective and highly automated tools and practices with emphasis on automated pre-payment edit techniques.	Tier 1	Short	Process, Technology
Training for Non-VA Care claims payment staff is inconsistent and not comprehensively applied across VHA.	Emphasize FBCS training and capabilities. Emphasize the importance of onboarding training. Develop and conduct training in customer service skills for claims processors.	Tier 1	Short	Process, People

FINDINGS	RECOMMENDATIONS	SIGNIFICANCE	TIMELINE	IMPACT
Inadequate Non-VA Care claims submission guidance contributes to increased workload and payment errors.	Adopt a single set of practices and guidance for authorizing and paying Non-VA claims (including PC3 and Choice Program requirements). Apply consistent naming standards across departments responsible for authorization and payment.	Tier 2	Short	People, Process
Policy complexity for Staff and Non-VA Providers Results in a High Risk of Improper Payments and Causes Confusion, Inefficiencies, and Errors in a Manual Environment	Adopt a single set of practices and guidance for authorizing and paying Non-VA claims (including PC3 and Choice Program requirements). Apply consistent naming standards across departments responsible for authorization and payment.	Tier 2	Short	People, Process
Authorization requirements for Non-VA Care are unclear and inconsistent among VAMCs. Considerable claims do not reflect care authorized, leading to risk of improper payment.	Incorporate applicable CPT codes or ranges of CPT codes on the authorization to provide more clear and concise direction to the Non-VA provider. Analyze and report routinely the reasons for referrals for Non-VA Care nationally	Tier 2	Short	People, Process, Technology

FINDINGS	RECOMMENDATIONS	SIGNIFICANCE	TIMELINE	IMPACT
The process to pay Non-VA providers requires higher staffing levels relative to other payers.	Redefine job responsibilities to be more narrowly defined so claims staff can specialize in core claims processing functions. These roles and responsibilities should be standard across all VAMCs. Establish CBO-wide productivity standards for staff Continue to build the tiger team to quickly deploy resources and alleviate claims backlogs, assist VAMCs or VISNs with many vacancies and focus on VAMCs with timeliness and accuracy problems	Tier 2	Short	Process, Technology
Training for all staff responsible for processing and paying Non-VA Care clams is not consistently and comprehensively applied across VHA. Additionally, the lack of standardized policies and procedures at VHA contributes to inconsistencies with training.	Standardize the Non-VA Care claims processing methods and train claim clerks on the new methods	Tier 2	Short	People, Process, Technology

FINDINGS	RECOMMENDATIONS	SIGNIFICANCE	TIMELINE	IMPACT
Legend				
Significance Tier 1 = Direct effect to payment and billing timeliness and accuracy				
Tier 2 = Supporting actions to improve payment and/or billing timeliness and accuracy				
Timeline Short Term=0-2 years, Medium=3-4 years, Long Term=>4 years				
Impacts People Process Technology				

8 Analysis of Information Technology—Lack of Automation and Integration Prevent VHA from Optimizing Performance in both Collections and Payments.

8.1 Introduction

Information Technology (IT) provides the foundation for the execution of VHA's revenue billing and collections and Non-VA Care vendor reimbursement processes. While Assessment H (Health Information Technology) from the Choice Act provides an in-depth assessment of VA's IT Strategies, and Assessment C provides an assessment of the authorities and mechanisms for purchased care, we focused on evaluating the effectiveness of VHA's primary IT systems used for billing and collection of revenue for VA Care and for processing payments for Non-VA Care.

The overarching finding and challenge identified for the IT systems during our assessment is that a lack of integrated automation is preventing VHA from optimizing collections and payments processes and outcomes.

8.1.1 Information Technology—History

The primary IT systems used to execute business processes across VHA Care and Non-VA Care Operations are the Veterans Health Administration Systems and Technology Architecture (VistA), Computerized Patient Record System (CPRS), and the Fee Based Claims System (FBCS).

Developed in-house in the 1990's from earlier VA information systems (the Decentralized Hospital Computer Program) VistA is an integrated outpatient and inpatient information system that supports day-to-day operations at local VHA facilities. VistA "consists of 104 separate computer applications, including 56 health provider applications; 19 management and financial applications; eight registration, enrollment, and eligibility applications; five health data applications; and three information and education applications. Besides being numerous, these applications have been customized at all 128 VHA sites."[219] [220]

In the 1990's, CPRS was released to provide an updated graphical user interface (GUI) to complement VistA capabilities. CPRS is a desktop client application that provides a single Windows-style interface for health care providers to review and update any patient information, to place orders, including medications, special procedures, x-rays, patient care nursing orders, diets, and laboratory tests stored and managed in the VistA Electronic Health Record (EHR).[221]

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[219] Part III, VA Consolidated Financial Statements for FY2014, page 98. Retrieved from http://www.va.gov/budget/docs/report/2014-VAparPartIII.pdf

[220] First View Federal TS ,Veterans Health Administration Chief Business Office Current Enterprise Architecture Assessment Deliverable 0002AA v1.7.2, December 31, 2013

[221] The MITRE Corporation (2015). Assessment H (Health IT) Final Report. p115

Implemented throughout VHA in 2010, FBCS processes and pays Non VA medical care claims. FBCS electronic data processing allows for automated workload assignments and data capture for reporting. FBCS creates, tracks, and manages claim authorizations, and makes claim payments.[222]

8.1.2 Modernization Efforts

VistA 4, expected to be delivered in fiscal year 2018, is the next evolution of VistA. "VistA 4 is intended to harness the powerful core of software and business processes embedded within VistA and apply a modern computing architecture that is modular and extensible, fully leveraging VA's investment in VistA, and allowing for an interoperable EHR that provides patient-centered care to Veterans, Service members, and their dependents."[223] One of the objectives for VistA 4 is to "Establish and maintain methods to develop business (clinical and administrative) processes and revise existing procedures and policies that advance VA health care and health informatics capabilities"[224] VistA 4 capabilities will eventually replace CPRS. Assessment H provides more insight and analysis of the VistA 4 (i.e., VistA Evolution) program.

VHA initiated the Health Care Payment System (HCPS) development to be an automated system to replace FBCS. According to the Deputy Chief Business Officer (DCBO) for Purchased Care, the CBO identified a need in 2008 for a centralized claims processing system that would help improve Non-VA provided care payment accuracy and claims processing timeliness.[225] The system is approximately two-thirds completed, but as the incorrect funds were used for purchase and development it requires appropriate funding before it can be completed and put into operation.

In addition to these major system developments, VHA has plans to make incremental improvements to current tools. For example, VHA is improving the electronic Insurance Verification (eIV) functionality and strategizing on enhancements to FBCS.

Previous reports from the OIG and GAO have identified weaknesses in VA's control and oversight of payments made to Non-VA entities and have identified areas for improvement in collection reimbursements from third parties Appendix E provides an overview of previous reports addressing IT systems.

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[222] Department of Veterans Affairs Office of Inspector General. (2015). Audit of Non-VA Medical Care Claims for Emergency Transportation. Retrieved from http://www.va.gov/oig/pubs/VAOIG-13-01530-137.pdf

[223] Department of VA, VistA Evolution Program Plan, March 24, 2014, page 4. Retrieved from http://www.osehra.org/sites/default/files/vista_evolution_program_plan_3-24-14.pdf

[224] Department of VA, VistA Evolution Program Plan, March 24, 2014, page 6. Retrieved from http://www.osehra.org/sites/default/files/vista_evolution_program_plan_3-24-14.pdf

[225] Department of Veterans Affairs Office of Inspector General. (2015). Review of Alleged Misuse of VA Funds To Develop the Health Care Claims Processing System. Retrieved from http://www.va.gov/oig/pubs/VAOIG-14-00730-126.pdf

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8.1.3 Key IT Systems Supporting Collections and Payments—Current State

Table 8-1 provides a summary of the primary and support systems used by key components of revenue cycle and Non VA Care operations. We recognize that this list may not include all systems and tools; our intent is to provide a summary of the primary systems and tools identified during our assessment.

Table 8-1. Key VHA Revenue Cycle and Non- VA Care Payment Systems

Process Area	Key Components	Key Systems and Tools

Patient Access	▪ Scheduling/Preregistration/Registration
	   o Insurance identification
	   o Veteran eligibility
	   o Demographics
		VistA
		Insurance Capture Buffer (ICB)
		Electronic Insurance Verification (eIV)

Clinical Processes	▪ Clinical Documentation
	   o Timeliness and accuracy
	   o Response to physician queries
	▪ Coding
	   o Receipt of clinical documentation
	   o Coding outpatient and inpatient Encounters
	   o Health Information Management Services (HIMS)
		CPRS
		Nuance (Computer Assisted Coding)
		VistA Billing Package
		Third Party Billing Software
		Billing Workflow Driver

Patient Accounting	▪ Billing
	   o First- and third-party billing
	   o Bill editor/edit checks
	   o Submission to payer
	   o Specialty billing
	▪ Accounts Management
	   o Follow up
	   o Denials management
		VistA (IB and AR)
		VistA Chargemaster
		Nuance
		CPAC Workflow Tool
		Payment Variance Tool
		Denials Management Tool
		FBCS

Vendor Reimbursement	▪ Vendor claim adjudication
	   o Authorizations
	   o Vendor payment
		FBCS
		VistA
		CPRS
		Program Integrity Tool
		Quality Inspector Tool

- VistA is currently the primary IT system to execute business processes. VistA includes AR and Integrated Billings (IB) modules. The AR module maintains the detailed records for

each receivable while the IB module provides functionality to create first-party and third-party bills. VistA also allows for the capture, maintenance, and storage of insurance data through the Insurance Capture Buffer (ICB).[226] Non-VA Care also uses VistA to perform the majority of the non-adjudication functions and for adjudicating claims not processed in FBCS.[227] Assessment H provides a more detailed assessment of VHA's information systems, including VistA.

- The clinical documentation captured in VHA's Clinical Patient Record System (CPRS) is the primary input required to code patient encounters. For VA Care, accurate coding of encounters is a prerequisite to third-party reimbursements. Non-VA Care uses CPRS predominantly for documentation of consults, and medical records management. Assessment H and Assessment F provide a more detailed assessment of VHA's CPRS.

- VHA staffs use FBCS for a majority of Non-VA Care claim processing. They also use FBCS to manage the authorization and payment for Non-VA medical care. FBCS interfaces with CPRS to populate basic fee consult information. FBCS automates certain elements of the administrative review. It allows for electronic claims submission and reimbursement.

- Nuance (QuadraMed) is VHA's national encoder software package. It is a coding and claims scrubbing system that checks encounters against national integrated billing edits that check for common errors. The Nuance system also has an audit and reporting mechanism and is widely used and accepted in the private sector.

We used a qualitative approach to evaluate the primary IT systems and tools during out assessment. Our approach included interviews with system users, process and system walkthroughs, review of industry benchmarking and comparison of key system functionality to industry best practices.

Overall, we noted that VHA's technical architecture around the revenue cycle lacks interoperability, causing many functions, or departments, within VA to operate in silos with limited visibility into the lifecycle of a claim. For Non-VA Care operations, FBCS does not process all of the required types of Non-VA Care vendor claims. Both revenue cycle and Non-VA Care systems require staff to be trained on and logged in to several different systems to perform their job responsibilities. In addition, the lack of key automation of activities and integration and access to the various systems and data necessitates a high degree of manual intervention for revenue cycle and Non-VA Care processes.

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[226] First View Federal TS ,Veterans Health Administration Chief Business Office Current Enterprise Architecture Assessment Deliverable 0002AA v1.7.2, December 31, 2013

[227] Claims not processed through FBCS include: dental, pharmacy, adult day care, bowel and bladder, home health for contract nursing homes claims, and dialysis. Dialysis claims processed in separate COTS product, not FBCS or VistA.

8.2 VHA Revenue IT Findings

8.2.1 Inadequate Technology Prevents Effective Veteran Education, Delays Veteran Payment Plans and Delays Veteran Co-payment Collection.

In the private sector, financial counselors and the technology play a significant role in helping patients understand payment options, set up payment plans, pay out-of-pocket expenses, and resolve balances. Effective financial counseling available during Patient Intake serves to improve overall patient understanding and satisfaction as well as first party collections. Technology also enables private sector providers to calculate estimated charges and providing patients with estimated out-of-pocket expenses prior to rendering services. Consequently, private providers typically request a deposit or pro-rated amount during pre-registration or registration. Patients are instructed to be prepared to meet financial obligations prior to or on the day of the scheduled service. Leading practices are to train patient access personnel to appropriately identify and communicate with these patients.

Findings

1. **VHA does not have automated tools or functionality to provide real-time Veteran out-of-pocket responsibilities during scheduling, pre-registration, or registration/check-in.**[228]
   - The complications associated with service connected status, priority groups and tiered co-payment structures confuse VHA staff and Veterans alike. Lack of technology to assist with this determination negatively affects VHA's ability to collect.[229] Additional detail is located in the First Party collections section.

2. **VHA systems do not allow electronic submission of Veteran's payment plan forms.**
   - Currently the Veteran accesses the payment plan forms online, prints a completed form and sends via postal mail to each CPAC for manual review and processing. Our interviews with CPAC staff noted that CPACs can experience backlogs of payment plan processing due to process inefficiencies and volume of requests.[230]

3. **VHA systems lack functionality to automate first-party refunds and claims matching.**
   - VHA's first party refunds and claims matching process is extremely labor intensive and inefficient.[231] First party claims matching is the process of matching insurance payments and Veteran co-payments to appropriate claims for the correct dates of service. VHA uses

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[228]Qualitative interviews at three CPACs indicated that this was an issue.

[229]Qualitative interviews at three CPACs indicated that this was an issue.

[230]One CPAC noted that they are experiencing a backlog of 30-45 days, equating to roughly 500-600 payment plans.

[231]Qualitative interviews at two CPACs indicated that this was an issue.

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this information to offset co-payments, refunding the Veteran once insurance companies pay amounts due (it is offset dollar for dollar).[232]

- Our site visits and interviews found that the VHA claims-matching process is a manually intensive and often requires substantial rework when multiple insurance payments apply to a patient's claim. Interviews with CPAC staff highlighted that CPACs have a current claims matching backlog. [233] This necessitates VHA staff overtime hours, as well as use of outside contractors, to work and minimize the backlog.

- CPAC staff members must manually review all Non-VA Care co-payments made by Veterans in Non-VA facilities, to determine and process refunds due. This process and lack of adequate technology adds tremendous workload and pressure on already inundated CPAC staff.

4. **The Treasury Department's online platform, www.pay.gov, periodically posts payments to the wrong Veteran's account.**

- This site is used to help facilitate the collection of co-payments due from Veterans. Our interviews found that misapplication of payments is due to the website prompting Veterans to input their account number and amount due in a free-text field on the portal. Misapplied payments to Veteran's accounts require additional CPAC resources to investigate and resolve the issue.

Recommendations

- Working with OIT, VHA should invest in tools, technology, and/or functionality that will allow staff to a) provide patients with out-of-pocket responsibilities and b) perform automatic claims matching and adjustments for co-payments (for both VA and Non-VA Care). Patient Intake staff should electronically access the VHA co-payment schedules (see 10A.2.5.2) to explain co-payment amounts specific to the Veteran's status.
  - Enhancing system functionality for the generation of enhanced itemized statements for patients including information related to third-party payers billed, detail of charges (description, quantity, and amount), payments and adjustments, and contact information for billing and other questions will improve the Veteran's visibility into amount owed to VA.
  - Invest in technology that will automate the Veteran payment plan process. This includes functionality to calculate the optimum payment plan for each Veteran based on the patient's ability to pay and the organization's payment plan guidelines. The solution would incorporate a financial screening program that would create a plan in the best interest of VA and the Veteran, yielding a higher inclination to pay, and likely decreasing first party AR days-outstanding.

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[232]Based on review of 38 CFR Part 17, RIN 2900-AP24. Expanded Access to Non-VA Care Through the Veterans Choice Program. November 5, 2014.

[233]Qualitative interviews with two CPACs identified this as an issue. One CPAC site identified a claims matching backlog.

- Coordinate with the Department of Treasury to redesign the user's experience on the www.pay.gov website and add the functionality to create unique profiles for each Veteran based on a secure unique identifier. By associating each patient's bill with a Veteran's unique identifier, it will allow the Veteran to log onto the www.pay.gov website, access their individual profile, and then have the ability to view their statements and submit payment for all associated outstanding debts to VA. This would assist in reducing misapplied patient payments, as well as reduce the administrative burdens of VA staff, decreasing overtime hours and allowing staff to focus additional time on other job responsibilities.

8.2.2 Significant Limitations in the Integration of Tools and Functions Across Clinical and Revenue Management Systems Increase Collection Delays and Denials.

Findings

1. **VistA has interoperability limitations (both internally and externally) that inhibits VHA's ability to bill and collect revenue accurately and timely.**

   - While interviews with VAMC staff revealed that the VistA system is working well for VHA clinicians and coders, they also revealed that VHA coders work in multiple systems (VistA and Nuance) to complete the same tasks. This results in coders losing valuable coder productivity due to multiple logs-ins to access different systems, inputting redundant data, and performing manual checks to ensure information matches.

2. **VHA systems are not integrated, inhibiting consolidated management reporting.**

   - We learned on our site visits that in order for supervisors to pull staff productivity metrics they have to switch between dashboards contained in multiple systems to aggregate reports.

3. **VHA's clinical systems do not automate diagnosis and linking functions as efficiently as private sector systems.**

   - In our experience, many private sector organizations are transitioning to technological solutions, such as computer-assisted coding (CAC) devices, to automate clinical documentation. CAC devices scan electronic documentation to identify key items, suggest medical codes that match the terms in the documentation, and convert text into ICD-9/ICD-10 and Current Procedural Terminology (CPT) codes.[234]

   - During site visit interviews, clinicians reported challenges using CPRS to link encounters with clinical documentation, which creates follow-up work for coders to resolve incomplete patient files. Interviews revealed that VA purchased ICD-10 coding software from Nuance but has not yet provided clinicians and coders with CAC devices.

4. **The VHA Chargemaster does not automatically apply codes to certain procedures and supplies as is industry standard.**

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[234] International Classification of Diseases

- According to industry experts, the Chargemaster automatically applies codes to certain procedures and supplies so coders do not have to. The Chargemaster is typically updated with codes and charges immediately when the updates are available, and integrated with the hospital's coding system. According to VHA's HIMS, VHA's Chargemaster is not integrated with Nuance and does not apply codes automatically, requiring Coders to do so manually.

Recommendations

- VHA, working with OIT, should prioritize the integration of tools (and functions) across clinical administration and patient accounting systems. In particular, we recommend that VHA integrate medical records, coding, chargemaster and billing systems with single sign-on to facilitate expedited claims generation and payment. In addition, all non-clinical decision making should be automated, such as the determination of whether medical services fall under Veteran's service connected disability. One integrated system will allow billers and coders to access the information they need from one site rather than multiple sites, reducing human error, and time needed to complete tasks.

- Consider providing coders and clinicians with improved tools. CAC devices will help VHA streamline previously manual clinical documentation practices for clinicians and increase coder productivity by helping coder's process claims more quickly.[235] Investigate system enhancements to CPRS to help support clinician coding, such as auto coding functionality.

- Conduct studies in clinical management systems that have proven successful in large integrated health care systems in the private sector. We understand that VA is considering migrating HIMS coding and claims editing functionality to an automated billing system. VA should consider investing in an automated billing system option since it has the potential to reduce VA's operational costs and increase the quality of claims submitted to third party payers.

8.2.3 Annual CPT® Code Updates are not Implemented Timely Due to Inefficiencies in the VistA Update Process.

Finding

1. **Annual CPT® code updates are released every October/November by the American Medical Association. As they are effective January 1 of the next year, the industry standard is to load, test and implement CPT® updates prior to the end of the year.**

- VHA's annual CPT® code update process requires significant collaboration between HIMS, CBO, and OIT. While private sector providers update their systems with the new codes by January 1, our interviews revealed that VHA's process operates under a five to six month delay across all VAMCs and CPACs. This delay has a significant effect on revenue

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[235] Note: We understand that VHA previously sought CAC devices; however, efforts did not materialize due to funding issues.

operations as VHA cannot bill a payer until the new CPT codes and prices are available. CPAC billing staff stated that they either hold bills where the CPT® codes have changed, or bill the provider expecting to receive an initial denial. Coding staff will also hold encounters if the CPT® codes need to be updated. This creates a coding backlog that may require the use of coding contractors to resolve.

- Once the new CPT codes are released every October/November, HIMS will post the new codes in January. The HIM Director stated that the 2015 CPT annual update was released to the field via a patch on January 8. CBO also updates the VHA Chargemaster with prices for each CPT code via a patch that is released by January 1. Once HIMS and CBO have posted the CPT codes and prices, OIT must develop and deploy a new patch.

- We learned that VHA's five to six month delay is due to the processes associated with developing, testing, and deploying the annual CPT patch to all VAMCs and CPACs. In developing the patch, OIT must review the CPT codes and Chargemaster files, build a patch using existing templates, conduct internal testing, and prepare developer documentation. OIT selects VHA test sites to release the new patch to, which requires the signing of a Memorandum of Understanding (MOU) with VAMC and VISN leadership. This testing, both internally and in the field, includes several steps for quality assurance and product approval. Once the patch is successfully tested in the field, it is released nationally. This process is extensive and involves feedback and approval from several entities within VHA

Recommendations

- Work with OIT to revise the current approach to implementing and releasing annual CPT® code updates so they are available by January 1. For example, develop multi-year MOUs to avoid having to select new test sites each year. This will bring VHA into alignment with the appropriate billing standards and the private sector practices.

- Planning efforts to integrate a patient accounting system should include an automated annual CPT code update process that requires less extensive system patches.

8.2.4 VHA Billing Staff are Manually Reviewing 100 percent of Claims Subsequent to Automated Claim Edits, Resulting in Significant Workload and Affecting Billing Timeliness.

Finding

1. **VHA's percent of manual review of claims is extremely high compared to the industry standard of 10-20 percent. The maturity of private sector billing edits requires less manual review.**[236]

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[236] Qualitative interviews at three CPACs indicated that this was an issue. 10-20% industry standard is based on feedback from industry subject matter experts.

- We understand two primary drivers necessitate the manual review of VHA claims prior to submission to third-party payers.[237]

  o VHA has to test for service connectedness, a function that is unique to VA.

  o It is common for a VHA patient to have multiple services in one day, which adds to the complexity of the bill as driven by the policy.

- Due to the manual billing of claims, the CPACs have a combined 607 billers. In our experience with private sector, VHA could reduce the number of billers required if a manual review each claim after the claim editor process was not required.

Recommendations

- VHA, in coordination with VA OIT, should prioritize funding and accelerate planning efforts to integrate a patient accounting system that includes automated billing that will support algorithmic edits and, where appropriate, automate correction of claims to minimize manual review requirements. Once a new automated solution is developed and put into place, VHA should reevaluate staffing levels to account for the change in workload and reallocate personnel accordingly.

8.3 Non-VA Care IT Findings

8.3.1 Lack of Automation for Non-VA Care Claims Processing (via FBCS) Delays Payments, Causes Inaccuracies, and Increases Improper Payments.

In the private sector, payer systems typically automate claims processing. These payer systems carry an edit status or disposition. By assigning a disposition to an edit, the payer creates a framework to deny claims automatically, without manual intervention. Edits that are more complex carry a "suspend" disposition, and, in a typical commercial claims processing system, it is only those claims with a "suspend" status that require manual intervention.

Finding

1. **VHA's claim adjudication system, FBCS, lacks the functionality to adjudicate claims automatically.[238]**

- Manual review of edits is costly and time-intensive. Currently FBCS does not maintain an edit status or disposition. Clerks must manually works each edit that posts to the claim. To work the claim edit, a clerk analyzes the edit, edit description and other claims information to determine if the edit should be marked as "pay," "deny" or "reject."

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[237]Qualitative interviews at three CPACs and interviews with CBO leadership described this process.

[238] As of January 2015, 0 percent of all claims auto adjudicated (Source: HAC Interview)

- The lack of automation leads to issues with paying claims timely and accurately, and when VA cannot pay for Non-VA -VA Care timely, VA accrues interest penalties.[239] A white paper released in 2011 addressing VA's "fee" program also noted the significant effect of limited automation of VA's claims systems on efficiency and accuracy of processing Non-VA and VA claims.[240] The manual nature of the system is the largest contributors for errors in the last three Improper Payments Elimination and Recovery Act (IPERA) reports.[241] In addition, Assessment C found, "Others have criticized the lack of updated automated processes for claims handling by VHA under the traditional purchased care program, noting that the primary application being used to handle claims from Non-VA providers is more than two decades old."

- Manually applying rules to claims inherently takes longer than computerized application of the same rules. For each item that VHA can automate, VHA saves processing time, reducing the payment window for claims and reducing the staff workload. Additionally, manual processes will never be as accurate as computerized processes – each manual step that can be automated leads to greater accuracy, increasing overall accuracy of claims payment.

- Although VHA is automating FBCS, there are additional areas that require manual claims reconciliation. While observing individual claims clerk, our team noted several points of manual intervention that payers typically automate. For example, in FBCS, claims clerks manually associate authorizations to claims (called distribution), batch claims for payment, and, for contracted claims and claims that should price at the billed charge, price claims.[242]

- For PC3 and claims that should price at the billed charge, the claim clerk needs to manually select the billed charge from a rate drop-down menu on the claim line.[243] Manually working claims introduces errors and takes longer than processing claims automatically. Our finding is consistent with the 2010 OIG Report, which found that VA's system is too manual.

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[239] Per CBO Staff: VA Office of General Counsel (OGC) is reviewing whether "individual authorizations" meet the definition of a contract. If the determination is yes, this would mean "all" individual authorizations issued from individual VAMCs to providers would be a contract and would be applicable to prompt pay and interest payments. The previous OGC informal opinion was individual authorizations were not considered as contracts and did not meet the prompt pay requirements.

[240] National Academy of Public Administration, Veterans Health Administration Fee Program, Report No. 2165, September 2011.

[241] Per 2014 IPERIA AUDIT REPORT NVC FINAL DRAFT 101414.docx and IPERA 2013 Exec Sum DRAFT v3.docx. These documents summarize VHA's annual review (internal) of Non-VA Care improper payments in accordance with IPERIA.

[242] Peter Kongstvedt "Essentials of Managed Care" Fifth Edition, 2007 Pg. 433-435 shows that it is common practice to have the following payment methodologies automated in the adjudication engine: Fee Schedule pricing, Capitations, Discounting, Per Diem pricing, Case Rates, Diagnosis Related Grouper (DRG) pricing, Ambulatory Surgical Codes (ASC) pricing. Pricing is not automated in FBCS as described as a best practice in this text.

[243] Per Interviews/observations with four VAMCs

- We observed additional downstream technology processes for Non-VA Care that are highly manual. For example, we observed clerks rekeying or cutting and pasting data from one system to another as they created authorizations. Clerks then printed authorizations for future use in appointment follow-up.[244]

- All VAMCs that we visited and stakeholders at CBO reported the manual nature of VA's system negatively affected accuracy and timeliness.[245] Payment accuracy and timeliness directly affects providers' satisfaction with payers. As mentioned earlier, untimely payment of claims "translates into provider dissatisfaction with possible degradation of the network." Degradation of the network means loss of providers in a network, which could directly affect patient access for Non-VA and VA Care. For patients, this equates to fewer options when seeking care and potentially longer wait times when locating providers accepting Veterans.

2. **FBCS is not the claims system for all types of Non-VA Care.**

- The inability to process all claims in a consistent manner prevents standardized processes, procedures and training from materializing. For example, Dental and Long Term Care (LTC) claims cannot be processed through FBCS.[246] These claims require a much higher level of manual effort.[247]

Recommendations

- To address these findings, CBO should:

  o Develop and implement both a short-term and a long-term approach to reduce the degree of manual intervention in claims adjudication and other manual processes related to Non-VA Care business processes.

  o Prioritize in the short-term automation initiatives (presumably with FBCS). We understand VHA is enhancing FBCS to automatically reject duplicate claims—these will be the first Non-VA Care claims to go to a final status (e.g., Paid, Rejected, or Denied) without manual intervention.

  o Develop and implement a strategy to build or acquire a centralized, highly automated claims adjudication system. We recognize that VHA has initiated HCPS as the "centralized claims processing system that would help improve Non-VA provided care payment accuracy and claims processing timeliness."[248] We also understand that this initiative is currently on hold because of findings from a recent OIG investigation.[249] A

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[244] Per Interview/observation with the Philadelphia VAMC

[245] Per Interviews with four VAMCs

[246] Claims not processed through FBCS include: Dental, Adult day care, bowel and bladder, Home Health for contract nursing homes claims, and Dialysis

[247] Claims processed in VistA take longer for staff to enter and process. These claims can only be billed on paper, and it takes a staff member longer to adjudicate a claim in VistA than in FBCS.

[248] Review of Alleged Misuse of VA Funds To Develop the Health Care Claims Processing System http://www.va.gov/oig/pubs/VAOIG-14-00730-126.pdf

[249] Ibid.

centralized and highly automated system is integral for VHA to standardize the claims adjudication process across VAMCs and, in turn, improve payment accuracy and timeliness.

8.3.2 Non-VA Care Providers Do Not Have Visibility into the Status of Claims Due to a Lack of Online, Automated Tools.

Finding

1.Currently providers cannot determine the status of their claim online, which results in them rebilling the claim, creating additional workload for VHA.

- Online access to claims status allows providers to easily check the status of claims and determine, for example, if the claim is suspended and under review. With this online information, providers would be more likely to wait for claims resolution instead of resubmitting.

- Nearly all commercial plans allow providers to check claim status online. Some providers also support health care claims status request (formerly referred to as EDI Claim transaction set 276/277) and response.

- Payers support these methods because it allows providers to obtain claim status at their convenience, as well as decreasing demand on the provider call center. In contrast, for Non-VA Care, claims clerks perform this function through telephone communication.[250] Allowing providers to check claim status online would lessen the workload of FBCS clerks, allowing them more time to process and resolve issues with incomplete claims, which should improve timeliness.

Recommendation

- CBO: Work with OIT to develop tools to provide the ability for providers to determine their claim status online. Transparency and convenience will lead to provider satisfaction and reduce the burden on the FBCS claims staff, which will increase claims payment timeliness. Providing online claim inquiry will reduce duplicate claims submitted by Non-VA Care providers that FBCS staff members must manually process, which will free them to pay claims more promptly. The approach should include the ability for providers to determine their claim status online. Transparency and convenience will lead to provider satisfaction and reduce the burden on the FBCS claims staff, which will increase claims payment timeliness. Providing online claim inquiry will reduce duplicate claims submitted by Non-VA Care providers that FBCS staff members must manually process, which will free them to pay claims more promptly.

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[250] Per Interviews/Observations with four VAMCs

8.3.3   The Rate of Electronic Claims Submission for Non-VA Care is Low.

Finding

1.Non-VA providers submit few electronic claims to VA, which negatively affects payment timeliness and accuracy.

- Non-VA Care providers submitted 28.6 percent of their claims electronically for fiscal year 2014.[251] A comparable benchmark for commercial payers shows that 94 percent of providers submit electronically.[252] High levels of paper claims affect accuracy and timeliness. Some Non-VA Care providers are reticent to submit EDI claims to VHA because there is significant confusion regarding VA's billing rules, particularly those related to electronic claims submission.[253]

- For VHA and other payers, processing paper claims requires additional steps relative to processing electronic claims. VHA calls these steps Scan, Upload, and Verify. The "Scan" process transforms the information on the paper document into data for FBCS. The "Upload" process brings the data into FBCS. During "Verify," claims clerks manually ensure that the Optical Character Recognition (OCR) process read the data correctly. These steps are similar for other private payers.

- Generally, the more a payer electronically automates claims processing, the cheaper and more reliably their systems operate. Most commercial and other government payers actively encourage their providers to submit all claims electronically. Providers submit electronic claims using a national standard format, the Electronic Data Interchange (EDI) format. These national EDI standards include:
    - 837I—this is the electronic format for institutional providers (replaces the UB-04)
    - 837P—this is the electronic format for physicians and other providers (replaces CMS-1500)
    - 837D—this is the electronic format for dental providers (replaces ADA form).

- Since all EDI claims are processed at a central location then routed to a VAMC based on the Zip Code in which the Veterans resides, a portion of EDI claims route to the incorrect VAMC for processing.[254] This erroneous routing leads to delays in VHA paying claims and denials. Non-VA providers reported that they solve this issue through billing paper claims, which they manually route to the correct VAMC. One Non-VA Care provider stated that its facility initially bills all claims electronically. However, when VHA does not the claim processed within 45 days, it bills the same claim a second time through paper directly to

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[251] Source: Per Paid Data and Timeliness FY12-14 v2.xlsx prepared by VA informatics team.

[252] AHIP Center for Policy and Research: An Updated Survey of Health Insurance Claims Receipt and Processing Times, 2011, published February 2013.

[253] Per Interviews with two VAMCs

[254] Per Discussion with Minneapolis VAMC, providers submit all EDI claims to one location. Claims are translated and sent to VA closest to the member (distribution uses members' zip code). If the service did occur in that VA's area, the claim is routinely denied, even if an authorization exists at another VAMC. Note: This VAMC was selected as a positive deviant as a result of their ability to pay claims accurately and timely.

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the "correct" VAMC. VHA now has a duplicate claim issue to address, which consumes staff resources and affects accuracy. The American National Standards Institute (ANSI), "Chartered the Accredited Standards Committee (ASC) X12 to develop uniform standards for inter-industry electronic exchange of business transactions-electronic data interchange (EDI)." This body created the 837 implementation guides referenced above. However, payers create 837 "companion guides" to assist providers with further instructions on billing electronic claims. For example, Medicare states that they publish companion guides to, "Clarify, supplement and further define specific data content requirements to be used in conjunction with, and not in place of, the ASC X12," implementation guides. Currently, VHA does not have a companion guide to provide additional guidance on electronic claims submission.[255]

- Processing claims electronically is less costly and more accurate than paper claims. Electronic claims also process faster.[256]

Recommendations

To address these findings, CBO should:

- Increase EDI claims submission rates by creating provider manuals, known in the industry as 837 companion guides,[257] which will offer Non-VA Care providers the information they need to submit their claims electronically.

- Route EDI claims based on service authorization rather than Veteran Zip Code. VHA could use a "throw away"/currently unused EDI field to indicate the VAMC that issued the service authorization.

- Encourage, through contract provisions and preferential contacting approaches, Non-VA Care providers to submit electronic rather than paper claims.

- Create a provider portal so that providers can routinely check the status of submitted claims.

- Conduct outreach to providers submitting a large volume of paper claims, explaining billing rules and strongly encouraging electronic submission.

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[255] Per CBO Purchased Care Operations Directorate

[256] Based on Navigant Consulting industry subject matter expertise

[257] 837 is the EDI standard for claims submission. All claims must be submitted in the 837 format per the EDI implementation guide. 837 companion guides are designed to describe the network-specific business requirements, above and beyond those found in the HIPAA claims standards.

8.3.4 The Non-VA Care Claims Processing System is Not Centralized, Leading to Inconsistencies in Standardizing Claims Processing Across VAMCs.

Findings

1. **There are discrepancies among deployed technical processes and local instances of FBCS, leading to inconsistent claims processing and the inability to establish keystroke-level training.**

- The CBO training team commented that creating keystroke-level training is nearly impossible without a centralized system. Keystroke-level training describes the work steps required to perform a function keystroke by keystroke.

- The 2013 and 2014 IPERIA reports cited VA's decentralized structure as a factor leading to inaccurate claims processing.[258] Furthermore, two recent OIG reports recommended centralizing the Non-VA and VA Care claims processing system. In 2014, the OIG stated, "A centralized system will help with Mill Bill and unauthorized claims routing," while in 2010, the OIG stated:

  > "Efforts are needed to reduce the cost associated with processing claims and the time it takes to process claims by improving processing efficiencies. Inefficiencies occurred because of the Fee Program's decentralized structure and its labor-intensive payment system."

- Figure 8-1 highlights the nature of decentralized versus centralized processing. Moving to a centralized processing model will allow VHA to standardize functionality, improving claims processing consistency, and reducing the resources required to maintain the systems.

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[258] Per 2014 IPERIA AUDIT REPORT NVC FINAL DRAFT 101414.docx and IPERA 2013 Exec Sum DRAFT v3.docx. These documents summarize VHA's annual review (internal) of Non-VA Care improper payments in accordance with IPERIA.

Figure 8-1. Decentralized Claims Processing System Inhibits Performance
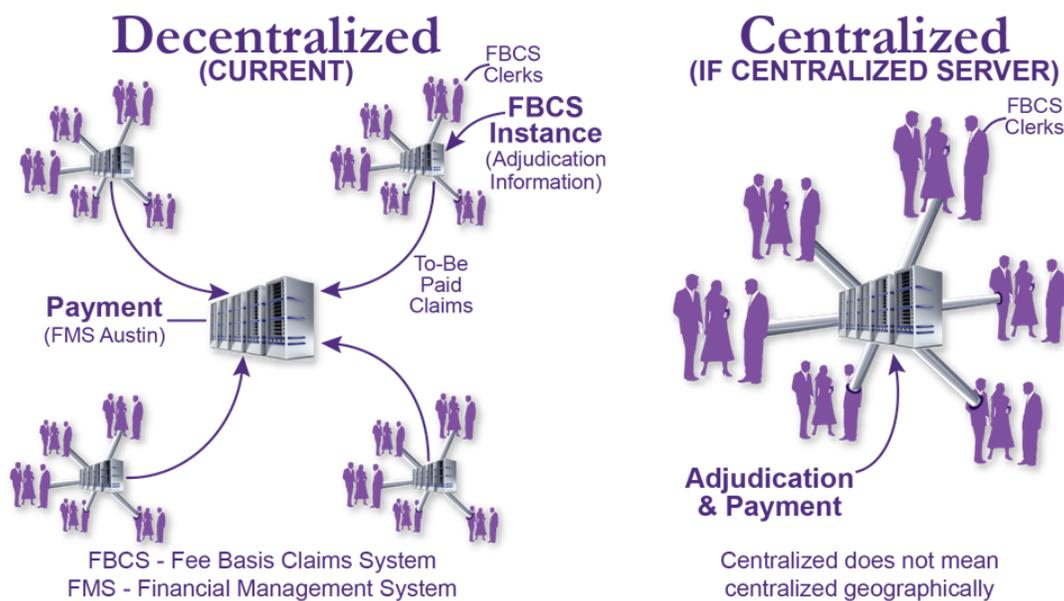
Source: Grant Thornton's rendition of VHA's decentralized claims processing system

- Adding to the complexities of the decentralized Non-VA Care claims processing, some VAMCs run FBCS at their facilities; other VAMCs partner with VISNs; and others consolidate multiple VAMCs into a 'Consolidated Fee Unit' to process claims. For example, Philadelphia, part of VISN 4, processes a portion of its claims on-site, while all of VISN 19 claims process in one location. FBCS processes all Non-VA Care claims on one of 34 servers located across the nation, and each server represents a separate instance of FBCS.

Table 8-2. FBCS Server and Use Summary

Number of VAMCS using FBCS[259]	Number of locations processing claims[260]	Number of FBCS servers[261]
150	88	34

- VHA can deny Non-VA Care claims due to misrouting of claims. This can happen as another consequence of the decentralized claims processing system, and is an issue that angers and frustrates Veterans, according to interviews with VAMC personnel. Claims may route to a VAMC that did not create the authorization because a decentralized system

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[259] The Manila VAMC does not use FBCS
[260] Per CBO Purchase Care Operations Directorate
[261] Per CBO Non-VA Care Way Forward Directorate

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cannot reroute a claim to the correct VAMC.[262,263] Clerks do not always check other VAMCs for authorizations, and so they deny claims in cases where both the Veteran and provider were assured the services were approved for payment. In these cases, VHA sends a letter to the provider and Veteran communicating that the services are not reimbursable through VA, instructing the provider to seek reimbursement from the Veteran. This leads to extreme dissatisfaction on behalf of the Veteran and the provider. In a centralized system, all authorizations are in the same system, which will reduce these denial errors dramatically.

Recommendations

- CBO: Develop keystroke-level training for staff with clear and complete billing instructions for Non-VA Care providers with the implementation of a centralized, highly automated claims processing system.

- CBO: Centralize all claims processing functions to create standardization. The October 2014 organizational consolidation of claims processing will benefit the development and implementation of standards around processes, adoption of policies and use of technology.

  o We recognize CBO is in process of centralizing oversight of claims processing across five regions. A five-region approach should result in better performance and outcomes, similar to the MACs supporting CMS. This is a step in the right direction. In addition to consolidating leadership, VHA should consolidate the requisite staff members to support the centralization of a highly automated claims processing system. Additionally, a centrally deployed claims system will support standardization and uniform claims processing across business functions and geographically dispersed areas. VHA will also reap the benefits of standardized staff training and stronger internal controls.

- CBO/VHA: Resolve the funding issues that preclude the implementation of HCPS as the "centralized claims processing system that would help improve Non-VA provided care payment accuracy and claims processing timeliness."[264] We understand that this initiative is currently on hold as a result of findings from a recent OIG investigation.[265] Rectifying the issue is integral for VHA to standardize the claims adjudication process across VAMCs will improve payment accuracy and timeliness.

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[262] Claims can be misrouted as the result of the EDI process or because the provider billed a paper claim to a VAMC that did not create the authorization.

[263] Per Minneapolis VAMC, clerks frequently deny claims for authorized services when the claim is misrouted to a VAMC that did not authorize the care. Theoretically, clerks can search for authorizations from other VAMCs on the same FBCS server, but more commonly, these are denied. This question was asked to staff at VISN 8 and Salt Lake City who confirm that this was a common problem across VHA.

[264] Review of Alleged Misuse of VA Funds To Develop the Health Care Claims Processing System http://www.va.gov/oig/pubs/VAOIG-14-00730-126.pdf

[265] Ibid.

8.4 Information Technology Summary of Findings

The following table summarizes the findings and recommendations presented in this chapter, providing further detail to identify each finding's significance and each associated recommendation's timeline and effect.

FINDINGS	RECOMMENDATIONS	SIGNIFICANCE	TIMELINE	IMPACT
VA Care				
Inadequate technology prevents effective Veteran education, delays Veteran payment plans and delays Veteran co-payment collection	VHA should invest in tools, technology, and/or functionality that will allow staff to provide patients with real-time estimate of out-of-pocket expenses	Tier 1	Short	People, Process, Technology
Significant limitations in the integration of tools and functions across clinical and revenue management systems increase collection delays and denials	VHA should prioritize the integration of tools (and functions) across patient intake, clinical administration, and billing systems. In particular, we recommend VA to integrate medical records, coding, and billing systems with single sign-on to facilitate expedited claims generation and payment.	Tier 1	Medium	People, Process, Technology

FINDINGS	RECOMMENDATIONS	SIGNIFICANCE	TIMELINE	IMPACT
VHA Billing staff are manually reviewing 100 percent of claims subsequent to automated claim edits, resulting in significant workload and affecting billing timeliness	Prioritize funding and accelerate planning efforts to integrate a patient accounting system that includes automated billing that will support algorithmic edits and where appropriate, automate correction of claims to minimize manual review requirements.	Tier 1	Medium	People, Process, Technology
Lack of automation for Non-VA Care Claims processing (via FBCS) delays payments, causes inaccuracies, and increases improper payments.	Develop and implement both a short-term and a long-term approach to reduce the degree of manual intervention in claims. Prioritize in the short-term automation initiatives (presumably with FBCS). Develop and implement a strategy to build or acquire a centralized, highly automated claims adjudication system.	Tier 1	Short	Technology
Non-VA Care Providers Do Not Have Visibility into the Status of Claims Due to a Lack of Online, Automated Tools	Invest in technology solution to provide the ability for providers to determine their claim status online.	Tier 2	Medium	Technology

FINDINGS	RECOMMENDATIONS	SIGNIFICANCE	TIMELINE	IMPACT
The rate of electronic claims submission for Non-VA Care is low	Increase EDI claims submission rates by creating provider manuals	Tier 2	Medium	Technology
The Non-VA Care claims processing system is not centralized, leading to inconsistencies in standardizing claims processing across VAMCs	Centralize all claims processing functions to create standardization.	Tier 2	Medium	Technology

Legend

Significance   Tier 1 = Direct effect to payment and billing timeliness and accuracy

Tier 2 = Supporting actions to improve payment and/or billing timeliness and accuracy

Timeline   Short Term=0-2 years, Medium=3-4 years, Long Term=>4 years

Impacts   People   Process   Technology

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9 Analysis of Oversight and Metrics—VHA Lacks Certain Performance Reporting to Provide Effective Oversight and Proactive Process Improvements for Collections and Payments.

9.1 Introduction

As described in Chapter 6, to better support VA Care operations, all VAMCs have transitioned their Patient Accounting operations to one of the seven CPACs. The transition to the CPAC structure drove standardization and coordination across Patient Accounting functions. VHA placed the CPACs under the Central Business Operations (CBO) agency. Today, VAMCs execute the "front-end" (Patient Intake and Clinical Administration) operations, and the CPACs, perform "back-end" (billing and accounts management) operations.

Chapter 7 describes the role of the CBO Purchased Care organization and their responsibilities for the development of administrative processes, policy, regulations and directives associated with the delivery of the Non-VA Care program. CBO is now responsible for all claims processing and payment operations and staff. Supervisors and claims clerks manage and conduct the day-to-day activities of the Non-VA Care program. These activities include scanning claims, reviewing administrative eligibility, processing claims for payment, answering Non-VA provider inquiries.

The findings and recommendations below address opportunities to benefit from stronger national reporting, leveraging private-sector benchmarks, more insightful decision support, common productivity standards, and management over interest payments. The findings also address program integrity tools, an area where VHA is realizing results and should continue momentum with additional automation initiatives.

9.2 VHA Medical Care—Revenue

Finding

1. **VHA lacks standard national reporting of key performance metrics for timely insurance identification and verification across VHA, inhibiting visibility into insurance capture performance of VAMCs.**

   - Insufficient national reporting on Patient Intake key performance metrics hinders visibility into the Patient Intake functions of VAMCs and contributes to lack of accountability by all responsible parties.[266]

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[266] Qualitative interviews at four VAMCs.

- VAMCs maintain some Patient Intake metrics (e.g., the insurance capture buffer error rate that identifies missed insurance capture opportunities at check-in) and reports to Compliance and/or the VISN; however, this reporting is not standard or published on a national scale.[267]

Recommendations

- VHA: Create a Patient Intake national reporting platform and centralized database to monitor key Patient Intake performance metrics that include:
  - Scheduling rate
  - Pre-registration rate of scheduled patients
  - Insurance verification rate of scheduled patients
  - Insurance verification rate of pre-registered patients
  - Insurance verification rate of unscheduled patients within one business day
- Leverage existing VHA Support Service Center platform to improve monitoring. This platform includes the nationally reported HIMS metrics in addition to Compliance and Business Integrity (CBI) metrics.
- Enhance reporting and monitoring of key Patient Intake performance metrics by requiring VAMCs to report the key Patient Intake performance metrics listed above on a monthly basis. This enterprise system would provide leadership at the VAMC, VISN, CPAC, and CBO with insight into key areas for improvement as well as to develop resolutions to ensure that third-party insurance is identified and verified prior to a service performed at least monthly.

Finding

2. **Reporting in the current patient accounting system (VistA) is not comparable to the private sector, inhibiting the identification of areas for improvement.**

- AR shows the amounts owed to VHA by third-party insurers. Aged AR reflects amounts owed by the length of time the balance has been outstanding. These are standard metrics used to assess performance in the private sector.
- However, interviews with CPAC staff and CBO leadership revealed that aged AR is not tracked the same way as private sector, preventing qualified insight into performance. VA tracks third-party AR greater than 90 days against a standard of less than 18 percent and were able to achieve this goal every month in 2014.[268] VA's AR metric calculation starts at the date of the most recent bill (which includes rebills) rather than the date of encounter or original bill date.

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[267]Qualitative interviews at four VAMCs.
[268]CBO Revenue Cycle Performance Metrics Panel for Fiscal Year 2015.

- The result of this reporting is that the age of AR reported by VHA is significantly skewed and reported as more favorable than would be the case in the private sector.[269] This presents a risk to VHA's ability to collect third-party insurance balances due, since they are unable to obtain a more refined and accurate snapshot of the age of VA's outstanding AR. In addition the follow up teams are working from an AR aging that does not reflect the most appropriate age of the account.

- VHA defines GDRO as the average number of days for a third party to pay a bill. VHA calculates GDRO by taking aged AR (excluding unbilled accounts) divided by the billings of the previous three months, divided by the number of days in the previous three months. This metric allows VHA to assess the timeliness of the CPAC's third-party collections. VHA's standard for GDRO is 43 days, displayed in Figure 9-1, and some VHA CPAC's are achieving this metric while others are not. The industry best practice benchmark of net days in AR (net AR divided by average daily net revenue) is 55 days or less. Net GDRO accounts for contractual and other adjustments made to gross patient revenue.

- The manner in which VHA calculates GDRO is unique and not comparable to the private sector. The private sector calculates GDRO by including unbilled and billed AR amounts and utilizing both gross and net revenue. VHA calculates GDRO by excluding unbilled AR amounts because some amounts relate to non-billable service connected care. In addition, GDRO as calculated by VHA uses gross billings as opposed to net revenue. Figure 9-1 shows the gross days revenue that are outstanding for CY 2014.

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[269]Qualitative interviews at one CPAC indicated that this was an issue.

Figure 9-1. Gross Days Revenue Outstanding – CY2014[270]
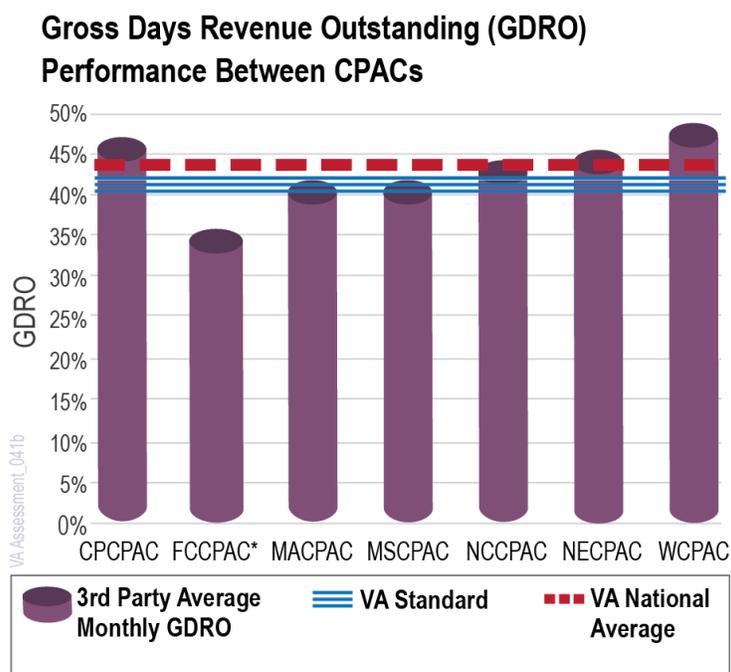
Source: CPAC GDRO Performance from CBO, CY2014

Note: San Juan is excluded from FCCPAC analysis due to unique payers not on electronic billing.

Recommendations

- Create a Patient Intake national reporting platform and centralized database to monitor key Patient Intake performance metrics such as: scheduling rate, pre-registration rate of scheduled patients, insurance verification rate of scheduled patients, insurance verification rate of pre-registered patients, and insurance verification rate of unscheduled patients within one business day. Reporting should be completed on a monthly basis to provide leadership at the VAMC, VISN, CPAC, and CBO with insight into areas for improvement.

- Evaluate the current reporting capabilities of the patient accounting system and perform a gap analysis with equitable private sector reports. Specifically for AR, VA should adjust the tracking and reporting of aged AR to match leading practices in the private sector. This would further enhance VA's ability to identify the root causes for process improvement areas and knowledge from which to develop and act on resolution plans.

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[270]CBO. (2015). *Average Monthly GDRO for Third Party, CY2014*. Retrieved from POWER and reported in POWER by CPAC. The figure above displays VA nationwide GDRO in comparison to VA target of 43 days for CY2014, and CY2014 performance with national average 43.2. San Juan is excluded from FCCPAC analysis due to unique payers not on electronic billing.

Finding

3. Ineffective payer contracting at the regional level negatively affects oversight and standardization from VHA's Revenue Operations Payer Relations Office.

- Contracts are the foundation for payment for applicable payers, and VHA needs to be paid competitive rates and correctly. CBO has established national contracts with large payers as managed by the Revenue Operations Payer Relations Office. Each CPAC manages their own regional contracts, with guidance provided by the Revenue Operations Payer Relations Office only on an 'as-needed' basis. This arrangement limits the opportunity for local regional contracts to reap the benefits and negotiating strengths of the Revenue Operations Payer Relations Office.[271]

- Standardization across regional payers may be an opportunity for CBO to increase collections. It is common that a CPAC could have several regional contracts and several national contracts with payers. For regional contracts, we recognize that the Revenue Operations Payer Relations Office affords the CPAC access to a national support service that will perform background analysis on the regional payer, including reimbursement rates. Although the Revenue Operations Payer Relations Office provides guidance, the CPAC Payer Relations Department is ultimately responsible for contract negotiations with the regional payer. Further, during our interviews it was reported that CPACs may not have sufficient FTE funding or available legal resources to appropriately negotiate with regional payers, which adds to the risk of sub-optimal rates.

- During our interviews, it was indicated that it takes an inordinate amount of time (several months) for a CPAC Payer Relations Department to establish a new payer contract. This length of time may prevent VHA from receiving appropriate reimbursement for services while a contract is not in place. This may also affect collection efforts, decreasing cash flow and reducing realized revenue. In these instances (with payers without contracts), VHA accepts any payment from these regional payers. Without disciplined payer contracting in place at the regional level, loss of revenue may occur, directly affecting the collection of amounts owed to VHA for care provided.

Recommendations

- CPAC Payer Relations staff should report to the Revenue Operations Payer Relations Office. Doing so should allow VHA to have better leverage with payers and achieve better economies of scale. This should further optimize reimbursement rates and further support VHA's continuous improvement efforts. A standardized approach should allow for flexibility at the CPAC/regional level, while addressing issues promptly with national leverage, particularly payer negotiations. Payer Relations staff should remain co-located at the CPAC to better understand regional influences, maintain a local presence, and resolve local issues such as shortages of key specialties or provider types (e.g., nursing homes).

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[271] Qualitative interviews at three CPACs indicated that this was an issue.

- The Revenue Operations Payer Relations Office should create payer scorecards to gain insight into payer reimbursement and further optimize VHA's relationship with payers. Internal payer scorecards should be built with adjudication analytics in place, including claims/dollars denied by payer, cost to collect, etc., to help support contract negotiations. Scorecards should help provide transparency into the relationships between negotiated rates and the cost of care.

9.3   Non-VA Care—Payment

Finding

1. **VHA implemented additional oversight mechanisms to increase payment accuracy, leveraging the Program Integrity Tool (PIT) and Quality Inspector Tool (QIT), to improve payment accuracy.**

- VHA introduced PIT and QIT to identify inaccurately processed claims prior to payment. During the last three years, accuracy improved while the total claims paid has increased. Increasing claims volume puts additional strain on staff and system resources. Generally, increasing claims load would have a negative effect on accuracy performance; however, VHA improved its accuracy numbers while also accepting a higher claims volume.

Figure 9-2. Claims Paid Volume and Accuracy[272]
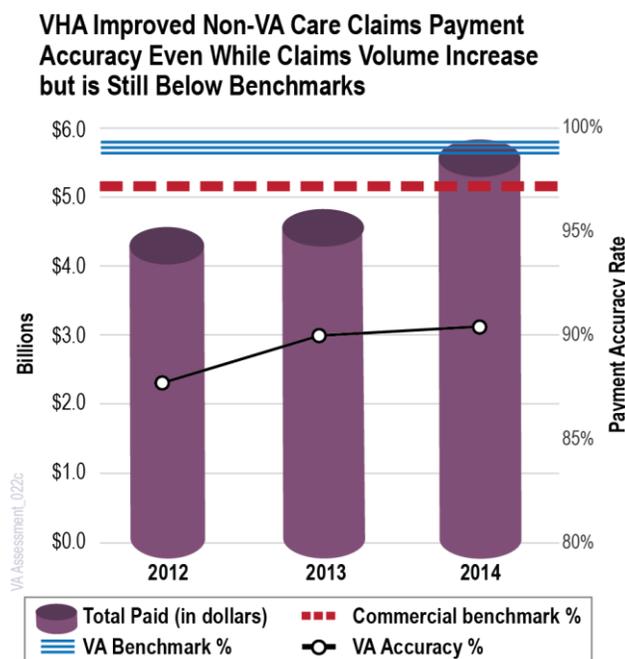
Source: Paid Data and Timeliness FY12-FY14 Data

- All inaccurate payments negatively affect the payer and the provider, because they create additional administrative work for both parties. Inaccurate payments can also lead to

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[272] Per Paid Data and Timeliness FY12-14 v2.xlsx prepared by CBO Department of Informatics

misdistribution of funds. When payers overpay providers, payers must coordinate with providers to recoup the overpayments. Underpayments cause provider dissatisfaction. When there are duplicate payments, the payer pays twice for a service only rendered once.

Recommendation

- Continue developing technical solutions, such as QIT and PIT, which catch claims processing errors before making payments. While QIT and PIT are good tools to track payment accuracy, over reliance on these tools will result in needless additional costs and workload. We understand VHA is working to add additional rules into PIT, and this should be a continuous process. For example, VHA is working to implement rules from the QIT process into PIT. Because not every VAMC uses QIT, this will promote running the QIT checks on all claims. VHA should also continue to build additional rules into PIT (to supplement rules not coded in FBCS) to further improve payment accuracy.

Finding

2. **Current decision support capabilities are not sufficient to support oversight and management of Non-VA Care claims processing and payment.**

Decision support or business intelligence systems are uses of technology that allows organizations to analyze their data effectively. Decision support systems play a key role in "data warehousing, security, standard and ad hoc analytics, care and disease management, fraud and abuse detection, other-party liability administration, and financial functions such as forecasting and reporting."[273] Leaders depend upon data to make informed financial and clinical decisions. Lack of reliable and complete data impairs leaders' abilities to analyze their health care delivery systems properly, regarding appropriateness and quality of care, financial management, and all aspects of operations.

Leading health insurer practices involve "[extracting] and [manipulating] key elements…to make virtually all data elements reportable so that [payer] analysts can include any number of factors in business and health care improvement needs."[274] For example, insurers routinely use reports to track trends and patterns in denied or pended claims to identify potential root causes. They also use reports to identify patterns in claims volume over time, so that they can deploy appropriate numbers of staff to work through anticipated claims backlog, staff provider services hotlines or conduct provider outreach.

CBO performs most of the decision support analysis for VHA for Non-VA Care claims. When VHA leadership needs reporting on clinical or financial metrics, the CBO Department of Informatics creates the reports primarily using data from paid claims processed through FBCS and VistA. Our team worked with the Department of Informatics to extract data related to Non-VA Care.

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[273] Peter Kongstvedt "Essentials of Managed Care" Fifth Edition, 2007 Pg. 398
[274] Ibid

Our team also reviewed OIG reports related to VA's decision support systems and interviewed Informatics staff.

- The analytical deficiencies across claims processing and payment prevent VHA from effectively assessing the performance of and management of the processing system. For example, VHA is not able to determine the reasons for denial or suspense of claims. Due to this deficiency, VHA is unable to analyze enterprise-wide denials.[275]

- Another example is VHA's inability to load critical information into CBO decision support system. For example, the current decision support system cannot accurately report on the number of claims paid, since decision support system does not maintain the internal control number assigned to claims. VHA staff members do not load denied and rejected claims into the decision support system. These denied claims data is available only at the local level. As a result, CBO stated that retrieving denied claims data would be a lengthy and involved process. Additionally, CBO cannot identify or stratify Millennium Bill (referred to as Mill Bill – which as specific subset of requirements) from unauthorized claims for reporting purposes.[276]

- Without a robust decision support system, VHA analysts have limited capabilities to report on trends to executives, clinical and financial staff. Since VHA is not equipped to identify high frequency or common denials across the system, VHA cannot identify geographic areas or topics to focus provider outreach on. VHA cannot achieve valuable insights (e.g., transparency into the largest billers of paper claims) through the current decision support system.[277]

- The decision support system does not contain fields for commonly used data fields, such as "claim form type" (e.g., UB-04, CMS-1500, etc.), which are helpful for analyses. It does not receive the "claim form type" field from FBCS. VHA needs additional fields to enable analyses that drill into the root causes for interest and penalties. A more robust decision support system may also assist with care management and care coordination processes.[278]

Recommendations

- Retain more information from claims processing in VHA's decision support system and develop more comprehensive reports for Non-VA Care management. VHA should retain and load all denied and rejected claims into the decision support system.[279] Making this additional information available to the staff will allow them to conduct more robust analysis to drive provider outreach, reducing the rate and frequency of denials.

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[275] Based on Interview with CBO Informatics and industry subject matter experts

[276] Based on Interview with CBO Informatics and industry subject matter experts

[277] Ibid.

[278] Ibid.

[279] CBO reported that taking steps to retain and load this information is on its roadmap.

Consequently, VHA can lessen the workload of the clerks, which will also improve payment timeliness.

- Use the decision support system to inform VHA's training programs for claims processing staff by identifying claims processing protocols that are not applied consistently by staff. Leading practice is to use it to identify error rates and patterns across individual staff members to inform training plan development.

Finding

3.**VHA cannot establish productivity standards and monitor employee performance because its processes are not consistent across VAMCs and VISNs.**

- For example, some VAMCs appear to have the claims clerks work closely with the authorization personnel and involved in care coordination, while others do not. Some claims clerks are more involved in "provider relations" activities than are others. Additionally, claims clerks work on all types of claims that require varying levels of effort. Some claims clerks process only authorized claims while others work both authorized and unauthorized. In some cases, even outpatient and inpatient claims are divided among claims staff. In the private sector, claims clerks have uniform responsibilities resulting in better outcomes.[280]

- The inconsistency extends beyond processes and procedures to department naming conventions. From facility to facility, the same departments often have varying names and position descriptions, leading to Non-VA provider confusion. For example, at a sample of four VAMCs, the authorization and scheduling department for Non-VA Care is referred to using four different names: Patient Administration Services (PAS), Health Administration Services (HAS), Business Service, and Non-VA Care Coordination.[281]

Recommendation

- Establish VHA-wide productivity standards for staff. VHA should employ these standards to project staffing needs and evaluate staff performance to assure sufficient staff to support the claims processing process. As Non-VA Care continues to evolve, continually assessing VHA staffing levels is critical in leveraging human resources necessary to improve the accuracy and timeliness of claims processing. We understand CBO is assessing staffing levels across Non-VA Care. CBO will use these studies to identify production standards across all VAMCs and evaluate staffing to support achievement of the standards. The study is scheduled to complete in June 2015.[282] Productivity standards and staffing projections should account for the future influence of technology.

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[280] Per Interviews with four VAMCs

[281] Per site visits to four VAMCs

[282] Per Interviews with CBO Purchased Care

Finding

4. **VHA does not conduct sufficient management and oversight activities to understand, manage, and prevent interest penalties paid to Non-VA providers.**

- This finding addresses oversight activities; Chapter 7 covers Non-VA Care in detail. We cross-reference it here to highlight that a critical component of the findings and recommendations supporting interest penalties is oversight across the VHA management team. We found a lack of awareness and transparency of information of interest penalties at the VAMC level. Reducing the risk of interest penalties requires coordinated and clear definition of roles and responsibilities for oversight and execution of interest penalty management.[283]

9.4 Summary of Findings and Recommendations

The following table summarizes the findings and recommendations presented in this chapter, providing further detail to identify each finding's significance and each associated recommendation's timeline and effect.

Table 9-1. Summary of Findings and Recommendations

FINDINGS	RECOMMENDATIONS	SIGNIFICANCE	TIMELINE	IMPACT
VHA implemented additional oversight mechanisms to increase payment accuracy, leveraging the Program Integrity Tool (PIT) and Quality Inspector Tool (QIT), to improve payment accuracy	Continue developing technical solutions, such as QIT and PIT, which catch claims processing errors before payments are made	Tier 1	Short	Process, Technology
Current decision support capabilities are not sufficient to support oversight and management of Non-VA Care claims processing and payment	Retain more information from claims processing in VA's decision support system and develop more robust reports for management of Non-VA Care	Tier 1	Short	Process, Technology
VHA does not conduct sufficient management and oversight activities	Establish transparent reporting of interest at the facility level and	Tier 1	Short	People, Process, Technology

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[283] Per Interviews with four VAMCs

FINDINGS	RECOMMENDATIONS	SIGNIFICANCE	TIMELINE	IMPACT
to understand, manage, and prevent interest penalties paid to Non-VA providers	establish stronger coordination between national and VAMC level management over interest penalties			
VHA lacks standard national reporting of key performance metrics for timely insurance identification and verification across VHA, inhibiting visibility into insurance capture performance of VAMCs	Create a Patient Intake national reporting platform and centralized database to monitor key Patient Intake performance metrics	Tier 2	Short	People, Process, Technology
Reporting in the current patient accounting system (VistA) is not comparable to private sector, inhibiting the identification of areas for improvement	Create a Patient Intake national reporting platform and centralized database to monitor key Patient Intake performance metrics	Tier 2	Medium	People, Process, Technology
VHA cannot establish productivity standards and monitor employee performance because its processes are not consistent across VAMCs and VISNs	Establish VA-wide productivity standards for staff	Tier 2	Short	Process, Technology
Ineffective payer contracting at the regional level negatively affects oversight and standardization from VHA's Revenue Operations Payer Relations Office	CPAC Payer Relations staff should report to the Revenue Operations Payer Relations Office The Revenue Operations Payer Relations Office should create payer scorecards to gain insight into payer reimbursement and further optimize VHA's	Tier 2	Short	People, Process, Technology

FINDINGS	RECOMMENDATIONS	SIGNIFICANCE	TIMELINE	IMPACT
	relationship with payers			

Legend

Significance   Tier 1 = Direct effect to payment and billing timeliness and accuracy

Tier 2 = Supporting actions to improve payment and/or billing timeliness and accuracy

Timeline   Short Term=0-2 years, Medium=3-4 years, Long Term=>4 years

Impacts   People   Process   Technology

10 Conclusion

Strengthened business processes provide VHA with significant opportunity to improve the financial viability of VA. We recognize VHA has made notable improvements across both revenue and payment processes in recent years. Synchronizing people, process, and technology is critical for VHA to continue improvements to increase collections and pay claims timely and accurately. As transformation efforts take place, consistent messaging from VHA leadership supported by ongoing organizational change management around business processes is essential for any strategy to succeed. Both Veterans and VHA staff members need to be included in planning and decision-making. During site visits for this assessment, we were routinely impressed with the commitment and resolve of VHA staff members. VHA leaders need to harness this energy by educating, stimulating, and guiding staff members through business process challenges, tying performance to positive outcomes for Veterans. The resulting empowerment will allow VHA to reap the benefits of a rich and mission focused culture.

The recommendations in this report focus on culture, as well as process and system improvements. The standardization and alignment of performance metrics, simplification of rules, and effective communication offer tremendous upside that is currently lacking in business processes. Adopting the recommendations in this report will allow VHA to improve business process performance, and increase satisfaction for both VHA staff members and the Veterans they serve.

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Appendix A Background Information

A.1 VA Care, Revenue

A.1.1 Denials

Table A-1 provides the denial categories, definitions, corrective actions with our corresponding recommendations to correct the business processes, per each denial category. The last column references the section of this report that addressing the issue.

Table A-1. Denial Categories and Recommendations

Denial Category	Definition	Corrective Action	Revenue Cycle Business Process	Controllable or Uncontrollable	Recommendation	Report Section
Authorization Issue	Denied claim for service without pre-authorization	1st: Complete Pre-Auth at Time of Scheduling and/or prior to service; 2nd: Revenue Utilization Review (RUR) Nurse/ Follow-Up	Patient Intake	Controllable	Enhance Insurance Identification at Scheduling and Pre-Registration to enable Insurance Verification in advance of visit. Continue enhancement of electronic insurance verification tool and of automation and control improvements with Kiosks to support Insurance Identification and Verification.	See section 6.3.2
Coverage Period Termed	Denied for invalid insurance coverage at time of service	Verify coverage prior to providing services; patient executes a document indicating it is the patient's responsibility if their insurance is denied	Patient Intake	Controllable	Enhance Insurance Identification at Scheduling and Pre-Registration to enable Insurance Verification in advance of visit. Continue enhancement of electronic insurance verification tool and of automation and control improvements with Kiosks to support Insurance Identification and Verification.	See section 6.3.2

Denial Category	Definition	Corrective Action	Revenue Cycle Business Process	Controllable or Uncontrollable	Recommendation	Report Section
Coordination of Benefits	Billed incorrect insurance or billed multiple insurance carriers in the incorrect sequence.	Verify insurance and determine primary and secondary carriers so that claims are submitted properly	Patient Intake	Primarily Controllable	Enhance Insurance Identification at Scheduling and Pre-Registration to enable Insurance Verification in advance of visit. Continue enhancement of electronic insurance verification tool and of automation and control improvements with Kiosks to support Insurance Identification and Verification.	See section 6.3.2
Maximum Benefit	Maximum coverage benefits reached. Insurance will not reimburse for services rendered.	Verify coverage prior to rendering services.	Patient Intake	Controllable	Enhance Insurance Identification at Scheduling and Pre-Registration to enable Insurance Verification in advance of visit. Continue enhancement of electronic insurance verification tool and of automation and control improvements with Kiosks to support Insurance Identification and Verification.	See section 6.3.2
Non-Covered Charge	Denied as service charge is not covered by insurance carrier.	Verify coverage prior to rendering services. Timely updates to charge description master.	Patient Intake and Clinical Administration	Controllable/ Uncontrollable	Enhance Insurance Identification at Scheduling and Pre-Registration to enable Insurance Verification in advance of visit. Continue enhancement of electronic insurance verification tool and of automation and control improvements with Kiosks to support Insurance Identification and Verification. Timely update of charge description master.	See sections 6.3.2, 6.3.3
Patient Eligibility	Patient not covered by insurance when services provided.	Verify coverage prior to rendering services.	Patient Intake	Controllable	Enhance Insurance Identification at Scheduling and Pre-Registration to enable Insurance Verification in advance of visit. Continue enhancement of electronic insurance verification tool and of automation and control improvements with Kiosks to support Insurance Identification and Verification.	See section 6.3.2

Denial Category	Definition	Corrective Action	Revenue Cycle Business Process	Controllable or Uncontrollable	Recommendation	Report Section
Medical Necessity	Denied as the procedure was deemed not medically necessary by the third-party payer.	Submit clinical and other information supporting provision of services, contract negotiation, and verify coverage for specific services	Clinical Administration/ Patient Accounting	Controllable	CDI role and initiative.	See section 6.3.2, 6.3.3
Wrong Procedure Code	Denied claim due to system/coding issues	Incorrect code; Need coder training or update to code in Nuance	Clinical Administration	Controllable	Coder training and certified coders, effective updating and management of charge description master.	See section 6.3.3
Duplicate Claim	Denied for duplicate billing	Root cause analysis to identify reasons for duplicate submission. Timely resolution of the initial denial received.	Patient Accounting	Controllable	Account management and Billing education and timely resolution of initial denials as received.	See section 6.3.4
File Limit Expired	Denied for untimely submission of claim to payer	Identification and verification of correct payer prior to providing services, timely coding of accounts and submission of claim within payer guidelines. Contracts with filing times VHA can meet.	Patient Accounting, Clinical Administration and Patient Intake	Controllable	Conduct root cause analysis of key reasons for untimely submission. Develop corrective action plans based on findings.	See section 6.3.2, 6.3.3, 6.3.4

Denial Category	Definition	Corrective Action	Revenue Cycle Business Process	Controllable or Uncontrollable	Recommendation	Report Section
Information Requested	Payer denied claim and is requesting additional information related to services provided.	Respond to information as requested by payer	Patient Accounting coordination with Patient Intake and Clinical Administration	Uncontrollable	Primarily uncontrollable. Send required information that is known when claims are submitted.	N/A

A.1.2   Insurance Verification

Insurance verification process standards include obtaining patient dates of eligibility, service coverage, and pre-certification/authorization requirements from a patient's third-party insurance carrier. VA staff should verify all third-party insurance benefits prior to providing scheduled services to a patient or immediately after providing services related to emergent care. Disciplined insurance verification allows for billing of amounts due to the appropriate third-party carriers and obtaining pre-authorization information, as required. These efforts typically increase overall cash collections and increase net revenue by reducing third-party denials.

Private sector insurance verification processes frequently occur when an appointment is scheduled or during pre-registration procedures. For emergency cases, insurance verification should occur upon the completion of services and/or initial stabilization of the patient. Leading practices are to verify insurance benefits and coverage for all scheduled inpatients within 72 hours prior of the date of service. During this process, VHA validates dates of eligibility, service coverage rules, and pre-certification/authorization requirements.

We assessed VHA insurance verification performance by conducting site visits to multiple CPACs and VAMCs and by collecting VAMC insurance identification data via a national data call. During the VAMC site visits, we held interviews with the patient administration staff that requests third-party insurance information from patients during the check-in process. During the CPAC site visits, we also held interviews with staff at the CPAC who process the insurance information captured by the Patient Check-In clerks at the VAMCs. Additional assessment activities included observing the insurance capture buffer (ICB) tool used by VHA (a tool that signals Patient Check-In clerks which patient's third-party insurance information needs to be identified and captured at 'check-in'). Our team also reviewed the amount spent annually on outside contractors to perform additional insurance verification procedures. We evaluated VHA insurance capture performance metrics. Facilities and clinics are accountable to these performance metrics. Our team also reviewed OIG reports related to billing for VHA-provided care.

Current State

Current Organizational Structure

Key VA components and employees across the organization administer the revenue cycle process. Roles and responsibilities described below highlight respective organization functions that facilitate coordination of care for the Veteran as well as collections:

- **VHA's Office of the Chief Financial Officer (CFO)**: The Office of the CFO at VHA is responsible for establishing financial management and accounting policies and procedures, monitoring financial activity, and monitoring compliance with fiscal policy.

- **Chief Business Office (CBO)**: Located in Washington, DC, CBO is responsible for providing national leadership for advancing business practices that support patient care and delivery of health benefits. This group is responsible for ensuring that activities associated with the generation and management of revenue-cycle activities related to medical care comply with business standards and requirements, including implementing appropriate internal controls

and performance measures. The CPACs, as well as the Health Eligibility Center (HEC) and the Health Resource Center (HRC), are under the guidance of the CBO.

- **Financial Services Center (FSC)**: Located in Austin, TX, the FSC has direct involvement in many of the key-business processes for VA's financial reporting and the medical-care revenue cycle, such as completing first and third-party payment transactions.

- **Health Eligibility Center (HEC):** Located in Atlanta, GA the HEC supports VA's health care delivery system by providing centralized eligibility verification and enrollment processing services. The HEC verifies income reported by patients on the 10-10EZ (Application for Health Benefits) and 10-10EZR (Health Benefits Renewal Form) applications used for determining eligibility. HEC uses the Income Verification Matching (IVM) process to verify Veteran's–self-reported income information by computer matching with the Social Security Administration (SSA) and the Internal Revenue System (IRS).

- **Health Resources Center (HRC):** Located in Topeka, KS, the HRC is responsible for the Health Benefits Call Center (HBCC) and the First Party Call Center (FPCC). The HBCC is responsible for updating Veterans' profile information, such as address changes and contact information, and then transmitting these updates to the HEC. The FPCC responds to inquiries from Veterans who have questions regarding co-payments, as well as questions regarding medication, hardship waivers, and repayment plans.

- **Austin Information Technology Center (AITC):** Located in Austin, TX, the AITC is responsible for providing automated data processing support for medical reimbursement activities to all VAMCs. AITC is responsible for accumulating the data used for the allocation of Veterans Equitable Resource Allocation (VERA) funds. VERA is the primary methodology that VA uses to distribute resources based upon historical workload and utilization of services by Veterans.

- **Consolidated Patient Account Centers (CPAC):** Located in seven regional offices throughout the country, CPACs centralize the traditional VHA accounting functions focused on the back-end of the revenue cycle process. The purpose of the CPAC system is to "[re]engineer and integrate all business processes of the revenue cycle of the Department. CPACs standardize and coordinate all activities of the Department related to the revenue cycle for all health care services furnished to Veterans for non-service-connected medical conditions. They apply commercial industry standards for measures of access, timeliness, and performance metrics with respect to revenue enhancement of the Department."[284] The CPACs take the coded encounters from the VAMCs, generate the patient bills, and work with Veterans and third-part insurance carriers to collect and process payments. CPAC staff members are located both at the regional CPAC and at each VAMC in an effort to improve coordination and communication between the two entities.

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[284] Public Law 110-387, Section 406.

A.1.3   First Party

The following table depicts the financial health benefit co-payment obligations of Veterans whose income exceed VA income limits and those Veterans who choose not to complete the financial assessment during enrollment:[285]

Table A-2 VA Copays[286]

Priority Group & Inpatient/Outpatient[287]	Services	Copay Due
Priority Group 1	Same services are generally available to all enrolled Veterans	None
Priority Group 1	Prescriptions: 30-day or less supply of medication	None
Priority Group 2	Same services are generally available to all enrolled Veterans	None
Priority Group 2	Prescriptions: 30-day or less supply of medication	$8 (Limited to $960 annual cap)
Priority Group 3	Same services are generally available to all enrolled Veterans	None
Priority Group 3	Prescriptions: 30-day or less supply of medication	$8 (Limited to $960 annual cap)
Priority Group 4	Same services are generally available to all enrolled Veterans	None
Priority Group 4	Prescriptions: 30-day or less supply of medication	$8 (Limited to $960 annual cap)

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[285]VA Health Benefit co-payments: http://www.va.gov/HEALTHBENEFITS/cost/copays.asp

[286]VA 2015 Co-payment Rates, http://www.va.gov/healthbenefits/resources/publications/IB10-430_copay_rates.pdf

[287]Note: There are two inpatient copay rates, the full rate and the reduced rate (20 percent of VA's inpatient copay rate). A letter accompanies the bill explaining the charges, along with VA contact information for questions. If the patient does not respond within 90 days, the bill enters a Biller's work list at the CPAC. The CPAC is responsible for reaching out to patients with outstanding debts, verifying eligibility and copay amounts, matching Third Party insurance payments to First Party copays, answering Veteran questions, setting up payments plans, processing Veteran refunds through VA Patient Account Resource System (VAPARS) system, and conducting follow-up duties to clear the debt. After 90 days, unpaid Veteran bills are sent to VA's Debt Management Center (DMC) for collection, and if collection efforts remain unsuccessful, bills are transferred to the Treasury Offset Program (TOP).

Priority Group & Inpatient/Outpatient[287]	Services	Copay Due
Priority Group 5	Same services are generally available to all enrolled Veterans	None
Priority Group 5	Prescriptions: 30-day or less supply of medication	$8 (Limited to $960 annual cap)
Priority Group 6	Same services are generally available to all enrolled Veterans	None
Priority Group 6	Prescriptions: 30-day or less supply of medication	$8 (Limited to $960 annual cap)
Priority Group 7 Inpatient	Copay for the first 90 days of care during a 365-day period	$252
Priority Group 7 Inpatient	Copay for each additional 90 days of care during a 365-day period	$126
Priority Group 7 Inpatient	Daily Charge	$2/day
Priority Group 7 Outpatient	Prescriptions: 30-day or less supply for higher income Veterans	$9 (No medication copay annual cap)
Priority Group 8 Inpatient	Copay for the first 90 days of care during a 365-day period	$1,260
Priority Group 8 Inpatient	Copay for each additional 90 days of care during a 365-day period	$630
Priority Group 8 Inpatient	Daily Charge	$10/day
Priority Group 8 Outpatient	Prescriptions: 30-day or less supply for higher income Veterans	$9 (No medication copay annual cap)
Outpatient	Primary Care	$15
Outpatient	Specialty Care	$50
Geriatric and Extended Care	Inpatient Copay	Up to $97 per day (Community Living (Nursing home), Respite, Geriatric Evaluation)

Priority Group & Inpatient/Outpatient[287]	Services	Copay Due
Geriatric and Extended Care	Outpatient Copay	$15 per day (Adult Day Health Care, Respite, Geriatric Evaluation)
Geriatric and Extended Care	Domiciliary Copay	$5/day
Long Term Care	Spousal Resource Protection Amount	$119, 220

A.2 Non-VA Care

A.2.1 Technology to Enable Oversight of Claims Processing Performance

Decision support systems or BI tools allow organizations to analyze their data effectively. Data used in claims are significant drivers for analytics and informed decision-making. Decision support systems play a key role in, "data warehousing, security, standard and ad hoc analytics, care and disease management, fraud and abuse detection, other-party liability administration, and financial functions such as forecasting and reporting."[288] Leaders depend upon accurate and detailed data to make informed financial and clinical decisions. Lack of reliable and complete data impairs leaders' abilities to analyze their health care delivery systems regarding appropriateness and quality of care, financial management, and all aspects of operations.

Leading health insurer practices involve, "[extracting] and [manipulating] key elements…to make virtually all data elements reportable so that [payer] analysts can include any number of factors in business and health care improvement needs."[289] For example, insurers routinely use reports to track trends and patterns in denied or pending claims, and then to identify potential root causes of those claims denials and pending claims. They also use reports to identify patterns in claims volume over time, so that they can deploy appropriate numbers of staff to work through anticipated claims backlog, staff provider services hotlines or conduct provider outreach.

VA's Informatics team performs most of the decision support and BI analysis for VA for Non-VA Care claims. When VHA leadership needs reporting on clinical or financial metrics, the informatics team creates the reports primarily using data from paid claims processed through FBCS and VistA.

A.2.2 Overview of Care Authorities

Three main authorities provide VA the ability to purchase care for Veterans in the community. The following list describes these authorities.

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[288] Peter Kongstvedt "Essentials of Managed Care" Fifth Edition, 2007 Pg. 398
[289] Ibid.

- 38 U.S.C. 1703 – Authorized; 38 U.S.C. 1703, Authorized Care, allows for VA to contract with non-department facilities and provide care to Veterans with a service connected disability when VA is not capable of furnishing the care or services and geographical inaccessibility.[290]

- 38 U.S.C. 1728 – Unauthorized; 38 USC 1728, Unauthorized Care for a service Connected Disability, allows VA to reimburse for emergency care related to a service-connected condition.[291]

- 38 U.S.C. 1725 – Millennium Bill (Mill Bill), 38 USC 1725, Millennium Bill, allows VA to reimburse a Veteran or the provider of emergency care for a non-service connected condition. The Veteran must not be covered by 38 USC 1703 (Contracts for Hospital Care and Medical Services in Non-Department Facilities) nor 38 USC 1728 (Reimbursement of Certain Medical Expenses). In order for the Veteran to be eligible for care under this authority, the Veteran must meet the following criteria:[292]

  - Veteran received health care services from VHA during the 24- month period preceding the emergency treatment

  - Veteran has no other form of health insurance coverage for the episode of care being claimed

  - VHA or other Federal facilities were not feasibly available at the time of the emergency

  - Care was rendered in a medical emergency of such a nature, that a prudent layperson would have reasonably expected a delay in medical treatment to be hazardous to life or health

  - Treatment was provided in a hospital emergency room department or a similar facility providing emergency care to the public

  - Veteran is financially liable to the provider for payment of the emergency treatment received

  - Veteran has no other contractual or legal recourse against a third party that would, in whole, extinguish the Veteran's liability, and the Veteran has exhausted all claims against a third party without success

  - Care beyond the medical emergency is for a continued medical emergency such that the Veteran could not safely discharge or transfer to a VHA facility (unless the Non-VA provider makes and documents reasonable attempts to transfer the Veteran).

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[290] 38 U.S. Code § 1703 - Contracts for hospital care and medical services in non-Department facilities - https://www.law.cornell.edu/uscode/text/38/1703

[291] 38 U.S. Code § 1728 - Reimbursement of certain medical expenses - https://www.law.cornell.edu/uscode/text/38/1728

[292] 38 U.S. Code § 1725 - Reimbursement for emergency treatment - https://www.law.cornell.edu/uscode/text/38/1725

A.2.3   Timeliness by VISN

At the VISN level, Figure A- shows that a number of VISNs have average claims processing timeframes of 30 days or less, many slightly exceed the timeframe, and only two VISNs have processing times far exceeding the 30 day benchmark.

Figure A-1 Average Number of Days to Pay a Claim from Receipt Date for FY 2014[293]

Only 8 VISNs Paid Claims in 30 Days or Less, on Average
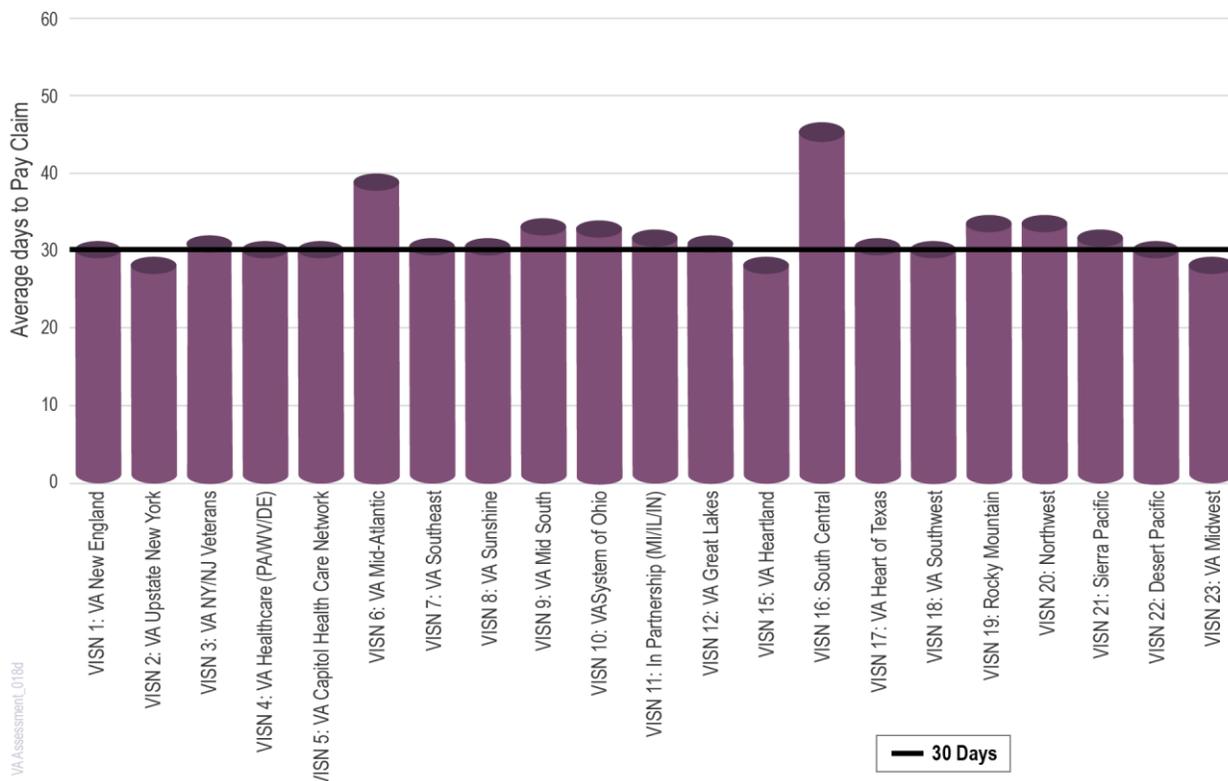
Source: Paid Data and Timeliness FY12-FY14 Data

To better understand VISN 16's relatively high processing time, we interviewed Non-VA Care leadership within VISN 16. The VISN reported a technical issue with its FBCS server that caused a significant backlog and increased time to adjudicate claims in FY 2014. This issue has since been resolved.

Most of the VISNs, through sheer will and extensive manual labor, are meeting or close to meeting the timeliness standards, despite the volume of claims being processed, the associated complexities, and the technology challenges that exist.

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[293] Per Paid Data and Timeliness FY12-14 v2.xlsx prepared by CBO Department of Informatics; excludes Manila and VAMCs with less than 1000 claim lines

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The views, opinions, and/or findings contained in this report are those of Grant Thornton should not be construed as an official government position, policy, or decision.

A.2.4   Detailed Authorized Care Process

- Consult/Referral: The Non-VA Care process begins when a VA provider makes a determination that the patient is in need of medical care VHA is unable to provide. Once the VA Provider determines the need for Non-VA resources, he or she creates a consult in Computerized Patient Record System (CPRS). A consult is the formal documentation in CPRS used to refer a Veteran for Non-VA Medical Care. The consult includes the requested services and justification for purchasing care from the community.

- Authorization and Scheduling (Non-VA Care Coordination): Once the VA Provider enters the consult, CPRS routes the claim to the Non-VA Care Coordination claims clerk. The administrative review ensures that the Veteran is eligible to receive Non-VA Medical Care and that VHA is unable to provide the requested treatment. Once the NVCC confirms the Veteran meets the eligibility requirements for Non-VA Care, he or she initiates a new authorization in FBCS. While CPRS automatically populates demographic information via the interface, the NVCC Claims clerk manually enters the services authorized into FBCS. Once FCBS has the authorization created, the claims clerk contacts the Veteran to identify his or her preferences for time for the appointment and Non-VA Provider. Non-VA Providers are health care professionals who prescribe medications, such as doctors, nurse practitioners, or physician's assistants employed by private hospitals or facilities, such as hospitals. The NVCC claims clerk then reaches out to the Non-VA Provider to schedule the appointment. After confirmation of the appointment, the NVCC claims clerk sends notification to the Veteran. In addition to notifying the Veteran, the NVCC Claims clerk also sends notification to the Non-VA Provider. The letter confirms the specific medical services for which VHA will reimburse the Non-VA Provider.

- Mode of Claims Submission: When providers render services, they must bill payers for reimbursement. Providers can submit claims via paper or electronically. Paper standards include:
    - UB-04—this form is for institutional providers, such as hospitals. Both inpatient and outpatient claims are commonly billed on the UB-04.
    - CMS-1500—this form is for physicians and other individual providers. A doctor administering a physical in his office would generally use the CMS-1500 for billing.
    - ADA claim form—this form is used by dentist to submit claims.

- Paper Claims - Scan/Verify: For VHA and other payers, processing paper claims requires additional steps relative to processing electronic claims. VHA calls these steps Scan, Upload, and Verify. The "Scan" process transforms the information on the paper document into data for Fee Basis Claims System (FBCS). The "Upload" process brings the data into FBCS. During "Verify," claims clerks manually ensure that the OCR process read the data correctly. These steps are similar for other private payers.

- Electronic Claims Submission: For electronic claims, the Scan, Upload and Verify steps are unnecessary because electronic claims data enters the system directly and without manual intervention. Thus, electronic claims enter the system more quickly and generally process more accurately, relative to paper claims.

- Generally, the more a payer electronically automates claims processing, the cheaper and more reliably their systems operate.[294] Most commercial and other government payers actively encourage their providers to submit all claims electronically. Providers submit electronic claims using a national standard format, the Electronic Data Interchange (EDI) format. These national EDI standards include:
    - 837I—this is the electronic format for institutional providers (replaces the UB-04)
    - 837P—this is the electronic format for physicians and other providers (replaces CMS-1500)
    - 837D—this is the electronic format for dental providers (replaces ADA form)
- The ANSI "chartered the ASC X12 to develop uniform standards for inter-industry electronic exchange of business transactions-electronic data interchange (EDI)".[295] This body created the 837 implementation guides referenced above. However, payers create 837 "companion guides" to assist providers with further instructions on billing electronic claims. For example, Medicare states that they publish companion guides to "clarify, supplement and further define specific data content requirements to be used in conjunction with, and not in place of, the ASC X12"[296] implementation guides. Currently VHA does not have a companion guide to provide additional guidance on electronic claims submission.
- Processing claims electronically is less costly and more accurate [297] than paper claims. Electronic claims are also processed faster[298].
- Processing: The purpose of adjudication is to apply a series of rules that will ultimate determine if the claim should pay, deny or reject and to also determine the rate the claim should pay. Whenever providers render services, they expect reimbursement at mutually agreed upon rates. Providers expect the payment to be timely and accurate. However, the provider must satisfy a level of completeness and correctness when billing their claim for it to pay. Generally, the rules on billing completely and correctly are defined in the provider and billing manuals produced by the payer. If the provider bills

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[294] 2013 U.S. Healthcare Efficiency Index, CAQH, Electronic Administrative Transaction Adoption and Savings, Revised May 5, 2014 "We conclude that the healthcare industry could save billions by continuing the shift from manual to electronic transactions for the six processes [claims submissions, eligibility verification, prior authorization, claim status inquiry, claim payment and claim remittance advice/electronic payments] studied. We estimate that most of the potential savings from continued automation of routine processes would accrue to healthcare providers and facilities."

[295] http://www.x12.org/about/faqs.cfm

[296] http://www.cms.gov/Medicare/Billing/ElectronicBillingEDITrans/CompanionGuides.html

[297] 2013 U.S. Healthcare Efficiency Index, CAQH, Electronic Administrative Transaction Adoption and Savings, Revised May 5, 2014 "Today, individual providers, facilities, payers, and related business partners conduct more administrative transactions electronically than ever before, streamlining workflows for greater productivity, improving data accuracy, and reducing administrative costs."

[298] AHIP, Center for Policy and Research, Update: A Survey of Health Care Claims Receipt and Processing Times, 2013—93 percent of electronic claims are processed within two weeks versus 79 percent for paper claims

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the claim incorrectly or without sufficient level of detail, the payer should reject or deny the claim with information on why the claim rejected or denied. If the member is covered and the service is in-plan, the provider can rebill the claim for reimbursement. The adjudication process helps bill claims correctly, and when they are not, the process denies or rejects the claim to the provider. The adjudication process also prices the claim. For VA, a denial means VHA policy does not cover the claim. Reasons for denial include the Veteran not being eligible or the provider rendering services without an authorization. When VHA denies a claim, the Veteran and provider receive notification that the service is not covered under policy and the provider should seek reimbursement from the Veteran. Conversely, a rejection means that there is a coding or administrative issue with the claim. For rejections, if the provider corrects the issue, they can resubmit the claim for VHA for reimbursement. Providers cannot seek reimbursement from the Veteran for rejections. VHA utilizes Fee Basis Claims System (FBCS), a Commercial-Off-The-Shelf (COTS) product, and Veterans Health Information Systems and Technology Architecture (VistA) to perform adjudication functions. FBCS adjudicates a majority of claims[299], with the few exceptions processed in VistA or other tools. FBCS was created from an OCR tool that interfaced with a claims rules engine for VA. This means that FBCS did not start as an adjudication system optimized to adjudicate claims automatically. As a result, the operational processes are much more manual than those found in private sector systems.

A.2.4.1   Distribution

Once the claim is entered in FBCS and has undergone the "Verify" process, the claim enters the "Distribution and Processing" module. Within this module, claims clerks process the claim to validate a number of criteria, such as:

- Using Veteran eligibility files, determine the Veteran's eligibility for coverage of the service(s) provided, and
- Using prior authorization information, determine whether the service required prior authorization and, if required, whether VHA issued the authorization. During "Distribution", claims clerks manually associate the authorization to the claim.

A.2.4.2   Pricing

After the claims clerk associates the authorization to the claim, the clerk clicks the "Calculate" button, which sends the claim to pricing. This process takes up to two days. During this period, the claim processes through the Program Integrity Tool (PIT), as described in the next section. The claim returns with the Medicare price on the line. If the line's submitted charge is less than the Medicare price, FBCS displays the line-allowed charge in yellow. When the allowed charge is yellow, the claims clerk must manually change the line price to the billed charge by selecting a

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[299] Claims not processed through FBCS include: Pharmacy, Dental, Adult day care, bowel and bladder, Home Health for contract nursing homes claims, newborn, and Dialysis. Dialysis claims processed in COTS product, not VistA. All other claims processed in VistA.

drop-down. For contracted claims, the clerk manually enters the correct rate by keying the rate into the claim line. For PC3 claims, the claims clerk selects the price by using the drop-down box and selecting the correct rate.

A.2.4.3 Editing

During processing, the system also applies various edits to the claim. Examples of the types of edits employed in automated adjudication might include:

- Member eligibility edits, such as determining whether the member is eligible for services,

- Provider edits, such as determining whether the provider is eligible to render services,

- Duplicate checking, to deny claims for which an exact duplicate claim has previously been paid,

- Clinical and Coding edits, such as determining whether the procedure and diagnosis are clinically appropriate together, determining if there is a procedure code gender conflict (e.g., a hysterectomy billed for a male) or detecting unallowable combinations of procedures, and

- Other edits, such as validating timely filing, enforcing date checks, and confirming that nationally standard codes are submitted.

At VA, a claims clerk manually works each edit that posts to the claim. This means that the claims clerk analyzes the edit, edit description and other claims information to determine if the edit should pay, deny or reject the claim or claim line.

A.2.4.4 Post Adjudication/Pre-payment Accuracy Mechanisms

Within the "Processing and Distribution" module, claims feed into technical tools and edit checks such as Claims Scrubber, Program Integrity Tool (PIT) and Quality Inspector Tool (QIT).

The Program Integrity Tool (PIT) is used to detect Fraud, Waste and Abuse (FWA) for Non-VA Care claims submitted for reimbursement and avoid improper payments. The PIT tool was created from a commercial fraud, abuse and waste tool used to monitor claims payment for commercial clients. As such, issues commonly identified during adjudication in commercial systems are also identified on VA's claims. When clerks submit claims to calculate pricing, the claims also process through PIT, which applies predefined rules to the claim. Claims return from this process within two days for further processing by the clerk. The PIT tool performs additional checks related to the evaluating the reasonableness of diagnosis codes, procedure codes and other codes on the claim. PIT identifies issues such as determining whether the provider's name exists on Medicare's exclusionary list, finding duplicate claims, and identifying missing data on a claim line. Currently, all FBCS claims process through PIT.

The Quality Inspector Tool (QIT) reviews data extracted from medical and facility claims prior to payment for accurate claims processing. VHA created QIT based upon claims reports run at Minneapolis VAMC. VAMCs run QIT prior to submitting the batch for payment. The tool consists of automated inspections, which provide results on pass/fail basis. The report identifies the reason for each fail, such as incorrect payment methodology applied. When the tool identifies claims as "fails," further review is required—the claim may not contain an accuracy issue. Once

QIT identifies a failure, staff investigates the claim using the claim ID number. If the claim complies with VHA policy, the fee clerk or supervisor will override the error.

The tool also tracks individual payment processing performance using trend charts and performance summaries by fiscal year. At current, using QIT is not mandatory. Our team visited a VAMC that choose not to run QIT as part of their processing. VA, however, is working towards integrating the QIT checks into PIT. From interviews with staff concerning the QIT tool, it seems VHA created the QIT tool to find errors that would normally not occur in a more automated system; when a centralized, highly-automated claims adjudication system is implemented, the QIT tool may no longer be needed. Additional analysis on the QIT tool is necessary when this transpires.

Based on the results of these tests, the claims clerk applies any necessary changes to the claim. If a reject/deny suggestion is in-line with VHA guidance, the claims clerk or supervisor can override the error.

A.2.4.5   Payment

The purpose of the payment process is to report which claims are paid and denied, report the rate of payment on the claims, report why claims are denied, and create a check for all "paid" claims.

For VA, once the claim has undergone processing, the claims clerk approves or denies line items on the claim for payment. The claims clerk acknowledges the line item approval by using the "Send to Payment" function that routes the claim to pricing, the next step in the process. In the event a line item or multiple line items on the claim do not meet the necessary requirements, the claims clerk denies or rejects the claim. The clerk uses the "Deny" function in the Distribution and Processing Module. After denial or rejection, the claims clerk documents the reason for denial in the message box and notifies the Non-VA provider.

The "Send to Payment" function in FBCS routes the claim to Central Fee System located in Austin, TX. Within Central Fee, the claims clerks perform additional edits and send the claim to FMS for payment. FMS calculates the interest for the claim, if applicable. The payment process sums paid claims, creates checks, and creates remittance advices to send to providers. Remittance Advices describe the reason for claims denials.

A.2.4.6   Return of Medical Documentation

After the date of the appointment passes, the authorization clerk contacts the Veteran to verify that the appointment took place as expected. If it did occur, the NVCC authorization clerk contacts the Non-VA Provider to obtain necessary medical documentation from the patient's visit. Once the NVCC authorization clerks receive the documentation, he or she closes out the consult in CPRS.

A.2.5 Detailed Emergent Care Process

In emergent care, VA reimburses community providers for emergency treatment when the urgency of the situation does not allow for pre-approval. Section 2 describes the differences between Unauthorized and Mill Bill.

- Notification from Emergency Department (ED)/Receipt of Claim
- When a Veteran presents to a Non-VA Emergency Department (ED), the Non-VA hospital notifies the local VAMC. The Non-VA hospital alerts VHA in one of two ways:
- Receipt of a phone call when the Veteran is admitted to the ED
- Receipt of bill from the ED

Once the Non-VA hospital notifies VHA of the admitted Veteran, a transfer coordinator will monitor the situation. If the care is inpatient, the transfer coordinator documents the Veteran admitted to the hospital. If service connectedness is established and the hospital notifies VHA within 72 hours, the transfer coordinator can immediately create a tentative authorization. The tentative authorization allows the Non-VA provider to stabilize the Veteran to the point of discharge or transfer to the nearest VAMC. VHA categorizes the tentative authorization as "review for payment."

The other means of notification is the receipt of a claim. In some instances, VHA is not aware of the Veteran's admission to a Non-VA hospital until they receive the claim and additional medical documentation. In this case, the claims clerk scans the claim and supporting documentation into FBCS to perform an administrative review of the medical records. In this case, when the clinician determines the visit meets medical necessity standards (discussed in Section 4.2), the NVCC clerk creates an authorization. VHA uses the authorization to pay all claims related to the emergency visit.

A.2.5.1 Processing and Payment

The processing and payment on Unauthorized and Mill Bill claims follows closely to that of Authorized claims as discussed in Section 3.3, but with a few exceptions.

A.2.5.2 Eligibility and Coordination of Benefits

The claims clerk reviews the Veterans service connectedness rating and determines if the Veteran is eligible for Non-VA Care. In addition, they check the Veteran profile in VistA for evidence of a third-party insurance. The service connectedness and third-party insurance are critical determinations to ensure the correct payment authority is used. For example, as mentioned above in Section 2.3 Millennium Bill, if the Veteran is non-service connected and does not have other insurance, the care may be approved under 38 USC 1725. If the Veteran is service-connected, VHA can only approve the care can under 38 USC 1728.

A.2.5.3 Clinical Review

A clinician must review unauthorized claims received at the VAMC to determine medical necessity. A visit to the ED, in and of itself, does not justify medical necessity. A designated VHA

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Fee clinician performs all clinical reviews for unauthorized claims. The Clinical Reviewer reviews the Non-VA claim and provider notes, in addition to considering the judgment of a prudent layperson (one who possesses an average knowledge of health and medicine would have reasonably expected that delay in seeking immediate medical attention would have been hazardous to life or health). The clinical reviewer ensures the encounter was emergent in nature and the VAMC was not feasibly available at the time.

A.2.6   Detailed Information on the Choice Program

A.2.6.1   Process Overview/Consolidation of Payment

If the Veteran meets one of the eligibility criteria above, VHA places him or her on the Veterans Choice List (VCL). The VCL serves as a way of verifying eligibility and guaranteeing payment for the Non-VA Provider. Before seeking care from a Non-VA Provider, the Veteran should call VHA to ensure that he or she is eligible for the Choice Program. VHA authorizes care upon eligibility confirmation and schedules an appointment with a Non-VA Provider. VHA has expanded contracts with the PC3 vendors described above to help administer Choice program. While use of the PC3 vendor's networks are preferred the Veteran can select their own provider outside of PC3, however, VHA must approve them in advance. If PC3 administers the care, HealthNet or TriWest is responsible for creating the authorization and scheduling the care.

The PC3 vendor or the Non-VA Provider (if PC3 is not used) submits the claim to VHA upon services rendered. The claims processing and payment processes are consistent with those of traditional Non-VA Care as described in Section 3.4. VHA routes all Choice claims to the Health Administration Center (HAC) in Denver, CO, but the claims are processed virtually using the St. Louis VAMC FBCS server.

- 30-day eligibility: provides eligibility for the Veteran if she/he has attempted to schedule an appointment with VA, and VHA is unable to schedule the appointment within 30 days of his or her preferred date.[300]
- 40-mile eligibility: provides eligibility for Veterans residing more than 40 miles from a VHA medical facility that is closest to their residence. This includes any VHA facility even if that facility is not capable of providing the required services.[301]

A.2.7   Detailed Information on PC3

VHA contracted with HealthNet and TriWest to provide Veterans with access to care through a network of community-based providers. PC3 vendors serve as administrators of the contract and act as intermediaries between VHA and their network providers. PC3 vendors manage networks of providers, coordinate care for the Veteran, and reimbursement network providers for care. PC3 vendors submit claims to VHA in accordance with their stated contracts. VHA instituted PC3 to improve Non-VA Care process. Examples include:

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[300] Section 101 of the Veterans Choice Act (§ 17.1510(b)(1))
[301] Ibid.

- Ensure quality as providers and facilities meet quality standards

- Provide efficiency as providers help the VA Medical Centers (VAMC) manage high volumes of one type of care. Contractors set appointments and authorizations do not require additional contracting review

- Provide convenient method for Veterans to be seen quickly and within required commute times

- Decrease improper payments as payment rates are defined by the contract and contractors perform an additional level of review to ensure services performed match the authorization and were billed correctly to VA

- Support care coordination by providing medical documentation back to the VAMC in a timely manner

- Standardize processes by providing national contract administration and oversight from the CBO Purchased Care, and integrating into Non-VA Care Coordination processes

Figure A-2. Vendors Serving in Each PC3 Geographic Region
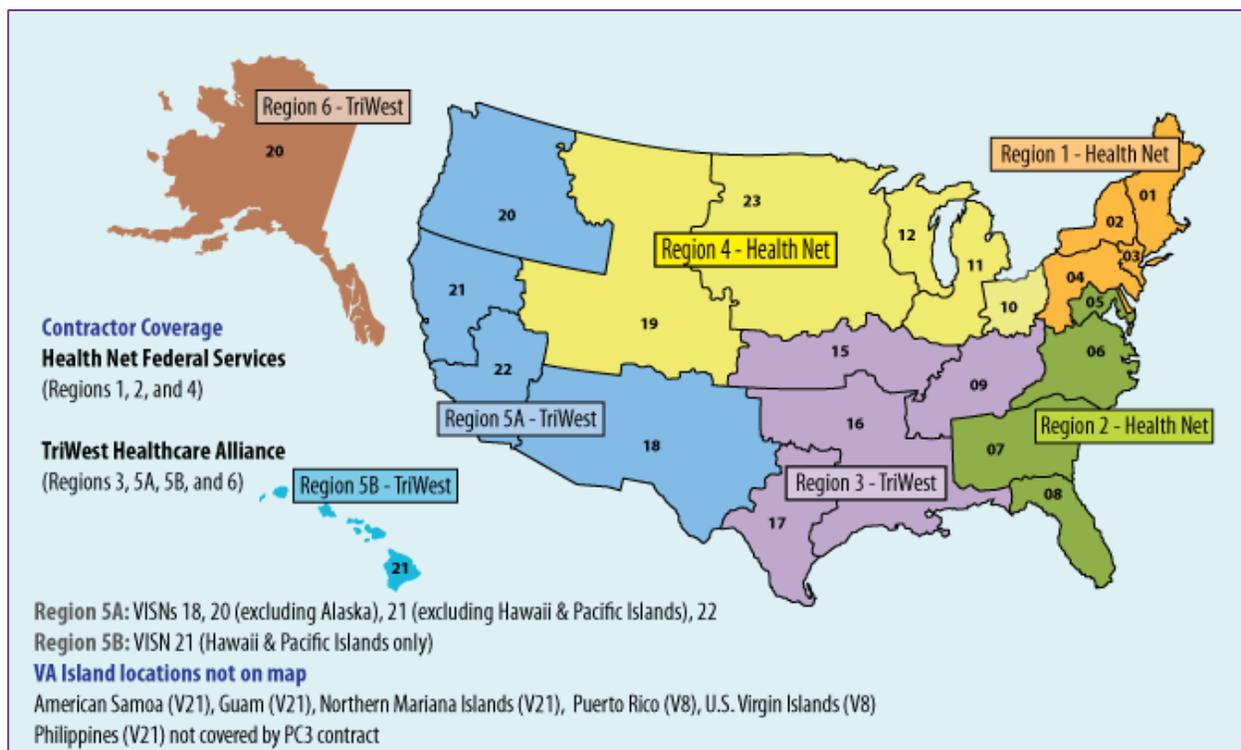
Source: VHA map of vendors serving PC3 geographic regions.

The process starts when a Veteran requires care and the Veteran is covered under the PC3 eligibility standards. VHA creates an authorization for the Veteran and submits it to HealthNet or TriWest based on the Veteran's region. Upon authorization, the vendor is responsible for scheduling an appointment for the Veteran. The PC3 contractor must contact the Veteran regarding the scheduled appointment and provide appropriate information about the appointment. According to PC3 contracts, the appointment must be scheduled within five days

of receipt of authorization and take place within 30 calendar days of scheduling the appointment.[302]

Additionally, the PC3 provider rendering the care must submit supporting documentation to VHA upon completion of the appointment. According to the HealthNet contract, VHA requires that, "Medical documentation recoding of authorized episode of outpatient care shall be submitted to VHA within 14 calendar days after completion of the initial appointment."[303]

The following subsections briefly describe other PC3 vendor responsibilities, as well as the related business processes, related to billing and payment.

A.2.7.1 Processing and Payment

PC3 vendors reimburse providers within their network. PC3 vendors contract directly with their network providers or otherwise coordinate with providers of medical services. PC3 vendors also are responsible for coordinating care delivering and returning medical documentation. Once the PC3 vendor reimburses the providers and receives the medical documentation, the PC3 vendor submits the claims to VHA for payment through FBCS. VHA processes PC3 claims similarly to all other claims.

While the PC3 vendors serve a function similar to a Third Party Administrator (TPA), some processes differ from traditional payer/TPA relationships. Typically, payers employ TPAs to support the operational functions necessary for adjudication and paying claims, such as processing and paying claims. The payer, in this scenario, outsources this function; the TPA will perform the claims operations functions, in this case, instead of the payer performing this function directly. Medicare, for example, contracts with 16 Medicare Administrative Contractors (MACs) to process their Part A, Part B, Durable Medical Equipment (DME), home health and hospice claims[304]. For Medicare, the claims are adjudicated by the MAC instead of by Medicare directly. For VA, the claims adjudication and payment functions occur at both VHA and the PC3 vendor.

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[302] Department of Veterans Affairs (2014), Patient Centered Community Care, *Contracts Provide Primary Care Access*

[303] HealthNet Contract

[304] http://www.medicarenewsgroup.com/news/medicare-faqs/individual-faq?faqId=c8e2f9da-cec3-45ed-afa0-adb6ffbf68a7 Medicare Administrative Contractors, or MACs, are private organizations that carry out the administrative responsibilities of Traditional Medicare (Parts A and B). They also handle durable medical equipment, home health and hospice claims. Currently, there are 12 contracts for Parts A and B, which the Centers for Medicare & Medicaid Services (CMS) is consolidating down to just 10 contracts over the coming years. Four separate contracts have been rewarded for durable medical equipment claims processing.

Figure A-3. PC3 Reimbursement Process
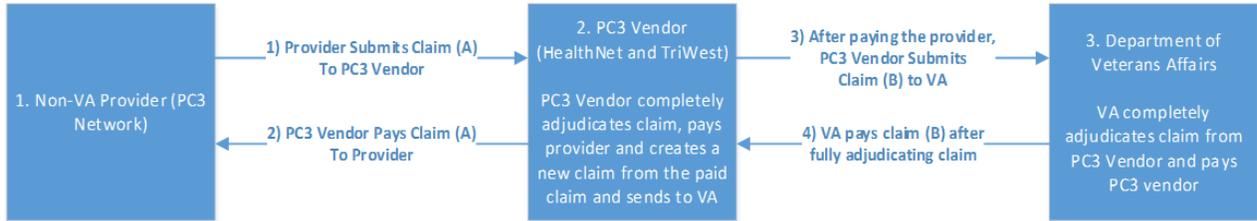
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Appendix B   Interviews and Site Visits Methodology Used to Determine Site Visits and Conduct Interviews

Table B10-1. Site Visit Locations and Functions Interviewed

VISN	Station Name	City	State	Functions Interviewed
4	Corporal Michael J. Crescenz VA Medical Center	Philadelphia	PA	Fee Supervisor, Compliance, VA Provider, NVCC Clinical Review Nurse, NVCC Management, Revenue Management, and Leadership
6	Mid-Atlantic CPAC	Asheville	NC	Facility Revenue, Insurance Verification, Revenue Utilization Review, Internal Controls, Billing, Accounts Management, Denials Management Veterans Services, Payer Relations, and Leadership
8	Florida CPAC	Orlando	FL	Facility Revenue, Insurance Verification, Revenue Utilization Review, Internal Controls, Billing, Accounts Management, Denials Management Veterans Services, Payer Relations, Cash Management, and Leadership
8	Bruce W. Carter VA Medical Center	Miami	FL	Compliance, Patient Intake/Registration, Patient Administration Services, CDI, Facility Revenue, and Leadership
11	Ann Arbor VA Medical Center	Ann Arbor	MI	Compliance, Health Administration Services, Patient Intake/Registration, Medical records, Revenue Utilization Review, Facility Revenue, and Leadership

VISN	Station Name	City	State	Functions Interviewed
12	William S. Middleton Memorial Veterans Medical Center	Middleton	WI	Facility Revenue, Insurance Verification, Revenue Utilization Review, Internal Controls, Billing, Accounts Management, Denials Management Veterans Services, Payer Relations, Cash Management, and Leadership
12	Edward Hines Jr VA Medical Center	Hines	IL	Compliance, Patient Intake/Registration, Utilization Review, Medical Records/HIMS, Facility Revenue, and Leadership
16	Gulf Coast VA Medical Center	Biloxi	MS	Compliance, Revenue Utilization Review, Medical Administration Services, Patient Intake/Registration, Medical Records, Coding, Facility Revenue, and Leadership
17	Audie L. Murphy VA Medical Center	San Antonio	TX	Fee Supervisor, Compliance, VA Provider, Clinical Review Nurse, Medical Center Director, Deputy Chief of Staff, and Leadership
19	Chief Business Office-Purchased Care	Denver	CO	Program Administration, Program Oversight and Informatics, Purchase Care Operations, Business Systems Management, Purchased Care Resource Management, Non-VA Care Claims Audit Execution, and Leadership
19	George E. Wahlen VA Medical Center	Salt Lake City	UT	Compliance, VA Provider, Clinical Reviewer, NVCC Manager, Supervisory Program Specialist, FQAM, and Leadership

VISN	Station Name	City	State	Functions Interviewed
21	San Francisco VA Medical Center	San Francisco	CA	Patient Revenue Services, Fee Supervisor, Compliance, VA Provider, FQAM, NVCC Manager, and Leadership

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Appendix C   Data Requests

C.1   Summary of Data Requests

This outlines the primary and secondary data requests submitted to VA by the VA Care and Non-VA Care teams.[305] The following tables summarize the numbers of data requests needed, received, and retracted, as well as an overview on the numbers of documents collected to conduct this assessment.[306]

Table C-1. Team I Joint Data Requests with Other Teams

Team I Joint Requests with Other Teams

Total Number of Data Requests	55
# Data Meets the Need	54
# Data Submission Pending	1

% Data Meets Need	% Retracted
98.18%	0.00%

Table C-2. Team I Solo Data Requests

Team I Solo Data Requests

Total Number of Data Requests	86
# Data Meets the Need	77
# Request Withdrawn	9
# RR = Partial Fulfillment	5
# RR = Fulfilled as part of different data request	1
# RR = Duplicate Request	1
# RR = No longer needed	1
# RR = VA data not available	1

% Data Meets Need	% Withdrawn
89.53%	10.47%

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[305] Note: Not all requested data was received.

[306] Note: Retracted or withdrawn data requests occurred when data needs were fulfilled by another data request.

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Table C-3. Team I Documents Collected

Team I Documents Collected

Total Number of Documents Collected	690
In the Shared Document Repository	645
Document tagged only to Team I	193
Documents tagged to, including Team I	452
In the Private Team I Area	45

C.2 VHA Revenue Data Requests Detail

C.2.1 Primary Data Requests

1. **Revenue Cycle Key Performance Indicators Reporting**
   a. Monthly CPAC dashboard reports for last 12 months and reports used to monitor progress, productivity, and/or performance for Patient Intake and CPAC functions.
2. **Accounts Receivable Aged Trial Balance Summary (ATB)**
   a. ATB Summary: Totals for accounts receivable balances. Report should separate In house, Unbilled, and Billed AR. Billed AR should be aged in 30-day increments, and including the number of accounts and dollar values by financial class and aging category (date of report should be as of the most recent month end).
3. **Summary Cash Collection Report**
   a. Third party cash collections in total and by payer/financial class for each month over the past 12 months.
4. **Revenue by Payer Report**
   a. Revenue (gross and net charges) in total and by payer/financial class for the past 12 months.
5. **Denials**
   a. Reports for initial denials received across the CPACs for each month over the past 12 months.
   b. Aggregate reports for denial write-offs for each month for the past 12 months, including standard denial adjustment codes and rejection category mapping. Include data for write-off of third-party billable amounts for last 12 months.
6. **Patient Intake Summary Volume**
   a. Summary volume data for the past 12 months for each VAMC for Patient Intake functions provided in percentage of patient totals that are scheduled in advance by VAMC for the last 12 months.
   b. Percentage of patients where pre-registration and insurance verification is currently completed By VAMC for last 12 months.

C.2.2 Secondary Data Requests

1. **Financials**
   a. VHA Financial Statements for the last two fiscal years (FY).
2. **Organization Charts**
   a. Current organization charts including FTE's for Patient Intake functions (Admitting/Registration/Insurance Capture).
   b. Current organization charts including FTE's for Patient Financial Services/Consolidated Patient Account Center (CPAC).
3. **Projects/Future Strategic Plans**
   a. List of all major Patient Intake and Patient Financial Services projects (operational and technology) currently underway or in development.
   b. Copies of proposed or tentatively accepted future strategic plans across the revenue cycle function.
4. **Revenue Cycle Policies and Procedures**
   a. Electronic copies of insurance capture/verification and third-party collection policies and procedures.
5. **Patient Intake Services, Patient Financial Services and Collection Agency/Vendor Reports**
   a. List of existing vendors currently assisting Patient Intake Services and Patient Financial Services, including costs and performance reports. Include eligibility services, billing and follow-up outsourcing, contract payment compliance, etc.
   b. Most recent monthly performance reports from collection agencies and other outside vendors, which perform services as a part of the verification and third-party collection process.
6. **Information Systems**

   Provide name(s) of the following information systems that are currently used at the organization to facilitate insurance verification and third-party collection efforts:
   a. Patient accounting/accounts receivable
   b. Insurance verification
   c. Denial management
   d. Patient management system for admissions/registration
   e. Remittance posting
   f. Scheduling
   g. Pre-billing edit and electronic billing
   h. Account follow-up
7. **Summary Adjustments Report**
   a. Monthly summary level adjustment reports in total and by major payer for the past 12 months.
8. **DNFB & Bill Hold/Edits Reports**
   a. 6 Months prior and most recent month-end Unbilled / Discharged Not Final Billed (DNFB) reports with bill hold reason by CPAC.
   b. Bill hold/bill edit reports, summarized by number and dollar by bill edit or reason from the Patient Accounting system for most recent month end.

    c. Bill hold/bill edit reports, summarized by number and dollar by bill edit or reason from any stand-alone (or bolt-on) bill editing systems utilized for most recent month end.

    d. Standard bill hold length for both inpatient and outpatient accounts.

9. **Patient Financial Services Productivity**

    a. Productivity data for the past 12 months: productivity standards and performance for the third-party collections area.

    b. Any reporting of errors, rejections, and denials detected per month related to patient financial services and Patient Intake errors.

10. **Patient Intake Services**

    a. Policies and procedures around the functions considered part of and reportable to Patient Intake (i.e., scheduling, pre-registration, insurance verification, onsite registration, financial counseling, cashier, information desk, etc.).

11. **Patient Intake Productivity**

    a. Insurance verification productivity data for the past 12 months.

    b. Any reporting of errors, rejections, and denials detected per month related to insurance verification errors.

C.3 Non-VA Care Data Requests Detail

C.3.1 Primary Data Requests

1. **Non-VA Policies and Procedures**

Provide Policies, Procedures and Guidance for Authorization, Processing, and Payment of Non-VA Care claims, to include:

    a. Deadlines for filing claims and appealing claims adjudication decisions.

    b. Reimbursement methodologies allowed (such as Diagnosis Related Groups (DRG), Resource-based relative value scale (RBRVS), Ambulatory Payment Classifications (APC), and Ambulatory Patient Groups (APG)).

    c. Veterans Health Administration (VHA) policies and procedures for defining eligibility to be a Non-VA health care provider.

    d. Rules, edits, policies, procedures, for Veterans Health Administration (VHA) as a secondary or primary payer on Coordination of Benefits (COB), Third Party Liability (TPL), Workers Compensation (WC), etc.

    e. Rules/systems for avoiding duplicate claim payments.

2. **Related Process Documentation**

    a. Flow chart detailing claims payment process including logging of claims, verification of eligibility, authorization, review process, claims edits, payment authorization, and payment date related to Non-VA Care payments.

    b. Data required for Fee Basis Claims System (FBCS) by each Department of Veterans Affairs Medical Center (VAMC) to process a claim (i.e., Veteran ID, provider ID, service, procedure code, revenue code, diagnosis, date of service (DOS), etc.). This request is for a listing of the data elements, not the actual data. This information can include 837 Companion Guide or Billing Manual instructions.

    c. Documentation on requirements imposed on providers when submitting claims such as, filing deadlines, documentation, medical record information required, and authorization and pre-certification requirements (including any authorization decision turnaround time requirements for Veterans Health Administration (VHA)). If this varies across VA, include how this varies.

    d. Documentation on electronic/manual processes used by the Veterans Health Administration (VHA) to monitor payment compliance with regulatory/legal requirements. Also, provide information on the role of Program Integrity Tool in Fraud Waste and Abuse (FWA) and compliance checks.

    e. Documentation/electronic system for tracking high utilizers of Non-VA Care.

3. **Non-VA Key Performance Indicators Reporting**

    a. Management reports on claims payments, timeliness and accuracy by the Department of Veterans Affairs Medical Center (VAMC) for (along with the data sources for the reports):

- Last 12 months on a monthly basis
- Last three years on a yearly basis

4. **Payment Accuracy and Timeliness**

    a. Reports showing claims expense reductions and recoveries on Coordination of Benefits (COB), Third Party Liability (TPL), Workers Compensation (WC), etc. by the Department of Veterans Affairs Medical Center (VAMC) for the last 12 months as a percentage of billed charges and paid amounts.

    b. Any data (e.g., documented processes to determine accuracy, amount of inaccurate payments, internal or external audit information) the Veterans Health Administration (VHA) has related to accuracy of payment to vendors (by the Department of Veterans Affairs Medical Center (VAMC) and claim type), including rates of inaccurate payments based upon paper vs. electronic claims for these timeframes:

- Last 12 months on a monthly basis
- Last three years on a yearly basis

    c. Reports, by claim type, for the last 3 fiscal years (reported annually) on claims being submitted electronically and manually.

    d. Average length of time between date of receipt of claim and date of payment with as granular breakout as possible (e.g., by the Department of Veterans Affairs Medical Center (VAMC), claim type, and electronic versus paper claim) for the la 3 fiscal years (reported annually).

5. **Information Systems**

    a. Descriptions of all systems used in the adjudication of Non-VA claims (e.g., which claims adjudication system is each Department of Veterans Affairs Medical Center (VAMC) using, what COTS products are used during processing (such as McKesson/Bloodhound/iHealth for National Correct Coding Initiative (NCCI) edits or 3M for Diagnostic Related Groups (DRG) assignment).

6. **Interest Penalties**

    a. Number of claims and amount of billed charges, paid amounts and penalties paid to vendors with as granular of breakout as possible (e.g., by the Department of

Veterans Affairs Medical Center (VAMC) and claim type, such as inpatient, outpatient, physician,) for the last 3 fiscal years on an annual basis.

b. Amounts of penalties paid by the Department of Veterans Affairs Medical Center (VAMC) showing penalties paid for claims submitted electronically vs paper with a breakout of billed amounts, reimbursed amounts, penalties, and raw claim counts with counts of claims with penalties.

7. **Denials**

a. Summary level reports of percent of submitted claims paid and percent denied by VAMC (by claim type if possible) for the last 3 fiscal years (monthly or annual reports fine). Categorize denials by reason (service not prior authorized, TPL not present on claim, Veteran ID not on file, provider not on file, service not covered, duplicate check, utilization review issue, etc.) and include the allowed amounts denied by reason code.

8. **Claims Processing Productivity**

Management reports related to claims processing (e.g., edit descriptions for denials in adjudication system) for the last 3 fiscal years on an annual basis by the Department of Veterans Affairs Medical Center (VAMC):

a. Percent of clean claims, total charges and amounts paid on those claims from Non-VA provider paid within 2 weeks of date of service/discharge

b. Percent of clean claims, total charges and amounts paid on those claims from Non-VA provider paid within 30 days of date of service/discharge

c. Percent of clean claims, total charges and amounts paid on those claims from Non-VA provider paid after 365 days of date of service/discharge

d. Percent of clean claims suspended during first pass

e. Percent of clean claims adjudicated within 5, 10, 15, 20, 25, 30, 60, 90, 120, 150, 180 days

f. Percent of clean claims adjudicated automatically[307]

g. Percent of claims where allowed amount equals the contracted amount

C.3.2 Secondary Data Requests

1. **Organization Charts**

Organization charts including Full-Time Equivalent (FTE's) for fee departments processing claims:

a. Number of Staff scanning/entering claims

b. Number of staff correcting/adjusting claims

c. Staff providing Veteran and provider support

2. **Policies, Procedures, and Related Documentation**

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[307]Note: *Clean claim* means one that can be processed without obtaining additional information from the provider of the service or from a third party. It includes a claim with errors originating in a payer's claims system. It does not include a claim from a provider who is under investigation for fraud or abuse, or a claim under review for medical necessity.

a. Any policy and procedures related to creating agreements between the Veterans Health Administration and Non-VA health care providers for the provision of Non-VA health care services and sample copies of regional or national agreements of this nature. This may include:
- Department of Veterans Affairs (VA) – national
- Veterans Integrated Service Network (VISN)
- Department of Veterans Affairs Medical Center(VAMC)-level

b. Any rules regarding credentialing of Non-VA providers.

3. **Information Systems**
   a. Information regarding the electronic sharing of information with Non-VA providers.

4. **Payment Accuracy and Timeliness**
   a. Scrubbed example of typical invoices for each claim form and any non-standard claim information submitted (such as an invoice).
   b. Internal audit results of Non-VA Care for the past 3 fiscal years (e.g., Improper Payments Elimination and Recovery Act (IPERA), Management Quality Assurance Service (MQAS), Compliance and Business Integrity (CBI), External Auditor, etc.) for the last 12 months. Include any monthly reports for the last 3 years and any yearly reports.

5. **Care Authorization**
   a. Data on average, median and percentiles for logging a request for authorization and the decision date on the request for authorization by the Department of Veterans Affairs Medical Center(VAMC), claim type and number of authorization requests approved versus denied for the last 3 fiscal years on an annual basis for Inpatient Care.

6. **Service Level Agreements (SLAs)**
   a. Contractors, if any, utilized for functions related to vendor claim processing (e.g., discovery of TPL data, prior approval of services, etc.). If using contractors, provide copies of the Service Level Agreements (SLA).
   b. Patient Centered Community Care (PC3) Vendor Management information:
   - Patient Centered Community Care (PC3) vendor management (i.e., TriWest and HealthNet), key Service Level Agreements (SLAs) related to claims processing and payment with VA.
   - Other contracts (Choice or local contracts) key Service level agreements (SLAs) related to claims processing and payment.

7. **Projects/Current Improvement Efforts**
   a. Information related to the Non-VA Care Way Forward initiatives that affect claims processing and payment.
   b. Patient Centered Community Care (PC3) Vendor Management information:
   - Anticipated changes to processes and procedures related to Patient Centered Community Care (PC3) vendor management (i.e., TriWest and HealthNet) related to claims processing and payment with VA.
   - Oversight or performance reports (e.g., for claims processing, provider network exit interview findings, audits of vendors).
   - Other documentation communicating billing requirements to network providers (e.g., provider manuals, provider contracts, etc.).

    c. Information regarding any system enhancements and the manner in which they are anticipated to affect claims processing and payment.

    d. New policies around the role of CO (Contracting Officer) and Contracting Officer's Technical Representative (COTRs) in administering provider contracts for Non VA Care.

8. Interest Penalties

    a. Amounts of penalties paid by the Department of Veterans Affairs Medical Center (VAMC) showing penalties paid for claims submitted electronically vs paper with a breakout of billed amounts, reimbursed amounts, penalties, and raw claim counts with counts of claims with penalties.

Appendix D   Standards and Benchmarks

D.1   VA Care: Private-Sector Benchmarks and Related VA Standards

Table D-1. VA Care Benchmarks and Related Standards

Process Area	Private Sector Benchmark	VA Measure	Differences
Insurance Identification	Overall advance insurance verification rate of scheduled patients: >= 98 percent (Source: HFMA).	Insurance Capture Buffer Exception Rate<=10 percent.	VHA does not track insurance verification rate of scheduled patients; however, VA considers ICB exceptions missed identification opportunities.

Process Area	Private Sector Benchmark	VA Measure	Differences
Clinical Documentation	No commercial benchmark available to cite, however, leading commercial practices are to hold clinicians accountable to finalize and submit documentation within 24-48 hours.	VA Clinicians have 7 days to submit their clinical documentation for encounter coding (per interview findings).	VHA report on date of discharge to date of transmission to coding inflates the clinical documentation lag time due to multiple reasons. As such, obtained outpatient billable latency percentage.

Process Area	Private Sector Benchmark	VA Measure	Differences
Coding/Clinical Documentation Quality	No commercial benchmark or leading commercial practices are used to benchmark coding quality and turn-around time.	Denial Inflow Summary displays all denials broken down by Minor Denial Reason Code. Coding quality will be measured by taking Wrong Procedure Code denials as a percent of Total Denials to show the total number of denials that resulted from the wrong procedure code.	N/A
Health Information Management	Inpatient charts coded per coder/per day: 23-26 (Source: HFMA). Outpatient charts coded per coder/per day: 150-230 (Source: HFMA).	Commenting on VA benchmarks for IP turnaround time (7 days), OP turnaround time (14 days), and coding backlog. (Source: HIMS).	Productivity per coder is not available.
Gross Days Revenue Outstanding	HFMA does not publish a gross days in AR metric rather they state a net days in AR metric (55 days).	GDRO Detail Report: (AR Total $ Monthly/ Average Daily Billings for the Previous 3 Months) VA FY14 Target: 43 days. (Source: Power+).	VHA does not track contractual adjustments, bad debt adjustments or the resulting net revenue. VA only tracks gross revenue.
Cash Collections	Cash Collection percent: (Total Cash Collected ($)/Average Monthly Net ($) Revenue) = Cash Collections as percent of Adjusted Net Patient Services Revenue.	Power+ Data - FMS Collections (Total Funds) Report calculates expected and actuals for FMS collections. (Source Power+). Total Cash Collection as a percent of Billed Gross Revenue each month.	Standard will have to be reported as a collections as a percent of gross revenue. VA does not track net revenue like the HFMA standard.

D.2 Non-VA Care: Private-Sector Benchmarks and Related VA Standards

Table D-2. Non-VA Care: Benchmarks and Related Standards

Process Area	Private Sector Benchmark	VA Measure	Differences
Accuracy	≥ 97 percent of claims processed and paid accurately.	Non-VA Care accuracy standard is 98.5 percent.	VHA does not review denied or rejected claims as part of their accuracy review.
Payment to Vendors	96 percent of clean claims are processed within 30 days.	90 percent of ALL claims to be processed within 30 days.	VHA does not track timeliness for "clean" claims.[308]
Interest Payment	0.8 percent of claims included penalties or interest due to late payment.	.03 percent of the claims included penalties or interest due to late payments.	A review of VHA's allocation of interest to claims is being conducted to assess whether interest was applied accordingly.
Mode of Claims Submissions	79 percent of all claims automatically adjudicated.	0 percent of the claims are automatically adjudicated.	Commercial systems created for high rates of auto-adjudication. FBCS created from OCR tool.

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[308]Note: VHA changed timeliness standards for authorized (30 days) and unauthorized (45) claims. However, VHA does not officially designate claims as 'clean or unclean' by using edits. While a change was recently made, VHA's standard is still not comparable to industry standards.

Process Area	Private Sector Benchmark	VA Measure	Differences
Payment	≥96 percent of payments are within 30 days.	90 percent of ALL claims to be processed within 30 days.	In 2014, only 66.9 percent of the claims were processed within 30 days.
Payment to Vendors	98.5 percent of claim lines paid.	~55 percent of claims paid.	Benchmark for claim lines and VHA measure is claims.

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Appendix F   Acronyms

Table F10-1. List of Acronyms

Acronym	Description
AHIP	America's Health Insurance Plans
AHIP	AHIP
AITC	Austin Information Technology Center
ANSI	American National Standards Institute
AR	Accounts Receivable
ASC	Accredited Standards Committee
BI	Business Intelligence
CAC	Computer-Assisted Coding
CAMH	CMS Alliance to Modernize Healthcare
CAQH	CAQH
CBO	Chief Business Office
CBOC	Community Based Outpatient Clinics
CBOPC	CBO Purchased Care
CDI	Clinical Documentation Improvement
CFO	Chief Financial Officer
CMS	Centers for Medicare and Medicaid Services
COTS	Commercial, Off-The Shelf
CPAC	Consolidated Patient Account Centers
CPCPAC	Central Plains Consolidated Patient Account Center
CPRS	Computerized Patient Record System
CPT	Current Procedural Terminology
DMC	Debt Management Center
DME	Durable Medical Equipment
DNFB	Discharged Not Final Billed
DSS	Decision Support System
E&M	Evaluation and Management
ED	Emergency Department
EDI	Electronic Data Interchange
eIV	Electronic Insurance Verification

The views, opinions, and/or findings contained in this report are those of Grant Thornton and should not be construed as an official government position, policy, or decision.

Acronym	Description
EOB	Explanation of Benefits
FBCS	Fee Basis Claims System
FCCPAC	Florida and Caribbean Consolidated Patient Account Center
FMS	Financial Management System
FRT	Facility Revenue Technician
FSC	Financial Services Center
FTE	Full Time Equivalent
FWA	Fraud, Waste and Abuse
GAO	Government Accountability Office
GDRO	Gross Days Revenue Outstanding
HAC	Health Administration Center
HAS	Hospital Administration Services
HEC	Health Eligibility Center
HFMA	Healthcare Financial Management Associations
HIMS	Health Information Management Services
HRC	Health Resources Center
ICB	Insurance Capture Buffer
ICD-10	International Statistical Classification of Diseases and Related Health Problems Version 10
IPERIA	Payment Elimination and Recovery Improvement Act
IRS	Internal Revenue Service
IT	information technology
KPI	Key Performance Indicators
LTC	Long Term Care
MCCF	Medical Care Collections Fund
MAC	Medicare Administrative Contractors
MACPAC	Mid-Atlantic Consolidated Patient Account Center
MAS	Medical Administration Service
MCCF	Medical Care Collections Fund
MSCPAC	Mid-South Consolidated Patient Account Center
NCCPAC	North Central Consolidated Patient Account Center
NECPAC	North East Consolidated Patient Account Center

Acronym	Description
OCR	Optical Character Recognition
OGC	Office of General Counsel
OGF	Other Government Facility
OHI	Other Health Insurance
OIG	Office of Inspector General
OPM	Office of Personnel Management
PAS	Patient Administration Services
PC3	Patient-Centered Community Care
PIT	Program Integrity Tool
PMO	Project Management Office
QIT	Quality Inspector Tool
ROI	Release of Information
SHRM	Society for Human Resources Management
SMART	Specific, Measurable, Achievable, Relevant, and Time Bound
SME	Subject matter experts
SOP	Standard Operating Procedures
SSA	Social Security Administration
TOP	Treasury Offset Program
TPA	Third Party Administrator
USC	United States Code
VA	Department of Veterans Affairs
VACAA	Veterans Access, Choice and Accountability Act
VAMC	VA Medical Centers
VCL	Veterans Choice List
VHA	Veterans Health Administration
VISN	Veterans Integrated Service Network
WCPAC	West Consolidated Patient Account Center

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Prepared by:

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Section 201: Independent Assessment of the Health Care Delivery
Systems and Management Processes of the Department of Veterans
Affairs

Assessment J (Supplies)

September 1, 2015

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Preface

Congress enacted and President Obama signed into law the Veterans Access, Choice, and Accountability Act of 2014 (Public Law 113-146) ("Veterans Choice Act"), as amended by the Department of Veterans Affairs (VA) Expiring Authorities Act of 2014 (Public Law 113-175), to improve access to timely, high-quality health care for Veterans. Under "Title II – Health Care Administrative Matters," Section 201 calls for an Independent Assessment of 12 areas of VA's health care delivery systems and management processes.

VA engaged the Institute of Medicine of the National Academies to prepare an assessment of access standards and engaged the Centers for Medicare & Medicaid Services (CMS) Alliance to Modernize Healthcare (CAMH)[1] to serve as the program integrator and as primary developer of the remaining 11 Veterans Choice Act independent assessments. CAMH subcontracted with Grant Thornton, McKinsey & Company, and the RAND Corporation to conduct 10 independent assessments as specified in Section 201, with MITRE conducting the 11th assessment. Drawing on the results of the 12 assessments, CAMH also produced the Integrated Report in this volume, which contains key findings and recommendations. CAMH is furnishing the complete set of reports to the Secretary of Veterans Affairs, the Committee on Veterans' Affairs of the Senate, the Committee on Veterans' Affairs of the House of Representatives, and the Commission on Care.

The research addressed in this report was conducted by McKinsey & Company, Inc., under a subcontract with The MITRE Corporation.

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[1] The CMS Alliance to Modernize Healthcare (CAMH), sponsored by the Centers for Medicare & Medicaid Services (CMS), is a federally funded research and development center (FFRDC) operated by The MITRE Corporation, a not-for-profit company chartered to work in the public interest. For additional information, see the CMS Alliance to Modernize Healthcare (CAMH) website (http://www.mitre.org/centers/cms-alliances-to-modernize-healthcare/who-we-are/the-camh-difference).

The views, opinions, and/or findings contained in this report are those of the assessment team and should not be construed as an official government position, policy, or decision.

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Executive Summary

BACKGROUND

Title II Section 201 of the Veterans Choice Act required an independent assessment of the purchasing, distribution, and use of pharmaceuticals, medical and surgical supplies, medical devices, and health care related services by VA and VHA.

In line with the language of the legislation, pharmaceuticals, medical and surgical supplies (hereafter referred to as clinical supplies), and medical devices are considered within the scope of this assessment. In addition, services directly related to the purchasing, distribution, and use of these products are also considered, such as third party distributors and inventory management services. However, medical equipment (capital, reusable, or durable) was not included as its evaluation was not mandated in the legislation.

To complete this report, the assessment team visited eight VA Medical Centers (VAMCs), two Consolidated Mail Order Pharmacies (CMOPs), and three contracting organizations; interviewed 185 VA/VHA personnel and 20 non-VA subject matter experts; analyzed large sets of purchase history and other data from 12 different sources; and reviewed more than 24 prior reports. The assessment's findings and recommendations are summarized below.

FINDINGS

General findings

As a general characterization, VA's supply chain performs well for pharmaceuticals but less so for clinical supplies and medical devices. VA pays relatively low prices for drugs, it has a robust and efficient pharmaceutical distribution network that achieves high Veteran satisfaction scores, and has mechanisms in place to ensure appropriate utilization of medications that have strong buy-in from clinicians and pharmacists. However, the performance of VA's supply chain related to clinical supplies, medical devices, and related services is poor when compared with VA's pharmacy organization or to best practices in leading hospital systems. Its contracting processes are bureaucratic and slow, which can delay Veterans' access to care. Purchasing processes are cumbersome, which has driven VHA staff to workarounds and exacerbates the variation in prices VA pays for products. Utilization is difficult to measure or manage given lack of data, which likely leads to significant avoidable expense for the VA.

A number of factors inherent to these product categories may have contributed to the difference in VA's current supply chain performance, including:

- Product and supplier complexity: Pharmaceuticals is a well-defined and narrow product category for which a limited set of highly regulated suppliers exist. Clinical supplies is a diverse category that typically has more suppliers for a given clinical supply than there are for a given drug. This impacts the ease of supplier management and product selection.

- Access to clinical evidence: Pharmaceuticals must go through rigorous clinical trials prior to regulatory approval and clinical evidence often exists to compare drug effectiveness. Medical devices also go through rigorous testing but there are more feature variations and less comparative effectiveness data is typically available. Data on the efficacy or

safety of clinical supplies is limited. This impacts the organization's ability to make fact-based procurement and utilization decisions.

- Industry-wide data standardization: The naming and numbering of pharmaceuticals is standardized nationally. No such system exists for clinical supplies or medical devices, which makes it hard to know whether two products are the same and to compare disparate data sets.

Several internally-driven factors have also led to the performance disparity seen between the supply chain management of pharmaceuticals relative to the other product categories within scope. The factors observed and described in this report are broad and relate to differences in organizational structure and alignment, processes and the degree of process standardization, IT systems and their interoperability, and data quality and management.

While we have contrasted the performance of what is, in effect, two supply chains, nuances certainly underlie our broad characterization. For example, VA does not consistently buy pharmaceuticals at the lowest price available and Veterans' transitions into VA from active military service could be improved. Conversely, the Denver Acquisition and Logistics Center (DALC) is a bright spot within VA's supply chain management related to clinical supplies and medical devices, as are several other pockets of innovation.

However, because the strengths and opportunities related to pharmaceuticals are quite distinct from those related to the other product categories within scope, we have structured this report in two parts: (1) Pharmaceuticals and related services, and (2) clinical supplies, medical devices and related services. Specific findings are outlined below and described in more detail in the body of this report.

Findings related to pharmaceuticals and related services

Overall, VA performs well on the key dimensions of purchasing, distribution, and use of pharmaceuticals. Across VA, the Pharmacy Benefits Management (PBM) organization's two-way cascade of committees – from the national PBM organization to Veterans Integrated Service Networks (VISNs) to VA Medical Centers (VAMCs) and vice versa – provides an effective mechanism to escalate insights and innovation from the field, develop policy centrally, and build buy-in quickly across the country to facilitate implementation. Within VAMCs, clinical pharmacists are well integrated into multidisciplinary care teams and are highly valued by physicians and Veterans.

Key findings include the following:

- **VA pays relatively low prices for pharmaceuticals overall but several factors limit its ability to consistently access the lowest price available:** Through federally mandated price concessions and national contracting, VA has secured relatively low pricing overall on the pharmaceuticals it buys. However, pharmaceuticals are not always bought at the lowest price available to VA for a number of reasons, including contract lapses, national drug shortages, and requirements to buy pharmaceuticals from countries that are compliant with the Trade Agreements Act (TAA).

- **VA's distribution of pharmaceuticals is efficient and effective:** VA's pharmaceutical prime vendor (PPV) is a distributor that sources pharmaceuticals from suppliers and delivers them to VA facilities. The PPV provides a number of additional services that support VA's purchasing, distribution, and use of pharmaceuticals, including web-based purchasing, regular data reports, and inventory management services. The PPV model ensures efficient delivery of pharmaceuticals to facilities and CMOPs and supports a just-in-time inventory management approach. The PPV model received unanimous support from the pharmacists, pharmacy managers, and CMOP leaders interviewed during this assessment.

  VA's seven CMOPs deliver 80 percent of VA's outpatient prescriptions directly to Veterans' homes, and they do so efficiently and cost effectively at $1.53 per prescription (VA, 2015b; VA, 2015c). The CMOP program also achieved the highest overall customer satisfaction scores of any mail order pharmacy in the country in a recent J.D. Power customer survey (871 points out of a possible 1000) (J.D. Power, 2014).

  However, CMOP facilities have opportunities to increase automation of packing and shipping to improve throughput and quality, and to optimize the network's footprint to improve utilization of fixed assets and reduce costs.

- **VA has developed effective mechanisms to drive appropriate utilization such as its formulary, clinical use guidelines, and involvement of clinical pharmacists:** All physicians and pharmacists interviewed believed the VA formulary helps guide good clinical decision-making around prescribing, and they expressed strong buy-in to the formulary decision-making process.

  Standardized processes are also in place to enable off-formulary prescribing, which includes electronic submission of clinical justification by physicians and review by clinical pharmacists. Around 80 percent of such off-formulary requests are approved (VA, FY2014b). Currently, five percent of outpatient prescriptions dispensed by VA are for drugs that are not on the VA formulary (VA, 2010-2014b). Inpatient data was not available. In summary, VA's formulary process is sufficiently flexible to give Veterans access to medications based on clinical need regardless of a medication's formulary status.

  VA does not measure the use of generic medications in a way that is easily comparable with industry benchmarks (typically the proportion of generic prescriptions dispensed of all prescriptions). However, VA purchases 97 percent of its drugs (by volume) as a generic when a generic exists (VA, 2010-2014a) – similar to the health care leader Kaiser Permanente which claims a 99 percent generic prescription dispensing rate when a generic exists (Kaiser Permanente, 2015). This helps deliver high quality, FDA-approved medications to Veterans while ensuring efficient use of taxpayers' dollars. However, there are pockets of opportunity to use a higher share of generics within certain drug classes in some geographies.

- **VA has implemented policies and processes to improve patient transitions from the Department of Defense (DoD) to VHA but challenges remain:** Several prior reports have highlighted challenges related to Veterans' transitions directly from DoD care to VA care, particularly related to medication continuity.

VA has taken steps to improve this process in recent years, including the release and implementation of a January 2015 directive. However, three key challenges remain:

- o Poor access to primary care: The most recent studies report that new VA patients wait on average 40 days to see a primary care physician (VA, 2014c) and the average time between servicemember discharge date and first VA appointment is 81 days (GAO, 2012). Many prescriptions are written for less than the 81 day average as evidenced by 54 percent of VA's own prescriptions being for 30 days or less (VA, 2014d). Therefore, patients who have a 30-day supply could run out of medication while they are waiting to see a VA physician. While policies exist to address patients running out of medications (GAO, 2012; Staff interviews, 2015), access improvements may improve transitions. Access to physicians is beyond the scope of this assessment but is covered in Assessment B and scheduling in Assessment E.

- o Limited mobility of health information between DoD and VA: In line with findings from previous reports, physicians and administrators interviewed during this assessment consistently cited poor access to DoD medical records and medication history as the biggest challenge associated with transitions from DoD. Without access to previous medical records, they reported challenges understanding why patients were taking certain medications. Access to such information can be critical to ensure Veterans continue to receive their medication. For example, a physician may need a patient's medical history to be comfortable prescribing a medication such as a high risk or high potency drug, or to prescribe an off-formulary medication.

- o Differences between DoD and VA formularies: DoD's and VA's formularies and formulary processes are different. DoD has a three-tiered formulary, of which the third tier is considered non-formulary and not stocked on military bases. Instead, these non-preferred medications are only available through community pharmacies or mail order, and a large co-pay applies. All FDA-approved medications, until reviewed, are required by law to be placed in the second tier. VA has one national formulary and no tiers, and all medications are provided through VA pharmacies or CMOPs. However, both systems have mechanisms to provide access to off-formulary medications if clinically indicated. Media reports have raised risks regarding medication switches during transitions. While accurately understanding the rate of medication switches driven by formulary differences would require a prospective study of transitioning servicemembers (which is beyond the scope of this report), an internal VHA PBM audit of 2,000 new patients showed approximately three percent of patients transitioning from DoD within a year of discharge (21 of 759) had a medication switched by VA physicians without documented clinical justification (VHA Pharmacy Benefits Management, 2015a). Deeper analysis of that three percent was not available, but several factors could have driven the switch, including undocumented clinical reasons, a patient's request to try a new medication, or a physician's desire to adhere to VA's formulary. The assessment team is not aware of any work underway to align the formularies at this time.

- **VA has implemented programs to reduce utilization of high risk medications and early results are promising**: For example, VA's opioid reduction program has cut the share of

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patients prescribed opiates by almost three percentage points since 2012 (VHA Pharmacy Benefits Management, 2015b). However, there are opportunities to improve the current measurement approach by taking into account the type, strength, and dosage frequency of opioids dispensed.

Findings related to clinical supplies, medical devices, and related services

In contrast to the management of pharmaceuticals and to best practice in the industry, the rest of VA's medical supply chain faces major performance challenges. Specific findings include the following:

- **The organizational structure of the VA's supply chain enterprise is unduly complex and duplicative:** VA and VHA both contain organizations that play a role in the management of VA's medical supply chain. VA's Office of Acquisition, Logistics, and Construction (OALC) is subdivided into two organizations – the Office of Acquisition and Logistics (OAL) and the Office of Acquisition Operations (OAO). VHA's medical supply chain consists of three organizations – the Procurement and Logistics Organization (PLO) that is responsible for clinical supplies, the Prosthetics and Sensory Aids Service (PSAS) that is responsible for medical devices, and the Pharmacy Benefits Management (PBM) organization that is responsible for pharmaceuticals. These three organizations are responsible for additional product categories that are outside the scope of this assessment.

  Within PLO, the procurement and logistical management of clinical supplies are managed by two separate groups – the Office of Procurement and the Office of Logistics respectively – and the reporting structure for each group is different. Procurement personnel report through VHA's NCOs and SAOs to the VHA's national Office of Procurement. In contrast, facility-based and regional logistics personnel do not report up to VHA's national Office of Logistics. Instead, they report into their local VAMC or VISN Director respectively.

  Together, VA and VHA have 28 entities involved in aspects of contracting in some way. There are 4 contracting entities within VA – the Strategic Acquisition Center (SAC) and the Technology Acquisition Center (TAC) that sit within OAO, and the National Acquisition Center (NAC) and Denver Acquisition and Logistics Center (DALC) that sit within OAL. There are 24 contracting entities within VHA for the medical supply chain – 21 Network Contracting Offices (NCOs) that establish contracts for each VISN and three Service Area Organizations (SAOs) that establish contracts on behalf of multiple VISNs. The SAOs are geographically aligned to the western, central, and eastern regions of the country.

  The assessment team's analysis showed that there are several areas of overlap between VA and VHA overall, between national and regional contracting organizations, and between the four VA-level contracting organizations, particularly the NAC and SAC. Senior leaders in VA's and VHA's supply chain organizations who were interviewed unanimously said that the current organizational structure is too complex and should be simplified. Several interviewees described tension between some of the groups involved in supply chain management. Others described a vacuum of ownership and accountability because of the organization's siloed and fragmented structure as well as lack of clarity on roles and responsibilities.

- **VA's current IT systems, data systems, and analytical capabilities related to finance, inventory management, and purchasing are major impediments to effective supply chain management:** VA's IT and data systems in these areas are antiquated, not integrated, and do not meet the needs of a modern health system. Many health care systems today operate with or are adopting integrated Enterprise Resource Planning (ERP) systems, which give them end-to-end visibility into the operational and financial performance of their supply chains. This enables more effective budgeting, forecasting, and inventory management, as well as automation of key supply chain processes such as ordering. Best in class health care systems build advanced business intelligence capabilities on centralized and standardized data systems, allowing them to perform sophisticated analysis on spend and utilization.

  In contrast, VA has at least 130 separate and independently maintained instances of Veteran Information System Technology Architecture (VistA) (VA, 2015e), the underlying architecture for its clinical, procurement, and inventory management systems. Each has its own product nomenclature and numbering system for the items in its database, and because entries are mainly free text, data from each instance can be quite different. Therefore cross-site comparisons or regional/national roll-ups are almost impossible. This situation is a major impediment to effective management of VA's medical supply chain.

- **The performance of VA's contracting organization does not meet customers' expectations, so frontline staff have developed workarounds:** Ninety one of 122 interviewees we spoke to regarding contracting for clinical supplies and medical devices, including contracting leadership, expressed concerns about the proliferation of VA contracting organizations or their ability to collectively meet performance needs of the organization. When the assessment team asked clinicians, logistics staff, and facility administrators to identify three areas they would most like to improve, speed and responsiveness of contracting was almost always one of their recommendations.

  Our analysis confirmed issues with the responsiveness of contracting. For example, at one facility, if a request was submitted to contracting that was incomplete or inaccurate, it took on average 21-39 days from the date of initial submission to receive the first response from contracting requesting, for example, additional information or paperwork (VAMC site visit, 2015).

  VHA customer surveys show that communication from contracting is another area for improvement. Of all the dimensions assessed in surveys of contracting users (included on all email communications by contracting), communication received from contracting officials scored lowest by customers (3.3 average NCO score out of 5, ranging from 2.7 to 4.0 for overall communication effectiveness and 2.8 to 3.8 for status updates) (VHA, 2015a). Several interviewees recommended that VA provide more clarity on the status of a contracting request to help them plan and schedule care.

  Conversely, individuals in contracting believed that VAMC staff were responsible for some of the delays in the contracting process. They reported that requests submitted to them from VAMCs were often incomplete or unclear and that facilities were poor at forecasting demand for items, leading to unpredictable peaks in demand for contracting services that exceeded their capacity. PLO and facilities are seeking to address these challenges by

placing Contract Liaisons in facilities to better support Contracting Officer Representatives throughout the process (VHA Assistant Deputy Under Secretary for Health Administrative Operations, 2014).

As a result of the ongoing contracting challenges, frontline staff reported that they had developed two interrelated workarounds to avoid using contracting. First, they try to buy the majority of their clinical supplies and devices on VA-issued purchase cards because this gives them more autonomy to choose the products they want and to buy through their preferred channel (for example, directly from a manufacturer or through a local distributor). Second, they try to ensure that any orders placed (regardless of payment mechanism) are below the $3,000 micro purchase threshold that would trigger involvement of contracting. As a result, approximately 98 percent of VA's purchases of clinical supplies are made on purchase cards, which accounts for around 75 percent of VA's spend on that category (VA, FY2014a). Ninety-seven percent of VA's clinical supplies and prosthetics purchase orders are below $3,000, although this only accounts for 59 percent of the total spend for those categories (VA, FY2014a; VA, FY2014c). Data also confirmed that a disproportionately high number (two to three times the expected number) of purchase orders for clinical supplies are within $500 of the micro-purchase threshold ($2,500 to 3,000) (VA, FY2014a).

Use of purchase cards is encouraged in Federal Acquisition Regulations (FAR), partly because their use reduces the need for contracting to make multiple small-value awards. However, their use limits VA's ability to ensure compliance with government contracting regulations because purchase card holders are responsible for identifying appropriately priced goods and contracted vendors, and VA's current systems do not support these tasks with integrated catalogs and controls. This likely leads to higher than necessary prices paid for goods.

Purchase card purchasing processes are also inefficient when compared with modern alternatives, such as electronic order transmission and funds transfer. Purchase card holders are required to maintain appropriate documentation and to reconcile purchases. Electronic ordering and payment can automate reconciliations, reduce errors, and also enable automatic reordering based on utilization forecasting.

- **VA has not taken full advantage of its scale or potential for product standardization to achieve optimal pricing and efficiency:** Unlike pharmaceuticals, no external unit price benchmarks exist for medical and surgical supplies, medical devices, and related services. Therefore, as a proxy, the assessment team evaluated variation in prices paid for identical items across sites and the share of items bought on government contracts, which typically provide access to prices that are significantly below open market prices.

Analysis of unit prices for facilities across two VISNs showed significant variation in price paid for identical items (VA, FY2014a). On average, the highest price paid for an identical item was 1.3 times the lowest price. However, in some cases, the difference in prices was much greater. For example, the highest price paid for a commonly used disposable blood pressure cuff was more than twice the lowest price.

In addition, contracting compliance analysis showed significant opportunity for improvement. Analysis of purchase order data showed that 38 percent of purchases were made on a government contract, 27 percent were made at open market prices, and 34 percent did not have a source type specified (VA, FY2015). Private sector organizations typically aim to buy 80-90 percent of their clinical supplies and medical devices on some type of negotiated contract (High performing health system interviews, 2015).

Interviews and observations revealed that there are two primary reasons for VA's relatively high share of open market purchasing. First, in contrast to pharmaceutical purchasing, VA's supply purchasing systems are not integrated with contract or pricing catalogs. Therefore, the purchasing process relies on buyers (often clinical staff) to research whether an item is on contract and through which contract a purchase should be made. Because of that complexity, several buyers reported that they bypass this step and buy products through the channel that is most familiar and convenient, for example, by replicating previous orders to their usual supplier, despite changes that may have occurred (new contracts and pricing arrangements, for example). Second, VA has limited ability to monitor and drive compliance with the contract hierarchy because the required data is not captured electronically. In fact, over 60 percent of all clinical supply items do not have a contract number listed (VA, FY2014a).

In addition, despite numerous reports highlighting the need for greater product standardization, VA has achieved limited product standardization to date. This has led to a fragmented supplier network and a high number of items under management by the logistics organization.

Finally, VA does not have a mechanism to identify products for which central contracts should be established. High performing organizations routinely analyze purchase order data and partner with clinical teams to identify products that should be prioritized for contract negotiation or renegotiation, as well as for utilization management. These integrated teams write comprehensive requirements that meet clinicians' needs and have an appropriate supply chain strategy. In some cases, VA standardized national contracts have missed important end user input that complicates use.

- **Inventory management process, practices, and systems are neither integrated nor optimized:** VA has contracts with six Medical/Surgical Prime Vendors (MSPVs) – distribution companies that provide services to support the purchasing, distribution, and use of clinical supplies and medical devices. Each MSPV covers a different part of the country. In addition to distribution, MSPVs have the capability to provide a range of additional services to support VA's management of its inventory such as electronic ordering platforms, warehousing services, just-in-time inventory management services (for example, low unit of measure distribution), and data analytics.

To date, VA has taken limited advantage of these services. For example, only one VISN has partnered with a MSPV to support a lean, low unit of measure inventory model.

VA's fragmented inventory management systems and processes also create challenges. VA's current inventory management does not have a feedback loop that links inventory to product utilization, contracting, ordering, and vice versa. This prevents optimal utilization

of the Medical/Surgical Prime Vendor (MSPV) program and missed opportunities to establish more effective volume-based national or regional contracts. It also leads to peaks and troughs in demand for contracting services, which can overwhelm contracting's capacity.

- **VA struggles to attract, hire, and retain high caliber supply chain talent:** There was limited central data on vacancies in the logistics organization. However, interviewees estimated that 20-30 percent of positions in logistics were currently unfilled, which required staff to incur overtime to ensure timely delivery and distribution of supplies. As an example, as of May 12th 2015, VA had 563 open positions for medical supply aides and technicians, which represents around 20 percent of all employees of that type or almost four vacancies per facility on average (VA, 2014e; VHA, 2015d).

  Supply chain leaders described three factors that could have contributed to their recruitment and retention challenges. First, supply chain leaders perceive that the recent downgrade of several supply chain positions has impacted morale and has made some positions less attractive for potential recruits. Second, sixty percent of supply chain and contracting interviewees also expressed concerns about the time it takes HR to fill open positions. They cited long lead times and a small eligible applicant pool as the primary drivers. It is beyond the scope of this report to evaluate HR policies and practices. However, VA recruiting regulations do preferentially favor Veteran and internal hires, which can restrict VA's access to a potentially large pool of talent that does not fulfill those criteria. Third, logistics leaders reported a lack of opportunities for career progression. They gave several examples of high performing individuals who had left the supply chain organization to take a non-supply-chain VA position at a higher grade.

  Experts interviewed during this assessment said that competition for supply chain talent in health care is higher now than in the past and organizations are paying more to attract and retain the highest performers (High performing health system interviews, 2015). This may be contributing to VA's recruitment and retention challenges.

- **There are pockets of good performance and innovation in VA that could be replicated across its supply chain:** The Denver Acquisition and Logistics Center (DALC) is a bright spot within VA's supply chain organization in its acquisition and distribution of select devices such as hearing aids to Veterans. It has developed an integrated operating model that brings together clinicians, contracting, finance, logistics, and program management. That integrated team makes decisions around product and supplier selection based on a holistic view of what is best for Veterans and for VA.

  In addition, VA medical centers and VISNs have a degree of autonomy to test and pilot new processes, management approaches, and technologies. Several innovations were observed during this assessment that could be scaled across VA to improve service to Veterans.

RECOMMENDATIONS FOR CONSIDERATION

Based on these findings, the assessment team believes VA should consider the following recommendations. The body of the report provides additional details that would support implementation of the recommendations below.

Recommendations related to pharmaceuticals and related services

- **Establish mechanisms to ensure VA secures a reliable supply of pharmaceuticals and accesses the lowest possible pricing more consistently**
  - Modernize VA Acquisition Regulations (VAAR) to enable access to lower priced commercial sources when possible
  - Identify pharmaceuticals at highest risk of shortages and price spikes, and develop specific strategies to limit impact
  - Improve lifecycle management of contracts to prevent lapses
- **Continue driving efficiency through VA's CMOP network**
  - Drive more volume through CMOPs, particularly for prescription refills
  - Continue to automate processes in the CMOPs
  - Evaluate consolidation of CMOPs to drive efficiency and higher utilization
- **Develop more robust mechanisms to improve the transition of patients from the Department of Defense to VA care**
  - Improve access to primary care for transitioning Veterans as per Assessment B and Assessment E
  - Improve sharing of medical records and medication history between DoD and VA and make it a strategic priority (see Assessment H)
  - Explore opportunities to align or integrate formularies taking into account clinical evidence and economic impact
  - Develop drug-class-specific guidance for medication changes related to transitions
  - Develop mechanisms to track transitioning DoD servicemembers
  - Improve communication with Veterans about their medications during transitions
- **Build sophisticated approaches to drive appropriate utilization of pharmaceuticals**
  - Incorporate evidence-based prescribing guidelines into clinical protocols and pathways, building upon recommendations in Assessment F
  - Invest in IT and analytic capabilities to support outcomes-based data analysis
  - Drive appropriate data interpretation and utilization through peer review
  - Build utilization rules into prescribing system to reduce inappropriate use

Recommendations related to clinical supplies, medical devices, and related services

- **Transform and consolidate VA's entire medical supply chain organization**
  - Rationalize the organizational structure by consolidating entities into one integrated supply chain organization that manages all VA contracting and logistical management of clinical supplies and medical devices
  - Establish robust performance management of supply and device procurement that is focused on Veteran outcomes
  - Develop deep category-level expertise within the organization

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- **Improve key enablers required to support the organizational transformation, including IT systems, data standardization, and talent management**
  - o Update or replace supply chain IT systems to make them fit for purpose
  - o Standardize supply chain data and overlay user-friendly interfaces that enable robust and timely decision-making
  - o Revise VA's approach to talent management
- **Streamline, standardize, and integrate key supply chain management processes**
  - o Expedite product selection and standardization in key product categories
  - o Rationalize contracting requirements wherever possible and provide VAMC-level staff with access to contracting status
  - o Standardize and simplify purchasing processes by automating wherever possible, linking inventory management systems to ordering systems, and driving greater use of electronic order entry
  - o Systematically identify, collect data from, and propagate innovations across VA

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The views, opinions, and/or findings contained in this report are those of the assessment team and should not be construed as an official government position, policy, or decision.

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1   Introduction

1.1 Background, Purpose, and Scope

The Veterans Access, Choice, and Accountability Act of 2014 was signed into law by President Obama in 2014 in response to emerging issues related to delivering care at the Department of Veterans Affairs (VA) facilities. In addition to authorizing non-VA care for Veterans, it also mandated an independent assessment of twelve areas of the VA's delivery of health care. Assessment J, identified under Title II – Health Care Administrative Matters, Section 201, outlines a structured assessment of the purchasing, distribution and use of pharmaceuticals, medical and surgical supplies, medical devices and health care related services by VA including the following:

- The prices paid for, standardization of, and VA's use of the following:
  - o Pharmaceuticals
  - o Medical and surgical supplies
  - o Medical devices
- VA's use of group purchasing arrangements to purchase pharmaceuticals, medical and surgical supplies, medical devices, and health care related services (defined as services that are directly related to the purchasing, distribution, and use of pharmaceuticals, medical supplies, surgical supplies, and medical devices).
- VA's strategy and systems to distribute pharmaceuticals, medical and surgical supplies, medical devices, and health care related services to Veterans Integrated Service Networks (VISNs) and medical facilities of the VA.

The purpose of this assessment is to identify evidence-based findings and develop actionable recommendations that will, if implemented, improve the quality, efficiency, and effectiveness of the VA's purchasing, distribution, and use of pharmaceuticals, medical and surgical supplies (hereafter referred to collectively as clinical supplies), medical devices, and health care related services.

The scope of Assessment J, as outlined in the Choice Act legislation, includes four major medical product categories: pharmaceuticals, clinical supplies, medical devices, and health care-related services. The definition of each category and topics addressed by this assessment are outlined below in Table 1-1. For medical devices, the scope was based on the FDA definition of regulated medical devices, but excludes capital equipment such as MRI and surgical robots, and durable medical equipment such as crutches and wheel chairs. These equipment are generally considered by the health care industry as different than medical devices because of their lifecycles and management approaches. As these equipment were not in scope for this Assessment, it may be in the interest of VA and the Commission on Care to initiate an additional assessment of these areas.

Many of the challenges we and other assessment teams have observed are interrelated and highly complex. Implementing solutions to long-standing challenges will require collaboration among Congress and the Executive Branch, VA leadership (VACO, VISN, and VAMC) and staff, as

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well as the unions and external stakeholders. We see this assessment as an opportunity for improvement, to be achieved by all stakeholders through a combination of local, regional, and national action. Addressing these challenges will require sustained commitment as a part of an integrated transformation effort for the system as a whole.

Table 1-1. Definition of Categories Covered in Assessment J

Categories	Definition
Pharmaceuticals	(1) Articles recognized in the official United States Pharmacopoeia, official Homoeopathic Pharmacopoeia of the United States, or official National Formulary, or any supplement to any of the above (2) Articles intended for use in the diagnosis, cure, mitigation, treatment, or prevention of disease in man or other animals (3) Articles (other than food) intended to affect the structure or any function of the body of man or other animals (4) Articles intended for use as a component of any articles specified in clause (1), (2), or (3)
Clinical supplies	Defined as supplies that: (1) Are usually disposable in nature or require refurbishment or sterilization after use (2) Are primarily and customarily used to serve a medical purpose (3) Generally are not useful to a person in the absence of illness or injury
Medical devices	(1) Items that are intended for use in the diagnosis of disease or other conditions, or in the cure, mitigation, treatment, or prevention of disease (2) Items that are intended to affect the structure or any function of the body, and which: (a) Do not achieve its primary intended purposes through chemical action within or on the body (b) Are not dependent upon being metabolized for the achievement of its primary intended purposes (3) Items funded through VA supply budgets and directly interface with or are implanted into a patient's body and would only be used by those to whom they were prescribed
Health care-related services	Defined as services that are directly related to the purchasing, distribution, and use of pharmaceuticals, medical supplies, surgical supplies, and medical devices

Table 1-2. Assessment Cross-references to Legislation

Legislation	Cross-references
The prices paid for, standardization of, and VA's use of pharmaceuticals	Section 3.2.1, 3.2.3
The prices paid for, standardization of, and VA's use of medical and surgical supplies	Section 4.2.4
The prices paid for, standardization of, and VA's use of medical devices	Section 4.2.4
VA's use of group purchasing arrangements to purchase pharmaceuticals, medical and surgical supplies, medical devices, and health care related services	Section 3.2.1, 4.1.1, 4.2.1, 4.2.4
VA's strategy and systems to distribute pharmaceuticals, medical and surgical supplies, medical devices, and health care related services to Veterans Integrated Service Networks (VISNs) and medical facilities of the VA	Section 3.1.1, 3.2.2, 4.1.1, 4.2.2, 4.2.5

1.2 Context

1.2.1 Organization & Key Statistics

VA is one of the largest integrated health care systems in the world. Its more than 150 VA Medical Centers (VAMCs) are organized into 21 Veterans Integrated Service Networks (VISNs). Together, they provide care to over 6 million unique patients. To support the delivery of care to this population, VA operates a supply network that procures and distributes approximately $9 billion in supplies and materials. VA's supply spend includes ~$4.9 billion for drugs and medicines, ~$1.4 billion for medical and dental supplies, and ~$2 billion for prosthetic appliances and other patient-related services (see detail in Figure 1-1) (VA, 2014a; VA, 2015a). In 2014, VA's total spend on pharmaceuticals, clinical supplies, surgical supplies, and medical devices represented approximately 5 percent of the total VA budget and 15 percent of the budget allocated to medical care (VA, 2014b). VA estimates that its medical supply spend will increase by approximately 7.4 percent between 2014 and 2015 compared to an overall decrease of 3.5 percent in spend for the entire VA organization.

**Figure 1-1. Summary of VA's Actual and Budgeted Expenditures
for Supplies and Materials (FY2013-15)**

$ Billions
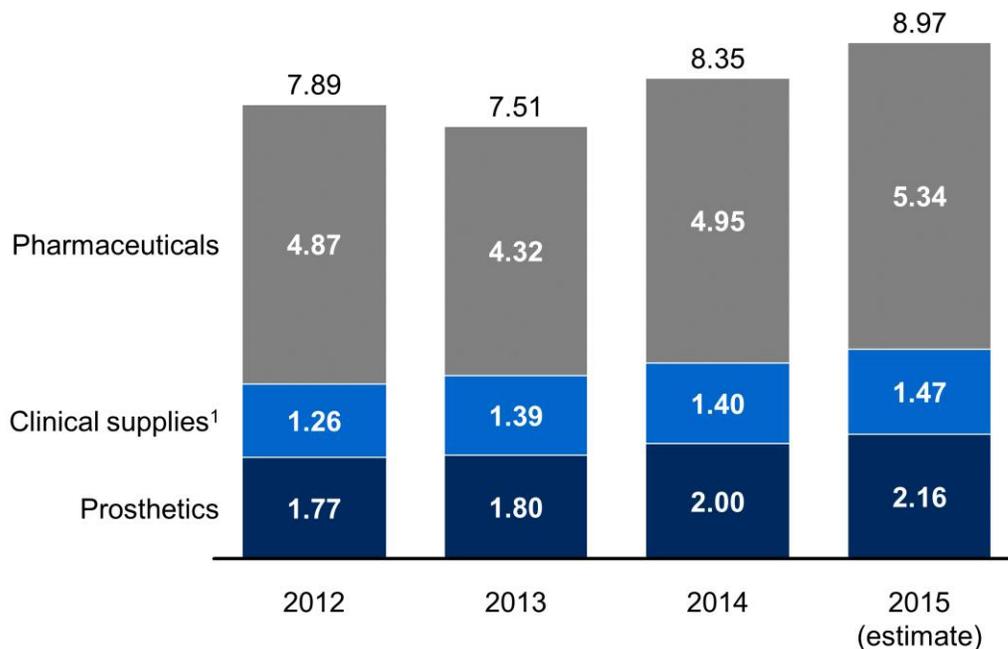
1 Includes dental

SOURCE: VA. (2014a). Congressional budget submission. Volume II - Medical programs and information technology
programs. Data represents Object code 26 (Supplies) only.

VA manages its pharmaceutical, medical supply, and medical device spend through four organizations (Figure 1-2):

- **VA Office of Acquisition, Logistics, and Construction** (OALC). The OALC provides operational support and oversight for the VA's procurement and logistics functions. Key activities include strategic contracting, setting department-wide policy, and ensuring compliance with other Federal partners.

- **VHA Pharmaceutical Benefits Management Organization** (PBM). The PBM organization coordinates the VA formulary management process through collaboration with the Medical Advisory Panel (MAP) and the VISN Pharmacist Executives Committee. It also is responsible for standardizing drug benefits to reduce variation in cost and utilization.

- **VHA Procurement and Logistics Organization** (PLO). The PLO is responsible for all purchases and distribution of clinical supplies, medical device purchases greater than $3,000, and health care-related services. It is also responsible for the standardization of supply utilization through contracting and monitoring logistics data. Contracting staff are organized into 21 Network Contracting Offices (NCOs) aligned with each VISN, and report to three Service Area Organizations (SAOs) aligned by geography (East, Central, and West). Field logistics staff report directly to facility leadership and not to PLO. Additional information on supply chain structure can be found in Section 4.1.1 and Figure 4-2.

- **VHA Prosthetics and Sensory Aids Service** (PSAS). PSAS provides a range of prosthetic aids, medical devices, medical equipment, and services to Veterans. Staff are responsible

for the procurement of relevant items less than $3,000, inventory management, distribution, and coordination of care related to these items. Field prosthetic staff may directly report to either facility leadership or to the VISN Prosthetic Representative.

Figure 1-2. Reporting Structure of Supply Chain Offices within VA
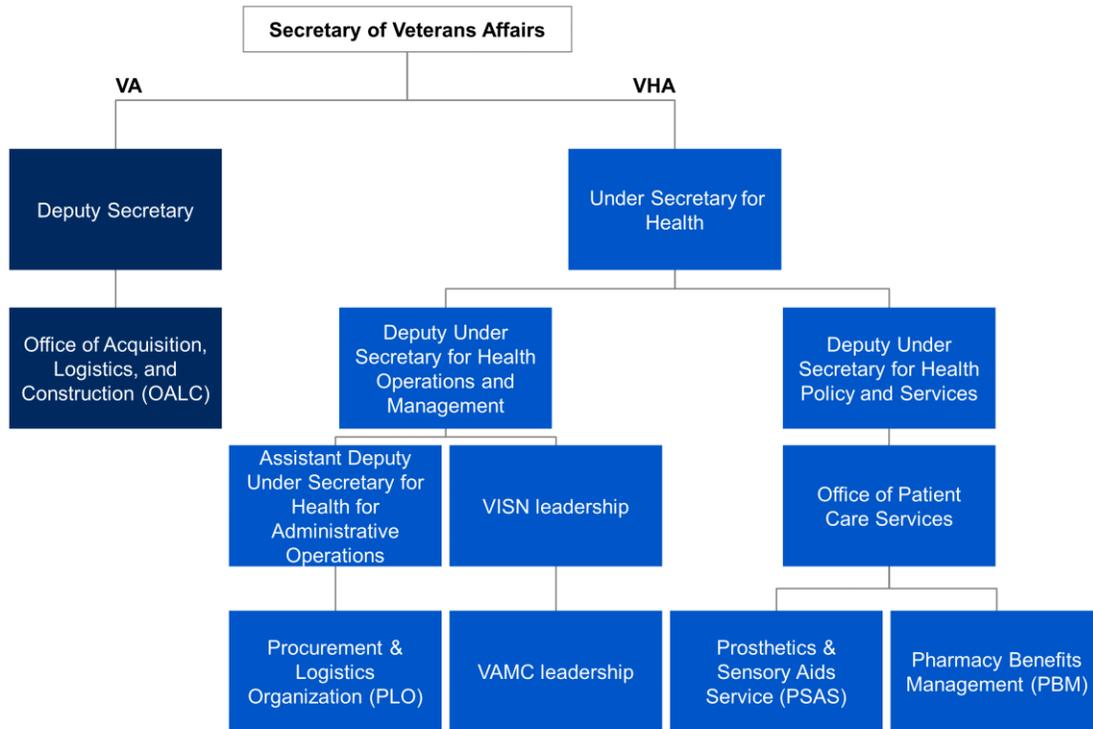
SOURCE: VA. (2014f). *VA Functional Organization Manual v2.0a.* Retrieved from Organizations — U.S. Department of Veterans Affairs: http://www.va.gov/landing_organizations.htm

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2   Methodology

The assessment was conducted using both quantitative data collected from key organizations on the purchasing, distribution, and use of relevant supplies, and a number of qualitative interviews with field staff during site visits and with central office leadership. The team responsible for Assessment J visited 13 sites – eight VA Medical Centers (VAMCs), two Consolidated Mail Order Pharmacies (CMOPs), three acquisition / distribution / contracting centers, and spoke with more than 185 staff. Additional interviews with industry experts and supply chain leaders in best in class health care systems were also conducted. Three high performing health systems that were nationally recognized for care and have demonstrated leadership in sourcing and/or supply chain management were interviewed. The team collected and analyzed large data sets from more than 12 sources.

2.1   Data Sources

Data was collected from departments and individuals across the VA system (for example, at national, VISN, and VAMC levels). Throughout the data collection process, VA teams provided quick and comprehensive responses and data pulls for the assessment team where data was readily available. However, for clinical supplies and medical devices in particular, much of the data was available only facility-by-facility, which made data extracts cumbersome and time consuming. In those cases, we requested data for a sub-set of facilities. It should also be noted that we did not conduct a review to validate the accuracy of data that was provided, although, where applicable, we did note potential data integrity issues highlighted during site visit interviews. In some cases, gaps in data exist because of limitations in the data systems. Such gaps will be noted throughout the assessment. Several large data sets from 12 different sources were analyzed in the course of this assessment. Details of these data sets can be found in Appendix A.1, and include:

- System wide pharmaceutical prime vendor purchase data from CY2012 through CY2014
- All purchase order and line item data for five VISNs from FY2014 through Q2 FY2015
- Medical and surgical supplies purchase data from October 1, 2014 through January 31, 2015 with an item master file number
- Prosthetic appliance purchase data for the entire system for FY2014
- Various prime vendor reports for pharmaceuticals, and medical and surgical supplies
- Procurement and logistics staffing and budget information
- Public source data including Federal Business Opportunities and data from the Federal Procurement Data System

Detailed methodology for the analysis of these data can be found in Appendix A.2.

2.2   Site Selection and Interviews

Eight VAMCs were selected from a core sample of 25 facilities selected for the entire Choice Act Assessment effort. That core sample was selected using the process in Appendix A.3.

Assessment J ensured that the eight VAMCs selected from the core sample included facilities that covered the full range characteristics deemed to be relevant to the scope and purpose of the assessment, including: large, complex, full service urban facility; small, less complex rural facility; facility affiliated with a medical school; facility that is believed to have a well-functioning procurement and supply chain function; facility that is believed to have major challenges related to procurement and supply chain management. Geographic breadth was also taken into consideration in the selection process. The list of sites visited is shown below in Table 2-1.

Table 2-1. VA Medical Centers Selected for Assessment J Site Visits

VISN	Facility	City	State
1	Brockton VA Medical Center	Brockton	MA
1	Augusta VA Medical Center	Augusta	ME
8	Malcom Randall VA Medical Center	Gainesville	FL
8	Miami VA Healthcare System	Miami	FL
9	Lexington VA Medical Center	Lexington	KY
17	Central Texas VA Healthcare System- Olin E. Teague VA Medical Center	Temple	TX
21	San Francisco VA Healthcare System	San Francisco	CA
21	VA Palo Alto Healthcare System	Palo Alto	CA

The assessment team visited two of the VA's seven CMOPs (Table 2-2). Sites were chosen based on number of prescriptions and proximity to other sites visited during the course of the Choice Act assessment.

Table 2-2. Overview of CMOPs Selected for Assessment J Site Visits

CMOP	City	State
Leavenworth CMOP	Leavenworth	KS
Great Lakes CMOP	Hines	IL

Contracting organizations were selected based on the impact of each organization on the VA's procurement of pharmaceuticals, clinical supplies, and medical devices (Table 2-3). The National Acquisition Center (NAC) was selected given that it is the largest contracting organization (by spend) and is responsible for the majority of Federal Supply Schedule (FSS) contracts. The Denver Acquisition and Logistics Center was selected given that it has developed and successfully implemented a number of innovative contracting tactics (to be discussed in Section 3). Network Contracting Office (NCO) 15 was selected because of its role in pharmaceutical contracting for the CMOPs.

Table 2-3. Overview of Contracting Organizations Selected for Assessment J Site Visits

Contracting organizations selected	City	State
National Acquisition Center	Hines	IL
Denver Acquisition and Logistics Center	Denver	CO
Network Contracting Office 15	Leavenworth	KS

In addition to the site visits above, the assessment team interviewed leaders from the Strategic Acquisition Center, Office of Acquisition and Logistics, Office of Acquisition Operations, and several VISNs. Three high performing health systems were interviewed for this work. They were selected based on their national recognition for supply chain management, spend of at least one billion dollars in supplies annually, and their volume of at least 100,000 inpatient admissions each year.

2.3   Approach

The assessment team developed a structured approach for its investigation to ensure a comprehensive assessment of the VA's medical supply chain. This approach was syndicated and revised with 10 industry supply chain experts and 20 VA SMEs prior to launching site visits and data requests. The write-up of the assessment was split into two sections based on VA's current organizational structure and the degree of operational overlap, particularly between medical / surgical supplies and medical devices. The two sections are:

1. Pharmaceuticals and related services
2. Clinical, medical devices, and related services

In each section, current performance was assessed in relation to the purchasing, distribution, and use of specified products along dimensions of quality (i.e., getting the right product to the right Veteran), efficiency (i.e., getting the product to the Veteran at the right time), and value (i.e., getting the product to the Veteran at the lowest possible price). Finally, health care-related services were assessed for their impact on quality, efficiency, and value as functional enablers (Figure 2-1). For example, within the pharmaceutical supply chain, the services associated with the VA's prime vendor contract were analyzed to determine their relative impact on the VA's care delivery.

Figure 2-1. Overview of Approach to Assessment J
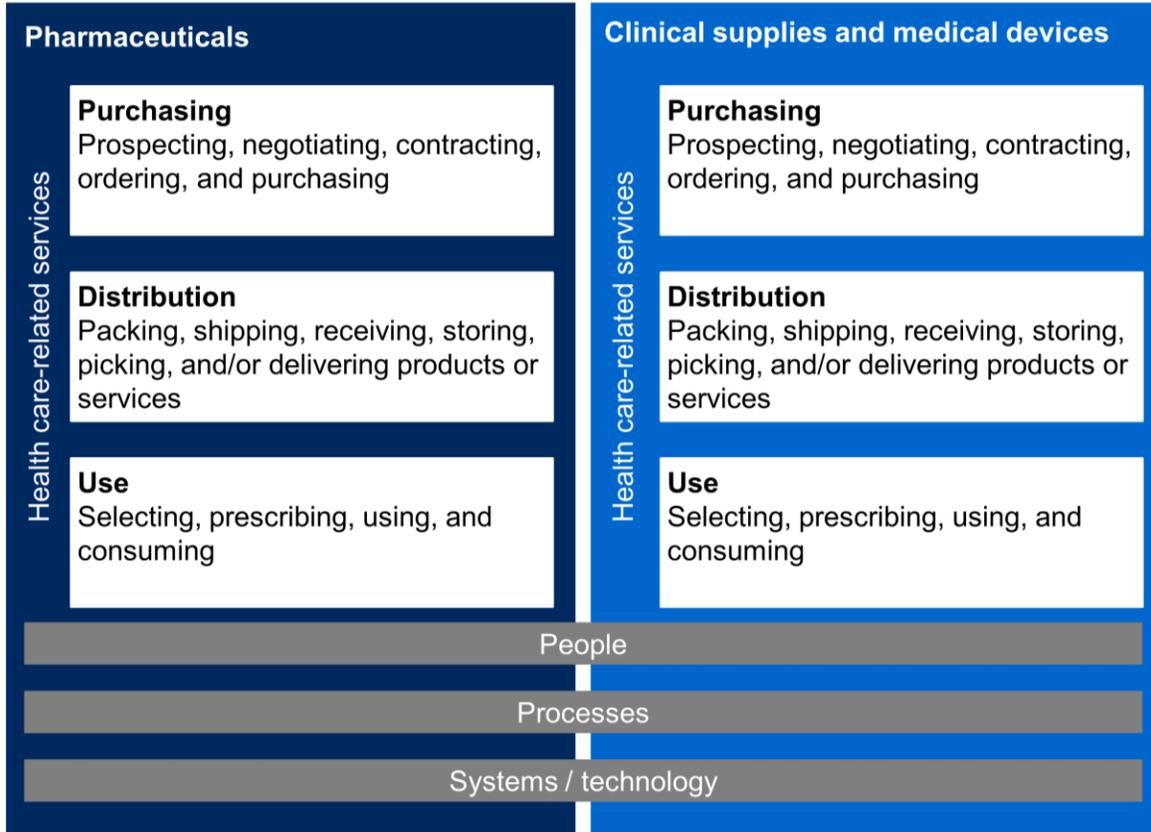
The assessment team took a four-phased approach to complete the work. Key activities conducted during each phase are summarized in Table 2-4. An independent Blue Ribbon Panel, consisting of high-level health care industry leaders, was formed to provide expert input throughout the assessment process. The panel members possessed a thorough understanding of health care industry best practices and leading edge practices. The Blue Ribbon Panel provided advice and feedback on the emerging findings and recommendations for the assessment.

Due to the required independence of the Choice Act, Section 201 assessments, findings and recommendations were developed independently. We therefore expect these recommendations will need to be refined and integrated by VHA leadership and the Commission on Care into the ongoing efforts.

Table 2-4. Overview of Key Assessment Activities by Phase of the Assessment

Phase	Activities
Discovery	- Reviewed existing workflow documentation, tools, and interfaces - Interviewed VHA subject matter experts - Researched best-practices (through literature searches, industry reports, internal knowledge / expertise, for example)
Analysis	- Conducted site visits at VAMCs, VISNs, CMOPs, and contracting and distribution centers - Conducted external subject matter expert interviews to revise / refine best practices and gather benchmarks - Analyzed VA data to determine performance against benchmarks - Tested analytical approach with VA SMEs to ensure accuracy and validity of data interpretation
Findings	- Revised and drew out insights from analyses - Synthesized findings and outlined major themes - Shared findings with Blue Ribbon Panel (a panel of external experts) and incorporated feedback - Conducted follow up interviews with key leaders and VA staff to address open questions
Recommendations	- Developed and documented recommendations to maintain, improve, or replace existing VA practices - Identified interdependencies with other assessment areas

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3   Pharmaceuticals and Related Services

3.1   Context

3.1.1   Organization

Purchasing

VA's pharmaceutical organization is supported by two major contracting organizations that oversee all national-level contracts for pharmaceuticals:

- The National Acquisition Center (NAC), located in Hines, IL, is responsible for management of all Federal Supply Schedule (FSS) contracts, many high volume, multiple award schedule national contracts, and blanket purchase agreements (BPAs) with pharmaceutical vendors worldwide.

- Network Contracting Office (NCO) 15, located in Leavenworth, KS, is responsible for all purchasing and contract management for the VA's Consolidated Mail Outpatient Pharmacies (CMOPs) that cannot be accomplished through FSS or prime vendor contracts and for emergency procurements (e.g., during shortages). While this role was originally supported by the NAC, it was transferred to NCO 15 in October 2013 at the request of CMOP leadership.

VAMCs do not engage in contracting but they do buy medications for use in the inpatient setting and for some outpatient prescriptions, such as outpatient prescriptions that are picked up at pharmacy windows or are mailed to Veterans from the VAMC. The majority of these purchases are made through the Pharmaceutical Prime Vendor (PPV) that is described in the following section.

Distribution

VA acquires around 90 percent of its pharmaceutical supplies through its pharmaceutical prime vendor (PPV) (VA, 2012-2014; VA, 2015a). The PPV program has been in existence since 2001 and the distributor provides next-day, direct shipping of pharmaceuticals to CMOPs and facilities such as VAMCs. The PPV also provides a number of services to VA (for example: IT platforms for ordering, logistics support, emergency shipments) which will be discussed in detail in the Findings section. The remainder is acquired directly from manufacturers or from other distributors such as local distributors of specialty drugs.

Veterans receive almost all their medications either from VA's outpatient "window" pharmacies located in VAMCs and clinics, or from the CMOPs, both of which are described below:

- **Consolidated Mail Outpatient Pharmacy (CMOP) Network:** VA has seven CMOPs across the continental U.S. In aggregate, CMOPs distribute approximately 80 percent of VA's outpatient pharmaceutical prescription volume to Veterans (VA, 2015b). Each CMOP is aligned with one or more VISNs and is responsible for dispensing and shipping pharmaceuticals directly to Veterans. CMOPs use an integrated, automated pharmaceutical dispensing system to process between nine and 26 million prescriptions

annually per facility (VA, 2015c). The locations of the CMOPs are summarized in Figure 3-1.

Figure 3-1. Overview of CMOP Geographic Distribution
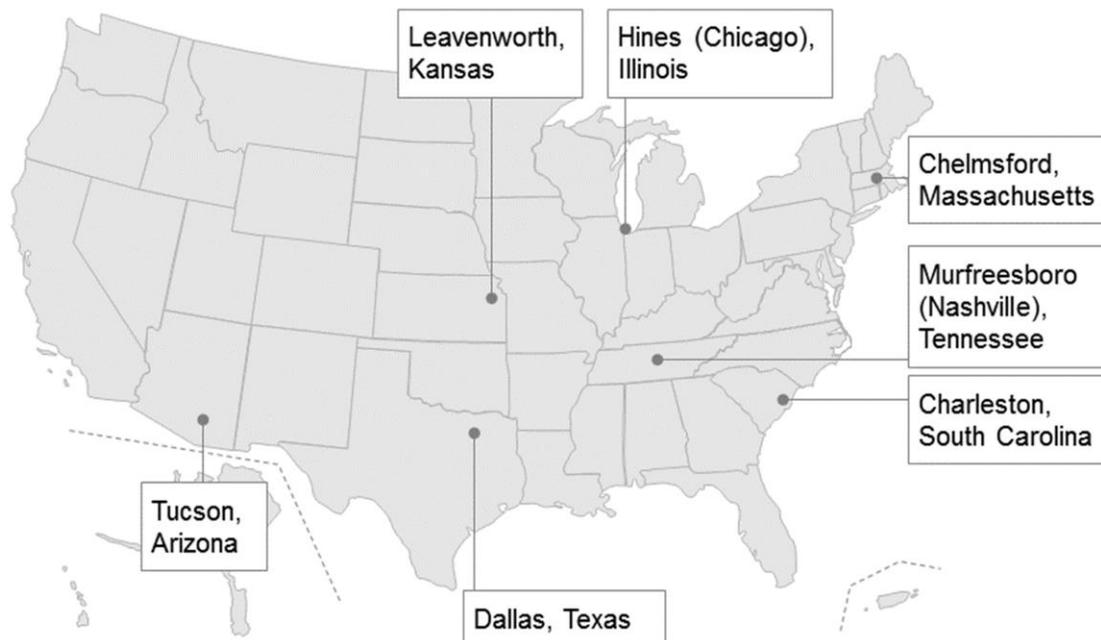
SOURCE: VA. (2015c). CMOP Fiscal data.

- **VAMC outpatient "window" pharmacies:** VA also dispenses outpatient prescriptions at pharmacy windows in each of its VAMCs. In total, around 20 percent of VA's outpatient prescriptions are dispensed from window pharmacies (VA, 2015b). While window pharmacies predominately serve Veterans who are in-person at the VAMC (for appointments, lab testing, radiological examinations), they are also responsible for mailing prescriptions to Veterans that cannot be processed by the CMOPs (because they are controlled substances, specialty drugs, or because of a stock out, for example). Clinical pharmacists at the VAMC's outpatient pharmacies are also responsible for front-end processing (validation of the signature, checking for drug-drug interactions and allergies) of all outpatient prescriptions prior to transmission to a CMOP.

Use

Veterans get almost all of their VA outpatient prescriptions from VA's window pharmacies or CMOPs as described above. When Veterans are inpatients in VA facilities, medications are dispensed to them from pharmacies within those facilities.

Three principal entities monitor, manage, and operationalize the use of pharmaceuticals within the VA system:

- **Pharmaceutical Benefits Management Services (PBM)**: PBM is a national-level organization that reports into VHA through Patient Care Services. PBM is responsible for managing VA's formulary, monitoring and reporting on pharmaceutical utilization, and

developing and implementing programs to improve quality and safety associated with use of pharmaceuticals. The PBM organization is supported by over 7,300 clinical pharmacists and 4,200 pharmacy technicians nationwide (VA, 2015d). The assessment team could not source benchmarks to evaluate the appropriateness of this level of staffing.

- **Clinical pharmacists**: Within each VAMC, clinical pharmacists manage drug dispensing in inpatient and outpatient pharmacies, and provide clinical guidance on the use of medications. These pharmacists support compliance with the VA's formulary and collaborate closely with care teams to determine appropriate pharmaceutical treatment of Veterans.

- **Clinical providers**: Clinicians at the front-line of care delivery (like physicians, nurse practitioners, physician assistants) are responsible for making pharmaceutical treatment decisions to provide appropriate, evidence-based clinical care while maintaining compliance with the VA formulary.

The pharmaceutical organization's evolution over the past 60 years has greatly increased its ability to influence VA prescribing practices (GAO, 2010). From 1955 to 1995, each VAMC had its own formulary, supported through local contracts with pharmaceutical suppliers. In 1995, VA created a centralized group (PBM) to manage pharmacy benefits nationwide. During the transition period, formulary management and contracting moved from the VAMC to the VISN, enabling more standardization and greater use of bulk purchasing. In 1997, all formulary management was centralized at the national level when VA rolled out its first national formulary. However, local VAMC formularies continued to exist until 2001 and VA ended all VISN-level formularies in 2009. In parallel, distribution transitioned to the current prime vendor model, which has helped facilitate VA's current level of standardization and centralized purchasing (to be discussed in more detail in the Findings section). The service level provided by the PBM group and its engagement with VISNs and VAMC's was critical throughout this evolution. Strong physician engagement has also helped drive the success of the pharmaceutical organization.

3.1.2 Key Trends

In CY2014, VA spent approximately $4.8 billion on pharmaceuticals through its prime vendor (VA, 2010-2014a; VA, 2010-2014b), the majority of which were dispensed on an outpatient basis (Figure 3-2).

Figure 3-2. VA Spend on Pharmaceuticals through the Prime Vendor

$ Billions

Note: Data is reported for calendar year and will not be directly comparable with fiscal year budget spend reported in Figure 1-1

SOURCE: VA. (2010-2014a). PPV Spend by Calendar Year. VA. (2010-2014b). Outpatient prescription data

VA's spend per patient on drugs increased by 19 percent over the past year, which reversed the trend of declining costs from CY2010 to CY2013 (Figure 3-3) (VA, 2010-2014b).

The introduction of new Hepatitis C drugs (Sofosbuvir, Simeprevir, and Ledipasvir / Sofosbuvir) accounted for 59 percent of the spend growth between 2013 and 2014 (VA, 2012-2014). Thirty percent of the spend growth was due to price increases of existing drugs (Figure 3-4). Over the same period nationally, drug spend in health care increased 13 percent, 26 percent of which was due to the introduction of new Hepatitis C drugs (IMS Institute for Health Informatics, 2015). These drugs accounted for more than half of all new drug spend in 2014. Prevalence of Hepatitis C is believed to be higher in Veterans using VA care than the U.S. population as a whole (VA, n.d.), which would account for the disproportionate impact of Hepatitis C drugs on VA. While the increase in expenditure on these drugs was notable in the last year, treatment with these drugs may reduce long-term cost of care for patients with Hepatitis C by, for example, reducing inpatient admissions or the need for nursing home care. Additionally, unit prices of these drugs are expected to decline over time as other Hepatitis C therapies enter the market, and there is some evidence this is already happening (Hirst, 2015).

Figure 3-3. Trends in Pharmaceutical Cost per Patient for Outpatient Prescriptions

Dollars per patient
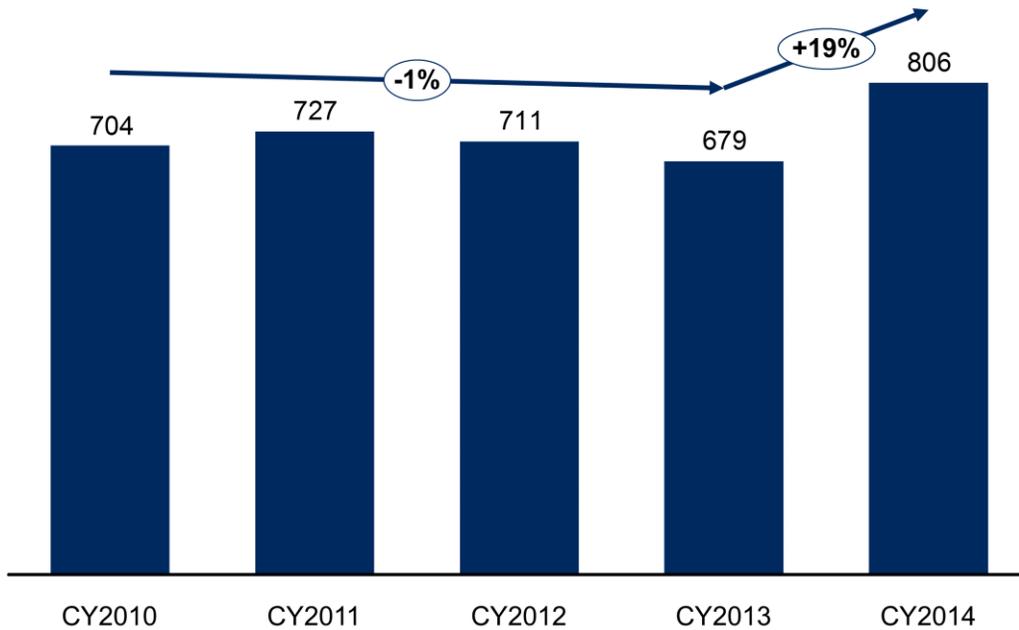
SOURCE: VA. (2010-2014b). Outpatient prescription data.

Figure 3-4. Growth in VA Pharmaceutical Prime Vendor Spend (CY 2013-14) by Major Spend Driver

Percent
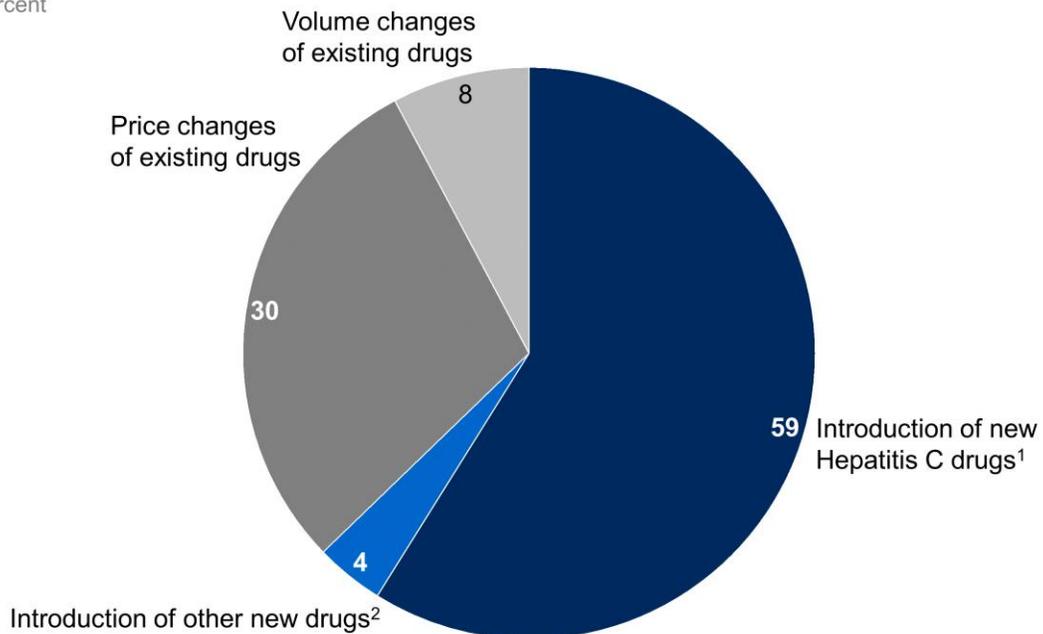
1 Additional cost for Sofovuvir, Simprevir, and Ledipasvir / Sofosbuvir in CY14 compared with CY13
2 Drugs which had no volume in CY13

SOURCE: VA. (2012-2014). Pharmaceutical Prime Vendor Purchase Order Data

From 2013-14, average prices paid by VA for branded drugs rose by 8.7 percent and by 11.3 percent for generic drugs (Figure 3-5). Nationally, drug prices rose by 4.1 percent and 8.6 percent for branded[2] and generic drugs (Elsevier Gold Standard, 2014) respectively over the same time frame. It is unclear why VA experienced a greater price increase than the national average. However, if the two years from 2012-2014 are taken together, prices remained relatively flat at 0.6 percent and -0.8 percent per annum for branded and generic drugs respectively.

Figure 3-5. Annual Price Changes of Drugs Purchased by VA
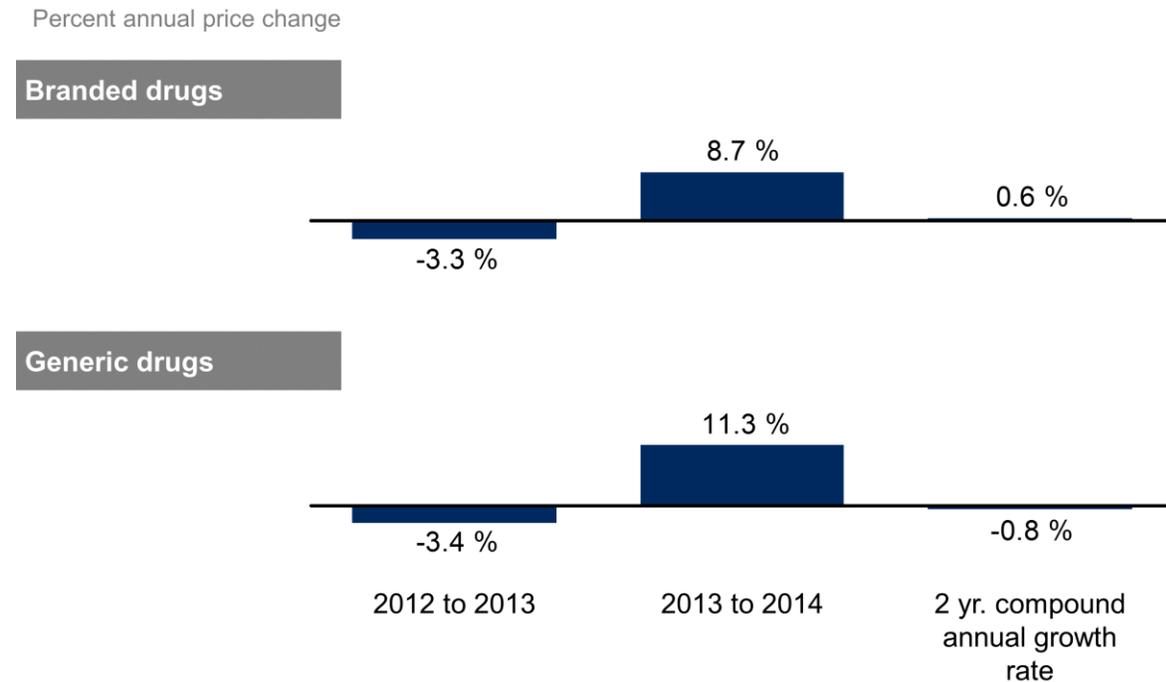
Note: Year over year average price changes or 2-year CAGR were calculated for each equivalent VA product (active ingredient, dosage, and form); price change was excluded if more than 10 fold change. Weighted by volume in last year considered (i.e., weighted by total volume in 2014, for 2013-14 price changes)

SOURCE: VA. (2012-2014). Pharmaceutical Prime Vendor Purchase Order Data

3.1.3 Previous Assessments

VA's system for purchasing, distributing, and using pharmaceuticals has been the subject of numerous reports by the Office of the Inspector General (OIG), the Government Accountability Organization (GAO) and several third parties. Major findings and recommendations relevant to this assessment are summarized in Appendix B.1. Common themes that cut across these assessments included the following:

- There is an opportunity to optimize pricing through improving processes and standardization of purchasing at the lowest price point that is accessible to VA.

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[2] Average price change of Wholesale Acquisition Cost for branded drugs between Q42013 and Q42014 using PriceRx data.

- There may be an opportunity to more effectively leverage scale (e.g., to reduce prices) by combining VA and DoD purchasing power.
- There is an opportunity to improve the transition process for active servicemembers that are switching to the VA formulary.

Where applicable, previous findings and actions taken to address them will be discussed in the findings. These past assessments have tended to focus on specific issue areas and/or individual facilities, separately developing recommendations for improvement in discrete areas. In contrast, our assessment tries to take an end-to-end view of inpatient clinical operations across five key sub-assessment areas and all high- and medium-complexity VAMCs.

3.2   Findings

Data findings, observations, and interviews with a broad range of administrative and clinical personnel confirm that VA's pharmacy organization and operating model performs well; it purchases drugs cost-effectively, distributes them efficiently to facilities and Veterans, and uses them in a measured and clinically appropriate way.

Across VA, the Pharmacy Benefits Management (PBM) organization's two-way cascade of committees – from the PBM organization to Veterans Integrated Service Networks (VISNs) to VA Medical Centers (VAMCs) and vice versa – provides an effective mechanism to escalate insights and innovation from the field and to develop policy centrally and build buy-in quickly across the country to facilitate implementation. Within VAMCs, clinical pharmacists are well integrated into multidisciplinary care teams and are highly valued by physicians and Veterans.

Based on our assessment, the characteristics in Table 3-1 have helped drive this level of performance.

Table 3-1. Pharmacy Benefit Management Key Success Factors

People	▪ Highly trained, professional workforce supported by extensive development program
	▪ Clear roles and responsibilities for policy making, contracting, purchasing, and utilization management
	▪ Strong alignment and buy-in/engagement across the organization
Process	▪ Cascade of facility to VISN to national committees that integrates pharmacist and physician input for policy-making and implementation
	▪ Pharmacist-doctor collaboration that increases product selection safety and performance and expanded scope of pharmacist practice which alleviates physician workloads
	▪ National Formulary that provides standard evidence-based, safe and efficacious drugs with processes for flexible off-formulary prescribing as needed
Systems	▪ Largely standardized data (from the PPV), facilitating utilization management
	▪ Purchasing system (through the PPV) that facilitates contract compliance and efficient ordering

| | ▪ Cascade of safety and utilization management indicators from national to facility level that drives performance improvements |
| | ▪ Efficient and effective consolidated distribution of pharmaceuticals through the PPV and CMOP network
▪ Effective systems for best practice sharing and information dissemination |

As in all organizations, there are opportunities for improvement, but overall the pharmacy organization is a bright spot. The organization's performance, the positive characteristics outlined above, and some of the key improvement opportunities are described in more detail in the findings below:

1. VA pays relatively low prices for pharmaceuticals overall, but several factors limit its ability to consistently access the lowest price available.

2. VA's distribution of pharmaceuticals is efficient and effective.

3. VA has developed effective mechanisms to drive appropriate utilization such as its formulary, clinical use guidelines, and involvement of clinical pharmacists.

4. VA has implemented policies and processes to improve patient transitions from the Department of Defense (DoD) to VA but challenges remain.

5. VA has successfully implemented programs to reduce utilization of high risk medications such as opioids and benzodiazepines, and early results are promising.

Each of these themes is described in more detail below with supporting data, observations, interview findings, and comparisons to leading organizations or standard industry practice.

3.2.1 VA Pays Relatively Low Prices for Pharmaceuticals Overall, but Several Factors Limit its Ability to Consistently Access the Lowest Price Available

The prices VA pays for drugs have been evaluated multiple times in the past and have been found to be some of the lowest prices in the country (Von Oehsen, 2001; US Congressional Budget Office, 2005; Render, Nowak, Hammond, & Roselle, 2003; US Congressional Budget Office, 2014). All indicators evaluated in this assessment confirm that to be the case. Specific findings related to pricing are the following:

a. VA has achieved relatively low pricing overall due to federal price restrictions and VA's ability to contract centrally.

b. VA faces regulatory constraints, operational contracting challenges, and drug shortages that limit its ability to consistently access the lowest available price.

a. VA has achieved relatively low pricing overall due to federal price restrictions and VA's ability to contract centrally

VA's average price paid for drugs is significantly below national benchmarks. A report from 2005 suggested that VA paid 42-53 percent of Average Wholesale Price (AWP) for its drugs (US Congressional Budget Office, 2005). Our analysis suggests that VA's pricing may now be lower than that range, at 35-38 percent of AWP (Figure 3-6).

As context, Average Wholesale Price (AWP) is a benchmark that has been used by the industry for many years. The Average Wholesale Price itself is not particularly meaningful because it is not regulated, is set by manufacturers, and does not take into account the volume discounts and rebates often involved with prescription drug sales (Gencarelli, 2005). Therefore, AWP (or percent of AWP) is typically used to enable like-for-like comparisons of drug prices and is typically not used alone as a true indicator of price competitiveness.

The National Average Drug Acquisition Cost (NADAC) referred to in Figure 3-6 is a benchmark based on a survey of community pharmacies that includes large retail chains. In the survey, pharmacies report their acquisition costs for drugs purchased over the last month. NADAC prices are gathered by a third party and are published weekly on Medicaid's website. NADAC benchmarks are often used by states when setting Medicaid reimbursement rates (Centers for Medicare and Medicaid Services, n.d.).

Figure 3-6. Comparison of VA Average Prices to Average Wholesale Prices and Retail Acquisition Costs

VA pays low prices for its drugs
Average unit price per pill as a percent of AWP
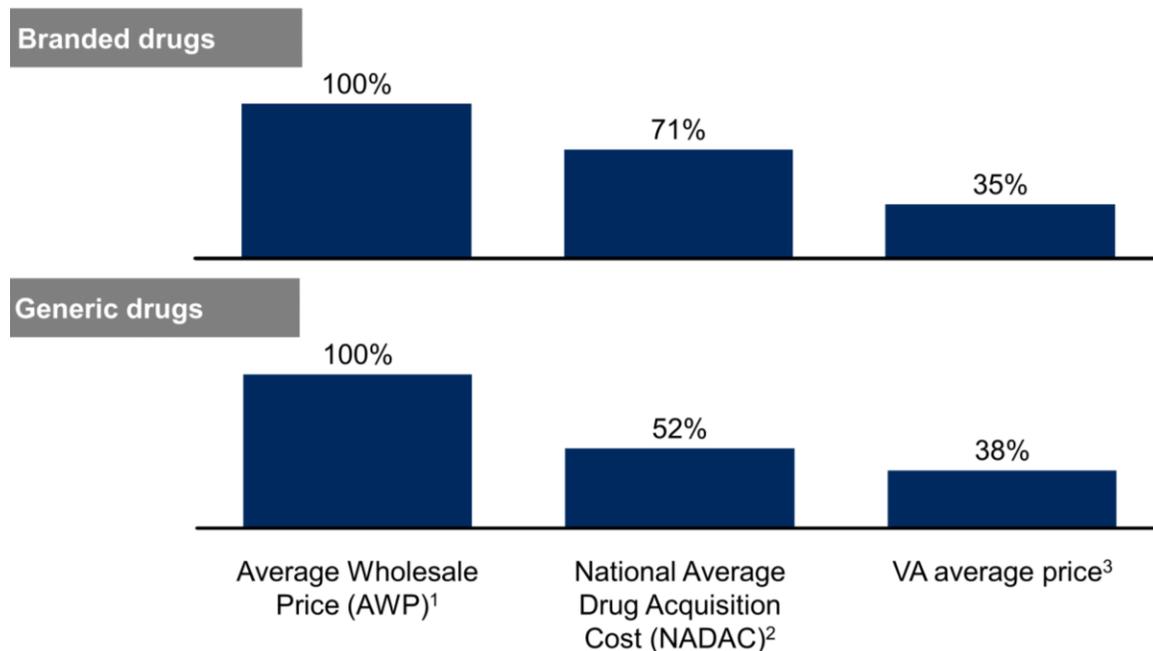
1 Average Wholesale Price information included in VA purchase data
2 National Average Drug Acquisition Cost (NADAC) is a government drug price index based off aggregated invoice surveys from retail pharmacies
3 Weighted average price per pill for each National Drug Code (NDC) purchased in April 2014, data only includes tablets and capsules, excluded drugs with NADAC price change in April 2014, n = 926 branded NDCs, 191 generic NDCs

SOURCE: VA. (2012-2014). Pharmaceutical Prime Vendor Purchase Order Data; Centers for Medicare and Medicaid Services. (2014, April). *National Average Drug Acquisition Cost (NADAC)*. Retrieved from Pharmacy Drug Pricing: http://www.medicaid.gov/Medicaid-CHIP-Program-Information/By-Topics/Benefits/Prescription-Drugs/Pharmacy-Pricing.html

VA's relatively low prices are protected under law. Pricing for the majority of products purchased by VA is established in accordance with the 65 I B Schedule program under the Federal Supply Schedule (FSS) service. Specific pricing stipulations for VA pharmaceuticals purchased through FSS contracts are outlined in Section 603, Public Law 102-585, which states the following:

"The price charged during the one-year period beginning on the date on which the agreement takes effect may not exceed 76 percent of the non-Federal average manufacturer price"

- Veterans Health Care Act of 1992, Public Law 102-585

This applies to "Big 4" customers (i.e., Department of Veterans Affairs, Department of Defense, Public Health Services including Indian Health Services, and the Coast Guard) who should receive at least a 24 percent discount from the net prices that wholesalers pay to manufacturers for covered drugs (also known as the Federal Ceiling price). Vendors may offer a higher price for other government agencies in addition to the Big 4 price (dual pricing), or a single price if it meets the Federal Ceiling Price threshold.

In addition to this 24 percent discount, VA has successfully centralized the majority of its contracting for pharmaceuticals so prices can be negotiated further at a national level. Multiple vendors on the FSS are competed to drive down costs, and longer-term national contracts can be established. Ninety-eight point six percent of purchases through its prime vendor are on some form of government contract (Figure 3-7), many of which achieve pricing below the FSS or Big 4 price (Table 3-2)[3]. In this way, VA is effectively its own group purchasing organization (GPO) for pharmaceuticals.

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[3] If a single price is offered by the supplier, it is considered FSS. If a supplier has dual pricing, VA pays the Big4 FSS price. FSS Restricted represents a temporary price reduction off the base FSS contract price for one or more specific agencies. This is typically done by companies for competitive purposes and is typically long-term; the "temporary" in temporary price reduction just differentiates it from the permanent base FSS contract price.

Figure 3-7. VA PPV Spend by Contract Type
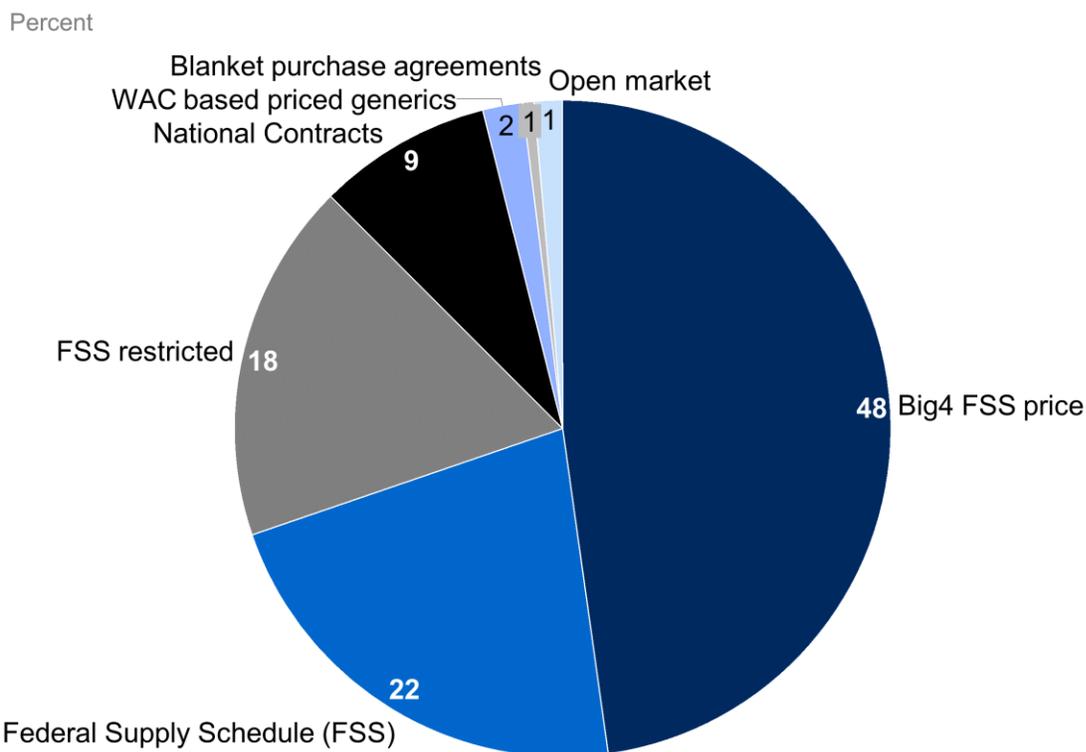
SOURCE: VA. (2012-2014). Pharmaceutical Prime Vendor Purchase Order Data

VA's pharmaceutical distributor (also known as its prime vendor, which is described below) provides tools that support VA's centralized, consolidated procurement and standardized purchasing process (VA, 2012). These tools help VA and its contracting entities generate insights from volume and pricing data to support effective negotiations.

Table 3-2. Price Comparison by Contract Type

Contract type	Price relative to Federal Supply Schedule (FSS)[4]	
	Generics	**Brands**
National contracts	0.62	0.57
FSS restricted	0.96	0.91
FSS	1.00	1.00
Big 4 FSS price	-	1.00

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[4] For drugs purchased through multiple pricing arrangements in each calendar year from 2012-2014, the volume weighted average price for each contract type was indexed to the FSS volume weighted average price. The median relative value is shown (VA, 2012-2014).

| Contract type | Price relative to Federal Supply Schedule (FSS)[4] | |
	Generics	Brands
WAC priced generics	2.14	-
Open market	2.41	1.81

While purchases made through the PPV are overwhelmingly through government contracts, around nine percent of overall spend each year is made through vendors other than the prime vendor. These purchases are recorded in the Integrated Funds Distribution, Control Point Activity, Accounting and Procurement (IFCAP) system. IFCAP data is difficult to analyze due to numerous standardization issues. From sample IFCAP data from five VISNs (VA, FY2014a), the assessment team estimates six percent of total pharmaceutical spend is purchased on the open market.[5] However, this number may be inflated because the data also includes some purchases of clinical supplies and diagnostic kits, which are hard to exclude.

Open market prices tend to be significantly higher than contracted prices. Indeed, analysis of VA data shows that on a like-for-like basis, open market prices for generics (80 percent of open market purchases) tend to be more than two times higher than FSS prices. However, VA can negotiate off-contract generic drug purchases through the PPV if those drugs have a published Wholesaler Average Cost (WAC) price, are approved by the FDA, and are Trade Act Agreement (TAA) compliant (VA OIG, 2012a). WAC Based Priced Generics pricing is similar to that achieved on the open market (Table 3-2). Bringing these purchases onto national contracts with better pricing terms represents an opportunity, albeit one that is likely hard to capture for reasons outlined later in this section.

b. VA faces regulatory constraints, operational contracting challenges, and drug shortages that limit its ability to consistently access the lowest available price.

VA achieves relatively low prices on most of its pharmaceutical purchases but it is not always able to access the lowest price. While 80 percent of all spend is made within 25 percent of the lowest price, approximately nine percent of all spend in 2014 ($434 million) was made at prices more than 2x the lowest price paid in that time period (Figure 3-8) (VA, 2012-2014). Reasons for not being able to access the lowest price include VA Acquisition Regulations (VAAR) priorities for procurement vehicles, statutory restrictions on purchasing from certain countries, product availability due to drug shortages, and lapses in contracts.

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[5] In FY2014 for five VISNs, there were $40.7 M open market purchases from vendors (including from PPV) without contract numbers in IFCAP, $18.6M in spend with contract numbers, and $627 M in PPV spend (VA, FY2014a).

Figure 3-8. Cumulative VA Pharmaceutical Spend by Price Point

VA buys a significant proportion of drugs above the lowest available price[1,2]

Cumulative share of spend
Percent

$434 million (9%) **spent at >200%** of lowest price point

$3.7 billion (80%) spent at <125% of lowest price point

$483 million (11%) spent at 125 - 200% of lowest price point

Price point
Percent of lowest purchase price
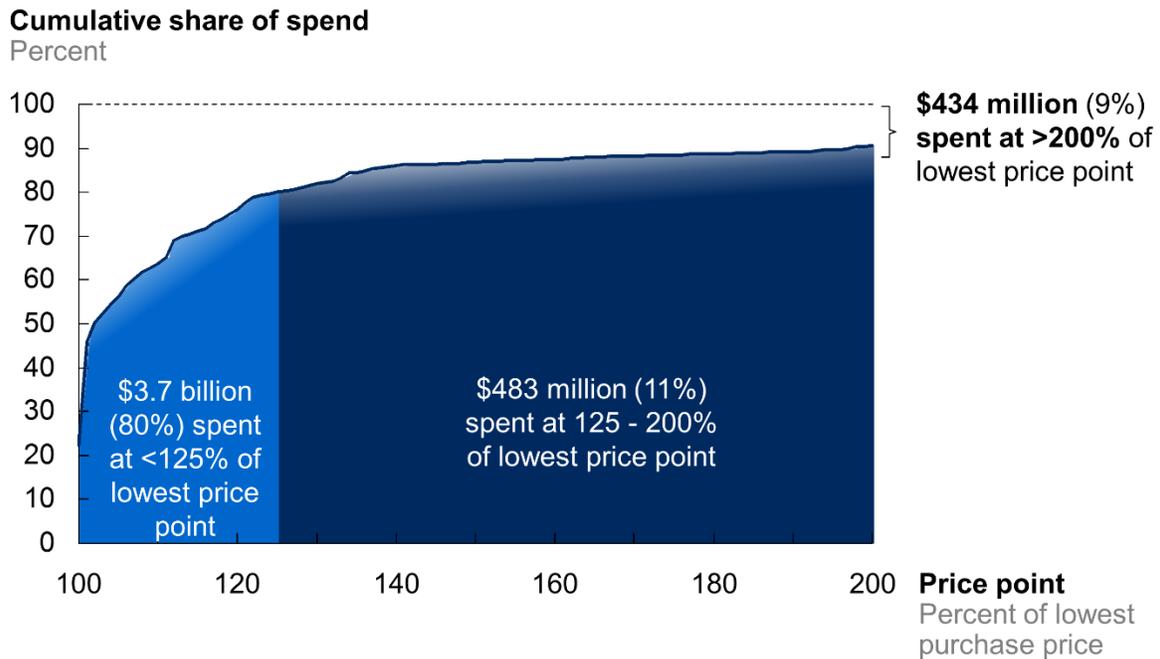
1 Includes all generic and branded drugs, CY2014. Lowest price point defined as lowest cost per pill for an individual transaction
2 Low outliers and high outliers excluded. Low outliers defined as a price point <10% of the average price point. High outliers defined as a price point equal to 1000% above average price point for the year (volume weighted)

SOURCE: VA. (2012-2014). Pharmaceutical Prime Vendor Purchase Order Data

According to section 8.002 of the VAAR, VA contracting officers are required to purchase supplies through a hierarchy of sources which places FSS contracts above open market commercial sources. However, in some instances only a single FSS supplier is available for a pharmaceutical, allowing them to command prices from VA above what other open market suppliers may charge. Senior PBM leadership stated that this is one major reason VA cannot access the lowest prices available (VA Pharmacy Benefit Management, 2015). Recognizing this issue in other contexts, federal agencies changed the Federal Acquisition Regulations (FAR) in January 2014 to clarify that non-mandatory FSS sources are not subject to a required prioritization above open market competition (although they are encouraged) (Federal Acquisition Regulation; Prioritizing Sources of Supplies and Services for Use by the Government, 2013). While VAAR is based on the FAR, the VAAR prioritization language remains in place and likely limits contractors' willingness to compete suppliers, even when it might be in VA's best interest.

The VA's purchasing flexibility is currently limited by the Trade Agreement Act (TAA) (19 USC 2501) which states that Federal agencies "may only acquire U.S.-made or designated country end products or U.S. or designated country services. Products/services offered under the VA Schedule Program that are end products/services of countries other than the United States or identified designated countries will not be considered for award." This poses a challenge because India and China are major producers of generics. Forty percent of all new FDA generic drug applications were from an Indian manufacturer in 2013 (FDA, 2013), and China and India

produce a substantial portion of the active pharmaceutical ingredients (API) used by other manufacturers (59 percent of the world API market in 2010) (Chemical Pharmaceutical Generic Association, 2012). However, TAA restrictions mean that, under normal circumstances, VA cannot source medications from those countries, or those containing API produced there, even if they are FDA-approved.

TAA restrictions are most critical in times when FSS or other contracted suppliers cannot supply VA with needed pharmaceuticals. In these instances, VA must procure drugs at open market prices or from other non-preferred suppliers at sub-optimal prices. Drugs that have recently been affected by TAA restrictions include baclofen, donepezil, mesalamine, and cefepime. In some cases, suppliers seek cheaper sources of API, and drugs which were TAA compliant become non-compliant. For example, beginning in July 2014, the producer of cyclophosphamide tablets changed its product to a capsule form with API produced in China. Price per pill and total spending increased more than six times as it was no longer on contract and had to be sourced on the open market. This was the sole producer of a life-saving cancer treatment and there were no alternatives.

National drug shortages also limit VA's ability to consistently access the lowest available price. Interviewees who were familiar with pharmacy issues uniformly stated that national shortages were becoming more widespread. Between 2012 and 2014, the FDA had 205 reported shortages (FDA, 2015). In shortage situations, VA must either source drugs from non-preferred suppliers (often at open market prices) or do without and use alternative treatments. As a specific example, in the second quarter of 2014, VA experienced a drug shortage from its only contracted supplier of bumetanide tablets. As a result, there was a rapid, nearly uniform shift in spend from contracted suppliers to off-contract suppliers. This shift led to prices that were approximately 10 times higher than contract prices for the remainder of the year.

Interviews with PBM leadership, CMOP leadership, and facility purchasers suggested that in some cases, failure to manage contract expirations and long contracting times led to extended periods of open market purchasing. PBM leadership stated that the most common reason FSS contracts expire is due to products being divested to a different manufacturer that did not have a contract with the government (VHA Pharmacy Benefits Management, 2015c). Two challenges were highlighted across these interviews:

- **Generalist approach.** The NAC is a centralized contracting organization that has historically operated as a team of generalists. Several interviewees believed that the perceived "one-size-fits-all" approach to contracting limited the NAC's ability to tailor response times to clinical priorities. Interviewees believed there was a lack of category prioritization (for example, for critical supplies that are close to contract expiration) and little familiarity with local needs or preferences (due to Veteran demographics or geographical differences in drug utilization, for example). Recently, FSS contractors have aligned with schedule categories, but it is too early to judge the effectiveness of this transition.

- **Perceived lack of responsiveness.** One hundred and twelve out of 182 interviewees reported instances when the NAC's responsiveness to contracting requests and its communication did not meet expectations. There was also a perception among field

procurement teams that the NAC does not have, or cannot demonstrate, a sense of urgency for contract renewals and emergency sourcing (for example, during drug shortages). According to leadership, there are long backlogs of contract packages and an average time of 283 days from receipt of completed packages until FSS contracts are in place. VA standard is 180 days for new FSS contracts. FSS contracts are awarded on a five-year base period with an optional five-year extension. Contracting leadership emphasized that it was a "*vendor's responsibility for them to submit extensions early and appropriately to avoid contract lapses. This does not happen frequently – leading to products falling off contract.*" It was unclear from leadership interviews what supplier management tools (for example, notifications) were in place to help suppliers maintain continuity of coverage.

In October 2013, certain components of CMOP contracting were transferred to the NCO 15 contracting offices as leaders sought to improve contracting speed and responsiveness for procurements requiring Requests for Quotes (RFQs) in open market solicitations. Since the transition, pharmacy leaders report higher satisfaction with contracting, driven by better customer service and efficiency in contracting processes. Interviewees suggested that NCO 15's performance is related to its relative category expertise, clear roles and responsibilities (e.g., single focus on CMOP contracting), and commitment to customer responsiveness. NCO 15 is also located directly opposite Leavenworth CMOP, which likely supports alignment, effective communication, and drives greater accountability.

3.2.2 VA's Distribution of Pharmaceuticals is Efficient and Effective

VHA has established an advanced distribution model to its facilities and onwards to Veterans. It receives the vast majority of its pharmaceuticals from its prime vendor – a distributor that sources medications from suppliers and delivers them to VHA's facility-based pharmacies and Consolidated Mail Order Pharmacies (CMOPs). Drugs are then distributed to Veterans from VA's CMOPs or from "windows" at pharmacies in VA's medical centers and clinics. Overall, VA's pharmaceutical organization performs well on distribution and its distribution model received near uniform praise from interviewees at all levels.

Specific findings include the following, which are described in more detail below:

a. VA's Consolidated Mail Outpatient Pharmacies (CMOPs) and outpatient pharmacies are efficient and achieve high Veteran satisfaction scores, but there may be opportunity for ongoing efficiency improvement.

b. VA's pharmaceutical prime vendor is well utilized and the model provides a good level of service to VHA's facility-based pharmacies and CMOPs.

a. VA's Consolidated Mail Outpatient Pharmacies (CMOPs) and outpatient pharmacies are efficient and achieve high Veteran satisfaction scores, but there may be opportunity for ongoing efficiency improvement.

Around 80 percent of VA's outpatient prescriptions are dispensed by VA's network of CMOPs (VA, 2015b). This represents around 128 million prescriptions annually. The remaining 20 percent are dispensed from outpatient window pharmacies in VA medical centers (VAMC) and clinics.

Veteran satisfaction with VA's CMOPs is high; VA's CMOPs received the highest overall customer satisfaction score of all mail order pharmacies in the 2014 J.D. Power survey (Figure 3-9) (J.D. Power, 2014).

Figure 3-9. CMOP Customer Satisfaction

Veterans are highly satisfied with VA CMOP service
Results of 2014 J.D. Power's Pharmacy Overall Satisfaction Study (mail order)
Points out of 1,000

Department of Veterans Affairs	871
Kaiser Permanente Mail Pharmacy	865
Humana RightSourceRx	862
Walgreens Mail Service	844
Mail Order Average	822
Aetna Rx Home Delivery	820
Express Scripts	817
Caremark	807
OptumRx	794
Prime Therapeutics	793
Cigna Home Delivery	779
Walmart Pharmacy Mail Services	774
Catamaran	752
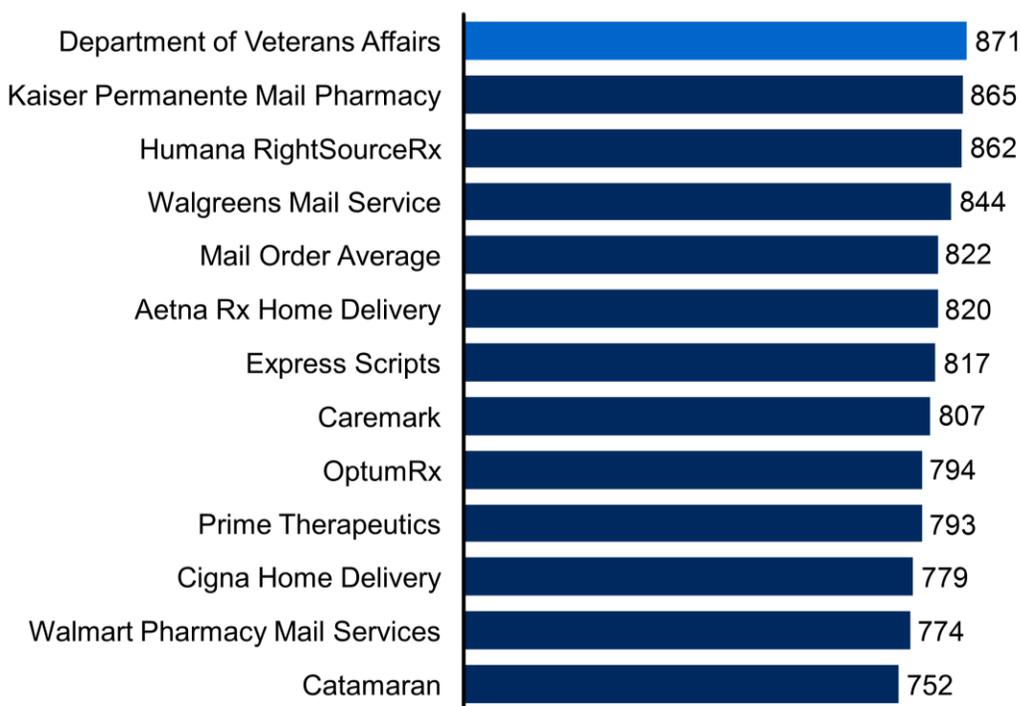
SOURCE: J.D. Power. (2014). *2014 Retail Pharmacy Study – Mail Order*

The assessment team visited two CMOPs during this assessment. Both were impressive in their scale, degree of automation, and low error rates. The CMOPs' annual operating budget is ~$191 million and they typically spend around $1.53 on average to fulfill a prescription (excluding drug and shipping cost) (VA, 2015c). Benchmarks from other mail order pharmacies are not published but expert interviews suggest this cost is comparable to the private sector.

However, total operating costs and cost per prescription varies across CMOPs and data would suggest there may be some economies of scale (Table 3-3); the two CMOPs with the highest volume have the lowest fulfillment cost. Also, expert interviews suggest that private sector mail order pharmacies typically process 25-30 million prescriptions per facility annually (Expert interviews, 2015) vs. VA's 9.4 – 26.5 million prescriptions per facility annually (VA, 2015c). Therefore, there may be an opportunity to consolidate VA's CMOPs to achieve greater scale and increase each remaining CMOP's utilization. This should be weighed against the potential impact on mailing costs, delivery times, and redundancy needed in the system to accommodate downtime or emergency preparedness plans.

Table 3-3. CMOP Operating Performance

CMOP	FY2014 prescriptions (M)	Total operating cost ($ M)	Non-drug cost per prescription[6] ($)	Time to fill (hours)	Time to deliver (hours)	Total time to Veteran (days)
A	26.5	36.4	1.37	38	49	3.6
B	25.5	36.7	1.44	40	54	3.9
C	18.5	31.7	1.72[7]	36	51	3.6
D	14.9	23.6	1.59	39	51	3.8
E	13.0	21.0	1.62	41	50	3.8
F	11.3	17.6	1.55	35	51	3.6
G	9.4	14.7	1.57	31	55	3.6

Overall, the delivery of medications to Veterans is near best-in-class (J.D. Power, 2014). Average order to Veteran times across all CMOPs is ~89 hours (range of 86-94 hours) or nearly four days. Industry research suggests that major mail order pharmacies take three to five days to refill prescriptions once received electronically.

Finally, while the assessment team believes CMOP error rates are low, there is scope to increase automation to further reduce error rates. The primary area for increased automation is at the end of the mail order process – packing and shipping. CMOP leadership already have plans in place to automate those steps and also to gradually upgrade the existing automation, and we would recommend they continue implementing those improvements.

Interviews and site visits also suggest that VA's outpatient pharmacies provide effective and timely distribution of pharmaceuticals to Veterans. While central data for window wait times was unavailable, pharmacists at VAMCs visited stated Veteran wait times for prescriptions were usually below their 30-minute target, on average. Our observations and interviews in eight pharmacies confirmed that, at any point in time, only a handful of Veterans were waiting for medications, if any were waiting at all. However, pharmacists said that wait times can rise during busy periods, which may represent an opportunity to improve service levels by, for example, establishing more flexible staffing models to meet demand or by improving the physical layout of pharmacies. There is also an opportunity to take pressure off outpatient pharmacies by directing more prescriptions to the CMOPs, particularly for non-urgent refills, as at least 18 percent of window prescriptions are for refills (VHA Pharmacy Benefits Management, FY2014). The actual number is likely larger, as physicians often write new

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[6] Excludes mail cost

[7] Operating costs for this CMOP are temporarily higher as it transitions to a new facility and receives needed technology upgrades. Also reflected are additional costs for packaging slip printing that is outsourced because of space constraints in the existing facility.

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prescriptions for existing medications during visits to ensure patients have an adequate number of refills. These are not counted in the system as refills.

In addition, a small volume of prescriptions is mailed to Veterans from VA Medical Center pharmacies. This practice is typically for medications that are not stocked at the CMOPs, such as certain controlled substances and specialty medications. There may be an opportunity to centralize dispensing and mailing of these prescriptions within a region to improve efficiency. We observed this practice on one site visit, which could be evaluated for its applicability more broadly across VHA.

b. VHA's pharmaceutical prime vendor is well utilized and the model provides a good level of service to VHA's facility-based pharmacies and CMOPs.

VA's prime vendor is a distribution company that is contracted with VA to source required pharmaceutical products from suppliers and distribute them to VA facilities. VA's current prime vendor contract was signed into effect in May 2012 for two years with options for three additional two-year renewals (eight years total). VA purchases around 90 percent of all pharmaceuticals through its prime vendor (around $4.5 billion of the more than $4.9 billion pharmaceutical budget) (VA, 2012-2014; VA, 2015a). Throughout site visits and interviews, VA personnel provided consistent feedback that they believed the current prime vendor provides high levels of service, accuracy, and satisfaction. Furthermore, stakeholders reported that the prime vendor consistently meets its contractual expectations in the following areas:

- **Standardized data:** VA has access to a standardized purchase order database that is provided by the prime vendor. This data provides VA with a structured and minable dataset that is used to inform purchasing decisions and contracting, and to monitor / track utilization.

- **Automated purchasing software:** The prime vendor's ordering system allows VA to consolidate purchasing to a limited number of suppliers while also locking-out sub-optimal pricing. This software also ensures that pharmaceuticals are ordered on-contract whenever possible.

- **Logistics support:** The prime vendor provides barcode scanners to support management of inventory in CMOPs and VAMCs while also providing purchase recommendations (for example, through predictive analytics) for pharmacy purchasing teams.

- **Performance management:** VA receives standard performance reports for both vendor service levels (self-reported by the prime vendor) and VA utilization patterns which are consistently reviewed and used by VA PBM to manage pharmaceutical spend.

- **Quality assurance:** VA's prime vendor contract ensures that all drugs provided are both FDA approved and TAA compliant. VA maintains the right to return, at no cost to the government, any drugs with expiration dates that fall within six months of delivery, are incorrectly shipped, or are damaged.

Throughout the pharmaceutical organization, purchasing processes are largely centralized and standardized. The prime vendor's ordering system provides a handheld device that is used at the point of ordering which is compatible with barcoded labels on nearly all pharmaceuticals. This system enables web-based ordering which is transmitted directly to the distributor. Under

its contractual obligations, the prime vendor provides maintenance and training for VA pharmacies (both CMOP and VAMC) to support its ordering system. Additional features of the prime vendor's ordering system include real-time pricing, accurate information regarding quantity available for purchase by vendor, and IT-supported approval processes for satellite facilities.

As per VA's contract, the prime vendor must perform next-day delivery for orders made before 6 p.m. and ensure a 97 percent fill-rate for indefinite delivery, indefinite quantity (IDIQ) of pharmaceutical products. The prime vendor does have exception clauses for manufacturer backorders (MBO) and spike volume requests (defined as orders exceeding 150 percent of prior month's total volume). However, it cannot divert product intended for VA to gain profit from price arbitrage within the market. Upon review of the VA's most recent prime vendor business metrics, it appears that the VA's prime vendor relationship provides high quality, reliable, on-time, and accurate delivery of pharmaceuticals with fill-rates of more than 98 percent (Figure 3-10).

In addition to efficient delivery, the prime vendor provides high quality customer service to CMOPs and VAMCs. Interviewees in both locations cited their ability to receive same-day emergency shipments (often within four hours) which supports timely delivery of care to Veterans. It is important to note that this delivery time can be met for both on-formulary as well as off-formulary medications.

VA's inventory management system benefits from VA's ability to receive reliable delivery of pharmaceuticals and is able to operate a near just-in-time inventory management system. During VAMC interviews, pharmacists reported having an average of approximately three to four days of stock on hand at most facilities. They cited robust visibility into inventory as a key driver, facilitated by the prime vendor's inventory system. Interviewees reported that stock-outs occur rarely at VAMCs and are largely driven by manufacturer and / or national shortages rather than distributor deficiencies.

Figure 3-10. Pharmaceutical Prime Vendor Service Levels for 2Q2013 – 1Q2014

The pharmaceutical prime vendor's fill rate is 98.6%

Millions of orders
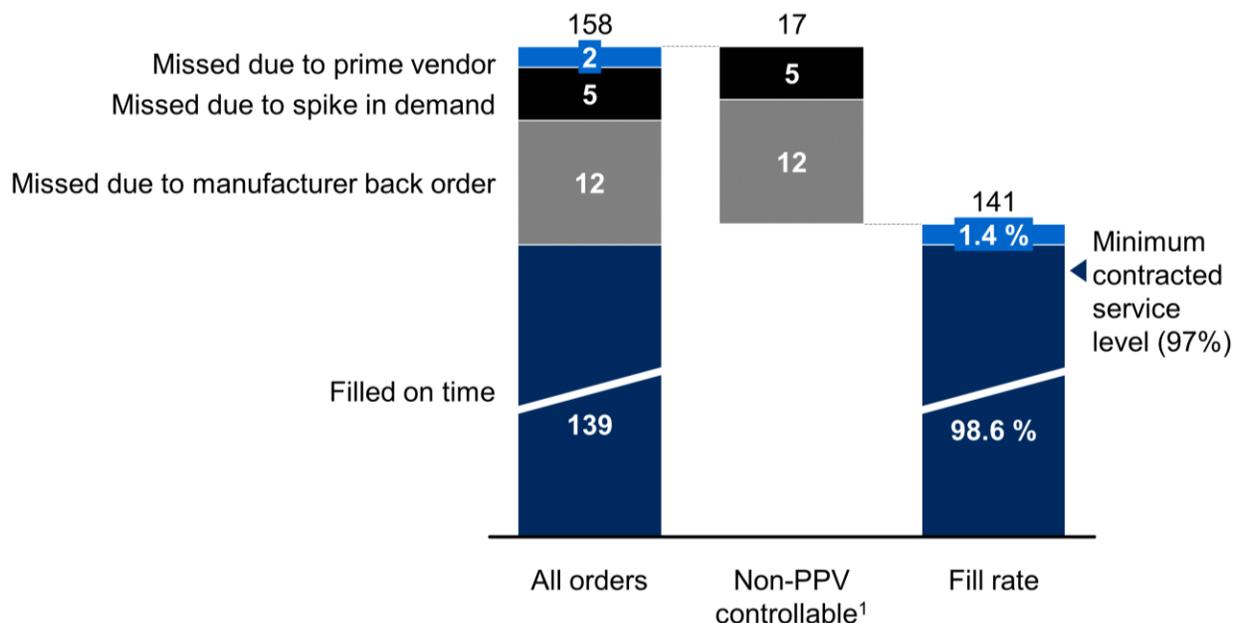
1 Contractually, manufacturer back orders and quantities in 150% in excess of previous month's demand do not count towards the PPV fill rate

SOURCE: Pharmaceutical Prime Vendor. (2014, November 13). *Business Review for Period: 3rd Qtr 2012 through 2nd Qtr 2014.*

3.2.3 VA has Developed Effective Mechanisms to Drive Appropriate Utilization Such as its Formulary, Clinical use Guidelines, and Involvement of Clinical Pharmacists

Overall, VA is a leader in formulary decision-making and evidence-based clinical usage of pharmaceuticals. Specific elements supporting this finding include the following:

a. VA's use of pharmaceuticals is guided by a robust, evidence-based formulary that has achieved widespread buy in.

b. VA has established an effective two-way cascade of decision-making, feedback, and implementation throughout the organization.

c. VA clinical pharmacists are well integrated into the care team.

d. VA's formulary process is sufficiently flexible to give Veterans access to all FDA-approved medications if clinically indicated.

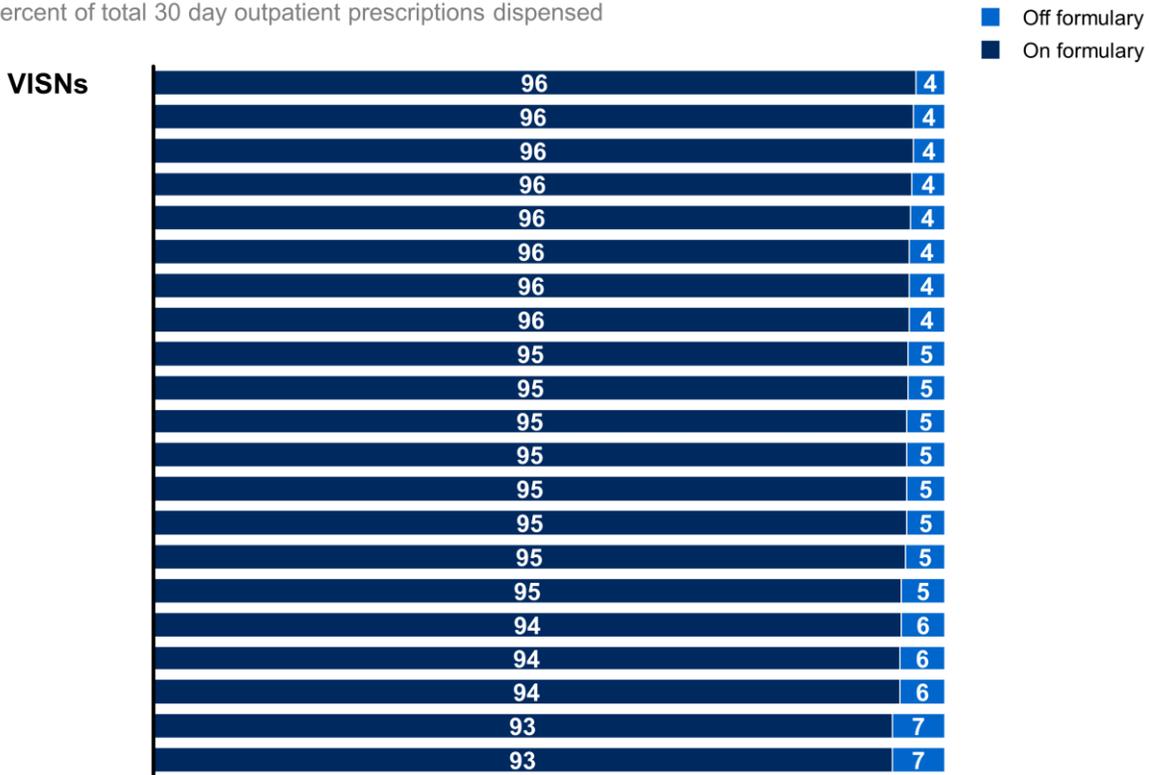e. VA's utilization of generic medications is high overall, but there may be opportunity to increase generic utilization and better standardize drug choice in certain drug classes and geographies.

a. VA's use of pharmaceuticals is guided by a robust, evidence-based formulary that has achieved widespread buy in.

A formulary is a list of medications that have been approved by an organization to be used to treat specific conditions in a particular patient population. Decisions on which medications to list on a formulary are typically based on factors such as efficacy, safety, and cost effectiveness. Therefore, formularies help to drive high-quality high-value prescribing.

Interviews and site visits demonstrated a strong belief in the value and relevance of the VA's formulary from stakeholders along the entire pharmaceutical value chain (physicians, pharmacists, PBM leaders, and contracting). Most physicians interviewed did not believe the formulary was too restrictive and one psychiatrist said VA's formulary was actually significantly less restrictive than the formulary she had used previously in a large Midwest municipal health system. Even 14 years ago, an Institute of Medicine report supported this less restrictive view of VA's formulary and gave favorable reviews overall of the formulary management, utilization, and clinician buy in (Blumenthal & Herdman, 2001).

b. VHA has established an effective two-way cascade of decision-making, feedback, and implementation throughout the organization.

VA formulary decisions and implementation are driven by three groups (Figure 3-11): (a) VAMC Pharmacy and Therapeutics (P&T) committees, (b) VISN P&T committees with membership from VAMC committees led by a VISN Pharmacy Executive, and (c) a national P&T committee composed of the national Medical Advisory Panel (MAP) and the VISN Pharmacist Executive Committee (VPE). The extensive governance structure with high physician and pharmacist engagement, together with evidence-based reviews, drives stakeholder alignment. Contract adherence for "closed" drug classes is reported to be rapid and extensive, reaching 90 percent in three months and greater than 98 percent within six months (Good & Valentino, 2014).

Site visits confirmed that Pharmaceutical and Therapeutics (P&T) committees meet at each site to help support adherence to standard processes and protocols implemented by the VA's PBM organization. P&T committees convene monthly at VAMCs to discuss treatment protocols, develop facility-level initiatives, and make recommendations to VISN and national-level PBM committees regarding formulary modifications. Facility-level proceedings and successful initiatives are effectively raised to VISN and national leadership through structured committees at all levels (Figure 3-11).

Figure 3-11. VA Formulary Governance Bodies and Responsibilities

National P&T Committee

Medical Advisory Panel
- 13 physicians (1 DoD)
- 10 PBM clinical pharmacists
- 1 VISN Pharmacist Executive

Pharmacist Executive Committee
- 21 VISN Pharmacist Executives
- 1 National Center for Patient Safety pharmacist
- 1 Medical advisory panel member

VISN Formulary Committees

VISN | VISN | VISN

Hospital P&T Committees

VAMCs | VAMCs | VAMCs

Responsible for

- Identifying, reviewing and requesting all changes to the formulary
- Prioritizing all FDA approved new molecular entities for review
- Reviewing reports and data on non-formulary utilization
- Establishing criteria for use and management guidelines

- Identifying and requesting changes to the formulary
- Widely disseminating draft and final Drug Monographs, Criteria-for-use Statements, Pharmacologic Management Guidelines, and other material
- Communicating formulary decisions to VAMC P&T Committees and clinical staff
- Reviewing PBM reports and data on non-formulary utilization and access to formulary medications

- Implementing, supporting and monitoring compliance with formulary initiatives
- Monitoring non-formulary use
- Providing input on formulary decision impacts to VISN formulary committees
- Ensuring formulary designations and drug pricing in local files are up to date
- Documenting and trending adverse drug events
- Reviewing requests for formulary additions from providers and forwarding approvals to VISN formulary committee

SOURCE: VA Pharmacy Benefit Management. (2015, May). Leadership interviews; VHA. (2009). Handbook 1108.08 VHA Formulary Management Process.

c. Clinical pharmacists are well integrated into the care team.

VA pharmacy practice is recognized by industry leaders as being among the best in the nation: *"Overall from a pharmacy practice perspective, generally the pharmacy practice in the VA is more advanced than other practices within the public and private sectors in terms of delivery of care and utilization of pharmacist professionals in the care and treatment of patients"* (American Pharmacists Association, 2015). Recruitment and development of talent is a critical component of this success, exemplified by VA's hiring of talent with PharmD degrees, support for 500 paid residencies (VA Pharmacy Benefit Management, 2015), credentialing, and additional training such as scope of practice boot camps that enable VA pharmacists to work at the top of their licenses to provide relief to doctors and other clinical staff.

PBM also supports clinicians with key initiatives such as an Academic Detailing Service that spreads best practices and improves health care by combining the interactive, one-on-one communication used by medical salespeople with the evidence-based, noncommercial information generated by medical experts. The current focus of VA academic detailing is on opioid drug usage and pain management, and PBM has developed a physician outreach plan and prepared a packet of information to educate clinicians and patients with the latest guidelines and evidence on therapies (VA Pharmacy Benefit Management, 2015). These efforts should further impact trends seen in section 3.2.5. Other best practice sharing tools include a

national clinical pharmacy file and information sharing site that includes content for over 50 job areas (VHA Pharmacy Benefit Management, 2013).

VA has moved to a Patient Aligned Care Team (PACT) model in which clinical pharmacists are core members of a multidisciplinary team, and often bridge primary and specialty care teams. Of the approximately 6,700 pharmacists examined by VHA, over 2,600 have a scope of practice allowing them to assist physicians in certain clinical activities such as initiating, managing, and monitoring a patient's drug therapy for specified chronic diseases. More than two thirds of those pharmacists spend the majority of their time on these clinical duties (VHA Pharmacy Benefit Management, 2013). Site visits, observations, and interviews with physicians and pharmacists confirmed that clinical pharmacists play a key role in decision making around prescribing and patient education. Several physicians commented that VA pharmacists play a more integral role in providing care than they have seen in other health care settings. In addition, pharmacists reported that they value the clinical role and potential for expanded scope of practice at VA relative to opportunities they may have elsewhere. VA pharmacists improve patient outcomes through their interventions, such as reducing costs and reducing cardiovascular events, foot ulcers and other complications for chronic disease management of patients with diabetes (Ourth, Morreale, & Groppi, 2015; VHA Pharmacy Benefit Management, 2013).

d. VHA's formulary process is sufficiently flexible to give Veterans access to all FDA-approved medications if clinically indicated.

While the formulary is strictly controlled by VHA's PBM organization, off-formulary drugs are available when needed for Veteran care through a standardized off-formulary request process that takes into account the clinical needs of each individual patient. Non-formulary approval requests are submitted electronically by prescribing physicians and are reviewed by pharmacists dedicated to specific therapeutic classes, with further expert involvement as needed. Nearly 99 percent of decisions are made in under 96 hours and, on average, 80 percent of non-formulary requests are approved (VA, FY2014b). For the 20 percent that are not approved, an appeal process is in place to escalate to the VISN Chief of Pharmacy. Therefore, Veterans have access to all drugs approved by the FDA whether those drugs on or off formulary; the formulary simply acts as a mechanism to steer physicians towards medications that are deemed by VA to be the most clinically effective, safest, and highest value drugs available on the market.

As a result of this process, 4.8 percent of outpatient prescriptions dispensed by VA are for non-formulary medications on average across VA overall (Figure 3-12), although this ranges from 2.5 to 9.1 percent among VAMCs (VA, 2010-2014b). Data was not available for inpatient prescriptions.

Figure 3-12. Formulary Compliance by VISN

Formulary compliance is quite consistent across VISNs

Percent of total 30 day outpatient prescriptions dispensed

■ Off formulary
■ On formulary

VISNs

On formulary	Off formulary
96	4
96	4
96	4
96	4
96	4
96	4
96	4
96	4
95	5
95	5
95	5
95	5
95	5
95	5
95	5
95	5
94	6
94	6
94	6
93	7
93	7

SOURCE: VA. (2010-2014b). Outpatient prescription data.

e. VHA's utilization of generic medications is high overall, but there may be opportunity to increase generic utilization and better standardize drug choice in certain drug classes and geographies.

Generic medications are typically significantly less expensive than their branded equivalents. Higher generic utilization is important because it helps VA control its drug costs while still ensuring Veterans get access to high quality, FDA-approved medications.

Ninety-seven percent of all pills or pill equivalents bought by VA are generic formulations when a generic exists (VA, 2012-2014), which the assessment team believes is high relative to other integrated health care delivery organizations. For example, Kaiser Permanente claims it dispenses 99 percent of its prescriptions as a generic when a generic exists (Kaiser Permanente, 2015), and its generic purchasing rate will likely be similar. Unfortunately, VA cannot accurately measure or report the generic dispensing rate as does the rest of the industry (generic prescriptions dispensed divided by total prescriptions), as pharmacy dispensing data is not specific for individual National Drug Codes. Therefore, we are unable to do a fair and true comparison to the industry standard benchmark. In general, however, a generic dispensing rate

of around 80 to 90 percent would be considered normal in the industry.[8] VA's "true" generic dispensing rate (total generic prescriptions per total prescriptions) is likely to be as good as or better than that benchmark, given its high generic purchasing rate (91 percent of all pills or pill equivalents purchased are generic) (VA, 2012-2014).

VA's generic utilization is supported by strong adherence to the formulary (as described above), policies that automatically dispense a generic formulation when available, and dedicated pharmacist clinical decision support (through non-formulary review, involvement in inpatient clinical decision-making, and outpatient pharmacy dispensing, for example).

There is remarkable consistency in the generic purchasing rate across VISNs, with only around a four percentage point difference from the lowest to highest generic utilizer. More variation in generic purchasing is seen when comparing individual facilities. Much of this variation will be due to differences in case mix and usage of different drug classes with different levels of generic availability. For example, facilities that serve a large oncology population are likely to spend relatively more on branded medications because many oncology drugs are not yet available in a generic formulation.

However, data analysis also highlighted that geographic differences exist in prescribing patterns within drug classes (Figure 3-13) that not only reflect the generic dispensing rate, but will also lead to different costs to treat the same condition depending upon where a Veteran receives care.

As a concrete example, VA's drug purchase data showed that in 2014, several VISNs used significantly more of a branded medication than other VISNs within one drug class (Figure 3-14). The choice of the branded drug led to a significantly higher cost to treat a patient with a drug in that class – $70 per patient annually for the branded drug versus around $20 for the generic. Interviews revealed that VISNs have authority to drive prescribing towards specific drugs within a class within their VISN, provided those drugs are on formulary. In this case, pharmacy leaders believed the VISNs that used more of the branded drug may have been slower to drive towards the generic substitute than other VISNs because of practices established when both drugs were branded and on contract.

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[8] Industry PBMs ~84% (CVS Caremark, 2015; Express Scripts, 2015), 77.7% national average in 2012 (Martin, Hartman, Whittle, & Catlin, 2014), 80% for Medicaid in 2012 (Bruen & Young, 2014), 88% for health exchange plans (Brennan, et al., 2014).

Figure 3-13. Generic Purchasing Rates by VA Drug Class for VISNs

Generic purchasing rates vary by drug class between VISNs

Percentage of pills or pill equivalents purchased that are generic
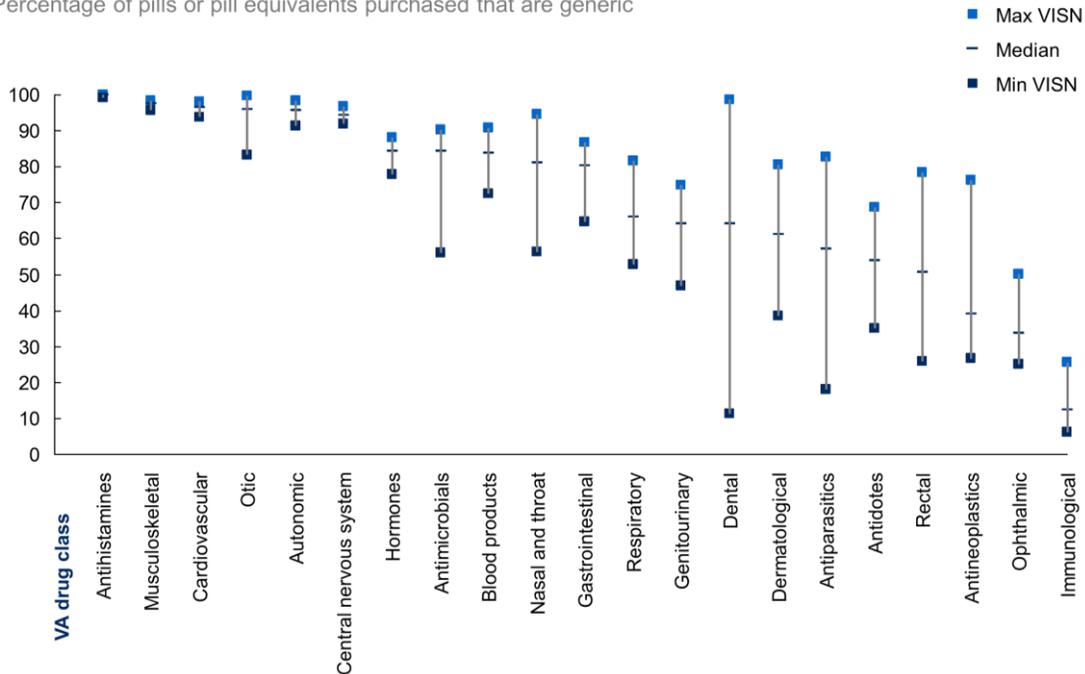
SOURCE: VA. (2012-2014). Pharmaceutical Prime Vendor Purchase Order Data

Figure 3-14. Variation in Angiotensin II Receptor Blocker (ARB) Selection by VISN

Some VISNs use a high share of branded drugs within some drug classes

Percent of ARB pills purchased
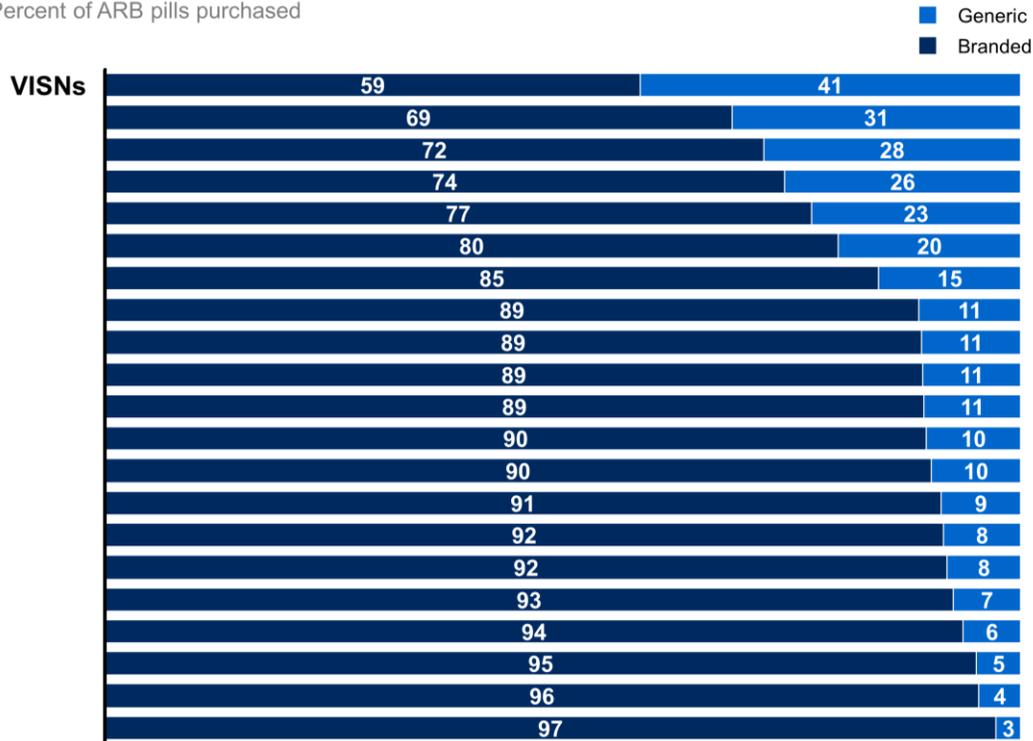
SOURCE: VA. (2012-2014). Pharmaceutical Prime Vendor Purchase Order Data

The views, opinions, and/or findings contained in this report are those of the assessment team and should not be construed as an official government position, policy, or decision.

3.2.4 VA has Implemented Policies and Processes to Improve Patient Transitions from the Department of Defense to VHA but Challenges Remain

Several prior reports have highlighted some of the challenges Veterans face when transitioning directly from DoD care to VA care, including:

- Potential gaps in transitioning servicemembers' medication coverage due to formulary differences
- Poor interoperability between DoD and VA electronic medical records

A number of guidelines, directives, and programs have been developed over the last decade to improve Veterans' transitions from DoD, which are summarized in the following table (Table 3-4).

Table 3-4. Timeline of Developments Related to Transitioning Servicemembers

Year	Developments related to servicemembers transitioning to VA care
2007	▪ VA and DoD release the CHDR (Clinical Health Data Repository) interface that all DoD sites and 102 of 128 VA sites can access, with limited medical info exchange (outpatient pharmacy meds and allergies)
2008	▪ National Defense Authorization Act issues requirements for DoD and VA to increase health information sharing and reach full interoperability
2009	▪ VA establishes procedures for transitioning care of OEF/OIF Veterans ▪ VA and DoD begin work on the Virtual Lifetime Electronic Record initiative
2011	▪ VA and DoD release Integrated Mental Health Strategy ▪ *inTransition* program implemented (referral required for enrollment) ▪ VA and DoD Secretaries commit to developing an integrated electronic health record system by 2017
2012	▪ President signs Executive Order expanding VA services for suicide prevention, mental health, and substance abuse treatments ▪ Interagency Taskforce established to review Departmental activities for improvement
2013	▪ VA and DOD begin work on the Joint Legacy Viewer – a program to improve access to health information for transitioning servicemembers to include medications, progress, and discharge notes
2014	▪ VA and DoD sign MOU for complex care coordination teams and to improve policies and procedures for transitioning servicemembers ▪ President announces 19 new executive actions to improve medication continuity during transitions between DoD/VA care, including automatic enrollment into VA's *inTransition* program

Year	Developments related to servicemembers transitioning to VA care
2015	▪ VHA issues Directive 2014-02, mandating mental health medications for transitioning servicemembers not be switched solely due to differences between VA and DoD formularies, VA Criteria-for-Use, or cost ▪ Non-formulary justifications are not required for processing if a designation of "Transitioning Veteran" is made

Specific findings of this assessment include the following, which are detailed below:

    a. Veterans have long wait times to see a primary care physician

    b. There is limited interoperability between DoD's and VA's health information

    c. Differences exist between DoD and VA formularies that can lead to challenges ensuring continuity of care

a. Veterans have long wait times to see a primary care physician.

Data released by VA in October 2014 show new VA patients wait on average 43 days to see a primary care physician, with a range of 2 to 122 days across facilities (VA, 2014c). A 2012 GAO report found that the average time between servicemember discharge date and first VA appointment was 81 days (GAO, 2012). Many prescriptions are written for less than the 81 day average, as evidenced by 54 percent of VA's own prescriptions being for 30 days or less (VA, 2014d). Even in the case where patients are given refillable prescriptions for up to 90 days, patients could run out of medication while they are waiting to see a VA physician if the DoD prescription is dispensed with some time prior to discharge, followed by a period for VA care enrollment, followed by the average new patient wait time. VA has procedures and policies in place to provide transitioning servicemembers and other Veterans with medications in case of shortages (GAO, 2012; Staff interviews, 2015), but improving access may make them less necessary. Access to physicians is beyond the scope of this assessment but is covered in detail in Assessment B and scheduling practices in Assessment E.

b. VA physicians cite poor access to DoD medical records as the primary challenge related to patient transitions.

In line with findings from previous reports (IOM, 2010; GAO, 2012), physicians and administrators consistently said that one of the biggest challenges they face when patients transition directly from DoD is getting access to their medical records and medication history.

Without access to previous medical records, they reported challenges understanding why patients were taking certain medications. Access to such information can be critical to ensure Veterans continue to receive their medication. For example, a physician may need a patient's medical history to be comfortable prescribing a medication such as a high risk or high potency drug or to prescribe an off-formulary medication (which requires a physician's clinical justification).

While a detailed assessment of data sharing capabilities for electronic health records was not in scope of this assessment, we did research initiatives VA and DoD have implemented to improve interoperability and information sharing. Table 3-5 highlights some of those programs

(Modified from: Defense Medical Information Exchange Program Office, 2014). The DoD and VA have been working on systems for interoperability since 1998 (Congressional Research Service, 2013). Many of the older tools provide only limited data and records (for example, only an outpatient medication list and not inpatient medications or clinical history). In 2008, the National Defense Authorization Act (NDAA) required DoD and VA to increase health information sharing and reach full interoperability between their medical record systems. While DoD and VA committed to developing a single integrated electronic health record in 2011, they have since developed plans for separate systems (a commercial off the shelf system for DoD and the VistA Evolution program for VA which includes the electronic Health Management Platform [eHMP]) due to cost and timing estimates (GAO, 2014). Common capabilities and interoperability are to be jointly developed by the Departments despite having separate systems.

Table 3-5. Data Sharing Programs between VA and DoD

Data sharing program	Year started	Intended purpose	Examples	Scale
Federal Health Information Exchange (FHIE)	2002	Monthly transfer of discharged servicemembers' clinical data from DoD to VA	Pharmacy, radiology, lab results	6.1 M service-members' clinical data transferred
Clinical Data Repository/ Health Data Repository Exchange (CHDR)	2003	Two-way exchange between DoD and VA of actionable outpatient pharmacy medication, allergy, and allergy reaction data for beneficiaries that use both DoD and VA health facilities, allowing the information to become part of the patients' permanent medical records	Outpatient Pharmacy, Allergy, and Allergy Reaction	2.1 M beneficiaries
Bidirectional Health Information Exchange (BHIE)	2004	Real-time read-only viewing of DoD and VA patient clinical data	Consultations, patient history and physical reports, theatre clinical data	5.1 M patients
Virtual Lifetime Electronic Record (VLER)	2009	Intended to allow public sector (VA, Social Security Administration) and private sector health care providers'	Continuity of care documents	

Data sharing program	Year started	Intended purpose	Examples	Scale
		secure access to a patient's health record		
Joint Legacy Viewer (JLV)	2013	Intended to provide easy access to integrated view of patient information, including information required for most clinical decisions	Medications, progress, and discharge notes	Currently available at all VAMCs with limited user access

As a bridge to eHMP development and to support interoperability, VA and DoD launched the Joint Legacy Viewer (JLV) program which includes mapping of data to national standard codes, access to more information (such as full exam reports), and a user friendly graphical interface. The JLV pilot program is being expanded to meet the full interoperability requirements issued again in the 2014 NDAA. During the pilot period there were ~700 test users across seven VAMCs and three DoD facilities. It is available at all VAMCs and was offered to all Chiefs of Staff or their designees as of October 1, 2014, but it is unclear how it is being received and used given the limited user access. Additional technical capacity is expected to be added to increase the user base across the enterprise on a rollout schedule (DoD and VA, 2014).

Given the early phase of JLV's rollout, it is unclear whether it will successfully address physicians' and administrators' needs to access clinical information from DoD systems. Previous programs had difficulties due to poor strategic planning, program management, and investment management (Congressional Research Service, 2013; GAO, 2014). Assessment H section 12.3 discusses these issues in more detail. Additionally, Assessment H found the JLV program rollout includes a lack of engagement and stakeholder awareness that raises concerns about its eventual success.

c. Differences exist between DoD and VA formularies that can lead to challenges ensuring continuity of care.

DoD's and VA's formularies and formulary processes are different. For example, DoD has a three tiered formulary, of which the third tier is considered non-formulary and not stocked on military bases. Instead, these non-preferred medications are only available through community pharmacies or mail order, and a large co-pay applies. All FDA-approved medications, until reviewed, are required by law to be placed in the second tier. On the other hand, VA has one national formulary and no tiers, and almost all medications are dispensed by VA pharmacies or CMOPs. While different, there is substantial overlap in the formularies, particularly for commonly prescribed mental health and pain medications (GAO, 2012). The DoD and VA both have mechanisms to provide access to off-formulary medications however, if clinically indicated.

Recent reports in the media have raised concerns that formulary differences may lead to VA physicians switching transitioning servicemembers' medications inappropriately. Accurately understanding the rate in which transitioning servicemembers' medications are changed due to

formulary differences would require a prospective study (which is beyond the scope of this report). However, an internal VA audit of 2,000 new patients showed only 21 patients transitioning from DoD had a medication switched by VA physicians without documented clinical justification if they received VA care within a year of discharge (759 patients in the examined cohort) (VHA Pharmacy Benefits Management, 2015a). Deeper analysis of those cases was not available, but several factors could have driven the switch, including undocumented clinical reasons, a patient's request to try a new medication, or a physician's desire to adhere to VA's formulary.

Several initiatives have been implemented to help facilitate smoother transitions. As noted in Table 3-4, VHA issued a directive in January 2015 that clinicians should maintain transitioning servicemembers' behavioral health medications if clinically appropriate (VHA, 2014). This formalized a policy that PBM leadership states was in effect since 2006. The directive states:

> *"A VA provider must not discontinue mental health medications, initiated by a DoD authorized provider, solely because of differences between the VA and DoD drug formularies, VA Criteria-for-Use, or the cost of the drug."*

It further allows physicians to switch medications if it is no longer safe, clinically appropriate, or effective based on the servicemember's current condition. If a switch occurs, clinical reasons must be documented.

In addition, on August 26, 2014, President Obama issued executive actions that mandated increased support for soldiers transitioning from the DoD to VA. The executive actions served to ensure that all servicemembers with mental health conditions are automatically enrolled in the DoD's *inTransition* program which provides dedicated support by mental health professionals during the transition period. Prior to this announcement, servicemembers were either referred by their providers or self-enrolled in the program. This passive enrollment led to potential gaps in clinical care which resulted in adverse outcomes for some transitioning servicemembers. In addition to the changes to the *inTransition* enrollment process, the executive action aimed to increase the continuity of all mental health medications during the transition period if clinically appropriate, regardless of the VA formulary status of a servicemember's medications. Prior to the executive action and the January 2015 directive promulgating the policy within VA, prescribers were required to seek formulary waivers for active mental health medications, which some prescribers may have found cumbersome.

All physicians interviewed during site visits said it had been their practice for many years to keep transitioning patients on DoD-initiated behavioral health medications regardless of formulary status unless there was a clinical indication to change. They believed that was also the practice of most of their colleagues. Interviews with pharmacists suggested that this was the most common practice, although it was not yet universal. Physicians who did report transitioning patients to on-formulary medications said they did so for clinical efficacy and safety reasons, not for cost or convenience, which is largely consistent with PBM's internal audit.

However, some physicians did cite examples of when medication switches had been made for clinical reasons that had been poorly explained to patients. This represents an opportunity for

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VA to improve the training of its physicians and to involve clinical pharmacists more proactively with transitioning Veterans to ensure any changes to medication regimens are fully understood and agreed with.

To support implementation of the directive above and to help improve the efficiency of Veterans' transitions, some VAMCs have also implemented changes to prescribing systems to make it easier for physicians to prescribe off-formulary medications. For example, some VISNs have enabled physicians to bypass the off-formulary prescribing process for psychiatric medications if a patient is known to be a recent transition from DoD.

3.2.5 VA has Implemented Programs to Reduce Utilization of High Risk Medications and Early Results are Promising

Narcotics and sedatives such as opiates and benzodiazepines are drugs at high risk of abuse and complications, particularly when used in combination. VA's patient population is known to have relatively high utilization of opiates and benzodiazepines, and several reports have highlighted the need to better manage the utilization of those classes of drugs (Wu, 2010; VA OIG, 2014a).

In response, VHA's PBM developed and implemented an opioid reduction program and physicians interviewed also reported a greater focus on benzodiazepines. The opioid reduction program has achieved widespread reduction in opioid utilization as measured by the percent of unique patients dispensed an opioid (VHA Pharmacy Benefits Management, 2015b). Figure 3-15 shows how the overall rate of prescriptions has fallen by 2.6 percentage points since 2012 for opioids. A similar decline was also seen for opioids with benzodiazepines (not shown).

Figure 3-15. Percent of VA Patients Prescribed an Opiate

Opioid use has fallen over the last two years
Percent of patients dispensed a prescription
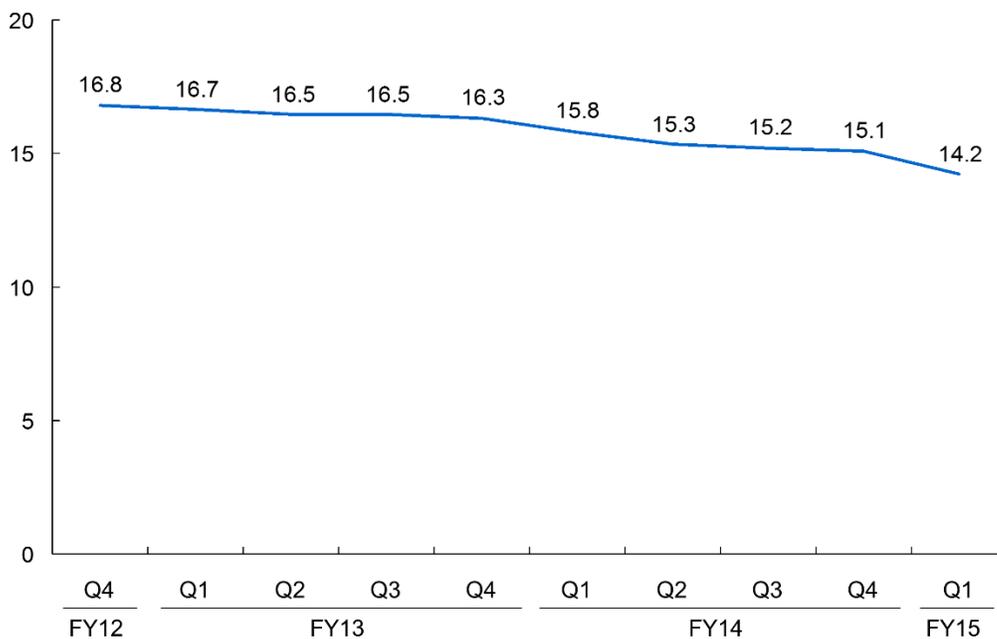
SOURCE: VHA Pharmacy Benefits Management. (2015b). VISN Opioids over time Q4 Fy 12 to Q1 Fy 15.

The views, opinions, and/or findings contained in this report are those of the assessment team and should not be construed as an official government position, policy, or decision.

This clearly highlights the organization's ability to drive changes in prescribing patterns and treatment paradigms. However, the metric used to measure opioid utilization is blunt. It does not take into account the type, strength, or dosage frequency of the opioids given, or whether an opioid is prescribed acutely (after a dental procedure, for example) or chronically (like for long-term pain). A more sensitive measurement approach that takes these factors into account (for example, converting all opioid regimens to a "morphine equivalent" to enable accurate comparisons) could help VA better understand and manage the titration process associated with opioids and other higher-risk drugs more effectively. Furthermore, programs similar to the opioid reduction program could be developed and implemented to improve safety in other drug classes that have adverse side effects or potential for abuse.

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4   Clinical Supplies, Medical Devices, and Related Services

4.1   Context

4.1.1   Context & Key Trends

In FY2014, VA spent approximately $3.4 billion on clinical supplies, medical devices, and prosthetic appliances (Figure 1-1, page 4). From FY2012 to FY2014, spend in those categories grew by 5.9 percent per year in total, with 5.4 percent growth in clinical supplies and 6.3 percent in prosthetic appliances and medical devices (VA, 2014a; VA, 2015a). In contrast, health care spending on clinical supplies in the U.S. increased by 2.9 percent per year, while medical devices grew by 3.6 percent per year and durable medical equipment (a major component of prosthetic appliances) grew at 4.9 percent over a similar time period (Donahoe & King, 2014).[9] One possible explanation for VA's faster growth in these categories is Assessment A's finding that Veterans who use VA health care are older and sicker than non-Veterans or Veterans who do not use VA health care.

Clinical supplies is a diverse category that contains products ranging from commodity supplies such as exam gloves, syringes, gauze, and bandages, to higher physician preference items such as endoscopic staplers and surgical clips. Clinical supplies are typically single use and tend to be disposed of or go through reprocessing after use.

For the purposes of this report, medical devices are defined as items that directly interface with or are implanted into a patient's body and would only be used by those to whom they were prescribed (for example, surgical implants, limb prostheses, sensori-neuroaids, and orthotics). Durable medical equipment, such as wheelchairs, crutches, and CPAP / BiPAP machines are excluded from this assessment because they are a category that is distinct from the industry's typical definitions of medical devices and clinical supplies. Under this definition, medical devices account for ~$1.2 billion, or 62 percent, of the prosthetic appliance budget and 37 percent of the total supply spend (Figure 4-1).

VA's Prosthetics and Sensory Aids Service (PSAS) is responsible for procuring[10], distributing, and facilitating use of medical devices, prosthetic appliances[11], and certain Veteran benefits such as home or vehicle modifications and VA's clothing allowance. These items and benefits are ordered by clinicians for specific patients and those orders are tied to specific cases.

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[9] Medical device growth based on a constant share of National Health Expenditures as found in Donahoe and King (2014). Note that in this time period National Health Expenditures overall grew at 3.6 percent, non-durable medical supplies grew by 2.9 percent and durable medical products grew by 4.9 percent (Centers for Medicare and Medicaid Services). 2013 is the most recent year available as of the time of writing.

[10] PSAS only procures prosthetic appliance items less than $3,000. Other procurements are done by NCOs.

[11] VA defines "prosthetic appliances" as artificial limbs and any devices that support or replace a body part or function, including sensory aids and mobility aids such as wheelchairs and walkers.

Figure 4-1. VA Spend on Clinical Supplies and Devices (FY2014)

Percent of FY2014 spend

100% = $3,462 M

Example categories

Clinical supplies — 40%
- Gloves
- Catheters
- Gauze, dressings, and bandages
- Wound closure devices
- Drapes and gowns

Medical devices — 37%
- Surgical implants
- Artificial limbs
- Sensori-neuro aids
- Orthotics / orthoses
- Biological implants
- Respiratory accessories

Prosthetic appliances

Other spend (out of scope of this assessment) — 23%
- Durable medical equipment
- Home dialysis program and equipment

SOURCE: VA. (FY2014c). Prosthetic appliance purchase orders (VistA Table 660); VA. (2014a). Congressional budget submission. Volume II - Medical programs and information technology programs.

Health care-related services are defined as services that are directly related to the purchasing, distribution, and use of the product categories within scope. Physician services and other services directly related to the delivery of clinical care are not covered in this report.

Within the context of clinical supplies and medical devices, the most important services are those provided through VA's Medical Surgical Prime Vendor (MSPV) program. MSPVs are distribution companies that are responsible for sourcing products from suppliers and distributing them to VA's facilities. They also provide value-added-services such as data reporting, just-in-time inventory management services, electronic ordering platforms, and warehousing.

The structure of VA's supply chain management organization that is responsible for clinical supplies and medical devices is complex (Figure 4-2). VA and VHA both contain organizations that play a role in the management of VA's medical supply chain. VA's Office of Acquisition, Logistics, and Construction (OALC) is subdivided into two organizations – the Office of Acquisition and Logistics (OAL) and the Office of Acquisition Operations (OAO). VHA's medical supply chain consists of three organizations – the Procurement and Logistics Organization (PLO) that is responsible for clinical supplies, Prosthetics and Sensory Aids Service (PSAS) that is responsible for medical devices, and the Pharmacy Benefits Management (PBM) organization that is responsible for pharmaceuticals. These three organizations are responsible for additional product categories that are outside the scope of this assessment.

Figure 4-2. Organizations Comprising VA's Supply Chain
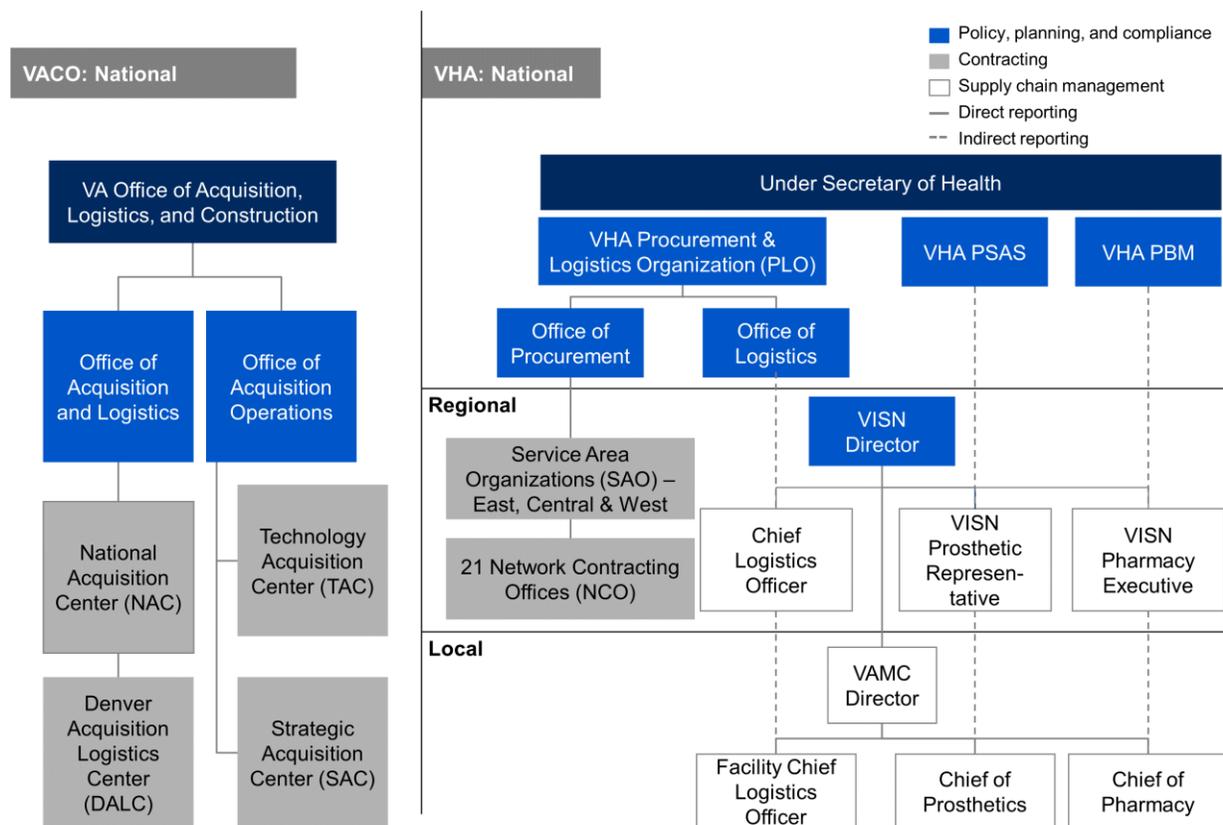
Note: Some VISNs may have different reporting relationships with facility prosthetics staff

SOURCE: Staff interviews. (2015). Site visits.; VA. (2014f). *VA Functional Organization Manual v2.0a.*

Within PLO, the procurement and logistical management of clinical supplies are managed by two separate groups – the Office of Procurement and the Office of Logistics respectively – and the reporting structure is different for each group. Procurement personnel report through VHA's regional contracting offices – the Network Contract Offices (NCOs) and Service Area Organizations (SAOs) – to the VHA's national Office of Procurement. In contrast, facility-based and regional logistics personnel do not report up to VHA's national Office of Logistics. Instead, they report into their local VAMC or VISN Director respectively.

Purchasing

Together, VA and VHA have 28 entities involved in aspects of contracting in some way (Figure 4-2). There are 4 contracting entities within VA – the National Acquisition Center and Denver Acquisition and Logistics Center that sit within OAL, and the Strategic Acquisition Center and the Technology Acquisition Center that sit within OAO. There are 24 contracting entities within VHA's medical supply chain – 21 Network Contracting Offices and three Service Area Organizations. The key roles of each of these contracting organizations in the procurement of clinical supplies, medical devices, and related services is summarized below:

- National Acquisition Center (NAC): Responsible for managing the Federal Supply Schedule (described below), establishing VA national contracts, and facilitating VAMC ordering of pharmaceuticals, clinical supplies, and medical equipment.

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- Denver Acquisition and Logistics Center (DALC): Responsible for establishing contracts for and procuring select clinical supplies and health care services, and distributing some items direct to Veterans, such as hearing aids and hearing aid batteries.

- Strategic Acquisition Center (SAC): Responsible for acquisition of supplies, equipment, and services.

- Technology Acquisition Center (TAC): Responsible for procuring enterprise-wide information technology systems.

- Service Area Organizations (SAOs): Responsible for regional contracting by establishing contracts on behalf of multiple VISNs. SAOs are geographically aligned to the western, central, and eastern regions of the country. In 2009, VHA centralized its contracting organization into this structure.

- Network Contracting Offices (NCOs): Responsible for local contracting by establishing contracts on behalf of VISNs or individual VAMCs. Contracting officials in the NCOs and SAOs are sometimes physically located within VAMCs.

The basic instrument for government-wide purchases is the Federal Supply Schedule (FSS). The FSS is an indefinite delivery, indefinite quantity contract that, by statute, requires the supplier to provide the government with pricing at least equal to its most favored customer. However, as an indefinite quantity contract, those prices are often determined on a single unit quantity. FSS is an open solicitation and vendors can apply at any time. Terms are generally five years, with an optional five year extension. The federal government has delegated authority to the NAC to manage nine multiple award schedule programs for medical equipment, supply, and other health care-related contracts.

There can be multiple vendors on FSS for any given item. Purchases for items on FSS may be bid out among several FSS vendors to negotiate further price reductions. Additionally, blanket purchase agreements (BPAs), can be established by both national and regional contracting organizations based on FSS contracts to secure additional price reductions with definite quantity terms or other tools. BPAs can also enable streamlined purchasing. Finally, for items not on FSS, national, regional, or local contracts may be established for repetitive purchases. VA purchasing agents can also access non-VA government contracts such as those from the Defense Logistics Agency within the DoD.

VAMCs order supplies through three primary methods:

- **Request for Quotations (RFQs):** Purchasing agents use IFCAP and Electronic Data Interchange (EDI) functionality to electronically send an RFQ to one or many vendors and receive bids electronically, evaluate bids, award the order, and generate the purchase order. RFQs are almost all exclusively for purchases over $3,000.

- **Direct supplier order with purchase cards:** Service level and logistics staff place orders using phone, fax, or supplier websites, then generate purchase orders against assigned purchase cards. Charges are passed electronically from the Austin Credit Card System to IFCAP and users reconcile payments. The assigned Approving Official then approves reconciled orders. Approximately 98 percent of clinical supplies purchases are made this way (VA, FY2014a).

- **Delivery orders:** Service users generate purchase orders for on-contract items which, if configured at the site, allows orders to be expedited by bypassing VA's manual obligation process and obligated at time of signing by service-level staff (logistics or prosthetic purchasing agents for example). Invoices are sent directly to the Austin Financial Service Center and are reviewed against the inventory record when received. Payment is made through electronic funds transfer.

Orders that exceed $3,000 (the "micro-purchase threshold") must be submitted to contracting – typically to the NCOs initially. If the item requested is not already on contract, it must be competitively sourced by a VA contracting organization. VHA Procurement and Logistics Organization (PLO) manages the majority of these purchases using contracting vehicles it has established locally or regionally, or by accessing national contracts established by VA national-level organizations (NAC, SAC, DALC, and TAC). VAMCs are responsible for developing and submitting packages to contracting that contain, among other things, the specifications of the products they would like to buy. These packages and the subsequent contracting activities are processed and managed by Contracting Officers (COs).

The scale of VA and the breadth of services provided gives it a unique potential to negotiate prices paid for clinical supplies, medical devices, and related services. In essence, it acts as its own group purchasing organization (GPO). Instead of paying fees to an external GPO, VAMCs pay fees internally to the national contracting organizations with every purchase made on national contracts. These cover the costs associated with negotiating and securing contracts and managing the contracts thereafter. Those fees are typically paid from appropriations to VAMCs to the national contracting entities via the supply fund, as a percentage of the value of items procured. The percentage paid is dependent upon contract type but ranges from 0.5 to 4 percent, which is in line with fees levied by third party GPOs. VHA contracting organizations have a fixed budget and receive little funding from the supply fund.

Distribution

In the past, VA had an extensive network of depots that received goods and distributed them to VA facilities. VA has largely abandoned its depot model and has moved to a direct-to-facility distribution model. Currently, VA facilities receive clinical supplies and medical devices from two primary sources: direct from manufacturers or from third party distributors.

At any facility, its primary distributor is its Medical Surgical Prime Vendor (MSPV). Approximately 22.5 percent (by value) of clinical supplies are delivered to facilities by the MSPV (VA, FY2014a).[12] VA currently has six MSPVs that each cover different parts of the country. Their geographic coverage and contractual arrangements are summarized in Figure 4-3 and Figure 4-4.

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[12] Based on full FY2014 purchase data for five VISNs (range 16 to 32 percent) and budget object code 2632. Note that VHA typically measures MSPV utilization in only four cost centers that cover 79 percent of BOC 2632 spend and only for items with a contract number (37 percent of BOC 2632 spend). Additional discussion can be found in Section 4.2.3.

Figure 4-3. Medical Surgical Prime Vendor VISN Coverage
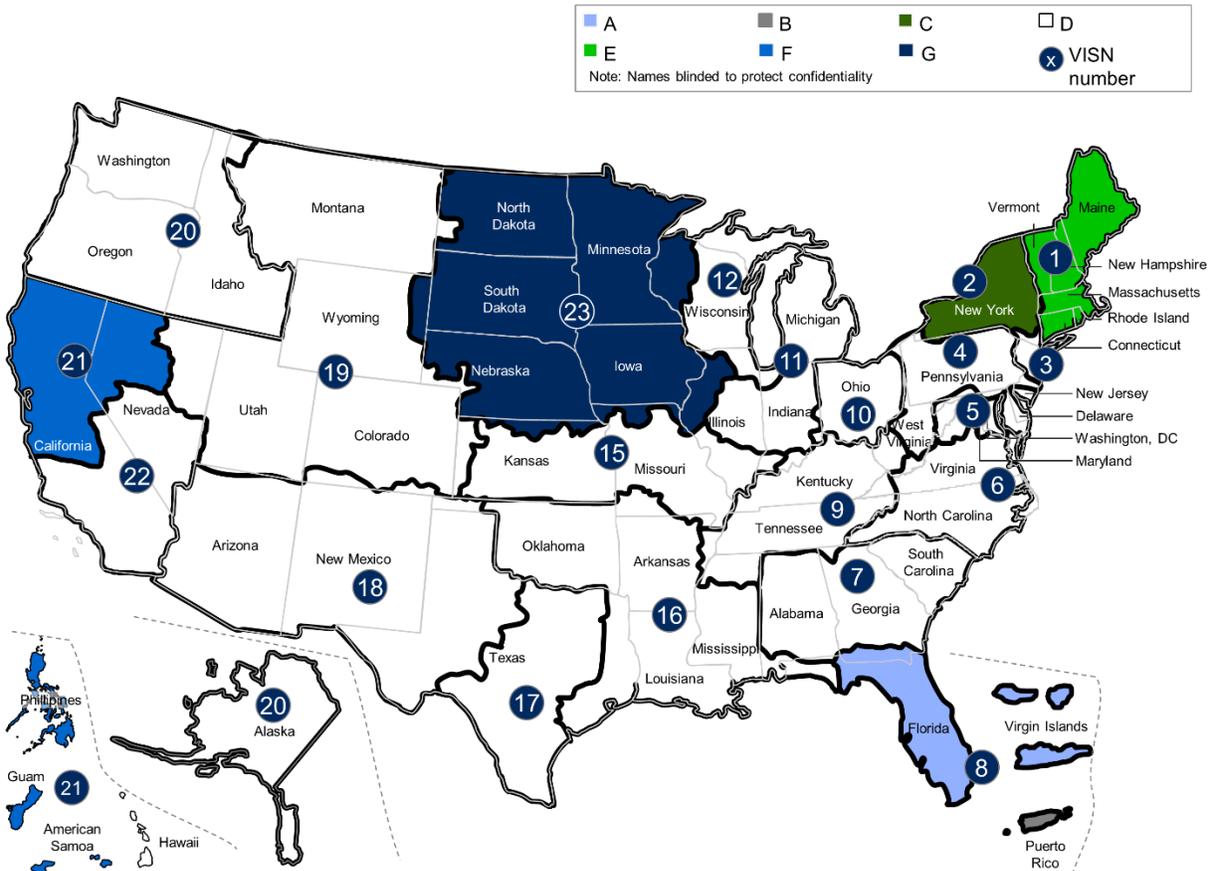
SOURCE: VA. (2010, 2011). Medical Surgical Prime Vendor Contracts, VA797P-0188, VA797P-0189, VA797P-0190, VA797P-0191, VA797P-0192, VA797P-0193, VA797P-0195.

Figure 4-4. Summary of Medical Surgical Prime Vendor Contractual Terms

Awardee[2]	A	B	C	D	E	F	G
Date of award	3/9/2010	3/9/2010	3/9/2010	3/9/2010	3/9/2010	3/9/2010	3/24/2011
Contract number	VA797-P-0188	VA797-P-0189	VA797-P-0190	VA797-P-0191	VA797-P-0192	VA797-P-0193	VA797-P-0195
Payment terms	30 days	30 days	30 days	30 days	30 days	30 days	30 days
VISNs	8	Puerto Rico	2	3-7,9-20,22,HI,AK	1	21	23
Value of products[1]	$17,664,487	$6,195,583	$8,305,473	$247,860,965	$10,677,661	$8,122,640	$3,593,408
Value of Distribution fees[1]	$847,895	$660,015	$449,329	$9,656,474	$538,261	$576,720	$249,490
Distribution fee - Conventional	4.40%	9.00%	4.80%	2.55% (continental U.S.)	4.99%	3.50%	4.90%
Distribution fee - JIT	8.40%	13.50%	10.90%	10.17%	5.50%	7.50%	7.25%
Fill rates - Conventional	95%	95%	95%	95%	95%	95%	95%
Fill rates - JIT	98%	98%	98%	98%	98%	98%	98%
Number of emergency deliveries included per month	2	3	2	4	3	4	2
Additional fee for delivery trip	$150	$50	$175	$145	$300	$125	$150

1 Initial term only
2 Blinded to protect confidentiality

SOURCE: VA. (2010, 2011). Medical Surgical Prime Vendor Contracts, VA797P-0188, VA797-P-0189, VA797-P-0190, VA797-P-0191, VA797-P-0192, VA797P-0193, VA797-P-0195.

In private industry, primary distributors such as VA's MSPVs offer many value added services including those that support:

- Purchasing: web-based, user friendly ordering tools with integrated catalogs; invoicing services; and automated re-ordering through systems integration

- Distribution: warehousing of commonly used items for just-in-time replenishment and lean facility inventories; low unit of measure or unit of use repackaging; distribution and management of inventory on service wards; and advanced tracking and item management tools

- Use: custom labeling to support use and tracking; standardized purchasing data reports and product nomenclature; and advanced analytical tools for understanding utilization patterns

VA currently only takes advantage of a limited number of these value added services (barcode labeling, just-in-time replenishment, and low unit of measure deliveries in some facilities).

VA also has some capacity to distribute clinical supplies and medical devices to Veterans. For example, the Denver Acquisition and Logistics Center distributes hearing aids and batteries to Veterans around the country.

Use

In contrast to pharmaceuticals, usage of clinical supplies and medical devices is not strictly monitored or managed in VA. In general, clinical staff (typically physicians and nurses) can choose whichever products they believe are best for patients and the supply chain organization's role is to make those items available.

There are some efforts underway to standardize towards a smaller set of products or to an individual product within a category. These efforts are described below.

4.1.2 Previous Assessments and Reform Efforts

The purchasing, distribution, and use of medical products by VA has been the subject of numerous reports by the Office of the Inspector General (OIG), the Government Accountability Organization (GAO) and other third parties. These reports are listed and summarized in Appendix B.1. Common themes that cut across these reports include:

- Inefficiencies due to fragmented oversight, systems, and processes
- Archaic IT systems that are inadequate for effective supply chain management
- Inadequate policies, training, and oversight related to procurement and inventory management
- Poor history of implementing recommended changes

These past assessments have tended to focus on specific issue areas and/or individual facilities, separately developing recommendations for improvement in discrete areas. In contrast, we tried to take an end-to-end view of inpatient clinical operations across five key sub-assessment areas and all high- and medium-complexity VAMCs.

4.2 Findings

The performance of VA's supply chain management of clinical supplies, medical devices, and related services is poor, particularly when compared with VA's pharmacy organization and best practice supply chain management organizations. The findings of this assessment can be summarized by the following seven themes:

1. The organizational structure of VA's supply chain enterprise is unduly complex and duplicative.

2. VA's current IT systems, data systems, and analytical capabilities related to finance, inventory management, and purchasing are major impediments to effective supply chain management.

3. The performance of VA's contracting organization does not meet customers' expectations, so frontline staff have developed workarounds.

4. VA has not taken full advantage of its scale or potential for standardization to achieve optimal pricing and efficiency.

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5. Inventory management process, practices, and systems are neither integrated nor optimized.

6. VA struggles to attract, hire, and retain high caliber supply chain talent.

7. There are pockets of good performance and innovation in VA that could be replicated across its supply chain.

Each of these seven themes is outlined in more detail below.

4.2.1 The Organizational Structure of the VA's Supply Chain Enterprise is Unduly Complex and Duplicative

A major barrier to VA's supply chain management is the siloed and duplicative nature of its organizational structure. In contrast to best-in-class supply chain organizations:

a. The organization is fragmented and consists of multiple, overlapping entities, which leads to duplication of efforts and lack of role clarity.

b. Medical devices and clinical supplies are managed separately, which adds unnecessary complexity.

a. The organization is fragmented and consists of multiple, overlapping entities, which leads to duplication of efforts and lack of role clarity.

All the senior leaders in VA's and VHA's supply chain organizations who were interviewed said that the current organizational structure is too complex and should be simplified. Many field-based supply chain personnel agreed. In addition, national supply chain leaders expressed lack of clarity regarding the scope of responsibilities of the entities for which they are responsible, which had led to some tension and what one leader described as a "turf war." Others described a vacuum of ownership and accountability, and lack of clarity on roles and responsibilities.

Over the years, however, the number of national, VA-level contracting organizations has grown. VA now has four national-level contracting bodies – the SAC, NAC, TAC, and DALC. They were established to fulfill strategic sourcing, GPO-like functions by consolidating spend and establishing national contracts from which VHA could procure goods and services at optimal prices. However, there is overlap in the products and services covered by those national contracting organizations and there is overlap between them and the regional VHA-level contracting organizations, as shown in Figure 4-5. There is little (if any) overlap between the DALC's contracting responsibilities and those of other organizations. This clarity and independence likely plays a role in the DALC's success.

Figure 4-5. Acquisition Organization Areas of Responsibilities and Activities

There is substantial overlap in contracting offices' areas of responsibility

X Officially assigned to organization

(gray) Overlap identified

Products and Services	VA Office of Acquisitions, Logistics & Construction (OALC)				VHA
	Office of Acquisition Operations (OAO)		Office of Acquisition and Logistics (OAL)		P&LO
	Technical Acquisition Center (TAC)	Strategic Acquisition Center (SAC)	National Healthcare Acquisition Center (NAC)	Denver Acquisition and Logistics Center (DALC)	SAOs/ NCOs
IT Products and Services	X				
General Medical Products and Services		X			X
General Surgical Products and Services		X			X
Advanced /High-Tech Medical Equipment/Systems			X		
Medical Specialty Products and Services		X			X
Surgical Specialty Products and Services		X			X
Pharmaceuticals			X		X
Prosthetics (General)		X			X
Prosthetics (socks and select orthotic soft goods managed by the DALC)				X	
Dental Products and Services		X			X
Patient Mobility Products and Services		X			X
Tele-Health Products and Services				X	
Hearing Products and Services (including batteries)				X	
Facilities Maintenance and Repair Products and Services		X			X
Medical Federal Supply Schedule (FSS) Contracts			X		
Allied Health Products and Services				X	X
Subsistence			X		
All Other Products and Services (Including Extended Care Services)		X			X

SOURCE: Principal Executive Director, OALC. (2013, March). Strategic Sourcing Contracting Support (VAIQ 7277508).

Many interviewees expressed lack of clarity on the purpose, function, roles, and responsibilities of the NAC and the SAC in the course of this assessment. This included both users (PLO, VISN, and VAMC) and members of leadership in the acquisition centers themselves. The TAC's scope was relatively well understood by interviewees – procurement of IT products and services. The DALC – a small and specialized group that manages national procurement and direct-to-Veteran distribution of a handful of product categories – was regarded as the most well-managed and effective national contracting entity by field logistics personnel as well as senior VA and VHA supply chain leaders for the integrated approach it takes. More depth on the DALC can be found in section 4.2.7.

The SAC is a relatively new office established in 2011 with a similar mission to that of the NAC. In a memo to VA leadership in March 2013 from the OALC (Principal Executive Director, OALC, 2013), a number of procurement responsibilities formerly handled by the NAC were transitioned to the SAC, including general and specialty clinical products and services. However, as of March 2015, the NAC's leadership and website (VA, 2015h) still described its responsibilities as awarding national committed use contracts and BPAs for clinical supply commodities, and for managing these products' standardization. Contracts published in the Federal Procurement Data System (FPDS) and NAC leadership confirmed that it still participates in these activities. In the four years since the SAC was established, it has awarded 69 contracts worth $1.2 billion, the NAC has awarded 394 contracts (excluding FSS contracts) worth $15

billion, and the DALC has awarded 122 contracts worth $13 billion. Clinical supplies and device contracts make up 14 percent and 28 percent of NAC and SAC awards respectively by value, but 27 percent and 48 percent by volume (Figure 4-6).

Examples of the overlap between the NAC and SAC include the following:

- Urinary supplies: The SAC established contracts for urinary catheters and catheter trays, while the NAC has established contracts for urine collection bags and urinary closed drainage systems (containing a catheter and bag).
- Operating room supplies: The SAC has contracted for operating room towels, while the NAC has contracts for other disposables used in operating rooms including surgical gloves, masks, scrubs, and blades.

Figure 4-6. Share of Contracting Activity by Product Category

Contracting organizations overlap product categories
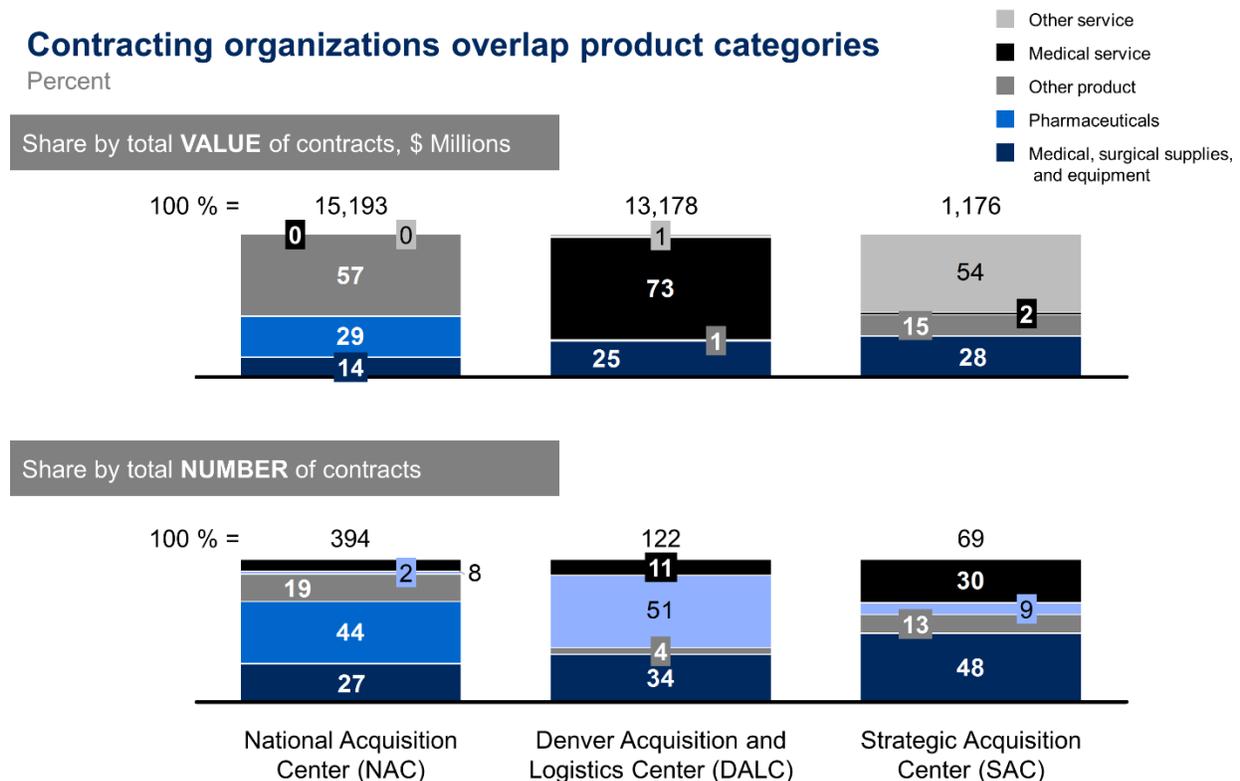
SOURCE: VA Contracts in the Federal Procurement Data System. (2010-2015). Retrieved June 2015, from http://www.fpds.gov. Excludes FSS contracts, categories determined by PSC code (6515, 6520, 6532, 6545 for Medical, surgical supplies, and equipment); Imaging (6525) placed in "other product" as it was mainly large capital equipment, ceiling price was taken as contract value

The OALC has embarked on a transformation program to build a strategic sourcing capacity (Haggstrom, 2014), which includes hiring more staff and providing additional professional development. This overlaps somewhat with the original intent of the SAC. This may exacerbate role confusion further.

Best-in-class supply chain organizations typically have a single group responsible for the strategy, sourcing, procurement, and logistics of clinical supplies and medical devices. The organization is typically led by an executive-level leader, and personnel are aligned along

product categories to develop and utilize deep expertise in the products and suppliers they manage. Furthermore, to be effective, there is strong engagement with the users of the goods they procure. In this way, the needs of users are incorporated into strategic sourcing plans and integrated sourcing initiatives (standardization, for example) gain traction with clinicians.

b. Medical devices and clinical supplies are managed separately, which adds unnecessary complexity.

In most health care organizations, the integrated supply chain group described above manages the procurement and distribution of all clinical supplies and medical devices (as well as other supplies). However, in the VA, clinical supplies are managed by the logistics organization while medical devices are managed by the Prosthetics and Sensory Aid Service (PSAS).

VA's separation of clinical supplies and prosthetics/medical devices causes issues within VAMCs, particularly in relation to coordinating products needed for procedures. Several examples of issues were shared during site visits (Staff interviews, 2015). For example, if a patient undergoes a coronary stenting procedure in the catheterization (cath) lab, PSAS procures the stents and makes sure they are available when needed, while logistics procures and manages almost everything else that is used in the procedure (e.g., the gloves, gowns, drapes, introducer, guide wire, catheter, and other supplies for the procedure). PSAS typically operates an "office hours" schedule, and every site visited stated that getting implants such as cardiac stents in an emergency can be challenging. Cath lab directors reported that this had led to a culture of carrying as many sizes of everything as they could "just in case" and, in some cases, needing to "borrow" supplies from a nearby facility (often the local academic medical center) to deliver the required medical care. Several VA personnel who work in cath labs and ORs cited recent examples of when they, or one of their colleagues, had to do that so that a Veteran could receive timely and appropriate care. However, VA does not track stock outs nor delays in care due to such events, so the assessment team was unable to quantify these occurrences.

In the private sector, many health care organizations are moving to consignment stock for high cost medical devices. Under a consignment stock model, items remain the property of the supplier but are stored on hospital shelves so are easily accessed by clinical staff. Items are paid for only when they are used. In this way, suppliers ensure hospitals are adequately supplied with all the sizes they may need of a given product and hospitals avoid managing expensive inventory.

We observed a handful of consignment situations within VA (all in cath labs) but the range of products under consignment was small. Cath lab directors said they would like to have more inventory on consignment but reported challenges establishing the consignment agreements with suppliers because of contracting complexity.

In addition, PSAS' current role does not appear to be fully in line with its core mission, which *"is to provide comprehensive support to optimize health and independence of the Veteran"* (Prosthetic & Sensory Aids Service, 2015). A substantial amount of work in PSAS involves procuring and managing inventory, which is typically not a core competency of prosthetic techs. Indeed, in 2012, the OIG published a report (VA OIG, 2012b) detailing problems in prosthetics

inventory management including over stock and shortages, partly due to poor training and system integration (see section 4.2.5 for more discussion on inventory management practices and system integration).

During site visits and interviews, most facility prosthetics staff stated that keeping up with the backlog of requests for prosthetic appliances, particularly commodities such as eyeglasses, was challenging. The workload of procuring and managing prosthetics inventories takes valuable resources from activities such as advising clinicians, managing specialized programs, and providing personalized customer service to Veterans. Particularly for commodity prosthetic supplies, it also creates duplication of efforts, infrastructure (for example, separate inventory control points), and systems (like two inventory management databases and software packages).

Recently there have been pilots to streamline and consolidate management of the prosthetics and clinical supply chain. In VISN 20, logistics now manages prosthetics commodity items. The program was rolled out to eight facilities over a period of two and a half years, with facility logistics adding ~300 items directly to existing inventory control points. Fiscal transparency was increased through use of the General Inventory Package (GIP; inventory management software) and, as the existing inventory points were managed with point of use technology cabinets, the reordering of many prosthetic commodity items became automated. Logistics and PSAS developed a core list of standardized items during this period based on usage patterns and worked with the MSPV to optimize supply.

The VISN also established a VISN mail out center (VMOC) to distribute prosthetics directly to Veterans. This was to ensure that Veterans get timely access to their prosthetics if they are not able to pick them up in person. Prior to the pilot, PSAS had to pack and send items to patients, usually by shipping them or, in extreme cases, dropping them off themselves on their way home from work. This increased the burden on PSAS resources at facilities and took them away from patient-facing activities. Prior to the VMOC, each site mailed out items individually with mail out times taking an average of 13 days, a significant portion of which was due to delays in receipt of the initial request for mail out (VISN20 Logistics, 2015).

The impact of these pilots in VISN 20 has been substantial. With the VMOC, requests are printed at the facility immediately upon physician approval, and items are picked, packaged and mailed within 3 days (VISN20 Logistics, 2015). Centralization of prosthetic purchasers at the VISN allowed 17 additional Prosthetic Representatives to be staffed within facilities, increasing customer service and decreasing Veteran and Congressional complaints received by the Patient Advocate by 27 percent from FY2013 to FY2014 for one facility. Open prosthetic requests fell from 9,111 in December 2012 to 5,467 in May 2015 and prosthetic inventory management has seen a reduction in inventory space required (27 percent), stock on hand (21 percent), and purchase issues (17 percent), all while increasing issues from stock (23 percent).

Additional pilots to consolidate management of prosthetic supplies with clinical supplies are underway in two other VISNs.

4.2.2 VA's Current IT Systems, Data Systems, and Analytical Capabilities Related to Finance, Inventory Management, and Purchasing are Major Impediments to Effective Supply Chain Management

It is commonly said that an organization cannot manage what it cannot measure. This is largely true of VA in relation to clinical supplies, medical devices, and supporting services. VA lacks visibility into supplies and devices spend at the level of granularity typically seen in the private sector. For example, in the private sector, it is typically possible to measure clinical supply spend and utilization at the service, patient, or physician level. However, this is not possible in VA because it does not capture such data. Therefore, supplies spend per case can only be calculated in aggregate, which is relatively meaningless and does not allow for fair comparison across hospitals, services, or physicians. This inhibits VA's ability to manage utilization and to understand fully the impact of product standardization efforts.

System fragmentation and lack of data standardization are primary drivers of VA's lack of data transparency. VA has at least 130 instances of VistA across the system (VA, 2015e), each with its own product nomenclature and numbering system (also known as the Item Master File [IMF]). This situation is a massive impediment to effective management of VA's purchasing, distribution, and use of supplies and devices.

Specific findings in relation to these topics are the following, which are described in more detail below:

a. VA's supply chain management systems are antiquated and are neither integrated with one another, nor into the clinical and financial systems.

b. VA's supply chain data related to clinical supplies and devices is not standardized and is incomplete.

c. VA has limited ability to analyze its data centrally to generate insights that will inform strategic decisions.

d. Recent investments in supply chain IT do not appear to be aligned with a broader strategy.

a. VA's supply chain management systems are antiquated and are neither integrated with one another, nor into the clinical and financial systems.

The underlying information technology at VA is the Veterans Health Information Systems and Technology Architecture (VistA). It is an open source, modular software system developed in the 1970's and was a pioneer in electronic health record systems. Nearly all VA facilities have their own instance of VistA. As a result, there are at least 130 separate and independently maintained databases across facilities (VA, 2015e). While data is pooled centrally, there is limited ability to push changes to item master files, synchronize data across facilities, and maintain control over the quality and consistency of data. There is more information on the data challenges associated with this fragmentation in the next section.

Several core modules sit on top of VistA. Those that are relevant to the supply chain include:

- **Integrated Funds Distribution, Control Point Activity, Accounting and Procurement (IFCAP) system**: module for requesting and establishing purchase orders, obligating funds, managing payments, and recording the receipt and acceptance of goods.

- **General inventory package (GIP)**: IFCAP Module used to manage inventory stock. It can establish and track primary and secondary inventory control points for medical and surgical supplies, dental, imaging, laboratory, environmental management service, and engineering. Supports barcode reading and automated inventory reordering through IFCAP

- **Prosthetic inventory package (PIP):** Graphical user interface software to track quantities of prosthetic items located in the PSAS inventory of each facility.

Additionally, VA has other systems relevant to the supply chain, including:

- **Financial Management System (FMS):** VA's legacy core accounting system

- **Electronic Contract Management System (eCMS):** A commercial, off the shelf system used by VA to manage requirements packages, proposals, solicitations, contract execution tracking, and other contracting activity

These systems are not integrated and have limited interoperability with one another. This is a major impediment to effective supply chain management. For instance, IFCAP is not integrated with FMS nor eCMS. This limitation results in significant operational challenges and manual work, including:

- Inability to perform commitment accounting: For example, budgets are not debited when a procurement request is made nor while that request goes through contracting. Therefore, a purchase order may not have funds available to be obligated to buy anything off the contract that is awarded.

- Clerks check fund availability in FMS and obligate funds if available (they receive nightly batch transmissions from contracting officers of obligation requests). Additional steps increase processing time and chance for errors.

- Manual linkage of obligations with contracts: On some contracts, VA is limited in the number of items it can purchase in a given timeframe. Any additional orders or funds obligated above this threshold are unauthorized and should be ratified. However, there is no mechanism to inform contracting that it should decrement a contract ceiling when an invoice is received.

Moreover, the text console display and free text entry format make performing tasks time consuming and training intense.

As described above, PIP and GIP manage prosthetics and other inventory respectively. Both IT systems are fragmented, archaic, and interoperability between them and other systems is limited. They require manual inventory tracking and neither integrates with FMS, requiring additional manipulations. PIP does not integrate with IFCAP or CPRS (VA's electronic medical record), and when supply staff record receipts in IFCAP, or clinical staff record use of prosthetic inventory, PIP is not automatically updated. A 2012 OIG report found evidence that this additional manual work led to oversupply and shortage errors (VA OIG, 2012b).

In addition, GIP does not capture performance measurements such as perfect order fulfillment, stock outs, or wastage. Cross-leveling inventories can only occur through phone, fax, or email communications. Free text entry and lack of data standardization across facilities complicates system-wide tracking of inventories as well.

Some VAMCs have explored add-on technologies to improve the user interface of the inventory management system and to add much needed functionality to help logistics leaders manage inventory more effectively. Broader deployment of such software could increase the system's user-friendliness and utility at each site, but the issue of disparate nomenclature and SKU numbering would remain.

Many health care systems today either have or are moving towards operating with integrated Enterprise Resource Planning (ERP) systems, which give them end-to-end visibility into the operational and financial performance of their supply chains. High performing health systems integrate their clinical and supply chain systems such that it is seamless to the end user, increasing the accuracy of supply utilization, capture, and accuracy of both billing and inventory on hand (High performing health system interviews, 2015). This enables more effective budgeting, forecasting, and inventory management, as well as automation of key supply chain processes such as ordering. Best in class health care systems build advanced business intelligence capabilities on centralized and standardized data systems, allowing them to perform sophisticated analysis on spend and utilization.

Better IT and data will be critical enablers of many of the improvements outlined in this report.

b. VA's supply chain data related to clinical supplies and devices is not standardized and is incomplete.

The data provided by VA's supply chain management systems is not standardized across VA, making cross-site comparisons and generation of other business intelligence almost impossible. This is critical for modern day supply chain and utilization management. With more than 130 databases, there is a proliferation of naming formats, incomplete data records, and essential data that is not tracked. Effective supply chain management, sourcing, and utilization management depends on reliable data to generate insights that create sustained value, efficiency, and quality improvements. VA is far behind the curve, which limits its ability to manage its supply chain in a modern way.

IFCAP (the purchasing module of the VistA system) is based on free text entry in a console. Each facility maintains its own locally-hosted architecture and there are no standards for data entry. As a result there is a proliferation of field entry formats (Figure 4-7) that make tracking purchases and analyzing spend particularly difficult (VA, FY2014c). Furthermore, while contract numbers are supposed to be entered for every item, this field was empty for 63 percent of the FY2014 transactions across the five VISNs examined (VA, FY2014a).

Figure 4-7. Number of Supplier Name Variations in IFCAP across VA

Poor data entry standards have led to vendor name proliferation

Number of suppliers with X different formats of their name in VA's system[1]	Average spend per supplier $ Millions	Total spend $ Millions
X=... 1 — 9,633	<0.1	274
2-3 — 1,485	0.1	162
4-5 — 416	0.2	92
6-10 — 356	0.8	271
11-20 — 154	2.2	341
21-50 — 62	5.0	310
51-100 — 7	11.4	80
>100 — 5	43.9	220
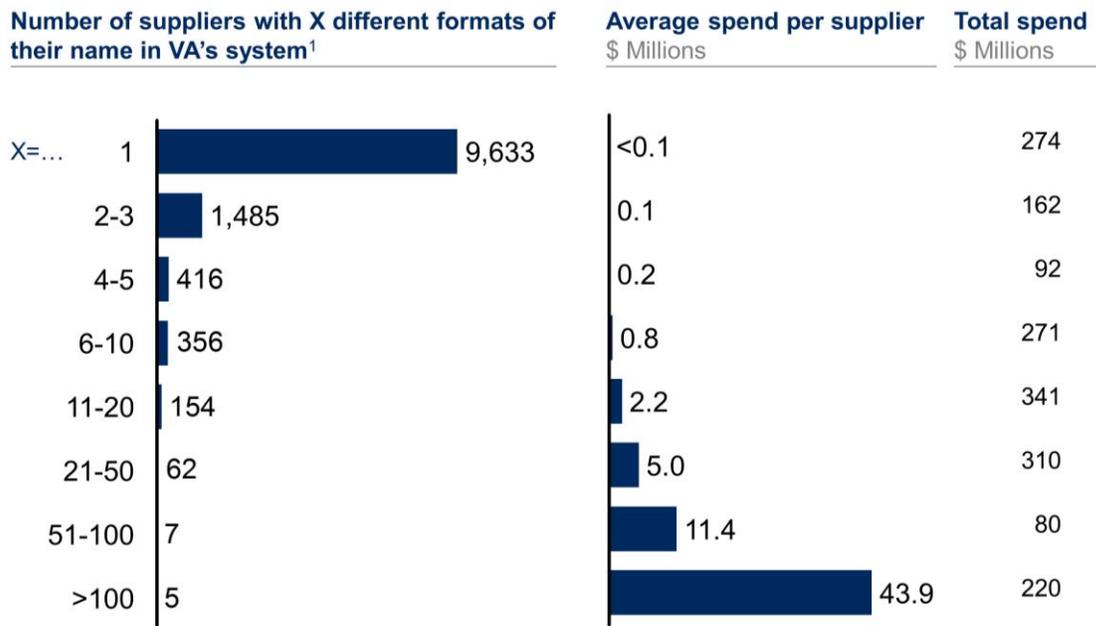
1 Equivalent pairs of vendor names from FY2014 prosthetic purchases were identified with fuzzy string matching, clustered and manually inspected to produce sets of equivalent vendor formats. >23,000 entries were reduced to ~12,000, some additional redundancy likely remains

SOURCE: VA. (FY2014c). Prosthetic appliance purchase orders (VistA Table 660).

Data completeness and format proliferation make analysis of spending patterns and matching of equivalent items nearly impossible. The example in Table 4-1 highlights how multiple purchases are made across the system for the same item through different vendors. Each site had its own product code (vendor stock number) used for purchases. Some have more than one. Some vendors (E and F, in the example) are actually equivalent but have differing names because one may be a subsidiary of the other. These variations in data make it difficult to identify price variations like that shown below, or to analyze total spend through a vendor to support price negotiations. Moreover, compliance with contract usage is nearly impossible to track.

During our analysis of pricing for like items across VA, we also evaluated the integrity and cross comparability of the data we received from VA's systems. In an effort to compare like items and the price paid for them both within and between VISNs, we applied a data normalization and matching algorithm to clinical supplies purchases, as well as medical devices within prosthetic purchase data for two VISNs (see Appendix A.2.3 for methodology). During this analysis, 68 percent of prosthetics spend data was excluded because of missing data fields (primarily manufacturer or vendor item codes), while 3.4 percent of clinical supply spend was excluded (primarily due to a line item being non-medical in nature). In other health care organizations, typically less than 1 percent of data needs to be excluded because of issues with missing data when this analysis is run.

Table 4-1. Example: Purchases of the Same Supply from Multiple Vendors, Using Different Product Codes and Prices

Example vendor stock number[13]	Vendor	Contract # present	Relative price point
NE-SDQ-CMP-QFP	A	Yes	1.00
NEDSDQCMPQFP	B	No	0.82
	C	No	0.82
BAY-SDQ-CMP-QFP	B	No	0.82
SDQ-CMP-QFP	A	Yes	1.00
	B	No	0.82
	D	Yes (but non-covered item)	1.35
	E (= F)	No	0.97
	F (= E)	No	0.97
	G	No	1.48
SDQCMPQFP	E	No	0.97
643129	H	No	1.09 – 1.14 (4 prices)

Despite the data normalization and matching algorithm, 48 percent of products and 19 percent of spend had no match between facilities compared (Figure 4-8). We typically see a match of 90-95 percent of the spend between facilities in other health care organizations. Of the matched data, most matches were found between facilities within VISNs. Some of the matching challenge was due to variations and omissions in the data, which exceeded the algorithm's tolerance.

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[13] Items were determined to be equivalent based on item description and other descriptive fields in purchase order data. This item was purchased by four of the five VISNs in the data. Price per unit was indexed to the item on FSS contract. Stock numbers and prices are examples of actual variation observed, however they have been blinded and do not correspond to a specific product given sensitivity of pricing data.

Figure 4-8. Matching of Purchase Data across Facilities in Two VISNs

A large portion of purchased products cannot be matched to other purchases within or between VISNs
Percent

■ Matched across VISNs
■ Matched within VISNs
■ No match
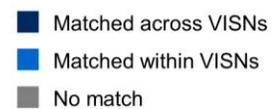
Based on number of products[1]

16
35
48

Based on spend[1]

19
30
50
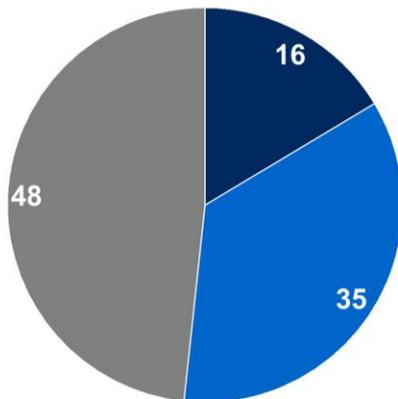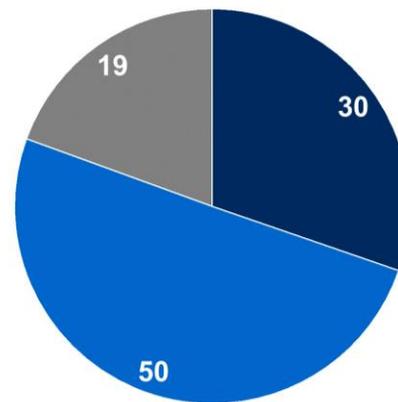
1 For medical and surgical supplies, all BOC 2632 spend was included. For Prosthetics, only surgical implants, prosthetic limbs, neurosensory devices, biological implants, orthoses/orthotics, and respiratory accessories were considered; DME and equipment were excluded; 64% of in scope prosthetic spend was excluded due to missing data fields (primarily manufacturer and vendor SKU codes)

SOURCE: VA. (FY2015, October - January). IFCAP purchase data for clinical supplies with an IMF number; VA. (FY2014c). Prosthetic appliance purchase orders (VistA Table 660).

The variability in data is a substantial barrier to understanding purchasing patterns, identifying opportunities, and making strategic sourcing decisions at VA. However, some of the mismatch is also likely because different VISNs buy different products (due to regional contracts and preference), which reflects the lack of product standardization as highlighted below.

VA has attempted to standardize product nomenclature and numbering centrally through the National Item File (NIF) program. Under this program, VA established data standards for select items and started to push standardized data onto each instance of the inventory database. Over time however, the standardization has been lost as each facility has manually changed data entries. Logistics subject matter experts gave examples of data elements that had been locally modified after the NIF standardization process. In some cases, those modifications were justified because local data instances were automatically identified by fields that incorrectly matched the NIF item. Frontline interviewees also reported that the NIF field was not helpful to them as they could not search or cross reference data based on that field. This reduced the incentive for them to ensure the field was complete and accurate.

c. VA has limited ability to analyze its data centrally to generate insights that will inform strategic decisions.

VA lacks visibility into supplies and devices spend at the level of granularity typically seen in the private sector, which further limits its ability to measure and manage utilization. For example, in the private sector, it is typically possible to measure clinical supply utilization at the service, patient, or physician level. However, this is not possible in VA because it does not capture such

data. Therefore, supplies cost per case can only be calculated in aggregate, which is relatively meaningless and does not allow for fair comparison across hospitals, services, or physicians.

Measurement of prosthetics utilization at the patient level is possible, but the VA's data systems and analytic capabilities limit the organization's ability to use it to generate meaningful insights. For example, we tried to calculate individual orthopedic surgeons' average hip implant cost per case in the hip replacement cases they performed, to understand the degree to which each surgeon's clinical choice and utilization drove cost. However, we were unable to complete the analysis because, while purchase data can be tied to individual patients and episodes, physician identifiers are not captured. This is a routine analysis in high-performing health systems that enables significant savings by standardizing utilization practices while maintaining clinical quality.

d. Recent investments in supply chain IT do not appear to be aligned with a broader strategy.

Substantial changes will be required to VA's IT systems, data quality and integrity, and analytic capabilities to effectively measure and manage spend on supplies and devices. To that end, VA has piloted the use of a new strategic asset management system for inventory management and procurement (SOARD project). Substantial development is needed to make it operational to manage clinical supplies and to integrate it with the VA's FMS. Two previous projects, CoreFLS and FLITE, were based on the same platform as SOARD, and both were unsuccessful. Factors contributing to failure have been reported by GAO and VA Office of Inspector General, and include weak program management, poor oversight, and problems modifying the software for existing data and infrastructure (VA OIG, 2010; VA OIG, 2004; GAO, 2009). While significant resources have been devoted to development of this new system for use in the VA, the assessment team was not aware of any health care facilities outside VA using this software for tracking supply inventories. Funding for continuing the development and rollout of the system to other facilities is also lacking.

Other IT system improvements are underway as well, but are not being considered as part of a broader strategy. Implementation of Real Time Location Service (RTLS) and Point of Use (POU) inventory management systems are being piloted. VAMC facilities are preparing for RTLS through the installation of wireless technology. POU weight-based bin technology is being piloted in 11 facilities with an inventory segmentation approach and system integrator. These are improvements to address select, long-standing inventory management issues, but their development and implementation have been ad hoc, and not part of an integrated strategy or implementation plan. Including SOARD, these IT projects are being managed by three different program offices.

4.2.3 The Performance of VA's Contracting Organization Does not Meet Customers' Expectations, so Frontline Staff Have Developed Workarounds

Veterans' access to clinical supplies and devices depends on frontline staff procuring products in a timely manner. However, government acquisition regulations and the contracting organization present challenges to efficient management of the supply chain:

a. Service levels provided by contracting entities do not meet customers' expectations.

b. Systems used to measure and manage contracting performance are not transparent and data can be changed manually by contracting staff.

c. Frontline staff have developed practices that reduce the need to use contracting services.

a. Service levels provided by contracting entities do not meet customers' expectations.

Largely unprompted, 77 out of 101 interviewees for clinical supplies and medical devices, expressed concerns about VA's contracting capability. Those who voiced concerns were typically individuals directly involved in the procurement process, such as logistics personnel, or staff who were directly impacted by product availability, such as cath lab directors. In most interviews with front line staff, the time it takes to procure simple items through contracting (one to three months) was cited as an issue. For example, a surgical nurse commented that heart valve surgery can be delayed because of the need to go through contracting. Some heart valves cost more than the micro-purchase threshold ($3,000) which therefore requires the use of contracting. Hospitals need to have multiple sizes on hand to ensure the patient gets the valve that is the best fit relative to their anatomy.

Purchases above the micro-purchase threshold must go through contracting to be competitively bid and contracted. In FY2014, VHA network contracting offices placed more than 66,000 orders and $1.75 billion in medical, surgical supply and device orders for more than $3,000. These include delivery orders placed against FSS and blanket purchase agreements (BPAs), definitive contracts, and purchase orders made on the open market.

The key metric used by contracting to measure its performance is the Procurement Administrative Lead Time (PALT), which is defined as the time from contracting's receipt of a complete package to ultimate contract award with a supplier. This is similar to the definition used by other government agencies such as DoD and the U.S. Coast Guard (US Department of Defense , 2014; US Department of Homeland Security – US Coast Guard, 2010).

In general, VA's PALT target is 30 to 60 days, although this can be higher for different contract types or larger awards (see below). Private sector organizations also release Requests for Proposals to get bids from suppliers and industry experts who were interviewed in the course of this assessment stated that PALT times in the private sector were around the same as those reported by VA. It is worth noting that VA's acquisition process is more complex than most private sector organizations because of acquisition regulations.

However, it is also likely that the 30-60-day PALT times quoted by VA's contracting organization substantially underestimates the end-to-end time to complete a purchase. PALT does not include any time associated with the market research, preparation, and review of the acquisition package (developing specifications, for example). Multiple interviewees stated that end-to-end lead times for simple procurement actions could take significantly longer than 60 days, such as in the case of heart valves described above. Furthermore, they pointed to frequent return and cancellation of procurement requests as a problem to getting what Veterans need.

To validate the issue, we reviewed 12 months of the electronic Contract Management System (eCMS) procurement request transmissions for one facility (VAMC site visit, 2015). The review revealed that, of 1,100 packages submitted to contracting during that timeframe, 43 percent were returned at least once or were cancelled by contracting. When a package was returned, its initial return happened on average ~20 days from the date of initial submission. For those that were ultimately cancelled, the initial response (whether a cancellation or return) was 39 days after submission. Several submissions incurred significant back and forth between contracting and the facility. Figure 4-9 shows the point-in-time findings of the review (final status after February 2015 is unknown).

Figure 4-9. Point in Time Status of Procurement Packages Sent to Contracting Over 12 Months from One Facility

There are long response times for procurement requests with issues

	100 % =	1,107	Average number of steps	Median time to first response Days	Median total duration[2] Days
With VAMC after at least one return from contracting[1]	13 %		2.40	21	23
Cancelled by contracting	20 %		2.45	39	62
With contracting after at least one return to VAMC	11 %		3.21	22	35
With contracting; no return or cancellation to date[3]	57 %		1		
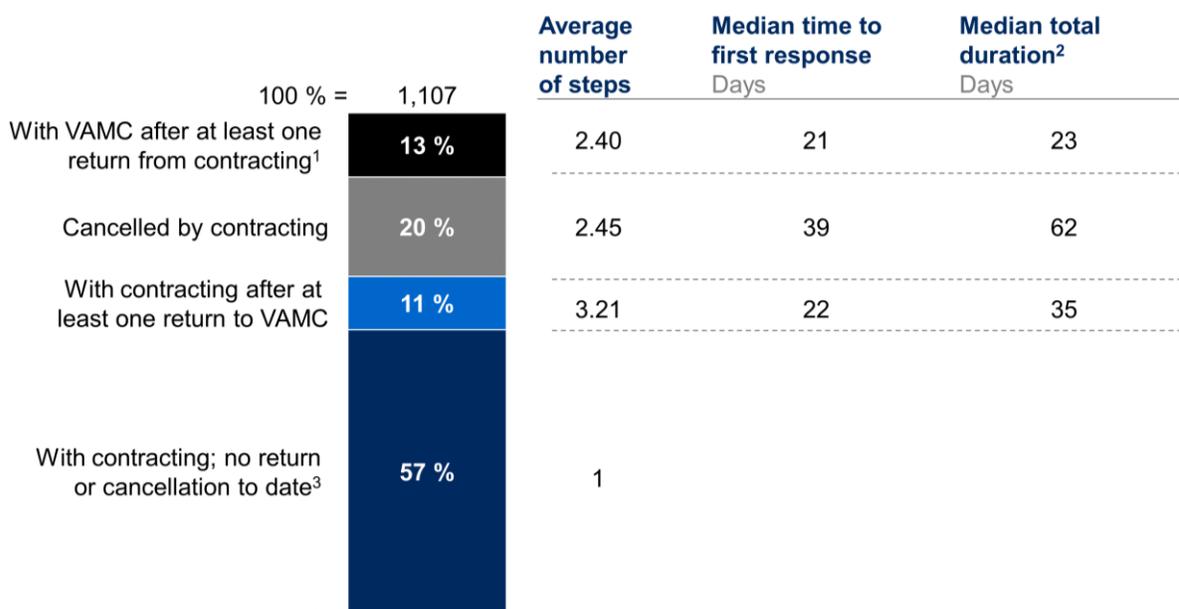
1 Returned to Accountable Officer or Control Point in VAMC
2 From first submission to final status
3 Final disposition (awarded or not) was not determined

SOURCE: VAMC site visit. (2015). IFCAP/eCMS transmission log received during site visit.

We also evaluated a snapshot of the outstanding procurement actions in eCMS across VA. Of the total 117,163 procurement actions in eCMS as of February 17, 2015, 2,468 (2.1 percent of total) were marked as draft or in error status (VHA, 2015a). One third of those were more than 30 days outstanding.

Interviewees at facilities consistently expressed concern about the NCOs' and SAOs' ability to be as responsive as they believe is required of a health care delivery organization and also expressed concerns about the quality of contracting's communication with them. They said that the reason for return or cancellation of submissions was not always clear and expressed frustration that it took several weeks, on average, after submission to find out that a package

was incomplete, as described above. Lack of clarity regarding contract status was a complaint shared by many facility staff.

Customer satisfaction surveys confirm the organization's dissatisfaction with contracting's communication. Overall communication effectiveness, and whether procurement staff keep requestors informed of their packages statuses, received the lowest scores (3.3 average score out of 5, ranging from 2.7 to 4.0 for overall effectiveness and 2.8 to 3.8 for status updates for NCOs) (VHA, 2015a).

NCO contracting staff also expressed frustration, particularly with regard to workload and quality of submitted packages they received. They also sympathized with the facility-based staff who had to complete the requirements and paperwork prior to a contracting submission, realizing that for many, this requirement was in addition to their core role.

External audits, and an internal PLO study on acquisition operations (summarized below), also highlighted issues in the acquisition process (Table 4-2) (GAO, 2013a; VA OIG testimony, 2010; VHA Procurement and Logistics Office, 2015a).

Table 4-2. PLO Identified Issues in Contracting Process

- Lack of certified Contracting Officer Representatives (CORs) to meet facility needs
- Lack of resources to aid staff with procurement packages
- Failure to address needs and contract renewals in timely fashion
- Lack of standardized tools and templates
- Lack of performance standards that address COR responsibilities
- Lack of standardized procedures and processes
- CORs not adequately reviewing invoices prior to certifying payment, systematic poor acquisition planning and inadequate contract monitoring, by ineffective performance monitoring controls
- Lack of communication between services and contracting product lines
- Poor procurement packages, frequent errors and omissions
- Increase in administrative time required when serving as COR
- eCMS technical difficulties
- Guidance, training, and oversight needed to improve clinical contract monitoring

These audits identified the root cause as poor standards, training and capacity of Contracting Officer's Representatives (CORs) at facilities. CORs are line chiefs, business managers, or administrative officers who help develop acquisition packages, submit into the eCMS planning module and are responsible for the ongoing contract monitoring.

Evidence suggests that the PLO has taken some steps to address issues by (VHA Assistant Deputy Under Secretary for Health Administrative Operations, 2014; VHA Procurement and Logistics Office, 2015b; VHA Procurement and Logistics Office, 2015c; VHA Procurement and Logistics Office, 2015d):

- Recommending contract liaison positions in each facility that can provide the process expertise and best practice sharing to reduce errors and improve the quality of submissions
- Establishing Customer Relationship Management Teams within NCOs to offer strategic advice and tactical acquisition consulting services
- Implementing customer service agreements between contracting offices and some organizations within VHA (e.g., Office of Informatics and Analytics)
- Developing the VA Acquisition Business Intelligence Tool (VABIT) to document and codify best practices for contracting (e.g., with product line-specific templates, example contracting documents)
- Organizing "Acquisition Planning Days" in SAO East to educate, train, and gather feedback from contracting customers

The effectiveness of these changes is unclear so far, although contract liaisons appear to be effective in pilot sites (during some site visits they were highlighted as improvements). However, we believe VA should consider how to streamline and error-proof the acquisition process rather than add personnel to manage the system.

b. Systems used to measure and manage contracting performance are not transparent and data can be changed manually by contracting staff.

PALT is defined as the time from which a complete package is received to when the contract is executed. Each contract action type has a defined PALT (Table 4-3) (VA, 2013), and for FY2015 through January 31, overall PALT for VHA was 99.1 percent on time or within five business days of on time.

Table 4-3. Procurement Administrative Lead Time (PALT) Guidance from Contracting

Acquisition Type	Action	Dollar Value	PALT Range
Blanket Purchase Agreements (BPA)	Off Existing FSS or GSA Contracts	ANY	30 – 90 days
	New	ANY	120 – 180 days
	Orders	ANY	30 – 60 days
Commercial Contracts	Competitive Proposals	<$150,000	30 – 60 days
		>$150,000 but not to exceed $6.5M	60 – 120 days
		>$6.5M	120 – 240 days
	Noncompetitive Actions (Sole Source)	< $150,000	30 – 60 days
		≥ $150,000	60 – 90 days
Indefinite Delivery Indefinite Quantity (IDIQ) Contracts	OAO Enterprise Contract Basic	< $50M	120 – 180 days
		≥ $50M	180 - 240 days

The views, opinions, and/or findings contained in this report are those of the assessment team and should not be construed as an official government position, policy, or decision.

Acquisition Type	Action	Dollar Value	PALT Range
Task or Delivery Order	FSS	< $150,000	30 days
		≥ $150,000	45 – 60 days
	OAO Enterprise Contract	<$150,000	30 days
		≥ $150,000	45 – 60 days
	GWAC	<$150,000	30 days
		≥ $150,000	45- 60 days
Negotiated Procurement	Competitive (Full and Open) includes 8a set asides	>$150K but not to exceed $6.5M	153 days
	Competitive (Full and Open) includes 8a set asides	>$6.5M	180 – 215 days
	Negotiated Sole Source, includes 8a set-asides	>$150K but not to exceed $6.5M	149 days
Simplified Acquisition Procedures	Purchase Order	<$25K	40 days
	Purchase Order	>$25K but not to exceed $150K	51 days

Frontline interviewees and PLO leadership agreed that PALT does not capture the end-to-end process that is relevant to meeting users' needs. They believed it should reflect the time from initial submission of a package to when the required product is received, which would be more customer-centric. VA does not currently capture data in this way. For prosthetics acquisitions, however, PLO has developed a tool in conjunction with PSAS which measures the end-to-end process from initial request for the item to eCMS award, and has the ability to analyze the data by facility and by PSAS category. Due to its recent development, the assessment team was unable to assess the impact, if any, the tool may be having on the acquisition process.

Contracting leaders did report that there were issues in the contracting data collection systems that could lead to inaccurate reporting of PALT. For example, in the current system, contracting staff have the ability to change dates manually. Doing so could impact the accuracy of the PALT that is reported. Contracting leaders are working on both improving the system as well as the metric definitions used to improve the accuracy of reporting and, therefore, contracting's accountability for its performance.

c. Frontline staff have developed workarounds to avoid purchasing through contracting.

Because of the issues described above, frontline staff reported that they had developed practices that minimize their need to use contracting, primarily the extensive use of VA-issued purchase cards to buy supplies and devices.

VA purchasing is highly dependent on government purchase cards – $8.4 billion was spent using VA purchase cards in FY2014 (GSA, 2015). Analysis of five VISNs showed that approximately 98

percent of their purchases of clinical supplies and medical devices were made on purchase cards, which accounted for around 75 percent of their spend on those categories (Figure 4-10) (VA, FY2014a).

Figure 4-10. Supplies Purchasing by Method of Processing
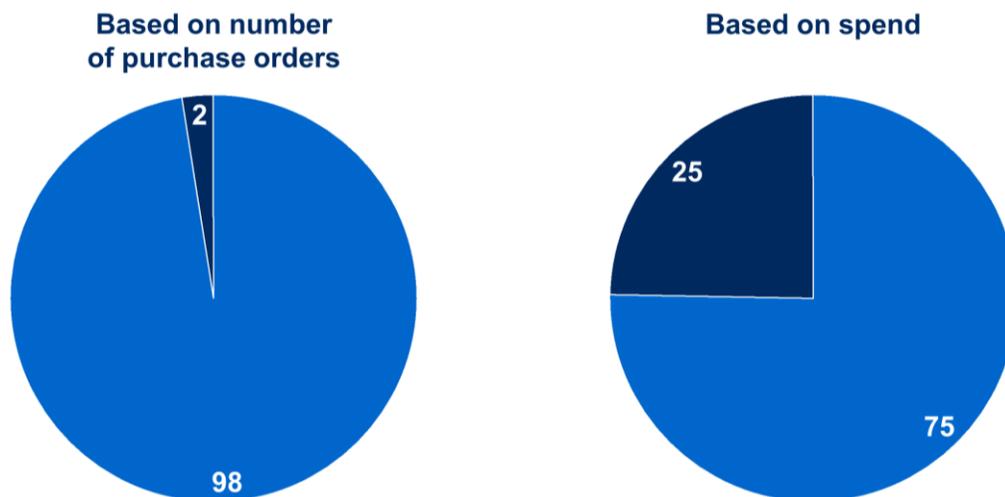
SOURCE: VA. (FY2014a). IFCAP Purchase Data for Five VISNs. Represents transactions for BOC 2632 across 5 VISNs; FY2014

It is government policy to maximize the contracting officers' use of purchase cards to the extent possible to receive refunds and reduce administrative costs.[14] In VA's context, the use of purchase cards does deliver those benefits. VHA receives a substantial refund on their government purchase card use (estimated at 1.65 percent in FY2007) (VA OIG, 2008). However, industry experts report that suppliers typically increase prices for customers who pay primarily with purchase cards because of the fees levied by credit card companies. This could offset rebates provided by the purchase card companies.

Purchase card use also helps expedite purchases and reduces the workload demands on contracting. The greatest downsides of widespread purchase card use relate to the challenges associated with driving and monitoring compliance with purchasing regulations (such as buying products on the correct contract at the optimal price) and managing spending. These challenges have been presented previously in several Inspector General audits, GAO reports, and Congressional hearings (VA OIG, 2014b; GAO, 2004; US House Committee on Veterans Affairs Subcommittee on Oversight and Investigations , 2015). As an example of this issue, prior to 2013, PSAS purchasing agents with authorized purchase cards were allowed to buy prosthetic

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[14] FAR Subpart 13.301 – Simplified Acquisition Methods, Government Purchase Cards

inventory and medical devices up to $25,000. Due to concerns of non-compliance with contracting guidelines, however, their warrants were rescinded and purchases above the $3,000 micro-purchase threshold are now managed by PLO and facility logistics.

Part of this challenge relates to the complex process associated with any purchase card purchase. Purchase card holders are required to verify receipt of goods, reconcile transaction charges, and maintain documentation that purchases were for official government use. An internal VA study estimated that the total processing time for order generation to reconciliation of a standard purchase card order places a large administrative burden on purchasers (Coates, 2014) and takes time and resources away from more value-added activities. The prohibitive complexity of this process, the time required to complete it, and the difficulty in monitoring it also likely contributed to past compliance challenges.

In contrast to the inefficiencies of purchase card ordering, the internal VA study found that ordering through electronic data interchange (EDI) from the MSPV and other equipped vendors was about six times faster. Processing, payment, and reconciliation occur electronically and do not involve the purchaser. Additionally, EDI improves data accuracy and fiscal oversight, and reduces overall order cycle time, paper handling and storage. At the end of each month, purchase card holders are required to reconcile purchases and validate their bank cards, which can take significant time.

Electronic ordering can deliver significant savings. A study funded by the Health Industry Distributors Association found that processing costs to order through distributors were three times less per line item, mainly due to EDI integration (HIDA, 2012).[15] This is similar to the findings of a study on processing costs for DoD's MSPV as compared to local purchases (LMI, 2008).[16]

Across industries, best-in-class organizations use purchase cards on only ~1.7 percent of their total spend (CAPS research, 2014) and typically maximize EDI usage to the extent possible (High performing health system interviews, 2015). However, to do so requires significant technology enablement. In the private health care sector, use of purchase cards has declined sharply as hospitals have moved to more electronic and automated purchasing and inventory management systems.

Currently in VA, EDI is used mainly for larger entities such as the MSPV. While VA may be limited in its ability to approximate the EDI utilization seen in the private sector due to small business requirements[17], there is scope to expand this ordering method by: (a) ordering more items from EDI equipped vendors such as the MSPV, (b) increasing staff usage of EDI ordering methods over manual methods for those vendors already equipped, and (c) increasing the number of vendors with EDI capabilities.

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[15] HIDA (2012). Hospital Procurement Study

[16] LMI (2008). Summary Slides: Task # DL733, "Comparing the Cost of Medical Materiel Acquisition Procedures" presented to Directorate of Medical Materiel, Defense Supply Center

[17] Small businesses may have difficulty implementing EDI due to financial barriers and technological sophistication. The extent to which this is true for health care suppliers is unclear.

To evaluate the first opportunity in VA, we analyzed purchasing data from five VISNs that showed they currently buy 22.5 percent of their clinical supplies through their MSPV (based on total clinical supply spend in five VISNs, ranging from 16 to 32 percent) (VA, FY2014a). Industry experts who were interviewed stated that typical MSPV utilization in the private sector is around 30 percent, although this can vary based on individual health system supply chain strategies. Increasing spend through VA's MSPVs in regions where MSPV utilization is low could be a relatively easy first step towards greater electronic purchasing and lower use of purchase cards.

However, VA's methodology for measuring MSPV utilization creates challenges in accurate reporting. VA currently measures MSPV utilization based only on line items with a contract number (~40 percent of total clinical supply spend) and only for certain cost centers and fiscal control points (~80 percent of total clinical supply spend). Using this methodology, reported MSPV utilization rates for VISNs are in the range of 61 to 82 percent (VHA, 2015c). However, because of data integrity issues in the contract number field, the utilization metric is not comparable across facilities, nor is it something that can be compared with the private sector.

The final finding relates to the micro-purchase threshold and how it drives certain purchasing practices to avoid using contracting. As context, government employees who do not have a contracting warrant to use a purchase card can only make purchases below the $3,000 micro-purchase threshold[18]. In cases where purchases would be just above the micro-threshold limit, the item would have to be competitively sourced through contracting, as described above.

The micro-purchase threshold was cited as a problem in numerous interviews. Frontline staff almost unanimously wanted VA to increase the threshold to make the process easier than going through contracting. Several interviewees who made purchases on purchase cards also suggested they deliberately place multiple orders close to but under the $3,000 threshold to avoid involving contracting.

To validate this, the team analyzed purchasing data from five VISNs (VA, FY2014a). In FY2014, 237,829 purchase orders for clinical supplies totaling $274 million were generated, which were paid on purchase cards. Of these purchases, a disproportionate number of transactions appeared to occur near the micro-purchase threshold (Figure 4-11), two to three times what is expected, suggesting that staff were indeed optimizing purchase orders to be just under the threshold. Due to data limitations, the total extent to which order splitting may be occurring is unknown. However, the assessment team believes that some commonly used items may be purchased more frequently and in smaller batches than is ideal to avoid exceeding the threshold.

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[18] FAR Subpart 2.1 – Definitions

Figure 4-11. Clinical Supplies Purchase Orders by Total Costs for Five VISNs

There are disproportionately more purchases within $500 of the micro-purchase threshold

Method of processing
- Invoice/other
- Purchase card
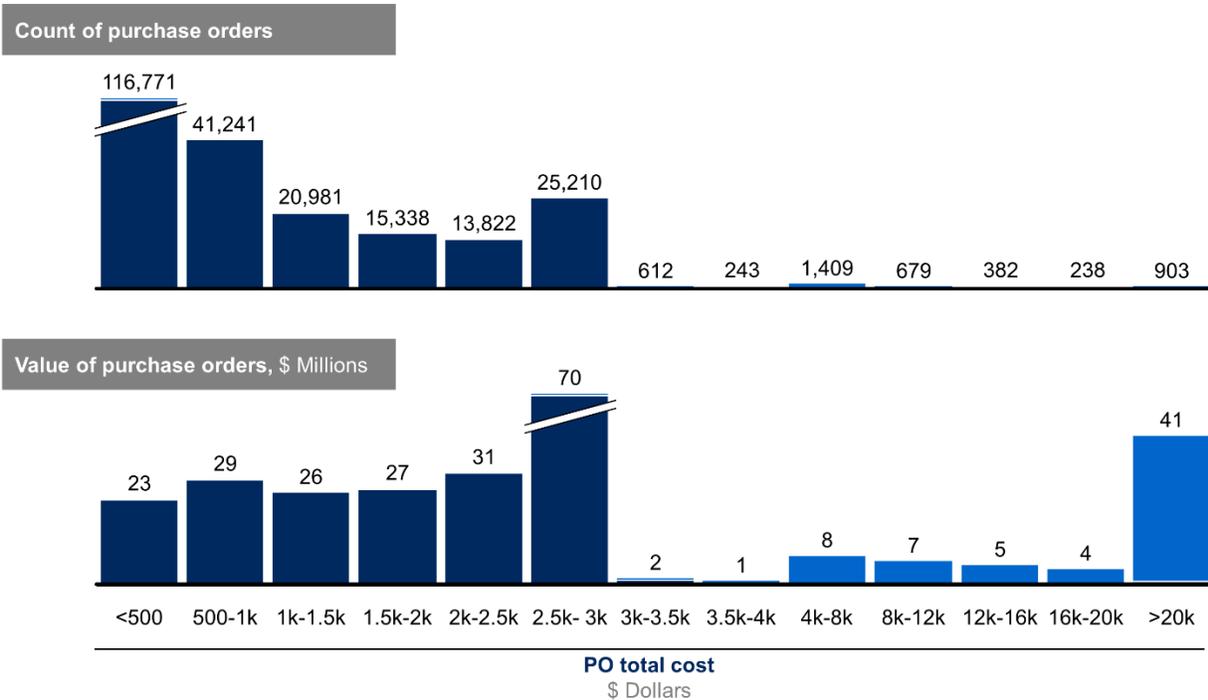
Count of purchase orders

116,771
41,241
20,981
15,338
13,822
25,210
612
243
1,409
679
382
238
903

Value of purchase orders, $ Millions

70
23
29
26
27
31
2
1
8
7
5
4
41

<500 500-1k 1k-1.5k 1.5k-2k 2k-2.5k 2.5k- 3k 3k-3.5k 3.5k-4k 4k-8k 8k-12k 12k-16k 16k-20k >20k

PO total cost
$ Dollars

SOURCE: VA. (FY2014a). IFCAP Purchase Data for Five VISNs. Represents transactions for BOC 2632 across 5 VISNs; FY2014

In numerous interviews with frontline staff, interviewees asked that the micro-purchase threshold be increased to at least $5,000, so that they could avoid the complex, time-consuming and restrictive contracting policies for critical supplies and devices. The micro-purchase threshold has been at $3,000 since 2006. Given the cost of medical care commodities has grown at 2.6 percent per year since 2006 (US Department of Labor, Bureau of Labor Statistics, 2015), the purchasing power of the government purchase card has declined by approximately $550 or 18 percent in the last nine years. Thresholds for acquisitions are reviewed every five years to adjust for inflation. The FAR micro-purchase threshold will increase in October 1, 2015 as a result of the most recent review to $3,500 (Federal Register proposed rule change, 2014).

Regardless, the assessment team believes that VA's widespread use of purchase cards is a workaround that is symptomatic of its manual ordering processes and slow, burdensome contracting process. As one VA leader stated, purchase cards are "*the easy button*" (Staff interviews, 2015). It is likely that if contracting was to be rationalized and streamlined, and ordering and purchasing was to be more automated, use of purchase cards would decline, the micro-purchase threshold would become less relevant, and management of spend would be easier and more effective.

VA is taking steps to facilitate the ordering process through its next generation MSPV program which is currently out for solicitation. The statement of work requires EDI ordering and

electronic fund transfer payments. This will be facilitated by an electronic catalog component and supply chain management tools to be provided by the MSPV. These are elements which are key success factors for VA's pharmaceutical purchasing.

4.2.4 VA has not Taken Full Advantage of its Scale or Potential for Product Standardization to Achieve Optimal Pricing and Efficiency

The consequences of organizational dysfunction, and variable and suboptimal purchasing practices, have contributed to the following findings:

   a. VA does not consistently access the lowest prices available.

   b. Limited product standardization has been achieved across VA to date.

a. VA does not consistently access the lowest prices available.

Unlike pharmaceuticals, no external unit price benchmarks exist for clinical supplies, medical devices, and related services. Therefore, as a proxy, the team evaluated two key components of VA's purchasing performance to understand the likely opportunity related to prices paid for these items:

   • Variation in unit prices paid for like items across VISNs and VA facilities

   • Share of purchases made on government contracts

To understand price variation, we used a proprietary product matching tool to analyze the product purchases for two VISNs during FY2014. Detail on the methodology is provided in appendix A.2.3. In short, VA had to extract purchasing data from each hospital's system and collate it into one file. We then evaluated and cleaned the data so we could run as much of it as possible through the matching algorithm. The data was matched using a proprietary algorithm that took into account several data elements related to each product, in an effort to match products used at one facility to identical products at other facilities. Examples of the elements taken into account include name, catalog number, and unit price. For some items, data sets had to be manually reconciled to make them comparable.

The analysis showed significant variation in the prices paid for like items. If all facilities included in the analysis were to access the lowest price in those two VISNs more of the time, a conservative estimate suggests that they could yield savings around three percent of examined spend. Some of the variation in prices paid for like products is shown in Figure 4-12.

Figure 4-12. Purchase Price Variation in One VISN for Top Medical Supply Products

Price variations lead to additional costs for clinical supply products

Legend:
- Low price
- Middle prices[1]
- High price

Top 15 products in one VISN by spend at each price point
$ Thousands

Product	Spend
ECG leadwire	480
Syringe, 200mL kit	360
Disp. Blood pressure cuff	354
Oxygenator	308
IV Statlock	268
Exam glove, Nitrile (M)	267
Cable, cardiac monitor	252
Face mask, medium	250
Sensor, pulseOx	240
Phaco kit	233
Suture closure system	228
Exam glove, Nitrile (S)	225
Bead emobilization	222
Syringe, 200mL kit	214
Exam glove, Nitrile (L)	205

Savings if all purchases were at minimum price

$ Thousands	Percent
22	4.7
	0.0
149	42
	0.0
19	7.2
	0.2
27	10.7
15	6.1
2	1.0
131	56.2
73	31.9
	0.2
2	0.9
66	30.6
1	0.4

1 Some products had more than one mid-price point; the total spend for all middle prices is shown
SOURCE: VA. (FY2014a). IFCAP Purchase Data for Five VISNs. Represents IFCAP FY14 medical and surgical supplies purchases for one VISN (total spend in FY14 of $91 M)

An example of this variation is the price paid for one type of disposable blood pressure cuff (third product in Figure 4-12). In one of the VISNs evaluated, that disposable blood pressure cuff was purchased from six different suppliers. The prices paid to those suppliers varied significantly – the highest price paid was 207 percent higher than the lowest price paid. More than 35,000 cuffs were purchased from suppliers at prices above the lowest available price. This represented a total potentially avoidable spend of $149,300 on this one item alone across five facilities. While the vendor stock codes were identical to each other and an identifiable manufacturer part number, the assessment team was unable to determine the potential impact (if any) of brand substitution by distributors on price variability. However, this finding is illustrative of the opportunity that is present from price variations on functionally identical products across facilities.

Therefore, the assessment team believes there is significant opportunity for VA to establish mechanisms to help it identify and access its lowest available price more consistently. In part this could be achieved by improving compliance with the contract hierarchy as discussed below. This would reduce supply costs in the short term and in the longer term could potentially help support future negotiations, by driving more volume to the supplier that is willing to offer the most attractive price.

Secondly, the team undertook an analysis to understand the share of purchases that were made on or off contract and, for those that were made on contract, which contract was used.

As context, the government has a contract hierarchy that should be followed when making purchases (Table 4-4).[19] Buyers are required to use the highest priority contract that exists for a given product. Purchasing on higher-priority contracts enables the government to consolidate spend on the most attractive purchasing vehicle which, in turn, supports future price negotiations. Purchasing at open market prices should be the option of last resort.

Table 4-4. Priorities for Use of Government Supply Sources

In order of priority:

1. National committed use contracts
2. Blanket purchase agreements on FSS contracts awarded by NAC
3. Regional or local BPAs issued against FSS contracts
4. FSS contracts without BPAs
5. Regional IDIQ awards
6. Local IDIQ award
7. Open market purchases

Note: Contracting officers have ability to use lower priority arrangements when there is unusual or compelling urgency, but must provide justification

Figure 4-13 shows the share of clinical supply purchases that were made through each contracting vehicle during the first 4 months of FY2015. The largest share of clinical supplies are purchased through FSS awards, which are indefinite delivery, indefinite quantity (IDIQ) contracts based on "most favored customer" pricing. Under this arrangement, suppliers must reveal to VA the prices they charge other customers for their products and must make a price available to VA that is equal to or better than the lowest of all its other prices. However, the prices revealed and offered to VA are based on a unit size order of one – i.e., the price a customer would pay if he/she bought only one item, with no volume discounts applied. Therefore, the "lowest" price revealed to VA likely does not reflect the true price paid by customers, because those customers would likely buy multiple units and negotiate a discount based on that.

Because of that, the FAR and VAAR require FSS contracts to be competed against one another for additional savings unless there is an existing national contract or blanket purchase agreement (BPA) in place.

However, our analysis showed that at least one-quarter of spend on clinical supplies was at open market prices (VA, FY2015), with the majority of those purchases made using government purchase cards (Figure 4-13). An audit of open market purchases by OIG in 2009 found a similar rate of open market purchases and showed that the same or similar items that were bought at

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[19] VAAR Subpart 808.002

open market prices were also available on a FSS contract (VA OIG, 2009). A waiver is technically required for open market purchases, even if below the micro-purchase limit, yet the OIG report found only a single waiver filed in the time period they examined. To put this into context, high performing private sector health care providers aim to make 80-90 percent of their clinical supply purchases through some type of negotiated contract (High performing health system interviews, 2015).

Figure 4-13. Sources of Clinical Supply Purchases

At least 27% of clinical supply purchases are made on the open market
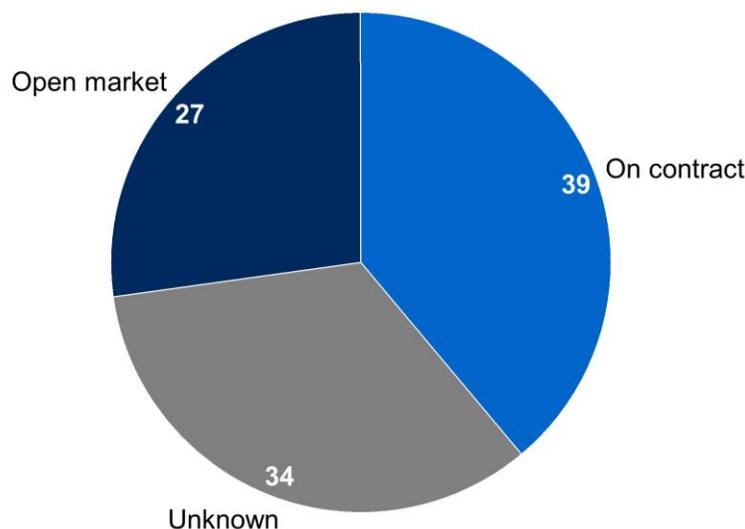
Note: BOC 2632 spend for line items with IMF number, and cost centers associated with medical/surgical supply spend, but excluding pharmacy control points, all facilities October 1, 2014 through January 31, 2015

SOURCE: VA. (FY2015, October - January). IFCAP purchase data for clinical supplies with an IMF number.

Interviews and observations revealed that there are two primary reasons for VA's relatively high share of open market purchasing in these categories. First, VA's purchasing processes rely on buyers to do the work of finding out whether an item is on contract, and through which contract the purchase should be made based on the mandated hierarchy. To that end, buyers must search the NAC's Contract Catalog Search Tool (CCST) in a web browser to identify the latest pricing and national contract information for the items of interest. The purchase information then must be separately entered into IFCAP systems to make the purchase. It is also easy to simply repeat previous purchases that were made in IFCAP. This can create additional problems, as it is easy to avoid looking up contract information and there is no mechanism to inform when products fall off contract or purchasing instruments change, so users may repeat previous transactions that are no longer optimal. The CCST also only includes national contracts and FSS schedule items managed by VA. Even in VA's electronic ordering system, and in contrast to the system used for pharmaceutical purchasing, there is no mechanism to lock-out off-contract purchases or to direct a buyers to the most optimal price, because contracts and pricing data are not linked to IFCAP.

Second, VA has limited ability to monitor and drive compliance with the contract hierarchy described above. Free text data entry and the ability to not enter certain information such as contract numbers makes evaluating whether product purchases were made under an appropriate contract very difficult.

Driving higher contract compliance and strategically negotiating national volume-based contracts for specific products represents a significant opportunity for VA. The national contracting entities have been able to negotiate significant discounts for the contracts they manage. As examples, the NAC and DALC collectively manage 178 national contracts and BPAs across 133 categories as part of the National Contract Service standardization program (VA, 2015i). Categories range from adult diapers to coronary drug eluting stents. The NAC establishes BPAs with lower prices for items on FSS through defined quantity agreements. For the items covered under 49 BPAs in the MedSurg National Contracting Catalog Search Tool (CCST), the average discount off FSS pricing was 15.1 percent (VA National Acquisition Center, 2015)[20], highlighting this as an effective tool to negotiate better pricing based on defined quantities.

However, poor contract compliance and VA's lack of rigor to identify products for which national contracts should exist would suggest that VA is not achieving optimal prices for its clinical supplies or medical devices, and therefore, there is likely opportunity to negotiate additional discounts.

To achieve the target of 80-90 percent of purchases on contract, best-in-class strategic sourcing functions identify products and categories that would benefit most from central contracting. This is typically done by analyzing purchasing data to identify products with high aggregate cost that are currently being bought off contract, and collaborating closely with clinical teams to understand evolving clinical practice and prospectively identify the supplies and devices that will be needed to support patient care.

In VA, development of national contracts is usually initiated by program offices and services (for example, PLO and PSAS) who partner with acquisition centers for the development of requirements and the solicitation process. However, in VA there is no robust mechanism for programmatically identifying key categories that should be targeted for national contracts. Several efforts to address this have been initiated, including within SAC and the PLO's Program Executive Office (PEO). However, leadership interviewed cited staffing issues and policy constraints (PLO cannot create its own national contracts, for instance) as barriers to effectiveness. Also apparent in the interviews was the distrustful and non-collaborative relationship between organizations at VA and VHA (see Finding 4.2.1). A strong relationship is needed for a best-in-class approach with integrated product teams. Poor relationships could also lead to poor output. Indeed, of three product categories highlighted in a 2007 OIG report as potential targets that could benefit from a national contract, only coronary stents currently

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[20] Price discount from FSS for items on BPAs were calculated. The median discounts for each contract were averaged to find the average per contract discount

have a national contract and the initial solicitation occurred nearly three years (in 2010) after the report was published (VA OIG, 2007).

Local and regional systems in VA also have the ability to negotiate prices with suppliers. In our experience, these local contracts can, at times, yield better prices for some products than nationally negotiated contracts. High performing organizations are typically very thoughtful and strategic in defining which products should be negotiated nationally versus regionally. In general, national contracts achieve the most favorable pricing, hence VA's contract hierarchy above. However, under certain circumstances and for certain products, organizations can negotiate more favorable pricing by adopting a regional approach. For example, a supplier may be unwilling to provide large, widespread price concessions to a customer that represents a significant share of its business because of the dramatic impact that might have on earnings, but may be willing to offer deeper discounts in certain regions. In addition, suppliers that have multiple manufacturing or distribution locations around the country may have geography-specific pricing that reflects their cost structure in each location.

To that end, VISNs 17-22 established the Western States Network Consortium (WSNC), which is a regional purchasing organization aligned with SAO West. It was established in the 1990's to facilitate collaboration to reduce costs and increase efficiencies across all of its VISNs. WSNC seeks to award BPAs off existing FSS contracts with additional price discounts based on projected usage. When FSS contracts are not available, the WSNC will award open market BPAs and/or IDIQ contracts in order to meet the region's needs. In FY2014, 10 WSNC BPAs saved nearly nine million dollars compared to FSS pricing for supplies, prosthetics, diagnostics, lab services, and engineering supplies (WSNC Program Officer, FY2014).

While the WSNC has delivered savings, its genesis was opportunistic, and driven through necessity, versus the result of a more national strategic sourcing strategy. Therefore, its existence likely adds to VA's organizational complexity and results in WSNC negotiating prices for some items that should be negotiated nationally, to deliver benefit beyond the western region.

b. Limited product standardization has been achieved across VA to date.

In 2001, VHA Directive 1761.1 and its associated 2003 published handbook established procedures for a national Standardization User Group to identify items for standardization based on national procurement data for more focused user-based groups to review. To date however, national product standardization for commodity medical supply products has been achieved in only a limited number of categories, through 61 single award medical/surgical national contracts, BPAs, and Blanket Order Agreements (BOAs) (VA, 2015i).

In 2011, VHA required that VAMC facilities establish Clinical Product Review Committees (CPRCs) to: (i) Review and approve new clinical items and reusable medical equipment (RME) prior to use at the Medical Center; (ii) Maintain a list of approved expendable clinical supplies and RME by establishing and maintaining a Medical/Surgical Supply Formulary, and (iii) ensure compliance with nationally standardized contracts and BPAs. In all sites visited, CPRCs exist and meet regularly to review and approve items. CPRC interviews and data review revealed that CPRCs typically review around 30 genuinely new item requests per month. Reviews were

generally formalities as long as the products were replacing existing items and/or budget neutral.

The 2011 changes also required that VISN offices establish commodity standardization committees with relevant subcommittees to review the actions of VAMC CPRCs and take further standardization activities. These include identifying new opportunities, facilitating standardization within the VISN, and tracking and reporting benefits of standardization. However, no evidence for VISN level standardization activity was found in any interviews conducted with CPRC participants. A similar finding was reported by the GAO in 2013 (GAO, 2013b).

High physician preference items such as medical device implants are high cost items that can vary substantially in price. VA currently spends $525 million on surgical implants. In some categories, vendors are consolidated, but this may correspond to the structure of the industry. There are opportunities for vendor rationalization in many other categories (Figure 4-14). Standardization of these types of items requires strong physician engagement and education, supported by robust data collection and analysis on case-based usage patterns. VA's fragmented and complex organizational structure and the history of poor collaboration is a substantial barrier to achieving this level of physician engagement, and its data systems are inadequate to provide the insights needed to support standardization.

Figure 4-14. Vendor and Product Fragmentation for Key Medical Device Categories

VA has a large number of suppliers in many implant categories

	Spend on surgical implants by category $ Millions FY14	Number of suppliers[1]	Share of top supplier Percent
ICD/leads	113.4	18	50
Screws, plates, anchors, etc.	82.5	407	20
Knees	51.3	71	28
Thoracic stents	35.6	56	31
Other lower extremities	34.9	221	24
Pacemaker/leads	32.8	15	47
Hips	27.2	60	27
Thoracic all other	26.4	185	32
Unknowns (all)	20.3	261	21
Other abdomen	19.7	158	44
Dental implants	13.2	263	14
Thoracic valve	12.4	33	59
Abdomen mesh	10.8	130	29
Shoulders	9.7	41	33
Abdomen stent	8.4	88	25
Intraocular lens	8.2	76	79
Other H&N	8.0	114	44
Head	3.4	77	32
Other eyes	3.1	137	15
Abdomen catheter	1.7	73	24
Arm	1.2	37	30
Other upper extremity	0.3	56	14
Foot	0.2	21	18
Hand	0.1	14	47
Neck	0.1	15	41

1 Vendor name formats were standardized from >23,000 entries to ~12,000. However, some redundancy may remain.
SOURCE: VA. (FY2014c). Prosthetic appliance purchase orders (VistA Table 660).

High performing health care organizations have typically taken a two-pronged approach to product standardization, treating commodity clinical supplies and devices differently than high physician preference ones. For commodities such as gloves, gowns, drapes, gauze, etc., they have pushed regional or, in some cases national, standardization towards one supplier – often the private label products available from their prime vendor. For high preference supplies and devices, such as surgical implants and disposable endoscopic surgical instruments, they have taken one of two approaches depending upon their culture and the degree of alignment between the procurement organization and physicians.

- One approach is to establish multi-disciplinary teams within a specialty that decide on the one or two products within a category they will use across the system. For example, they might consolidate down to a limited number of manufacturers, and aim for high utilization (such as 80 percent) of the highest priority manufacturer. (Lyden, 2015; High performing health system interviews, 2015)

- The second approach is to allow all manufacturers to participate, but use mechanisms such as price transparency or ceiling pricing to drive behavior. For example, a hospital system might make surgeons aware of the price of each high preference product and rely on their good will to select the product that delivers the best quality for the price for each individual patient. Alternatively, they might set tiered price ceilings for a product category of different types, and invite suppliers to participate, such that all products of a given type are roughly the same price and surgeons can continue to use what they have always used. (Okike, et al., 2014; High performing health system interviews, 2015)

Clearly, either of the approaches to standardization outlined above requires deep product expertise, not only on the part of the users (for example, nurses, physicians, sterile processing), but also on the part of those involved in contracting, purchasing, and supplier management. High performing strategic sourcing teams typically align their resources to product categories so that their personnel develop the category and clinical expertise needed to understand the product market landscape and clinical utilization to best drive value. Procurement and contracting personnel in organizations that are truly distinctive at strategic sourcing often understand their product categories more deeply than the suppliers' representatives who serve them.

Other than the DALC, VA's procurement group is limited in its degree of product or category specialization. This represents a real opportunity for VA to support its move to product standardization and strategic sourcing. Developing this capability would also likely reduce the burden on clinical staff to develop and submit specifications to contracting because, in such a system, the contractors would have significantly more knowledge and understanding of the products and suppliers they are evaluating and procuring.

4.2.5 Inventory Management Process, Practices, and Systems are Neither Integrated nor Optimized

VA uses two separate inventory management systems. The Prosthetic Inventory Package (PIP), which is used to manage prosthetic inventory, and the General Inventory Package (GIP), which

is used to manage inventory of everything else.[21] Each site has its own instance of PIP and GIP, making central analysis of inventory or system-wide inventory optimization almost impossible. Inventory control metrics such as inventory accuracy (percentage of correct items and quantities present per count) and stock out percentage are not routinely captured by GIP.

Site visits, interviews, and data analysis also showed that VA's inventory management practices vary significantly from site to site. The number of items managed in GIP ranges from a few hundred at small community based facilities to over 10,000 at large high complexity medical centers (VA, 2015f). However, system limitations in GIP may exaggerate the variation observed. For example, in GIP, a secondary inventory control point (like a supplies closet on a nursing unit) can only receive inventory from one primary control point (for example, a central store room), leading to situations where five secondary inventory control points may be present in GIP but those inventories are in the same room. To deal with this, some VISNs and facilities have created one "super" primary inventory for all clinical items in GIP. These limitations and differences in practice could lead to some of the variation observed in inventory metrics.

VA aims to maintain an average of 36 days of inventory on hand with a turnover rate of 10 times per year (VHA, 2009b). While the VA weighted average meets this target (32 days), the performance across VISNs varies (Figure 4-15) and the range for individual facilities is considerable. Despite an Inspector General report from 1999 recommending VAMCs should maintain less than a 30-day supply, and optimally a seven-day average supply (VA OIG, 1999), 47 percent of facilities have more than a 30 day supply. However, given the current supply chain systems and processes, such a reduction in inventory would create significant risks of shortages and stock outs.

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[21] VISN 20 does use GIP for prosthetic commodities as discussed in Section 4.2.1

Figure 4-15. Inventory Management Metrics by VISN
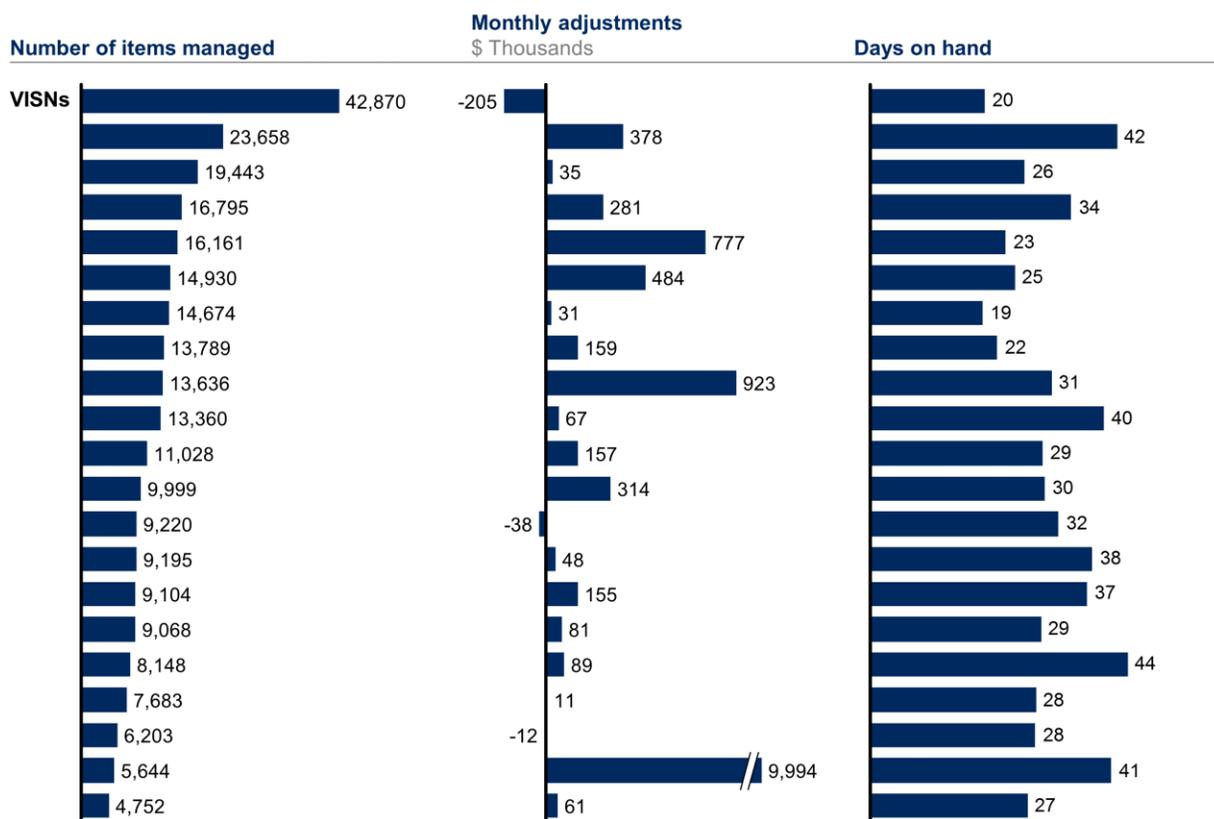
SOURCE: VA. (2015f, February). GIP Inventory Days of Stock on Hand Report.

Manual adjustments also limit the ability to interpret the data with any one point in time comparison, given that inventories may not correctly reflect reality. In any given month, there is a gap in some facilities' closing balance after accounting for the items purchased and distributed. Monthly adjustments are not problematic per se, but they are symptomatic of larger system issues that create inefficiencies and rework. Adjustments are made throughout the month due to errors, process failures, and system challenges, including:

- Adding items back into a primary inventory that were no longer needed in a secondary inventory point
- Providing clinicians with items not stocked in their secondary inventories, and then manual adjustment of GIP primary inventory numbers rather than adding the item to the secondary inventory and creating a picking ticket
- Counting inventory manually and adjusting primary inventories that are points of use (the only way these inventory supplies get decremented in GIP)
- Correcting inaccuracies within GIP which occur for a variety of reasons (like manual entries and calculation mistakes)

Many best practice hospital systems utilize Low Unit of Measure (LUM) or Unit of Use (UOU) shipments five days per week to cut down inventory carrying costs. They also integrate their inventory management systems with POU technology or other utilization tracking mechanisms

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The views, opinions, and/or findings contained in this report are those of the assessment team and should not be construed as an official government position, policy, or decision.

to automate reordering as much as possible. VA established the MSPV program in 2002 to move from a supply depot driven logistics organization to a leaner, just-in-time supply chain. Logistical support is provided through frequent conventional bulk or LUM shipments, three or five days a week respectively, although VAMCs do have flexibility in arranging more or less frequent deliveries. A core list of products is set by each facility, which MSPVs must be able to provide routinely. This was intended to reduce the number and stock of items being managed on site, saving inventory space, reducing wastage from expirations, and simplifying staffing.

During interviews, staff generally reported that the performance of their MSPVs had generally been good in this regard. As discussed above, 22.5 percent of clinical supply spend is through the MSPVs (VA, FY2015). Over 85,000 orders (922,000 line items) were placed with the largest MSPV in the twelve months from Feb 2014 – Jan 2015, with 60 percent of purchase spend on VAMC core items (VA MSPV, 2015). The prime vendor was also able to meet or exceed their fill rate requirements with over 97 percent of core line items filled in the twelve months (95 percent is required for conventional orders).

To date, only one VISN is currently operating with LUM deliveries five days per week. This VISN, as well as a few others, utilize Point of Use (POU) cabinet technology to track inventory and automate re-ordering. However, we observed that cabinet technology is being used for commodity items such as gauze and IV fluids in high-paced environments such as Intensive Care Units and Emergency Departments. This can cause challenges and delays for clinical staff because the cabinets require keypad entry of codes for access and pushbutton tracking of inventory use. In such situations their controls may be circumvented (for example, by leaving cabinets unlocked, and not pushing the usage button appropriately) and the assessment team received several reports from staff that this behavior happened frequently. The assessment team also directly observed such behavior more than once during the assessment. In such situations, inventory levels in the system will be inaccurate and automatic reordering will likely not occur as intended. VHA has plans to roll out newer, scale-based POU technology for frequent, "A" class, inventory and a Kanban card reordering system for less frequently used, "B" class, items.

4.2.6 VA Struggles to Attract, Hire, and Retain High Caliber Supply Chain Talent

A key success factor for best-in-class sourcing and supply chain organizations is the talent they employ. Talent management in VA's supply chain organizations is challenging because:

a. There are many unfilled positions in the procurement and logistics organization.
b. VA struggles to fill positions and retain supply chain talent.

a. There are many unfilled positions in the procurement and logistics organization.

Interviewees at the sites visited estimated that 20-30 percent of positions in logistics were currently unfilled, which required higher staff overtime to ensure timely delivery and distribution of supplies. In some interviews with staff in smaller clinics, nurses noted that the move towards a leaner inventory management model has led to some issues getting required product because of staffing shortages amongst item managers. The team did not have data to evaluate this claim. One outpatient clinic manager reported that there was one item manager

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and supervisor to cover three clinics, and that they were therefore short of two item managers. In that clinic, three-day inventory levels were set, but because of short staffing, the item manager could only restock every seven days, leading to shortages about once per week. The clinic would manage such shortages by driving to the nearest VAMC or borrowing from another clinic.

VA Medical Supply Aides & Technicians (Series 622) are designated as a critical occupation in VHA as they provide wards, clinics, operating rooms, and other hospital facilities with clinical supplies, instruments, sets, and equipment. As of May 22, 2015 there were 563 vacancies (VHA, 2015d) which is three to four per VAMC on average, or roughly 20 percent of all Series 622 positions in VA (VA, 2014e). The number of vacancies in these positions varies across VISNs from two to 45 positions currently unfilled.

It should also be noted that VA's high staffing needs are driven in part by cumbersome systems and processes. In addition, the assessment team could not find guidelines to help leaders determine appropriate staffing given the workload at their facilities. This was reflected in data. The number of logistics staff in each facility varied widely and the team could not find a correlation between the number of logistics personnel and number of hospital admissions, number of inpatient days, or the number of outpatient visits.

b. VA struggles to fill positions and retain supply chain talent.

Logistics leaders voiced concern about their ability to fill positions in a timely way and to retain those they recruit. They highlighted three potential contributing factors:

- Recent downgrades: Several supply chain positions were recently downgraded by the Office of Human Resources Management (OHRM) or not approved at a level requested. For example, logistics leadership designed a Business Program Coordinator to be a high level facility position to aid in contract and procurement management, but the position was classified at a lower level. At various facilities, supply chain positions that were downgraded within the last year included Supply Technician, Mail Manager, Draft Administrative Officer, and Materials Handler. It is beyond the scope of this work to determine the appropriate classification of these positions. However, supply chain leaders have the perception that the downgrades impacted morale and made certain positions less attractive to potential recruits.

- Variable responsiveness of HR: Sixty percent of interviewees across supply chain management and contracting also expressed concerns about the time it takes HR to fill open positions. They cited both long lead times from HR and a small eligible applicant pool. Data on speed of hires received by the assessment team did not break out supply-chain-specific positions to enable an evaluation of interviewees' claims, nor is it the scope of this report to evaluate HR processes. However, interviewees mentioned VA recruiting regulations preference Veteran and internal hires, which can restrict VA's access to a potential pool of talent who do not meet those criteria. Supply chain leaders also said they would like to bring fresh perspectives and experience into the organization to fill increasingly specialized positions in the supply chain organization.

- Lack of clear supply chain career paths: Several Chiefs of Logistics described individuals who had left the supply chain organization because there was no clear path for career progression within it. Because of that, two Chiefs of Logistics described ways in which they had created career paths and training programs to help retain their high performers. Succession planning was also an issue in some VAMCs visited. For example, one VAMC said that nearly a quarter of its supply chain workforce (including logistics leadership positions) was eligible for retirement (see Assessment L section 3.2 for more information).

It is well known in the health care industry that there is a shortage of supply chain talent currently. The private sector organizations interviewed during this assessment stated that they are recruiting more highly trained individuals than they did in the past and, because of competition for talent, are paying them more than they used to. This may be contributing to VA's recruitment and retention challenges.

4.2.7 There are Pockets of Good Performance and Innovation in VA That Could be Replicated Across its Supply Chain

The Denver Acquisition and Logistics Center (DALC) is a bright spot within VA's supply chain organization. It has developed an integrated operating model that brings together clinicians, contracting, finance, logistics, and program management. That integrated team makes decisions on product and vendor selection based on a holistic view of what is best for Veterans and for VA. In addition, VA medical centers and VISNs have a degree of autonomy to test and pilot new processes, management approaches, and technologies.

The DALC sources select prosthetic items and deliver them directly to Veterans. Its scope includes hearing aids and batteries, telehealth equipment, prosthetic socks, and a number of other goods. In total, the DALC manages around 3,750 line items and achieves average turn times of 1.7 business days for its commodity products (VA, 2015g). The DALC is also responsible for securing certain ancillary services at a national level such as dialysis services. Veterans have several options for how to place their orders; its call center staff field more than 20,000 orders per month for batteries, hearing aid accessories, and prosthetic socks.

To support its mission, the DALC has recruited and developed sourcing personnel who have expertise in telehealth and neuro-assistive devices such as hearing aids and cochlear implants. With category-aligned contracting officers and a close relationship with all stakeholders along the value chain (program office, logistics, finance, IT and clinical users, for example) using integrated product teams (IPTs), the DALC has been very successful in developing, negotiating, and executing programs that drive value while delivering high quality services, devices, and supplies to Veterans. As an example, the DALC reported that it saved Veterans $106 million on hearing aid batteries relative to typical retail prices Veterans would otherwise have had to pay. The dual functions of the DALC – contracting and logistics – work closely together to develop their products and services and also interact directly with clinicians and Veterans. Staff were very proud of their customer service and interactions with Veterans, including with those who choose to come to the Denver facility in person to pick up battery refills rather than receive them by mail.

The benefit of integrating sourcing decisions with logistics and other functions is highlighted by the DALC's ability to develop new contracts that address issues in the services they provide. A February 2014 OIG report highlighted long wait times for hearing aid repair service offered by the DALC (VA OIG, 2014c). To address the issue, the DALC negotiated new contracts with its hearing aid repair vendors that required them to handle earmold service with the repair of a hearing aid. This significantly reduced the workload on DALC repair staff and brought DALC's repair time down from 24 days in FY2012 to 5 days in FY2014 (VA, 2015g).

The success of the DALC's programs is due not only to its integrated project team planning, but also to its ability to develop and implement customized IT and financial solutions that make ordering and billing of its goods and services transparent and easy for the customer. They have developed a web-based Remote Order Entry System (ROES) as the cornerstone of their information management system. DALC customer, order, and inventory data is centralized such that standardization is not an issue. They are able to provide patient order history information, provide an integrated catalog, prevent inappropriate ordering off contract, and track accurate inventories.

Best-in-class sourcing organizations take several approaches to strategically acquire and deliver value for their organizations, which have been replicated in the DALC:

(a) They support their mission with deep category expertise.
(b) They ensure value with an integrated approach to meet the needs of the end user.
(c) They manage an ecosystem of suppliers to improve relationships and contracts over time.

While there are elements of the DALC model that may not be scalable to other parts of VA (like in-house IT development to support ordering and logistics), their integrated working model and category specialization are concepts that should be shared. The use of IPTs has been mandated by OAL for all contract programs valued at more than $5 million (VA Deputy Assistant Secretary for Acquisition and Logistics, 2013). However, several interviewees questioned their effectiveness, in part because of lack of space and challenges getting the required individuals in the same place at the same time to physically "touch and feel" new products.

In addition to the DALC, VA's ability to innovate locally is a strength that could be leveraged. VA medical centers and VISNs have a degree of autonomy to test and pilot new processes, management approaches, and technology. The assessment team observed several examples of local innovation that could deliver value across VA. Examples of these pockets of innovation include the following:

• Just-in-time (JIT), low unit of measure (LUM), and unit of use (UOU) inventory management that leverages automated technology and prime vendor relationships to improve purchasing and logistics service while reducing inventory holding costs

• Software and advanced point-of-use technology to improve logistics IT and data quality and availability to better manage inventory

- Pilots to integrate purchasing and inventory management of prosthetics appliances with clinical supply logistics, which allows Prosthetic Representatives to focus on patient-facing activities rather than on ordering, inventory management, and other administrative tasks

The willingness and ability to experiment locally is a VA source of strength, particularly because it is built upon a desire to deliver better service to Veterans. This represents a real opportunity for VA to learn from within.

However, the assessment team saw little evidence that findings from such experiments were systematically captured, codified, prioritized, and if appropriate, scaled across VA. Observations and interviews highlighted two primary reasons for this. First, no formal mechanism exists to collect and synthesize findings of these experiments and develop a plan for scale-up, nor is there a mechanism to evaluate, prioritize, and coordinate the pilots that are running across VA at any given time. Second, some individuals responsible for developing and implementing some of the innovations said they did not want to "advertise" their innovations too broadly because they thought the new practices may be deemed non-compliant or misaligned with a VISN or national objective.

5 Recommendations and Implementation Considerations

We would recommend VA considers the recommendations below. As VA further develops these recommendations, special attention should be given to the impact of each one on the rest of the organization to ensure that high performing areas are not negatively impacted. This is most relevant for any recommendations related to organizational structure, roles and responsibilities, IT, and data systems, because any changes will likely span pharmaceuticals, clinical supplies, medical devices, and health care-related services.

5.1 Pharmaceuticals and Related Services

Overall, VA's ability to efficiently and effectively purchase, distribute, and use pharmaceuticals is high. However, there are some areas where VA could build upon its strengths and address some weaknesses to further improve its performance. Specifically, we would make the following recommendations:

1. Establish mechanisms to ensure VA secures a reliable supply of pharmaceuticals and accesses the lowest possible pricing more consistently.

2. Continue driving efficiency through VA's CMOP network.

3. Develop strategies to improve the transition of patients from the Department of Defense to VA care.

4. Continue building more sophisticated approaches to drive appropriate utilization of pharmaceuticals.

5.1.1 Establish Mechanisms to Ensure VA Secures a Reliable Supply of Pharmaceuticals and Accesses the Lowest Possible Pricing More Consistently

a. Modernize VA Acquisition Regulations to enable access to lower priced commercial sources when possible.
b. Identify pharmaceuticals at highest risk of shortages and price spikes, and develop specific strategies to limit impact.
c. Improve lifecycle management of contracts to prevent lapses.

a. Modernize VA Acquisition Regulations to enable access to lower priced commercial sources when possible.

Currently the VAAR requires the use of FSS sources before considering commercial/open market sources. In some cases where only a single supplier may be on FSS contract, the supplier's prices may meet the FSS's "most favored customer" requirements, but the supplier could still charge VA higher prices than its open market competitors. The FAR upon which the VAAR is based were modified in January 2014 to allow GSA, DoD and NASA to allow open market competition in such situations. Other contracting rules in the VAAR may also be outdated as compared to the FAR. While a full legal review of FAR and VAAR differences is beyond this assessment, such conflicts are likely to cause confusion among VA contracting

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officers. VA should consider updating the VAAR, including options to update VAAR 808.002 "Priorities for use of government supply sources" to ensure fair competitive prices are obtained. Options such as a class deviation for purchasing supplies (e.g., specific exemptions for generic drugs) when commercial source prices are lower than FSS contract sources, or aligning the language of the VAAR with the updated FAR should be explored.

b. Identify pharmaceuticals at highest risk of shortages and price spikes, and develop specific strategies to limit impact.

VA should use fact-based criteria to categorize drugs based on how likely VA is to experience price spikes or shortages over time, and the likely impact of those events. Based on that, VA should then develop strategies to secure supply at current price or as-close-to-current-price as possible for the highest risk drugs. Depending upon need, such strategies could include securing contracts with alternative suppliers, seeking permanent exemptions from TAA restrictions for certain drugs, establishing a safety stock, or balancing internal inventory.

VA's pharmaceutical prime vendor may be able to offer value added services such as more sophisticated inventory management, inventory balancing across sites in shortage situations, as well as more granular reports and information to support VA's risk-stratification of pharmaceuticals.

c. Improve lifecycle management of contracts to prevent lapses.

VA should view any lapse in contract on any drug as a system and process failure, because such lapses can lead to unnecessary expenditures and potentially impact Veteran access to medications. Therefore, VA should establish mechanisms to more proactively and strategically manage contract lifecycles.

Tactically, that could include developing an automated contract lifecycle management calendar that alerts contracting personnel when key activities need to take place based on an expected timeline. It could also include building strategic partnerships with suppliers, automated reminders, and establishing special bridge arrangements in the case of specific changes (like when a medication changes from a tablet to a capsule).

5.1.2   Continue Driving Efficiency through VA's CMOP Network

   a.   Drive more volume through CMOPs, particularly for prescription refills.
   b.   Continue to automate processes in the CMOPs.
   c.   Evaluate consolidation of CMOPs to drive efficiency and higher utilization.

a. Drive more volume through CMOPs, particularly for prescription refills.

While VA already delivers 80 percent of its outpatient prescriptions via its CMOP network, there is scope to increase that further, particularly for repeat prescriptions. Therefore, VA should push for greater utilization of CMOPs for repeat and non-urgent prescriptions to reduce demand on window pharmacies. This could include implementing a policy whereby refills are automatically sent from CMOPs unless a patient specifically requests that it be filled at a window pharmacy.

b. Continue to automate processes in the CMOPs.

VA should continue its drive to increase automation in its CMOPs. While the CMOPs' error rate is low overall, automation of steps in the process that are currently manual (like packing and labeling) could reduce the error rate further. Automation may also reduce costs over the longer term.

c. Evaluate consolidation of CMOPs to drive efficiency and higher utilization.

VA should evaluate the pros and cons of consolidating its CMOP network to fewer sites. Consolidation may enable VA to reduce costs associated with mail order and run the CMOP network to a higher level of utilization. CMOPs are equipped with different levels of automation and facilities at different ages. Consolidation options should be part of the evaluation process when considering equipment upgrades that may be needed.

5.1.3 Develop More Robust Mechanisms to Improve the Transition of Patients from the Department of Defense to VA Care

a. Improve access to primary care for transitioning Veterans as per Assessment B and Assessment E.
b. Improve sharing of medical records and medication history between DoD and VA and make it a strategic priority (see Assessment H).
c. Explore opportunities to align and integrate formularies taking into account clinical evidence and economic impact.
d. Develop drug-class-specific guidance for medication changes related to transitions.
e. Develop mechanisms to track transitioning DoD servicemembers.
f. Improve communication with Veterans about their medications during transitions.

a. Improve access to primary care for transitioning Veterans.

Access standards are covered in Assessment B and scheduling improvements that might improve access are found in Assessment E. The assessment team recommends VA considers the recommendations contained in those assessments and ensures that any changes to primary care that are implemented as a result improve transitioning Veterans' timely access to primary care.

b. Improve sharing of medical records and medication history between DoD and VA and make it a strategic priority.

VA and DoD should continue working together to improve information sharing between the two health systems through interoperability of their electronic medical records. In the meantime, they should develop a more robust bridge between the two systems. In particular, mechanisms should be established such that VA physicians and administrators have real-time access to Veterans' medical records for care provided in the DoD system and, as a matter of routine, have a patient's DoD medication history available to them prior to that patient's initial VA appointment. This should include the list of current medications, the indication for each medication, and any medication history that might exist. Improvements could be based upon

existing systems such as the CHDR or the newer JLV, and ultimately should be integrated into a broader IT strategy. There should be robust stakeholder engagement and education to ensure the success of these initiatives as well as implementation of the recommendations found in Assessment H section 5.2.

c. Explore opportunities to align and integrate formularies taking into account clinical evidence and economic impact.

VA should carefully examine the differences between formularies and, where alignment can be justified by clinical evidence, the needs of the population served, and the realities of the budget met, it should be pursued. This may also support the recommendations above.

d. Develop drug-class-specific guidance for medication changes related to transitions.

VA should formalize local clinical practices and continue to develop clearer guidance for prescribers on how to effectively transition patients from DoD into VA. Specifically, it should lay out, by drug class, the criteria prescribers should use to make a determination as to whether it is appropriate to keep a patient on a non-formulary medication that was started in DoD or to make a switch to an on-formulary medication.

e. Develop mechanisms to track transitioning DoD servicemembers.

VA should establish formal mechanisms to collect data on the transition of former servicemembers to its care. This could take advantage of the existing non-formulary approval process for those designated "Transitioning servicemembers," as well as linkages to OEF/OIF/OND transition programs and patient care teams to monitor when, where, and why medication switches occur. This data could help target areas where clinical guidelines might be most appropriate and effective, as well as provide a fact base for improving continuity of care with DoD.

Such data collection would also support a more fact-based determination about whether greater alignment between DoD and VA's formulary would materially improve transitions or whether other strategies such as process improvements, more robust tracking of transitions, and better communication with Veterans would have the most impact.

f. Explore opportunities to improve communication with Veterans about their medications during transitions.

Although anecdotal, it is likely that communication with Veterans could be improved to smooth Veterans' transitions. In particular, VA should improve communication with Veterans prior to or immediately upon entering the VA system about VA's pharmacy benefits, the role of the formulary, and how to access medications (CMOPs and window pharmacies). This would be prudent in any transition from one health system to another.

This recommendation may require more involvement of clinical pharmacists early in a Veteran's transition to educate him/her about how to navigate the VA system and how to ensure no gaps in care during that transition.

5.1.4 Build Sophisticated Approaches to Drive Appropriate Utilization of Pharmaceuticals

a. Incorporate evidence-based prescribing guidelines into clinical protocols and pathways, building upon recommendations in Assessment F.
b. Invest in IT and analytic capabilities to support outcomes-based data analysis.
c. Drive appropriate data interpretation and utilization through peer review.
d. Build utilization rules into prescribing system to facilitate appropriate use.

a. Incorporate additional evidence-based prescribing guidelines into clinical protocols and pathways, building upon recommendations in Assessment F.

In line with best-in-class integrated health systems and with the recommendations in Assessment F, VA should continue to build evidence-based prescribing guidelines into existing and new clinical protocols and treatment pathways for the most common conditions in the Veteran population (for example, COPD, hypertension, diabetes, heart failure, chronic pain). Given VA's scale and integration, it could monitor response to changes in clinical pathways and protocols and make adjustments accordingly.

b. Invest in IT and analytic capabilities to support outcomes-based data analysis.

Significant investments in IT, data capture and management, and analytics will be required to enable some of the recommendations outlined above, such as physician-level reports of prescribing patterns, particularly around inpatient drug utilization.

Therefore, VA should develop an integrated IT strategy that includes elements of what will be required to deliver against the recommendations outlined above. This will need to be aligned with the more specific recommendations made later in this report in relation to clinical supplies and devices, where the IT and data challenges are similar.

c. Drive appropriate data interpretation and utilization through peer review.

VA should establish a mechanism to have local physician peers evaluate drug utilization data that is made available by implementing the recommendation above. This could consist of new specialty-specific peer review committees or could build upon existing P&T committees. Those committees should use their understanding of the local patient population and individual physicians' circumstances (for example, subspecialty, specific patient populations treated) to evaluate the appropriateness of any variability in formulary compliance and adherence to clinical use guidelines seen in the data. Based on that understanding, those committees should deploy strategies to address inappropriate variability, such as physician education, best practice sharing, distribution of physician-level performance reports, and updates to the prescribing system to limit inappropriate prescribing. The high risk drug initiatives for opioid and benzodiazepines are good examples of programs driving behavior change. Implementation and outcomes should be studied for lessons learned and application to other areas.

d. Build utilization rules into prescribing system to facilitate appropriate use.

Longer term, VA should pursue the possibility of building its formulary and clinical use guidelines into VA's prescribing system to facilitate appropriate prescribing. This will require

updates to VA's current systems, which should be made in parallel with the updates described later in this report in relation to clinical supplies and devices.

5.2 Clinical Supplies, Medical Devices, and Related Services

To improve VA's ability to both meet procurement compliance requirements and ensure timely and cost effective delivery of product to Veterans, we would recommend the following:

1. Transform and consolidate VA's entire supply chain organization.
2. Improve key enablers required to support the transformation, including IT systems, data integrity, and HR.
3. Streamline, standardize, and integrate key supply chain management processes.

Each of these recommendations is described in more detail below and largely fall into the "people, processes, systems" model, for which key success factors are briefly described for the pharmaceutical supply chain in Table 3-1.

5.2.1 Transform and Consolidate VA's Entire Supply Chain Organization

We would recommend a full organizational transformation for the VA's supply chain, which should include the following:

a. Rationalize the organizational structure by consolidating VA and VHA entities into one integrated supply chain organization that manages all VA contracting and logistical management of clinical supplies and medical devices.
b. Establish robust performance management on supply and device procurement that is focused on Veteran outcomes.
c. Develop deep category-level expertise within the organization.

a. Rationalize the organizational structure by consolidating entities into one integrated supply chain organization that manages all VA contracting and logistical management of clinical supplies and medical devices.

As a first step, VA should fundamentally restructure its supply chain organization by rationalizing and consolidating its structure. It should bring together all VA and VHA's procurement entities and those responsible for the logistics management of clinical supplies and medical devices into one integrated entity that is accountable for the performance of VA's supply chain management of those products end-to-end – from product selection, contracting, and purchasing, to inventory management, distribution, timely delivery to end users, and ultimately, value for money. This would eliminate or greatly reduce the duplication that currently exists between VA and VHA. It would also help optimize between VA's need to drive compliance with federal and VA acquisition requirements while also delivering the responsiveness and flexibility required to meet the needs of Veterans and their caregivers.

This will likely require a "clean sheet" approach for developing a blueprint of what the ideal organizational structure must be to effectively meet the needs of VA's supply chain's customers, based on a set of guiding principles, including but not limited to:

- One leader who is accountable for the end-to-end effectiveness of its supply chain related to clinical supplies and medical devices (cost, quality, efficiency)
- Governance that includes each element of the supply chain, including contracting, logistics, and program management
- Service level agreements between supporting functions (such as IT, finance, and HR), VAMCs and the supply chain organization
- Commitment to delivery against the expectations laid out in the service level agreements
- Personnel aligned by product category

VA should then develop an organizational transformation plan to get from its current state to the blueprint in a defined timeframe. Careful consideration of sequencing based on organizational readiness for new capabilities and responsibilities will be essential.

It should also be noted that only contracting for the medical supply chain was considered in this assessment. However, the organizational transformation and guiding principles outlined here should also be considered in light of other specialized contracting activities. For instance, Assessment K (facilities) identified similar issues with respect to contracting performance and facility relationships, and organizational restructuring. The specialized needs of construction and leasing activities should be considered in any transformation effort, in line with the recommendations outlined in Assessment K.

The DALC has developed a number of practices, processes, and systems that could be of value across VA and which are highlighted throughout these recommendations. VA should evaluate each of these to determine how they could be replicated and scaled across VA to enhance the performance of its supply chain. In relation to organizational structure, we would recommend focusing on DALC's integrated operating model, where contractors work shoulder-to-shoulder with buyers and logisticians, while supply chain personnel work with finance, program management, clinicians, and customers, to select products and negotiate contracts with suppliers. This integrated operating model is very different to how the rest of VA operates currently, but it could inform how the integrated organization could operate going forward.

b. Establish robust performance management of supply and device procurement that is focused on Veteran outcomes.

VA should develop a more robust performance management approach that builds upon the integrated organizational structure outlined above, and takes into account the relative contributions of each function in delivering against the supply chain organization's end-to-end objectives.

This should include clear performance expectations of each function and each role within each function, including guidelines and expectations around productivity.

In addition, VA's supply chain should develop service level agreements between itself and its end users, based both on end users' service-level expectations and what is feasible within the constraints in which VA operates. That service-level agreement should define roles and responsibilities of major functions and personnel; turnaround or delivery times and other service-related targets for core actions; customer oriented performance metrics (like customer

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satisfaction scores); and communication channels to manage to the service level agreements (how feedback from customers will be received and acted upon, for example). Care should be taken however, that auditing and compliance monitoring with these agreements do not become burdensome or damage relationships further.

The DALC represents a customer-centric model that could be built upon to develop these service-level agreements. DALC personnel have frequent, direct contact with customers – internal and external. This enables the organization to respond quickly to feedback and better meet the needs of Veterans. VA should explore the genesis and evolution of this customer-centric culture and develop a plan to replicate it in the new, integrated, end-to-end supply chain organization.

Enhancing VA's performance management system will require a level of standardized data capture and reporting that is not be possible with VA's current data systems. Therefore, system upgrades and/or replacements should be considered as per the recommendation below.

Once the integrated performance management system is in place, incentives and penalties should be established to ensure supply chain functions are held accountable for their performance relative to the agreed targets. Accountability measures should be carefully sequenced and matched to ensure responsibilities align with maturity of the new organization's capabilities.

c. Develop deep category-level expertise within the organization.

The DALC has successfully developed technical and contracting personnel with deep category expertise. Those individuals play a key role in product selection, contracting, and purchasing decisions. This is becoming standard practice in other high-performing health care organizations and has been standard practice beyond health care for many years. As VA restructures and reforms its supply chain organization, it should clearly lay out a plan for how category-level expertise will be built into the organization and how that expertise will be used. This may require that VA takes a more structured approach to professional development and/or considers recruiting category-level experts from outside VA.

In addition, we would recommend organizing the strategic sourcing functions of VA's new supply chain organization (for example, product selection, contracting, purchasing) by product category, to maximize the benefit of category-level expertise. This would likely result in higher levels of sub-specialization at the national level given the volume of purchases and value of each contract, with lower levels of specialization at the local level. For example, at the national level, the volume of items purchased and the potential for savings would likely justify investment in individuals with deep specialty-level expertise (for example, cardiac rhythm management devices). At the regional level, the specialty-level expertise may need to be rolled up into higher-level categories (like surgical implants). In that way, local specialists, service line leaders, and leaders of product standardization committees could have a more constructive and peer-like dialog with their strategic sourcing colleagues about product and supplier selection and subsequent contracting and purchasing.

5.2.2 Improve Key Enablers Required to Support the Transformation, Including IT Systems, Data Integrity, and HR

VA currently lacks critical enablers that will be required to achieve the level of transformation outlined above. Therefore, we would recommend VA does the following:

a. Update or replace supply chain IT systems to make them fit for purpose.
b. Standardize supply chain data and overlay user-friendly interfaces that enable robust and timely decision making.
c. Revise VA's approach to supply chain talent management.

a. Update or replace supply chain IT systems to make them fit for purpose.

VA's current supply chain management technology was developed in-house several decades ago; VA personnel report that it was considered to be state of the art when it was implemented. However, technology has evolved and the systems used by health systems across the country have evolved in concert. The software used by VA to manage its supply chain is no longer fit for purpose and needs to be upgraded and/or replaced.

In addition, health systems rarely claim that software development and IT implementation are their core competencies. As such, the majority of health systems around the country use third party software to manage their supply chain and rely on outside agencies to support the implementation of that software.

Therefore, we would recommend that VA carefully monitors the pilot and plans for SOARD given the track record. If there is evidence that the program is not going to meet VA's needs, VA should further evaluate the options that are available from third party software and IT companies to see if any of those would meet its needs. Any evaluation should include an assessment of the system's functionality relative to VA needs, its ability to integrate with existing systems, and its scalability.

As VA evaluates IT systems and data formats, VA should also ensure that any decisions are made in line with VA's overarching IT strategy and in full consideration of the interoperability and interdependencies between supply chain, financial, and clinical systems.

Ideally, VA would move towards a fully integrated system whereby, for example, product ordering and delivery is automated based on utilization; utilization automatically adjusts the value of inventory in the financial system; and any product that is used for a given patient is automatically captured in the clinical system. The VA's systems are a long way from this level of functionality and automation at the current time.

b. Standardize supply chain data and overlay user-friendly interfaces that enable robust and timely decision making.

VA's lack of data standardization is a major impediment to effective monitoring and management of its supply chain. Achieving data standardization across the enterprise should be a high priority.

As a first step, VA should evaluate near-term options to standardize the critical data elements to enable some level of cross comparability. This should include establishing a central item master file that contains standardized nomenclature and numbering of the most commonly used items across VA. It could also include mechanisms to ensure that any updates to nomenclature and numbering cannot be made by personnel in the field, and only by authorized personnel who manage the item master. In addition, VA should work to limit or prevent free text entry into any field by, for example, establishing drop down menus from which users can select the category of best fit.

Longer term, VA should fully standardize and centralize data management across VA. This could include moving to an international data standard such as GS1 or an internally developed system. VA should then develop a roadmap to consolidate databases based on this centralized and standardized data system.

In addition, VA's contracting system should be modified such that contracting staff cannot change dates in the system. Data on contracting timeliness should be automatically captured and reported and should reflect a true picture of contracting's performance relative to the agreed standards to enable fair and accurate performance management.

c. Revise VA's approach to supply chain talent management.

VA should evaluate whether current grade classifications are consistent and fairly applied across supply chain personnel given their current roles, responsibilities, workload, and criticality in providing service to Veterans.

VA should also explore waivers on federal or VA-imposed recruitment restrictions if positions are not filled within a pre-defined time period. In that way, VA may get access to a larger pool of highly-talented professionals who would otherwise have been deprioritized under the current recruiting restrictions.

VA should also continue to work on building expertise within the supply chain workforce, as other high performing organizations have done. In particular, VA supply chain leaders should establish clear career paths within supply chain management to help retain high caliber talent by providing opportunities for them within the organization. VA should also create opportunities for specialization such as category expertise described below.

The assessment team would also recommend fully implementing the recommendations laid out in Assessment L.

5.2.3 Streamline, Standardize, and Integrate Key Processes

Inefficiencies and lack of standardization in key processes inhibit VA's ability to be sufficiently flexible and responsive, and may also have led to some of the workarounds and practices that have developed, particularly around purchasing. Therefore, we would recommend that VA does the following in relation to specific processes:

a. Expedite product selection and standardization in key product categories.
b. Rationalize contracting requirements wherever possible and provide VAMC-level staff with access to contracting status.

    c. Standardize and simplify purchasing processes by automating wherever possible, linking inventory management systems to ordering systems, and driving greater use of electronic order entry.

    d. Identify, collect data from, and propagate innovations across VA.

a. Expedite product selection and standardization in key product categories.

VA should develop an approach to prioritize categories and/or products for standardization and an approach to select specific products that integrates the national Standardization User Group, VISN standardization committees, and Clinical Product Review Committees.

To do this, VA should build upon learnings from VA's Pharmacy Benefits Management organization's Pharmacy and Therapeutics committee structure, whereby VA has developed an integrated cascade of testing, review, feedback, and decision making related to selection and use of pharmaceuticals.

As with pharmaceuticals, utilization of products on the standardized list should be monitored and mechanisms established to drive compliance (like incentives and penalties). Physician engagement and a data driven approach is essential to Pharmacy's success. CPRC and VISN standardization committees should be tightly integrated with each other and the National Standardization Committees through cascading and overlapping representation (as in P&T committees) and participation should be made a core responsibility of clinicians.

b. Rationalize contracting requirements wherever possible and provide VAMC-level staff with access to contracting status.

The assessment team believes that process mapping has been underway for some time to identify bottlenecks and areas for improvement in contracting but that findings and recommendations have not yet been delivered to VA. VA should expedite this process.

However, it should also look more holistically at all the bureaucracy and regulations related to contracting and purchasing to identify opportunities to make the process more user-friendly for contracting personnel and the turnaround time faster for supply chain customers. It is likely that the process can be streamlined (fewer steps) and bureaucracy reduced (less work at each step). At the very least, it is likely that workload can be better tailored to the complexity of the contracting need and that contracting status could be more transparent to customers. To that end, VA should do the following:

- Develop a database of previous contracts and make it readily available and easily searchable so contracting personnel can avoid unnecessarily duplicative work.
- Develop a mechanism to aggregate contracting requests to identify opportunities where VA should develop a national contract. This would reduce workload on local contracting personnel and potentially enable VA to achieve more competitive pricing on frequently bought items.
- Enable customers to view the status of their contracting request. This does not necessarily mean that customers need read-only rights to eCMS as this could lead to inappropriate access to sensitive information. Instead, VA should evaluate whether it

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might be possible to layer onto eCMS software that might provide high-level visibility into where each request is against key milestones, similar to how online shopping vendors and delivery companies provide their customers with information on order and delivery status.

c. Standardize and simplify purchasing processes by automating wherever possible, linking inventory management systems to ordering systems, and driving greater use of electronic order entry.

VA should streamline and update its electronic ordering system to encourage VAMCs to use it and to ensure better capture and tracking of purchasing data. VA should also build its contract catalog, usage hierarchy, and current pricing into the system so that orders are automatically placed on the correct contract and at the best price available to VA.

VA should establish mechanisms to automate the re-ordering of commonly used items based on electronic utilization triggers (like point-of-use technologies).

VA should explore opportunities to have specialized services, such as components of inventory management, provided by third parties whose core competency it is to provide such services. In particular, VA should explore the opportunity to have their MSPV(s) support inventory management across VA.

An internal example that could be leveraged is the DALC's web-based remote order entry system. It contains an integrated catalog with up-to-date contracts and prices, and it prevents inappropriate off-contract purchasing (if a contract is already in place, for instance). VA should explore whether this system or an off-the-shelf equivalent could support VA's desire to drive more on-contract purchasing through its prime vendor, improve compliance with purchasing regulations, and streamline the purchasing process for end users.

d. Systematically identify, collect data from, and propagate innovations across VA.

This report highlighted only a sub-set of innovations that are currently taking place across VA. However, among the innovations that were observed, several were relevant for the challenges VA is facing more broadly. Therefore, VA should build upon the organization's ability and willingness to experiment by establishing an approach to more systematically capture, codify, prioritize, and if appropriate, scale these innovations across VA.

Mechanisms to collect and propagate best practices could include a more robust two-way cascade of standardization committees discussed above. Lessons from the pharmaceutical committees should be leveraged, possibly including a national level Chief Logistics Officer Committee analogous to the Pharmacy Executive Committee, a national file and information site, and other activities such as those practices described in section 3.2.3.

5.3   Implementation Considerations

As previously noted and in alignment with Section 201 of the Choice Act, our recommendations were developed independently of VHA leadership to ensure an objective perspective. As a result of this approach, it will be incumbent upon the Commission on Care to further refine the

recommendations and collaborate with VHA and other stakeholders to incorporate these recommendations with current and planned initiatives.

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Appendix A Detailed Methodology

To ensure a broad range of sources, our assessment draws upon national data sets, national surveys, expert interviews, and visits to select VAMCs across the country, at which we conducted interviews, focus groups, and observations.

A.1 Data Sources

It should be noted that we did not conduct an audit to validate the accuracy of data that was provided, although, where applicable, we did note potential data integrity issues highlighted during site visit interviews.

A.1.1 Pharmaceuticals

- **Purchase order data**: (VA, 2012-2014) Data for prime vendor purchases was provided for calendar year 2012 – 2014 at the line item level for the entire VA system. Data fields included:
  - National drug code (NDC) number, active pharmaceutical ingredients, form, dosage, and unit for each purchase
  - Package size based on manufacturer units (number of pills in package or milliliters in a vial, for example)
  - Package size based on the prime vendor's selling units, but may represent more the typical unit of use (this may differ from manufacturer units, particularly for injectable forms)
  - VISN and station where purchased
  - VA class code
  - Average Wholesale Price (AWP) downloaded from Medi-Span® (a unit of Wolters-Kluwer), converted, where necessary, to present the Medi-Span AWP values consistent with the sizes of the prime vendor's selling units.
  - Total cost, units, contract number, and contract type from which prime vendor calculated price (such as Big 4, FSS, national contract, or WAC based generic pricing)
  - Flag field for whether purchase came from an open market account (note that some on contract purchases may be marked open market, and vice versa, due to late notifications or credit/rebills)
- **Prime vendor reports**: Standard prime vendor service reports were provided and include the following:
  - Total pharmacy purchases (both spend and volume) from the prime vendor by quarter for brand, generic, and over-the-counter drugs overall and by channel (e.g., CMOP versus VAMC)
  - Overall service level (e.g., fill rates) by channel
  - Customer service activity by type and by channel

- **PBM reports**: The VA PBM team provided standard reports that are currently used to manage the pharmaceutical supply chain. Reports included:
  - Drug volume and cost per unique patient and per 30 day prescription (VA, 2010-2014b)
  - Opioid utilization, opioid drug testing, and opioid + benzodiazepine rates by VAMC and VISN (VHA Pharmacy Benefits Management, 2015b)
  - Dispensing rates by CMOP and VAMC window pharmacy (VHA Pharmacy Benefits Management, FY2014)
  - Formulary compliance metrics (e.g., percent of prescriptions on-formulary, volume of non-formulary requests) (VA, FY2014b)

- **CMOP operational data**: (VA, 2015c) Core operational metrics were provided for each CMOP for FY2014, including:
  - Throughput times
  - Volume of prescriptions processed
  - Cost per prescription processed
  - Mailing cost per prescription sent
  - Error rates

- **Data calls from site visits**: VAMC-level data was collected during each site visit for metrics that were not readily available through system-wide data pulls
  - Minutes from recent Pharmaceuticals and Therapies (P&T) committee meetings
  - Annual volume of prescriptions returned to the VAMC by the CMOP
  - Annual volume of prescriptions written by an external Choice Act provider
  - Total pharmaceutical spend on purchase cards

- **National Average Drug Acquisition Cost (NADAC):** (Centers for Medicare and Medicaid Services, n.d.)Data for the weekly survey of community pharmacies was downloaded from the Centers for Medicare and Medicaid Services.

- **Wholesale Acquisition Cost (WAC) data:** Quarterly price data obtained from PriceRx was obtained for branded and generic drugs.

A.1.2 Clinical Supplies and Medical Devices

- **Purchase order data:** (VA, FY2014a) All obligation data from the Integrated Funds Distribution, Control Point Activity, Accounting And Procurement (IFCAP) system was provided for FY2014 – March FY2015 at the line item level for VISN 1, 8, 21, 22, and 23 (IFCAP Table 442); These five VISNs were chosen because they represented a geographically diverse set and covered the majority of medical and surgical prime vendors. Received data contained fields for (not necessarily complete):
  - Purchase order information including, date, PO number, method of processing (Purchase card, Invoice/requisition, and so on), supplier, total amount, cost center,

budget object code, financial control point, requesting service, and number of line items

- o Line item data including: contract number, vendor stock number, manufacturer stock number, long item description, NIF number, IMF number, total line cost, units, and unit size

- **Medical and surgical supplies data with an item master file number:** (VA, FY2015) Supplemental clinical supplies data (budget object code 2632) was provided for the entire system for FY15 transactions through February if they contained an item master file number, were charged to four relevant cost centers, and were not pharmacy fund control points. Data contained additional fields not present in full IFCAP data, including:
  - o Source code (Federal supply schedule, Decentralized VA schedule, Open market, or some combination of the previous, for example)
  - o Local procedure code which gave justification for certain purchases (like open market purchases)

- **Prosthetics order data**: (VA, FY2014c) Data was provided for FY2014 at the individual order level for the entire VA system (IFCAP Table 660) with any patient identifying information removed

- **Inventory days on hand**: (VA, 2015f) Monthly average metrics on clinical supplies inventories by inventory point were provided from 10/1/2014 through 1/31/2015

- **Data calls from site visits**: VAMC-level data was collected during each site visit for metrics that were not readily available through system-wide data pulls
  - o **Denver Acquisition and Logistics Center***: Cost savings reports, performance metrics (VA, 2015g), integrated project team charters and templates
  - o **Acquisition and logistics metrics books***: (VHA, 2015c; VHA, 2015a) (VHA, 2015c; VHA, 2015a) Monthly metrics reports and metric definitions
  - o **eCMS transmission communications**: (VAMC site visit, 2015) One facility visited by the team provided a log of all status transmissions for procurement requests from contracting (February 2014 – February 2015). It included the 2237 number, timestamp, status of transmission (Sent, Return, Cancel), and limited comments on cancellation or returns by contracting.
  - o **Logistics organization FTEs and examples of downgraded positions**

- Publically available data: Relevant VA data was downloaded from various Federal government websites for analysis
  - o **Contracting Catalog Search Tool (CCST):** (VA National Acquisition Center, 2015) Accessed on 3/4/2015 to analyze contracts and pricing information for clinical supplies and devices
  - o **Federal Procurement Data System (FPDS):** (VA Contracts in the Federal Procurement Data System, 2010-2015) Contract information was downloaded for the Department of Veterans Affairs

A.2 Data Analysis

A.2.1 Pharmaceutical Pricing Analysis

Comparison of overall prices paid to industry: Only tablet and capsule form drug purchases were considered. Average price per pill (total cost divided by pills purchased; pills calculated as units multiplied by manufacturer package size) were calculated from VA prime vendor purchase data for the month of April 2014 at the NDC level separately for generic and branded products. NADAC prices for the month of April 2014 were cross-matched to VA data using the NDC number. Drugs whose prices changed in the month of April according to NADAC were excluded from the analysis. All prices were indexed to the AWP included in the prime vendor purchase data. The unweighted average price is reported.

Prices paid by VA on different contracting vehicles: Average price per pill or pill equivalent (as calculated in previous paragraph) were determined for all VA products purchased through different pricing types (as labeled in the prime vendor purchase data) in CY2014. For products purchased through more than one pricing type, prices were indexed to the FSS average cost paid. Brand and generic purchases were considered separately and pricing instruments with less than nine data points were excluded (blanket purchase agreements and generic FSS restricted contracts, for example). The median indexed price was reported.

A.2.2 Vendor Name Format Reduction

All vendor names were extracted from prosthetic purchase data for FY2014 and duplicate entries were removed. The unique list, containing 23,725 unique name formats, was matched with itself using the Microsoft Excel Fuzzy lookup plugin to create 33,799 pairs at a 95 percent confidence level. These pairs were then clustered into unique sets using an automatic algorithm that joined pairs based on a common member. These sets were then manually inspected and grouped to form 2,661 sets, leaving 9,523 vendor formats from the initial list unpaired.

A.2.3 Price Arbitrage Analysis

Medical and surgical supplies equivalent item analysis: Purchase order and line item data from VISN 8 and VISN 22 were provided separately for each facility and combined based on the station number and database row id (VistA Table 442). Combined data was filtered for budget object code 2632 and CY2014, and then manually inspected to remove non-medical and surgical supply spend. The cleaned data was then constrained to the six months from July 2014 to December 2014 to negate the impacts due to price inflation on product SKUs. A proprietary algorithm was used to identify equivalent products, largely based on manufacturer or vendor stock numbers and unit size information within the file.

Medical devices equivalent item analysis: Prosthetic appliance request data (Table 660) was filtered for relevant medical device spend using the National Prosthetics Patient Database (NPPD) code (Artificial legs - 200*, Artificial arms - 300*, Orthosis/Orthotics - 400*, Shoes/Orthotics – 500*, Sensori-neuroaids – 600*, Oxygen supplies – 800D, Respiratory supplies – 800H, Surgical implants – 960*, Biological implants – 970A) within VISN 8 and VISN

22. Requests were matched to IFCAP purchase order data using the transID and station codes to reconstruct the PO number. Lines with no manufacturer or vender stock number were excluded from analysis (68 percent of the data by spend). Remaining data were matched similarly to the medical and surgical supplies analysis.

Arbitrage opportunity calculation: A list of price points were identified for each equivalent purchase. As the lowest price point is not always achievable for a number of reasons (such as temporary price reductions on expiring stock), a conservative estimate of minimum price achievable was calculated by taking the lowest price to fall within the average price point and average price point divided by a sensitivity factor (150 percent, 200 percent). If no price point fell within that range (such as if there were only two, widely separated price points) no arbitrage opportunity was assigned for that product. Total arbitrage opportunity was calculated as the difference in price paid from the arbitrage price, multiplied by the volume paid at the price point considered.

A.3   Site Selection

To increase consistency and generalizability of findings, assessment teams have coordinated our sampling methods to the extent possible while ensuring sampling the methodology reflected assessment-specific considerations. We have selected a core set of VAMCs to visit, which are representative of the VAMC system as a whole across critical facility demographic and performance outcome metrics.

The VAMC site selection process followed the following steps:

1. **Stratification of facilities:** Stratified random sampling, with VISN as strata, was used to select an initial long-list of facilities. To reduce sample size, a subset of VISNs was randomly selected, from which one of the two initially selected sites was randomly de-selected.

2. **Review of distribution:** Chi-square testing was used on each of the key facility profile and performance variables to ensure the distribution of scores in the sample is representative of the population. Variables were chosen to reflect anticipated drivers of facility performance, and included: VISN, rurality, adjusted admissions, complexity level (on VHA rating scale), adjusted LOS, patient satisfaction, cumulative access score, and facility age

3. **Refinement of facility selection:** Initial facility list was vetted with internal and external SMEs and augmented as needed, to include facilities that are considered critical for inclusion (e.g., a Polytrauma Center, facilities with innovative tools/practice) and ensure that all selected facilities had the range of services being assessed.

This method resulted in a sample of 25 facilities that is representative across each of the criteria used in selection.

A.3.1 VAMC Site Selection Variables

Variables were selected based on criteria relevant to each assessment area and assumed impact on facility performance. Variable definitions are given below:

- VISN: used VHA Support Center (VSSC) classification of VAMCs by VISN

- Rurality: used VSSC 2014 categorization of facilities as rural or urban

- Adjusted admissions: relied upon American Hospital Association (AHA) 2014 data (American Hospital Association, 2014). Adjusted admissions = Total admissions *(Admissions*(OP revenues/Total revenues)). VHA reports revenue data (gross billed revenue) to AHA to calculate this metric. Adjusted admissions scores were divided into quartiles, with the middle quartiles grouped, to produce low (<2881.75), medium (2881.75-6081.00), and high (>6081.00) adjusted admissions categories

- Complexity level: used VSSC 2014 categorization of facility complexity. Level 1 facilities were grouped, to produce selection criteria of high complexity (levels 1a, 1b, and 1c), medium complexity (level 2), and low complexity (level 3).

- Adjusted LOS: used VA SAIL data. As only Q3 FY2014 was available to us at the time of selection, we were only able to use that quarter's results. LOS data was divided into quartiles, with the middle quartiles grouped, producing three variables: low LOS (<4.19), medium LOS (4.19-5.14), and high LOS (>5.14)

- Patient satisfaction: used VA SAIL data. As noted above, as only Q3 FY2014 was available to us at the time of selection, we were only able to use that quarter's results. Patient satisfaction data was divided into quartiles, with the middle quartiles grouped, resulting in low (<249.83), medium (249.83- 264.02), and high (>264.02) satisfaction categories

- Cumulative access score: used VA SAIL data. As noted above, as only Q3 FY2014 was available to us at the time of selection, we were only able to use that quarter's results. The eight access scores included in the VA Q3 FY2014 SAIL report were assigned quartiles and added together to produce a single cumulative access score, which was then divided into quartiles. This process resulted in cumulative score quartile categories of low (<17), medium-low (17-20), medium-high (20-23), and high (>23) access

- Facility age: relied upon VSSC 2014 operational date data for each VAMC (U.S. Department of Veterans Affairs, 2014). Operational dates were divided into quartiles, with the middle two quartiles grouped, producing categories of early (prior to June 4, 1929), medium (June 4, 1929 – April 7, 1952), and recent (after April 7, 1952) establishment

In several instances, variable data was not available for each VAMC. To ensure that these cases were not excluded from the sample, we scored absences with -1 and included the -1 score as a category for each selection criterion where there were absences.

A.3.2 VAMC Core Site Selection Representativeness

Results for Fisher's exact test demonstrate that the sample is not significantly different from the population of VAMCs (Table A-1):

Table A-1. Fisher's Exact Test Results

numerical_complexity_level_variable (p-value for Fisher's Exact Test: 0.79)					
	Population	**% pop**	**Selected**	**% Selected**	**Difference**
-1	2	1%	0	0%	-1%
1	88	59%	17	68%	9%
2	32	21%	5	20%	-1%
3	28	19%	3	12%	-7%
Total	150	100%	25	100%	
rurality_numerical_variable (p-value for Fisher's Exact Test: 1.0)					
	Population	**% pop**	**Selected**	**% Selected**	**Difference**
0	28	19%	4	16%	-3%
1	122	81%	21	84%	3%
Total	150	100%	25	100%	
adjusted_admissions_quartile (p-value for Fisher's Exact Test: 0.59)					
	Population	**% pop**	**Selected**	**% Selected**	**Difference**
-1	22	15%	2	8%	-7%
adjusted_admissions_quartile (p-value for Fisher's Exact Test: 0.59)					
1	32	21%	6	24%	3%
2	64	43%	9	36%	-7%
3	32	21%	8	32%	11%
Total	150	100%	25	100%	
adjusted_los_quartile (p-value for Fisher's Exact Test: 0.50)					
	Population	**% pop**	**Selected**	**% Selected**	**Difference**
-1	39	26%	4	16%	-10%
1	28	19%	3	12%	-7%
2	55	37%	12	48%	11%
3	28	19%	6	24%	5%
Total	150	100%	25	100%	

adjusted_patient_satisfaction_quartile (p-value for Fisher's Exact Test: 0.6)					
	Population	**% pop**	**Selected**	**% Selected**	**Difference**
-1	39	26%	4	16%	-10%
1	28	19%	7	28%	9%
2	55	37%	9	36%	-1%
3	28	19%	5	20%	1%
Total	150	100%	25	100%	
cumulative_access_score_quartile (p-value for Fisher's Exact Test: 0.54)					
	Population	**% pop**	**Selected**	**% Selected**	**Difference**
-1	32	21%	3	12%	-9%
1	33	22%	9	36%	14%
2	27	18%	4	16%	-2%
3	33	22%	4	16%	-6%
4	25	17%	5	20%	3%
Total	150	100%	25	100%	
operational_date_quartile (p-value for Fisher's Exact Test: 0.72)					
	Population	**% pop**	**Selected**	**% Selected**	**Difference**
1	38	25%	5	20%	-5%
2	74	49%	12	48%	-1%
3	38	25%	8	32%	7%
Total	150	100%	25	100%	

Appendix B   Previous Assessments

B.1   Summary of Previous Assessments

Table B-1. Summary of Major Themes and Findings from Select Previous Assessments Relevant to the VA's Pharmaceutical Organization

Year	Title	Agency	Main findings and recommendations
2002	VA Health Care: Expanded Eligibility Has Increased Outpatient Pharmacy Use and Expenditures	GAO	▪ After VA implemented eligibility reform in 1999, the use of the pharmacy benefit by Priority 7 Veterans increased from 11 million 30-day equivalents in 1999 to 26 million in 2001 and resulted in a doubling of net pharmacy expenditures for that population
2002	VA and Defense Health Care: Increased Risk of Medication Errors for Shared Patients	GAO	▪ Patients that are receiving care from both DoD and VA providers face an increased risk of medication errors, mostly due to the presence of separate, uncoordinated information and formulary systems ▪ There is additional risk due to lack of inter-accessibility between medical record systems and resulting inability to automatically check for drug allergies and drug-drug interactions ▪ Joint care facilities are implementing changes to address this increased risk, which include: o Creation of joint P&T committees o Increasing accessibility to EMRs o Creating a platform to support electronic (rather than handwritten) prescriptions for all providers ▪ Recommendations included creating a standard platform for sharing electronic information between systems, developing a comprehensive system to check drug interactions, and establishment of a joint P&T committee at all sites
2005	Mail Order Pharmacies: DoD's use of VA's mail order	GAO	▪ DoD could achieve savings of ~$1.39 per prescription in drugs costs if it used the

Year	Title	Agency	Main findings and recommendations
	pharmacies could produce savings and other benefits		VA's CMOPs to dispense its outpatient refill prescriptions ▪ Non-financial benefits from this arrangement could also be realized including reduced traffic / congestion at military treatment facilities, shorter pharmacy waiting times for active servicemembers, and increased satisfaction resulting from the VA's accurate and timely distribution of pharmaceuticals
2010	VA Drug Formulary: Drug Review Process is Standardized at the National Level, but Actions are Needed to Ensure Timely Adjudication of Nonformulary Drug Requests	GAO	▪ According to the VA PBM, reviews for the majority of the drugs that VA considered adding to its formulary in 2008-20009 were completed within a year of FDA approval ▪ There is variability at the VISN and VAMC level in the non-formulary drug request process is handled ▪ VA requires that non-formulary drug requests are handled within 96 hours, but VA is unable to determine the number of requests that exceed this time limit due to limitations in data collection and process differences
2012	Review of open market purchases under VA's pharmaceutical prime vendor contract	OIG	▪ Policy changes instituted in November 2011 did not prohibit open market purchasing, but instead led to decreased visibility into purchasing practices ▪ Major recommendations to VA included: o Block drug purchases for items where generic products are on contract o Require the prime vendor to update its ordering system to more effectively interface with the VA's CMOP ordering system o Ensure VA facilities purchase all products available on FSS at or below FSS pricing if not purchased through prime vendor

Year	Title	Agency	Main findings and recommendations
			○ Retrain ordering officers on allowable practices and revoke warrants from non-compliant officers
2012	DOD and VA Health Care: Medication Needs during Transitions May Not Be Managed for All Servicemembers	GAO	▪ The DoD does not have a formal policy for transitioning medication needs for all servicemembers ▪ The current DoD medical assessment has gaps compared to best practices for medical transitions (e.g., no plan is developed for how to obtain medications during the transition, medication lists are not provided at point of discharge) ▪ While VA and DoD do have programs for a select group of servicemembers (e.g., individuals with complex care needs), the programs are not available at all facilities ▪ GAO recommended that VA and DoD identify and implement best practices to improve continuity of care and reduce potential for misusing or discontinuing psychiatric or pain medications
2013	Prescription drugs: Comparison of DoD and VA Direct Purchase Prices	GAO	▪ For a sample of 83 drugs purchased by both VA and DoD in Q1 2012, the average unit price for VA was 31.8 percent lower than the DoD's price. For a subset of generic drugs, VA was 66.6 percent lower than the DoD. ▪ Differences in prices paid were related to drug utilization differences, formulary design, price and rebate negotiations by both organizations,

**Table B-2. Previous Assessments of Medical/Surgical Supplies
and Devices Considered for This Report**

Year	Title	Agency	Main findings
1999	Audit of VA Medical Center Management of Medical Supply Inventories	OIG	▪ VHA holds too much inventory on hand, in large excess over 30 days. Reasons for high levels: Improper stock levels set ▪ Normal stock levels not reviewed and updated ▪ Quantities on hand are not monitored ▪ Reductions in demand not effectively managed
2007	Audit of the Acquisition and Management of Selected Surgical Device Implants	OIG	VHA could reduce its procurement costs for aortic valves, coronary stents, and thoracic grafts and should strengthen key SDI management controls in the areas of inventory, patient privacy, and recalls
2008	Audit of VHA's Government Purchase Card Practices	OIG	VHA purchase card controls were generally effective at preventing or detecting improper or fraudulent medical facility purchases. All purchases reviewed (707) were for medical facility needs, although price reasonableness could not be documented for 126. Of the 126 transactions, 65 were for open market purchases and cardholders did not maintain documentation showing multiple quotes were sought or justification for using non-competitive sourcing.
2009	Audit of VHA's Undelivered Orders	OIG	Internal controls to identify invalid undelivered orders need improvement. There was inadequate follow up by Fiscal Service staff because of policy to follow up after the order's end-date rather than after 90 days of inactivity. Fiscal Service staff did not perform reconciliations between FMS and source documents
2009	Audit of Veterans Health Administration Open Market Medical Equipment and Supply Purchases	OIG	VHA ineffectively uses FSS for medical equipment and supply purchases, and it has weak internal controls over open market purchases. Found $8.2M opportunity if open market purchases were made on existing FSS contracts.

Year	Title	Agency	Main findings
2010	Spending for and Provision of Prosthetic Items	GAO	VA spending for prosthetic items varied both over and under budget estimates from FY2005 through FY2009. Analysis of trends is limited for budget purposes and relies mostly on local services to identify more up-to-date estimates. Provision of products to Veterans met performance goals, although timeliness measures had flaws that did not capture the full time it may take for a Veteran to receive their prosthetic appliance. Seven out of 21 VISNs had centralized PSAS management allowing some to share resources, reduced competition with other services for staff resources at VAMCs, and freed local PSAS staff from some administrative tasks to focus more time on meeting Veteran needs.
2010	Inadequate Controls over Miscellaneous Obligations Increase Risk over Procurement Transactions	GAO	In FY2007, VHA used $1.4 billion in miscellaneous obligations to acquire pharmaceuticals and hospital supplies when specific quantities and time frames are uncertain. GAO found inadequate controls and oversight which increased the risk of fraud, waste, and abuse for miscellaneous obligations. This included lack of segregation of duties and supporting documentation.
2011	Audit of Veterans Integrated Service Network Contracts	OIG	Changes instituted in 2009 were not effective: 1) VA did not follow the new review processes consistently; 2) VA and VHA acquisition management did not provide adequate guidance and oversight on IOP implementation
2011	Weakness in Policies and Oversight Governing Medical Supplies and Equipment Pose Risks to Veterans' Safety	GAO	Selected requirements for tracking and reprocessing medical equipment are inadequate to help ensure Veterans' safety
2011	Protests Concerning Service Disabled Veteran Owned Small	GAO	GAO determined that the Veterans Benefits, Health Care and Information Technology Act of 2006 requires VA to set aside procurements,

Year	Title	Agency	Main findings
	Business Preferences Sustained		even if they are on FSS, for SDVOSB concerns if the contracting officer has a reasonable expectation of receiving offers from two or more SDVOSB concerns and that the award can be made at a fair and reasonable price
2012	Audit of Prosthetics Supply Inventory Management	OIG	- Inefficiencies from using two inventory systems - Inadequate staff training on inventory management principles and techniques - Insufficient VHA Central Office and VISN oversight of VAMC inventory management practices - Inadequacies in the VHA Inventory Management Handbook
2012	Audit of the Management and Acquisition of Prosthetic Limbs	OIG	VHA overpaid prosthetic limb vendors by $2.2 M (4 percent) in FY2010 largely because vendor invoice included higher prices than quoted - improved review by Contracting Officer's Technical Representative was needed Additionally, contracting practices were variable between VISNs, including negotiation practices and interpretation of guidance on the number of vendors to establish contracts with
2012	Strategic sourcing: Improved and Expanded Use Could Save Billions in Annual Procurement Costs	GAO	DOD, DHS, DOE and VA accounted for 80% of $537 billion in federal procurement spending (FY2011), but only 5 percent was strategically sourced. VA spent 1.4 percent of $17.4 billion in FY2011 through strategic sourcing, and had no utilization targets. In response to proposal from VHA, VA has committed to hiring 150 FTE to establish commodity management teams to identify department wide strategic sourcing opportunities and develop improved requirements packages. VA also cites lack of strategic sourcing expertise and cited a training program to address this challenge
2012	Audit of Savings Reported Under the Office of Management and Budget's	OIG	VHA inaccurately report $710 million (65 percent) of its savings target under the OMB acquisition savings initiative for its FY2010-11 plan. The majority of savings were to come from

Year	Title	Agency	Main findings
	Acquisition Savings Initiative		consolidating contracting using VISN, regional, and national contracts; increased competition for contracts; and by canceling Army Corps of Engineers contracts and using VHA's in-house contracting resources. $562 million were not reportable under OMB guidance because new actions (such as negotiating more favorable pricing or improving contractor performance) were not taken on existing contracts since FY2008. A further $129 M did not have supporting documentation (including $107 from PBM). VHA did not issue appropriate guidance or provide oversight for reporting savings
2013	VHA Has Taken Steps to Address Deficiencies in Its Logistics Program, but Significant concerns remain	GAO	VAMCs and networks have partially complied with new VHA requirements to address deficiencies in its logistics program. VHA has additional efforts underway to further improve its logistics program, but they face uncertainty about implementation.
2014	Oversight of Tissue Product Safety	GAO	Poor inventory management practices challenge VA's ability to track product recalls. Systems are inadequate and contain accuracy issues that make searching inventories for products difficult.

B.2   Key Questions to Guide Assessment Approach

To ensure that a comprehensive assessment of the VA pharmaceutical supply system was achieved, a series of guiding questions were developed and tested with supply chain experts. These questions are summarized below in (Table B-3, Table B-4).

Table B-3. Key Questions for Assessment J

Purchasing	- How do the VA's drug costs compare to industry benchmarks? - How effectively does VA use group purchasing arrangements (e.g., percent of purchases made through open sources, percent of purchases on-contract)? - What are the roles of and relationships between national, regional, and local purchasing groups? - How is the value of new drugs assessed by VA and how does that compare to industry best practice?

Distribution	• How efficient and effective is the VA's drug distribution, inventory management, and mail-order pharmacy relative to standards? • How often do stock-outs or shortages occur and what does VA do to prevent them? • To what degree is shrinkage, wastage, expiration an issue, and why?
Use	• How does VA compare to industry benchmarks on key utilization metrics (e.g., formulary compliance rate, generic dispensing rate, annual drug spend per patient)? • How do the VA's policies, practices, and processes impact those performance metrics (e.g., formulary development and override policies, therapeutic interchange)? • What is the level of Veteran satisfaction with the current VA pharmaceutical system?
Cross-cutting	• How is the pharmacy division structured and resourced? • How does the structure, membership, operating model, and bylaws of the pharmacy and therapeutics committee(s) compare to industry best practice? • Who is accountable for purchasing decisions?

Table B-4. Guiding Questions for the Assessment of VA Purchasing, Distribution and use of Clinical Supplies and Devices

Purchasing	• How do the VA's supplies and devices costs compare to industry benchmarks? • How effectively does VA use group purchasing arrangements? • What are the roles of and relationships between national, regional, and local purchasing groups (e.g., feedback loop from local groups to national groups)? • How is the value of new supplies and devices assessed and how does that compare to industry best practice?
Distribution	• How efficient and effective is the VA's supplies distribution and inventory management? • How often do stockouts / shortages occur and what can be done to prevent them? • To what degree is shrinkage, wastage, expiration an issue, and why?

Use	- How does VA compare to industry benchmarks on key utilization metrics (e.g., supplies spend per patient)? - How standardized are utilization practices across the VA? - How does the VA's policies, practices, and processes key performance metrics?
Cross-cutting	- Where are decisions around supplies made and who has accountability for those decisions (e.g., new product introductions, inclusion in standardized care pathway)? - How do VA systems, processes and talent management support a Veteran's care with respect to delivering needed clinical supplies, devices and services?

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Appendix D   Acronyms

ACE	ACE Inhibitor
AHA	American Hospital Association
ARB	Angiotensin II Receptor Blocker
BiPAP	Bilevel Positive Airways Pressure
BPA	Blanket Purchase Agreement
BPC	Business Program Coordinator
CAMH	CMS Alliance to Modernize Healthcare
CCST	Contracting Catalogue Search Tool
CLO	Chief Logistics Officer
CMOP	Consolidating Mail Order Pharmacy
CMS	Centers for Medicare & Medicaid Services
CO	Contracting Officer
COR	Contracting Officer Representative
CoreFLS	Core Financial and Logistics System
CPAP	Continuous Positive Airway Pressure
CPO	Chief Procurement Officer
CPRC	Clinical Product Review Committee
CY	Calendar Year
DALC	Denver Acquisition and Logistics Center
DoD	Department of Defense
eCMS	electronic Contract Management System
EDI	Electronic Data Interchange
ERP	Enterprise Resource Planning
FAR	Federal Acquisition Regulations
FDA	Food and Drug Administration
FFRDC	Federally Funded Research and Development Center
FLITE	Financial and Logistics Integrated Technology Enterprise
FMS	Financial Management System
FSS	Federal Supply Schedule
GAO	General Accountability Office

GIP	General Inventory Package
GSA	General Services Administration
HR	Human Resources
IDIQ	Indefinite Delivery, Indefinite Quantity
IFCAP	Integrated Funds Distribution, Control Point Activity, Accounting and Procurement
IMF	Item Master File
IPT	Integrated Product Team
JIT	Just in Time
LOS	Length of Stay
LUM	Low Unit of Measure
MAP	Medical Advisory Panel
MBO	Manufacturer Backorders
MSPV	Medical Surgical Prime Vendor
NAC	National Acquisition Center
NADAC	National Average Drug Acquisition Cost
NCO	Network Contracting Office
NIF	National Item File
NPDD	National Prosthetic Device Database
OAL	Office of Acquisition and Logistics
OALC	Office of Acquisition, Logistics and Construction
OHRM	Office of Human Resources Management
OIG	Office of the Inspector General
OMB	Office of Management and Budget
OPM	Office of Personnel Management
PLO	VHA Procurement and Logistics Organization
P&T	Pharmacy and Therapeutics
PALT	Procurement Administrative Lead Time
PBM	Pharmacy Benefits Management
PEO	Program Executive Office
PIP	Prosthetics Inventory Package
PLO	Procurement Logistics Organization

PO	Purchase Order
POU	Point of Use
PPV	Pharmacy Prime Vendor
PSAS	Prosthetics and Sensory Aids Service
RME	Reusable Medical Equipment
ROES	Remote Order Entry System
RTLS	Real Time Location Service
SAC	Strategic Acquisition Center
SAIL	Strategic Analytics for Improvement and Learning
SAO	Service Area Office
SLA	Service Level Agreement
SOARD	VHA Special Projects Office Service Oriented Architecture Research and Development
TAA	Trade Agreement Act
TAC	Technology Acquisition Center
UOU	Unit of Use
VA	Veterans Affairs
VAAR	VA Acquisition Regulation
VAMC	VA Medical Center
VHA	Veterans Health Administration
VISN	Veterans Integrated Service Network
VistA	Veterans Health Information Systems and Technology Architecture
VMOC	VISN Mail Out Center
VSSC	VHA Support Center classification
WAC	Wholesale Acquisition Cost
WSNC	Western States Network Consortium

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Preface

Congress enacted and President Obama signed into law the Veterans Access, Choice, and Accountability Act of 2014 (Public Law 113-146) ("Veterans Choice Act"), as amended by the Department of Veterans Affairs (VA) Expiring Authorities Act of 2014 (Public Law 113-175), to improve access to timely, high-quality health care for Veterans. Under "Title II – Health Care Administrative Matters," Section 201 calls for an Independent Assessment of 12 areas of VA's health care delivery systems and management processes.

VA engaged the Institute of Medicine of the National Academies to prepare an assessment of access standards and engaged the Centers for Medicare & Medicaid Services (CMS) Alliance to Modernize Healthcare (CAMH)[1] to serve as the program integrator and as primary developer of the remaining 11 Veterans Choice Act independent assessments. CAMH subcontracted with Grant Thornton, McKinsey & Company, and the RAND Corporation to conduct 10 independent assessments as specified in Section 201, with MITRE conducting the 11th assessment. Drawing on the results of the 12 assessments, CAMH also produced the Integrated Report in this volume, which contains key findings and recommendations. CAMH is furnishing the complete set of reports to the Secretary of Veterans Affairs, the Committee on Veterans' Affairs of the Senate, the Committee on Veterans' Affairs of the House of Representatives, and the Commission on Care.

The research addressed in this report was conducted by McKinsey & Company, Inc., under a subcontract with The MITRE Corporation.

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[1] The CMS Alliance to Modernize Healthcare (CAMH), sponsored by the Centers for Medicare & Medicaid Services (CMS), is a federally funded research and development center (FFRDC) operated by The MITRE Corporation, a not-for-profit company chartered to work in the public interest. For additional information, see the CMS Alliance to Modernize Healthcare (CAMH) website (http://www.mitre.org/centers/cms-alliances-to-modernize-healthcare/who-we-are/the-camh-difference).

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Executive Summary

Scope

Assessment K examined "the process of the Department for carrying out construction and maintenance projects at medical facilities of the Department and the medical facility leasing program of the Department." Specifically, the team was required to (i) review the processes for identifying and designing proposals for leases and capital projects, (ii) assess the process for determining the necessity and size of a lease or capital project, (iii) assess the processes and project management of the design, construction, leasing, and activation of medical facilities, and (iv) assess the medical facility-leasing program of the department. The Assessment K team also considered two additional areas that are critical to addressing VHA's facility needs, facility management and the long term capital funding needs of VHA.

Findings

We have found that VHA is expected to face accelerating and likely unfunded capital requirements driven by maintenance to aging infrastructure, projected workload needs to serve the Veteran population, and inefficient capital management. Moreover, we observed that VA performance in capital management, design and construction, leasing, and facilities management is on par with public sector performance in most cases, yet well below private sector performance, particularly in the cost to deliver major construction projects. Consistently deploying world class practices in capital management has the potential to improve performance significantly and address some of the capital constraints VA faces, but would require a further overhaul of VA's capital program and supporting organization. However, even if VA is able to meet the significant challenge of achieving best practice performance in capital management, VA would still likely experience a significant capital funding gap that will require strategic changes in operations and additional funding to close the gap.

The capital requirement for VHA to maintain facilities and meet projected growth needs over the next decade is two to three times higher than anticipated funding levels, and the gap between capital need and resources could continue to widen.

VA has identified more than $51 billion in total capital needs over the next 10 years through its capital planning methodology.[2] These requests cover current ten-year projections; however, new projects may be added as needs change and could change the total capital requirement. Provided that average funding levels remain consistent over the next 10 years, the $51 billion capital requirement would significantly exceed the anticipated funding level of $16-26 billion.[3]

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[2] The $51 billion capital requirement combines $46 billion in projects submitted through the Strategic Capital Investment Plan (SCIP) and $5 billion in anticipated outstanding funding needs for on-going major projects projected in the FY2016 VA Budget Submission. While our team did not independently verify the cost estimates for the 8,038 capital requests that make up the $46 billion requests through SCIP, we did review the process by which these requests are identified and developed. See Section 3.1 and Appendix B.3 for additional detail.

[3] Over the last four years, VA's capital funding budget has ranged from $1.6 billion to $2.6 billion each year, averaging $2 billion.

Multiple factors drive the scale of the capital need. VHA facilities are older buildings, with significant repair needs, and some are poorly suited to emerging models of care. The average VHA building is 50 years old, five times older than the average building age for not-for-profit hospital systems in the United States.[4] While many facilities have been extensively renovated, the renovations themselves have aged, and the condition of buildings shows this strain. Independent assessments of infrastructure and facilities through the VHA Facilities Condition Assessment (FCA) found that VHA facilities average a "C minus" score, meaning that much of the total facilities portfolio is nearing the end of its useful life.[5] More than 70 percent of VHA facilities correction costs result from infrastructure and facilities that are D rated, meaning that they are at the end of their useful life.

Current facilities, whether they have been maintained adequately or not, often do not match current models of care. The overwhelming majority of VHA hospitals were designed when care was focused more heavily around inpatient hospital treatments. Over the past eight years, Veteran inpatient bed days of care have declined nearly ten percent while outpatient clinic workload has increased more than 40 percent.[6] Space for outpatient care is typically housed in converted inpatient spaces or VHA's growing number of clinics. As a result, VHA's capital needs fall into a broad range of categories, including ensuring adequate facility condition, providing sufficient and appropriate space for Veteran care, and upgrading infrastructure. As facilities age further and care continues to shift to the outpatient setting, the size of the capital need could continue to grow.

Shortfalls in overall accountability, role clarity, personal ownership, internal communication, and proactive problem solving approaches limit the ability of VA and VHA to deliver the correct projects consistently on time and on budget. Facilities functions are dispersed through VA, resulting in a lack of accountability for facilities outcomes, a mismatch between planning efforts and funding decisions, and the separation of project execution and facilities management. Additionally, internal VA directives, federal procurement requirements, and stakeholder involvement impact VHA's ability to deliver and operate medical facilities at the level of private sector benchmarks.

Capital is not being consistently allocated to projects that address the greatest areas of Veteran need in the most cost effective and timely manner. Lengthy approval and funding timelines hinder the ability of VHA to meet the identified space requirements to keep up with Veteran demand and invest in facilities updates that align with changing models for care. VA has recently established the Strategic Capital Investment Plan (SCIP), a systematic approach to approve capital projects and allocate funding. However, the process does not yet ensure full

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[4] The age of VHA facilities is calculated by taking the year built recorded in the Capital Asset Inventory and weighting it by the gross square footage of each property. 2013 analysis of 139 not-for-profit hospital systems in US, encompassing 1,362 hospitals (Soule & Keller, 2013). See Section 5.2.1.4 for additional detail.

[5] FCA assessments are conducted by independent evaluators at each facility every three years. More than 180,000 individual items are scored across VHA facilities, using a scale of A (like new) to F (critical condition) scale. Average score was calculated using the aggregated reports in VA's Capital Asset Database, accessed March 2015.

[6] Workload reported by VAMCs in the 2015 VSSC Trip Packs, aggregated by VISN.

alignment with VA strategy, include rigorous business case scrubbing, or incorporate feedback on past project outcomes into the capital program assessment.

VA construction costs are similar to other public agencies in most cases, but double private industry best practice, and VA time-to-complete exceeds both public and private peers. Increased design requirements resulting from resilience, energy, security and community mandates increase the initial cost of projects over the private sector. Frequent design changes driven by users before construction contract award and during construction further increase the costs of projects and contribute to construction delays. Additionally, project teams are designed and staffed to support compliance requirements but these structures have resulted in reduced accountability for project delivery outcomes and a limited ability to develop solutions to manage cost overruns and schedule delays.

The leasing program is not effectively enabling VHA to provide facilities where and when they are required or at a reasonable cost for major leases. Lease timelines preclude VHA from benefitting from the speed and flexibility that leasing typically provides, often taking more than twice as long as private sector benchmarks. The leasing program typically achieves per square foot costs comparable to market prices for small and medium sized facilities, however, for larger build-to-suit facilities which are impacted by the same type of design and construction challenges seen in owned facilities we observed rents clustered at 40 to 50 percent higher than private sector benchmarks.

Facility management costs across VHA exceed those at comparable medical facilities. Facility management costs, including recurring maintenance and environmental services, are on the average two to three times higher than comparable private medical facilities, largely due to in-house management of these services rather than utilization of lower cost external service contracts. Facility management costs and practices are also highly variable across VHA facilities, with little incentive for individual stations to adopt cost effective measures.

Recommendations for consideration

Achieving best practice levels of performance in each of the assessment areas would require an overhaul of VA's capital program and supporting organization. Through our research, we have identified best practices from capital management organizations around the world that could be deployed to improve the total performance of capital programs of the scale and complexity of VA's. The cumulative improvement value of deploying all of these best practices in a single organization could result in savings up to 40 percent.[7] However, even world class capital management organizations do not succeed in deploying all of these best practices consistently across their organizations, which illustrates the scale of the challenge. Shifts in the model of care delivery, lengthy approval processes, organizational health concerns, and strained budgets have combined to make capital management and delivery a formidable task for VA, and even the most ambitious transformation effort at VA may not achieve this total potential. As a result,

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[7] "Infrastructure Productivity How to save $1 trillion a year," by McKinsey & Company (January 2013). This report includes more than 400 case examples from around the world. For this assessment, estimated savings have been adjusted to reflect requirements and constraints specific to VA.

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we have estimated the total potential improvement opportunity for VA to be up to 25-35 percent.

Detailed recommendations for improving the capital program can be found in Sections 5 through 9, for each of the deep dives on core assessment areas. These recommendations fall into the following main opportunity areas:

VA should improve project selection and refine its project portfolio. VA should refine the SCIP process to rationalize and prioritize capital requirements by ensuring that space, energy, and condition criteria are reflective of the most critical items that contribute to Veteran care. The SCIP process, initiated four years ago, advanced VA capital project selection by creating a standardized methodology to review and approve projects which did not previously exist, but further steps are needed to improve the approach. These include a careful assessment of standards and a modification of the criteria for project selection. By focusing the criteria and approval processes for capital projects, VA could concentrate capital spending on strategic priorities and accelerate approval timelines. Capital project planning should also incorporate feedback on performance and outcomes from past projects to determine which capital programs respond to Veteran needs in the most cost effective manner possible. This would help enable a vital link between portfolio planning, project execution, and achievement of the desired outcomes in Veteran care.

VA should streamline project delivery across all construction types and leasing. VA should comprehensively address the root causes (for example, specifications, approval processes, project governance structures, team capabilities and composition) currently leading to consistent overruns in cost and schedule for construction projects and lengthy timelines for leases. This begins with modernizing and rationalizing design standards in keeping with current innovations in health care. A clear stage-gate process should be implemented to manage scope and design changes in the planning and design phases of projects and to limit scope and design changes that occur after a project receives funding and during construction. The recently launched Capital Program Requirements Management Process (CPRMP) introduced reviews during the design process to manage scope changes, another positive step which should be further developed and rolled out. To increase ownership and accountability, project delivery teams should be restructured with clear roles and responsibilities, well-defined handoffs, and adequate staffing levels. Additionally, contracting and other supporting entities should be accountable and equipped to support a fast-paced project environment and facilitate the needs of construction projects and leases.

VHA should ensure proposed projects make the most of existing infrastructure. VHA could improve the effectiveness of its infrastructure through incorporating a total cost of ownership assessment approach into design, capital planning, and facility management. This requires evaluating the operational cost implications of design choices and pursuing opportunities to optimize capital and operating costs simultaneously. Space planning programs should regularly evaluate underutilized and vacant space to identify opportunities for increased utilization or to actively divest unusable properties.

In addition to taking steps to address the above recommendations, VHA should consider more transformative options as needed to address the remaining unfunded capital

requirement. If VA is able to successfully implement current improvement initiatives, act on the additional recommendations listed above, and demonstrate best practice performance, VA could potentially reduce its total capital need to $33 to $38 billion over the next 10 years. Based on average funding of $16-26 billion over 10 years, an unfunded gap of $7 to 22 billion would still exist. To close this remaining gap, funding would have to increase and VA will need to consider more transformative options. When other institutions have faced similar capital shortfalls, they have considered a range of strategic and business model redesign options in addition to implementing best practices in capital project delivery. This report lays out several strategic approaches for further consideration by VHA, including:

- *Maximize operational efficiency*. Operating improvements, such as extending operating hours, improving scheduling efficiency, increasing tele-health options, and reducing average length of stay, can provide non-capital solutions to meeting workload needs. The operating recommendations in Assessments E, F, G, and H may contribute to addressing VHA's capital need.

- *Reassess how and where to best serve Veterans*. When facing similar circumstances to VA, other health care organizations have considered strategic operating changes that result in a realignment in their capital portfolios. This could potentially include geographic realignment, community partnerships, or a shift in service offerings. Assessments B and C may offer some further insights.

- *Explore alternative vehicles for capital delivery*. Alternative models of providing facilities have proved productive for some organizations. These models include contracting out capital investment, outsourcing facility management, and establishing innovative public-private partnerships.

In summary, VA has taken steps to improve its capital program, but much more is required given the scale of the capital need and the gap between current performance and best practice. Even with the most ambitious expectations for improving the capital program, VA will likely face a major funding gap over the next decade that will require a combination of additional funding and transformative changes to operations in order to ensure that Veterans receive the level and quality of care VA has committed to provide.

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1 Introduction

1.1 Purpose

With the goal of improving access, quality, and effectiveness of health care delivery for Veterans, the Veterans Access, Choice, and Accountability Act of 2014 ("Veterans Choice Act"), Section 201 mandated a forward-looking, independent assessment of current practices and opportunities for improvement. Assessment K of the Veterans Choice Act requires the review of the processes of VA for carrying out construction and maintenance projects at medical facilities and the medical facility-leasing program of the department.

Cross-cutting findings and recommendations for consideration are discussed in Sections 3 and 4 of this assessment. The specific elements of the legislation are discussed in depth in the following sections, as detailed in Table 1-1:

Table 1-1. Elements of Veterans Access, Choice, and Accountability Act

Veterans Choice Act Section 201: Assessment K	Assessment K Section
(i) Review the processes of the Department for identifying and designing proposals for construction and maintenance projects at medical facilities of the Department and leases for medical facilities of the Department.	**"Section 5: Capital Planning Assessment"**: The capital planning section of this report addresses how the Department identifies and designs proposals for new capital projects, including leases
(ii) Assess the process through which the Department determines the following: - That a construction or maintenance project or lease is necessary with respect to a medical facility of the department. - The proper size of such medical facility or proposed medical facility with respect to treating Veterans in the catchment area of such medical facility or proposed medical facility.	**"Section 5: Capital Planning Assessment"**: The capital planning section of this report reviews the means by which the necessity and size of a facility is evaluated **"Section 6: Design and Construction Assessment for Major Projects"** and **"Section 7: Design and Construction Assessment for Minor and Non-recurring projects"**: the design and construction sections address the means by which plans and designs for new and existing facilities are determined
(iii) Assess the management processes of the Department with respect to the capital management programs of the Department, including the processes relating to the methodology for construction and design of	**"Section 5: Capital Planning Assessment"**: The capital planning section of this report reviews the management processes of the capital management programs of the

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Veterans Choice Act Section 201: Assessment K	Assessment K Section
medical facilities to the Department, the management of projects relating to the construction and design of such facilities and the activation of such facilities.	Department **"Section 6: Design and Construction Assessment for Major Projects"** and **"Section 7: Design and Construction Assessment for Minor and Non-recurring projects"**: The design and construction sections of this report address management processes involved in the design and construction of facilities and the activation of facilities
(iv) Assess the medical facility-leasing program of the department.	**"Section 8: Leasing Program Assessment"**: The leasing section of this report reviews the processes behind the medical facility leasing program, including both major and minor leases

1.2   Scope

This assessment includes each element addressed in the legislation and two additional areas that are critical to addressing VHA's facility needs: facility management and the long-term capital funding needs of VHA.

Assessment K reviews the current processes that VA and VHA use to deliver medical facilities and identifies process improvement options to maximize access and quality of health care for Veterans at optimal cost. The overall capital program accounts for nearly $6 billion annually, approximately 10 percent of VHA's total budget request (see details in Figure 1-1).

Figure 1-1. VA 2015 Budget

Assessment K scope budget 2013-16 evolution

$ Billions

Category	2013 (actual)	2014 (enacted)	2015 (enacted)	2016 (requested)	CAGR[2] Percent
Major construction	0.7	0.3	0.6	1.1	16
Minor construction	0.6	0.7	0.5	0.4	-13
Medical facilities programs — Non recurring maintenance (NRM)	1.3	0.7	0.5	0.7	-19
Recurring maintenance and repair	0.6	0.5	0.5	0.7	8
Plant operation and leases	1.3	1.8	1.8	1.4	3
Others[1]	1.4	1.0	1.2	1.6	3
Subtotal $ Billion	**5.9**	**5.0**	**5.1**	**5.9**	
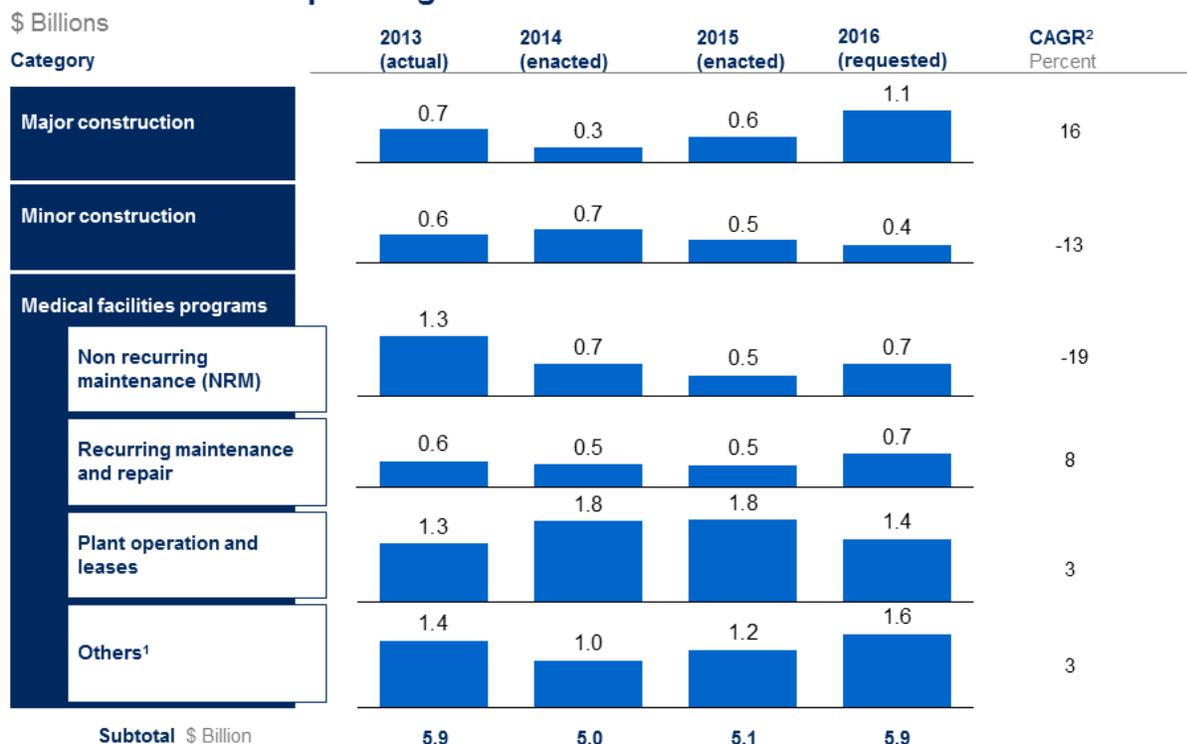
1 Includes Engineering and Environmental management services, Engineering Service, Grounds maintenance and fire protection, and Other Facilities Operation Support. Within the medical facilities budget, given the scope of Assessment K, it excludes Transportation Services, Textile Care Processing and Management, and Operating Equipment Maintenance and Repair
2 Compound Annual Growth Rate
SOURCE: VA Budget requests, FY13-FY16

Of the $6 billion medical facilities budget, an average of $2 billion each year is dedicated to major, minor, and non-recurring maintenance (NRM) construction. Nearly $0.5 billion additional covers annual operational lease obligations, paid out of Veterans Affairs Medical Center (VAMC) budgets to sites of care approved through VHA. The remaining $3.5 billion budget covers recurring maintenance, plant operations, and other facility management categories from VAMC operating budgets.

We have structured the assessment to focus on four main areas: capital planning, design and construction, leasing, and facility management:

Capital planning assessment: Review VHA processes for planning and budgeting, identifying best practices and potential levers to improve capital allocation to address Veteran needs. Planning efforts are conducted independently by stations (i.e., the administrative structure of a medical center and associated clinics under the same leadership) and Veterans Integrated Service Networks (VISN), supplemented by integrated planning efforts between VHA, Veterans Benefit Administration (VBA), and the National Cemetery Administration (NCA), facilitated by VA's Office of Construction and Facilities Management (CFM), and consolidated with a planning tool managed by VA's Office of Asset Enterprise Management (OAEM).

Design and construction assessment: Understand VA processes for design and construction of medical facilities and identify best practices and potential levers to prevent project overruns while ensuring required quality. Analyze outcomes and processes across all three construction programs:

- **Major construction program (9 projects, 51 percent of total[8])**: Projects that address construction, alteration, extension, or improvement of any facility, campus, or integral service, including parking construction and site acquisitions above $10 million. The program primarily includes two informally defined types of projects, discussed further in Section 6, both of which are managed by CFM and are specifically appropriated by Congress. These are (1) mega projects, typically replacement medical facilities or new medical facilities construction, and (2) major projects, normally expansions or major area renovations to existing medical centers, structural reinforcing, or supporting structures.

- **Minor Construction program (174 projects[9], 13 percent of total)**: Projects that address construction, alteration, extension, or improvement of any facility, including parking structures, site acquisition, and demolition by replacement, with costs equal to or less than $10 million, managed by local VHA engineering staff.

- **Non-Recurring Maintenance (NRM) program (866 projects, 36 percent of total):** Projects that renovate existing facilities and associated infrastructure with expansion of space not to exceed 1000 square feet. The program primarily includes three types of projects, Infrastructure Improvement, Sustainment, and Green Management, all managed by local VHA engineering staff.

Leasing assessment: Understand VA processes on facilities leasing and identify best practices and potential levers to maximize lease process agility and competitiveness. VA manages leasing through two main programs:

- **Major Leasing program (63 leases, $154 million annual rent obligations)**: Leases with annual unserviced[10] rent greater than $1 million. These leases are procured centrally through Real Property Services (RPS) in the VA Office of Construction and Facility Management and managed by VHA.

- **Minor Leasing program (1591 leases, $267 million annual rent obligations)**: Leases with annual rent obligations less than $1 million. These leases are managed by the medical centers and the VHA's Office of Procurement and Logistics.

Facility management assessment: Although not explicitly identified in the Veterans Choice Act, the extensive capital investment and interdependence of facilities operations with the capital management, design, construction, and leasing of facilities necessitated that facility management conducted by local VHA stations be included in our assessment. This aspect of the assessment is meant to understand VHA processes for conducting minor preventative and

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[8] Total by amount requested in the 2016 VHA capital program of NRM, Minor, and Major construction.

[9] Per 2015 budget; 2016 plan still in progress.

[10] Unserviced rent is the base rent, including real estate taxes, insurance, and any amortized build-out, but excluding operating expenses.

recurring maintenance of facilities. We identify best practices and potential levers to increase cost monitoring and control and ensure timely completion of activities.

1.3   Terminology

VHA's capital program is overseen and partially executed by offices elsewhere in VA. As such, this report will use "VHA" when referring to offices located under the Under Secretary of Veterans Affairs for Health, and "VA" when referring to or including any other Veterans Affairs office. "Facility" will refer to the physical structure. "Station" will be used to refer to the administrative structure of a medical center and associated clinics under the same leadership, as currently defined by VHA. "Station leadership" refers to senior leadership, including: Director, Associate Director, Chief of Staff, Assistant Director for Patient Care Services, and Assistant Director for Operations, as well as the senior facilities leadership, including the Chief Engineer and Facility planner.

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2 Methodology

2.1 Approach

To address the mandate of the Veterans Choice Act, we have taken the following approach to develop a holistic view of VHA current needs, performance, main challenges, and areas for improvement.

- **Understand the current VHA capital need:** Leverage existing VA databases to evaluate capital need over the next ten years for VHA, holding constant their current planning assumptions, portfolio of assets, and operating model.

- **Assess performance of VA facilities program:** Evaluate how VA plans, builds, leases, maintains and operates medical facilities by assessing (i) outcomes, (ii) processes, (iii) people, and (iv) systems in each of the core assessment areas.

- **Identify and propose capital efficiency levers to reduce capital need:** Within the current operating model, understand the potential efficiency levers to reduce current capital need by optimizing project portfolio and improving project delivery.

- **Review potential strategic options to fully close the funding gap:** Explore strategies similar organizations have used when facing capital shortfalls. Include a range of strategic options which go beyond efficiency gains within the current system and could help close current VA capital funding gap.

In assessing the core areas of the VA facilities program (capital planning, design and construction, leasing, and facility management), we considered the following key processes:

Capital Planning Assessment (Section 5):

- **Integrated Planning:** Launched in FY11, the Integrated Planning effort looks holistically at VHA, VBA, and NCA strategic needs over the next ten years with a focus on capital implications. Now being rolled out at the VISN level, this effort is facilitated by planners in CFM and involves heavy input from regional and local leadership as well as outside consultants. Our team interviewed national and regional CFM planning staff and VISN and station planners at the participating pilot locations and reviewed draft documents from the process provided during those interviews.

- **SCIP gap development:** The Strategic Capital Investment Plan (SCIP) is the foundational process for capital planning. This process contains several subcomponents. The first of these is gap development, where the office of Capital Assessment Management Service, located at OAEM, compiles data from across VHA to determine the gap between current status and strategic capital goal. These gaps, updated annually, are reviewed and distributed to local staff for the development of their gap-closing Action Plans. Our team conducted interviews at the national, regional, and local levels on the gaps, with particular focus on national interviews. We reviewed the methodology, metrics, and data sources involved in gap development (e.g., functional surveys, condition assessments), but did not independently evaluate the data incorporated in the gap development process.

- **Facility Condition Assessments (FCA):** FCAs are a key component of the SCIP gap development process. While our team did not replicate these assessments, we conducted interviews at the national, regional, and local level on the process by which they are developed and the manner in which assessments are used. This included interviews of 25 Chief Engineers across the VAMC site visits regarding how their assessments were conducted. We also reviewed the output of FCAs, as compiled in VA's Capital Asset Inventory Database.

- **Health Care Planning Model (HCPM):** HCPM provides planning tools for station use, including mapping tools, Enrollee Health Care Projection Model inputs, information on affiliated institutions, cost estimates on purchased care, and tools for considering capital and non-capital planning alternatives in advance of SCIP Action Plan development. Our team conducted interviews with the national VHA Office of the ADUSH for Policy and Planning, which manages the tool, as well as with facility planners at stations who utilize the tool. We also obtained sample outputs provided by VHA Office of the ADUSH for Policy and Planning, including 82 market reports, the instruction manual for HCPM, databases with enrollment and rurality data, and unit cost data by strategic planning category (SPC).

- **SCIP Action Plan development:** The SCIP Action Plan is compiled by every station to provide a ten-year approach to closing identified gaps. Our team conducted interviews with OAEM, which manages the plan, the Office of Capital Asset Management and Engineering Services (OCAMES), which provides key inputs and feedback into the process, and discussed the development of the plan with capital asset managers and VISN planners across 13 VISNs and engineering and station leadership across 25 VAMCs. Our team reviewed documents and databases provided by OAEM staff, including: SCIP training presentations, SCIP call memos, SCIP directives, Action Plan databases for FY14-FY16, and the space planning and space calculator spreadsheets for FY15-FY17.

- **SCIP business case development:** SCIP business cases are submitted for each project on the Action Plan requested for the first fiscal year following the planning cycle. These business cases are developed at the station level and submitted to OAEM for centralized review. As part of our review of this process, our team utilized the SCIP business case databases for FY14-FY16, the Cost Effective Analysis (CEA) template, CEA factors list, the cost estimating guides developed by CFM, and interviews with national, regional, and local staff involved in the review or development of business cases.

- **SCIP scoring:** Submitted business cases are reviewed and scored by the SCIP Board and associated panels in order to develop a prioritized list of projects for funding. To review this process, we conducted interviews at OAEM and CFM on the scoring process and regional and local interviews regarding the output of the scoring process. Our team also reviewed the SCIP scoring guides for FY14-16 and the scoring outputs for FY13-FY16 as well as internal guidance on strategic SCIP priorities.

- **Allocation of NRM funds:** After SCIP scoring establishes a prioritized list of projects for centralized funding or the allocation of design funding, funding for projects categorized as NRM are allocated at the VISN level. Because this process is decentralized, there is some

variation in the processes used. In assessing this process, our team conducted interviews at 13 VISNs and 25 VAMCs and analyzed budget data on the obligation of NRM dollars by VISN and station. Select VAMCs also provided supplementary data on the processes used to allocate NRM dollars, and all site visits locations provided data on in-process NRM projects at their facilities.

Design and Construction Assessment: Major Projects (Section 6):

- **Project Development process:** The project development process spans from the approval of project through the SCIP process to contractor selection. This phase is critical in developing the design of the facility and involves key activities such as the schematic design, design development, development of construction documents, and contractor selection. Our team interviewed CFM Project Managers across the regions who lead the Project Development phase for Major projects. We also interviewed support function providers, such as contracting officers and cost estimating departments, to gain further insights into the process. Finally, we conducted deep dive on select projects, where detailed data during the project development phase was documented.

- **Contract modifications (change order) process:** The contract modification process, typically known in the industry as the change order process, is the procedure to approve changes in project once the construction contract has been signed. To understand the contract modifications process, our team interviewed contracting officers who lead the process. Our team also reviewed internal directives to map the approval thresholds and processes. Finally, our team analyzed the public (Federal Procurement Database System) and private (VA's internal electronic Contract Management System) databases that manage the contract related information throughout the project.

- **Activation process:** The activation process involves activities required to make a facility operational between construction completion and day one of operations. Key activities include functional performance testing of key systems, training of facility operations teams, procurement and installation of medical equipment not included in the construction contract, and creation of a systems manual for use during the maintenance phase of the facility lifecycle. To evaluate the process, our team reviewed the latest Activation Process Guide (February 2015 version) and interviewed facilities personnel, equipment procurement personnel, and contractors at on-going projects.

- **Capital Program Requirements Management Process (CPRMP):** The CPRMP process is a recently implemented process (February 2014) to manage changes in projects at key milestones during project development and construction. The process is critical to managing changes in cost, scope, and schedule as a project evolves from project development to execution and finally to activation. Our team interviewed key personnel at VAMCs and CFM to map the adherence and applicability of the new CPRMP process. The team also compared the process to best practice stage-gate processes in the industry to understand the key differences in the process for managing changes throughout the project lifecycle.

Design and Construction Assessment: Minor Projects and Non-Recurring Maintenance (Section 7):

- **Contractor selection process:** For Minor and NRM projects, the selection of the contractor often overlaps with VA's mission of meeting certain contracting requirements for Small Disabled Veterans Owned Businesses (SDVOB). Our team interviewed contracting officers, key members of the Technical Review Committee and the Contracting Officers, and SDVOB contractors (when available) during construction site visits to assess this process.

- **Project tracking process during construction:** The Minor construction and NRM program is managed within VA's OCAMES office with execution support from VAMCs facilities personnel. The project tracking processes during construction were assessed to understand how projects evolve over time. Key activities in this process included tracking cost and schedule for project development and construction phases.

Leasing Program Assessment (Section 8):

- **Major leasing program**: To assess the major leasing program outcomes, we conducted a detailed benchmarking of major lease rental rates, retained an independent expert real estate broker who compared the terms of VA's major lease contracts against typical lease terms of comparable properties, and conducted a detailed analysis and benchmarking of the time taken to execute major leases. We then conducted a range of interviews, visits, and analyses of available data to evaluate how the people, processes, and systems of VA's major leasing program could be changed to improve the program outcomes. This included a detailed analysis of the major leasing process, which identified both strengths and pain points of the existing process.

- **Minor leasing program:** We assessed the minor leasing program using a similar approach as the major lease program, described above. This included benchmarking the lease costs, and conducting a detailed analysis of the processes used by all stakeholders (e.g., VAMCs, VISNs, the procurement and contracting organization) to execute minor leases.

An independent Blue Ribbon Panel, consisting of high-level health care industry leaders, was formed to provide expert input throughout the assessment process. The panel members possessed a thorough understanding of health care industry best practices and leading edge practices. The Blue Ribbon Panel provided advice and feedback on the emerging findings and recommendations for the assessment.

Due to the required independence of the Choice Act, Section 201 assessments, findings and recommendations were developed independently. We therefore expect these recommendations would be refined by VHA leadership and the Commission on Care.

2.2   Data Sources and Analysis

We have leveraged analysis of internal and external databases, survey data, and internal and external interviews to develop a comprehensive understanding of the current state of project planning, programming, design, construction, facilities maintenance, and leasing across the VA health system. This included more than 50 site visits and 350 interviews.

We have also contacted leading health care entities and other federal agencies to understand how VA compares to best practices across public and private sector health systems in the United States and globally.

2.2.1 External Data Sources

External (non-VA) data sources used include:

- **Health care industry references**: Two leading health care systems in the United States covering more than 450 hospitals and medical centers
- **Leasing agencies**: A leading real estate brokerage and advisory firm
- **Federal agencies with large capital programs**: US Army Corps of Engineers (USACE), Naval Facilities Engineering Command (NAVFAC), and General Services Administration (GSA)
- **Industry benchmarks**: RS Means, Medical Construction Data, Design Build Association of America, CoStar lease database, Design Cost Data, 2013 Building Owners and Managers Association survey, and a proprietary health system database
- **Existing Reports**: Government Accountability Office (GAO), VA Office of Inspector General, OMB Circulars, "Infrastructure productivity: How to save $1 trillion a year," (McKinsey & Company, January 2013), Congressional Research Service, VHA: Community-Based Outpatient Clinics, 2010
- **Federal Procurement Database System (FPDS)**: Public database of contracts and award modifications for large capital agencies

2.2.2 Internal VA and VHA Data Sources

In order to complete several of the analyses, we used primary source data from VA taken from both centralized repositories and data collection as part of the site visit process. The source for each analysis is listed with the specific analysis. It should be noted that we did not conduct a review to validate the accuracy of data that were provided, although, where applicable, we did note potential data integrity issues highlighted during site visit interviews. If the requested data could not be provided because VHA personnel reported that the data did not exist, or did not exist in an internal consolidated data tracking system, desired analyses were replaced by interviews and other sources of data.

Some of the internal data sources used include:

- **Project field-based data**: Project Tracking Reports for NRM and Minor program; CFM internal tracking database and reports for Major Project
- **Projects contracting data**: Contract awards and modifications from internal VA contracting database
- **Projects financial data**: Financial obligations data for major projects from financial database
- **Station level data:** Station-level operating budgets; AEMS/MERS facilities management ticket data; Lease contract documents for site visit stations

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- **Internal planning tools:** Planning tools distributed to Stations, including the Health Care Planning Model (HCPM) and SCIP tools, as well as databases of proposed capital projects; VA Design Guide for Lease Based Outpatient Clinics (2005); Space and Equipment Planning System (SEPS) planning tool

- **Internal databases:** Capital Asset Inventory, Facility Condition Assessments, Federal Real Property Profile submission (2014)

- **Internal training handbooks and publications**: Latest available internal publications for processes, roles, and responsibilities (for example, Resident Engineer Handbook); VA Directives and Policy Handbooks (numbers 7815, 7816)

- **VA-sponsored efforts:** VA-funded studies such as the U.S. Department of Veterans Affairs Construction Cost Benchmarking Study, 2009

2.2.3   Survey Data

In addition to the Organizational Health Index (OHI) survey conducted by Assessment L (Leadership), this team launched an identical OHI survey for personnel in the Office of Construction and Facilities Management (CFM). The OHI survey was used to assess organizational practices at VHA in order to evaluate how they contribute to the organization's health and performance. The OHI is a rigorously validated tool that is independent and proprietary to McKinsey. The survey measures nine organizational outcomes and the 37 management practices that lead to those outcomes. The OHI survey is not an employee satisfaction survey. As of March 2015, the survey has been used with over 1000 organizations, 18 of which are construction organizations and 27 of which are public sector organizations. These organizations provide the benchmarks used during the course of the Assessment K analysis.

2.2.4   Interviews and Overview of Major Facility Related Organizations

Assessment K has conducted over 50 site visits and over 350 interviews including both internal and external entities:

- Internal VA entities: 25 VA medical centers, 13 VISNs, six active major construction sites, CFM headquarters, three CFM regional offices, the Office of Capital Asset Management and Engineering Services, the Office of Asset Enterprise Management, and The Office of Operations – Real Property Service.

- External entities: Two leading health care systems in North America, two federal agencies with large capital programs including medical facilities, federal agencies administrating leases, facility management organizations, and leading contractors with significant experience in medical facility construction.

Our assessment conducted interviews across VA and VHA in order to map the organizations that have any role in the delivery of medical facilities (see Figure 2-1) and develop an understanding of their specific roles and input to the process. Responsibility for delivery of the medical facilities program including capital planning, design and construction, facilities,

management, and leasing is distributed across VA and VHA organizations. Some of the key areas and departments identified were:

- **VA Office of Asset Enterprise Management** (OAEM): OAEM develops capital asset policies, consolidates the identification of capital needs, reviews proposed investments, oversees the capital asset performance management system, and evaluates the effectiveness of VA's implementation of capital asset management policies, principles, standards, and guidelines.

- **VA Office of Construction and Facilities Management** (CFM): CFM is responsible for the planning, design, and construction of all major construction projects greater than $10 million. In addition, CFM acquires property for use by VA through land purchases and leases. CFM also manages facility sustainability, seismic corrections, physical security, and historic preservation of VA's facilities.

- **VA Office of Operations – Real Property Services** (RPS): A subset of CFM, RPS oversees administration of lease acquisition for medical facilities and reviews GSA's occupancy agreements on behalf of VHA. RPS also provides support for independent negotiations as well as negotiations with GSA on issues pertaining to leasehold interests, land and building acquisitions, disposal of buildings and/or land, demolitions and related activities, licenses and permits, out-leasing, VA quarters management, parking, and compliance with the Randolph-Sheppard Act and the McKinney-Vento Act.

- **VHA Office of Capital Asset Management and Engineering Services** (OCAMES): Within VHA, OCAMES provides VHA's guidance, oversight, and technical support for capital initiatives and engineering operations. Programs supported include major construction, minor construction, non-recurring maintenance (NRM), clinical specific initiatives (CSI), leasing, sharing use of space, enhanced use leasing, energy, fleet, engineering operations, and state home construction.

Figure 2-1. Facilities Function Across VA
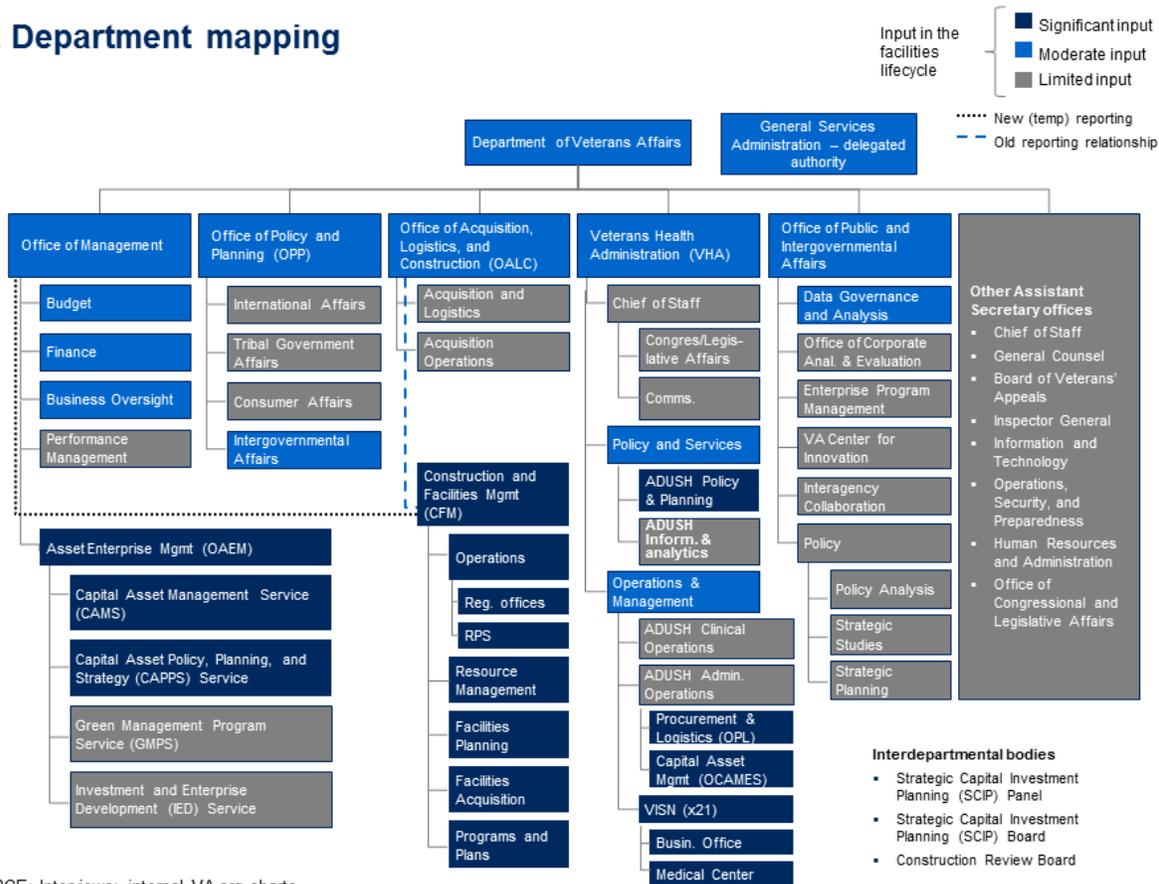
2.3 VAMC Site Selection

To increase consistency of findings, the Veterans Choice Act Assessment teams have coordinated our sampling methods to the extent possible while ensuring the methodology reflected assessment-specific considerations. We selected a core set of VAMCs to visit, which are representative of the VAMC system across critical facility demographic and performance outcome metrics. (Please see Appendix A for further detail.)

The VAMC site selection process followed the following steps:

- **Stratification of facilities**: Stratified random sampling, with VISN as strata, was used to select an initial long-list of facilities. To reduce sample size, a subset of VISNs was randomly selected, from which one of the two initially selected sites was randomly de-selected.

- **Review of distribution**: Chi-square testing was used on each of the key facility profile and performance variables to ensure the distribution of scores in the sample is representative of the population. Variables were chosen to reflect anticipated drivers of facility performance, and included: VISN, rurality, adjusted admissions, complexity level (on VHA

The views, opinions, and/or findings contained in this report are those of the assessment team and should not be construed as an official government position, policy, or decision.

rating scale), adjusted length of stay (LOS), adjusted patient satisfaction, cumulative access score, and facility age

- **Refinement of facility selection**: The initial facility list was vetted with internal and external subject matter experts (SME) and augmented as needed, to include facilities that are considered critical for inclusion (for example, a Polytrauma Center, facilities with innovative tools/practice) and ensure that all selected facilities had the range of services being assessed.

This method resulted in a sample of 25 VAMCs that is representative across each of the criteria used in selection. (Please see Appendix A for results of the chi-square testing, demonstrating representativeness.) While the method is not as rigorous as using stratified random sampling (SRS) alone, given our goal of including sites across VISNs and other variables and the need to limit the sample to a size that can be feasibly visited, SRS alone would have resulted in a sample representative across multiple dimensions. The Assessment K team also visited 13 of the 21 VISN headquarters, as the VISNs play a significant role in the allocation of NRM funds and the capital planning process. These VISNs were selected based on their proximity to planned VAMC site visits.

2.4   Construction Site Selection

To assess execution performance for major construction projects, the team selected a sample of active construction project sites. The design principles for site selection criteria were the following:

- The selected sample includes sites from all three CFM regions (West, Central and East)
- The selected sample includes a range of project sizes within the Major Construction program
- The sample includes projects where construction activities in the field could be observed (if possible)

Based on the criteria above, the following Major Construction projects were selected for construction site visits within the time frame of the assessment.

Figure 2-2. Construction Site Visits

Sites visited during Assessment K

City	State	Project detail	Total estimated cost[1] $ Millions	Percent of funding before 2011[2]	Sq. ft.	Region
Palo Alto	CA	Ambulatory Care / Polytrauma Rehab	717	31	681,000 (New); 13,500 (Alt)	Western
Long Beach	CA	Seismic Corrections – Bldgs 7 and 126	130	100	191,000	Western
Denver	CO	New Medical Facility	1,730	Unknown	1,035,000	Western
Dallas	TX	Spinal Cord Injury	142	5	164,000	Central
New Orleans	LA	New Medical Facility	995	90	1,600,000	Central
Biloxi	MS	Restoration of Hospital / Consolidation of Gulfport	286	100	417,000	Central
Bay Pines	FL	Improve Inpatient / Outpatient	158	72	135,000 (New); 186,000 (Alt)	Eastern

1 TEC from Budget Request 2016 used during the planning of construction site visits
2 Percent complete approximated from percent of funding approved before 2011 during planning phase and public research

SOURCE: 2016 VA budget request and public websites

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3   Cross-Cutting Findings: Assessing VHA's Capital Need

3.1   VA Capital Need and Anticipated Shortfall

VA has identified more than $51 billion in total capital needs over the next 10 years through its capital planning methodology. Provided that average funding levels remain consistent over the next 10 years, the $51 billion capital requirement would significantly exceed the anticipated funding level of $16-26 billion.

As part of its capital planning and allocation process, VHA undertakes an annual process, the Strategic Capital Investment Plan (SCIP), to forecast capital needs over the next ten years. Through SCIP, stations identify projects to address recognized facility deficiencies, anticipated workload changes, access gaps, and other key metrics for health care delivery.

Based on submissions as part of the Strategic Capital Investment Plan (SCIP), VHA has determined that it will require approximately $46 billion in capital investment over the coming ten years for new projects plus $5 billion to complete on-going major construction projects.[11] This number is calculated as each station develops proposals to address the gaps identified by VA managed databases. Each station identifies a series of projects which are expected to allow them to close their currently identified gaps within 10 percent over the next ten years. These projects include near-term projects intended to start in the first fiscal year of the next planning cycle, for which detailed business cases are submitted. They also include mid-term projects planned to start in the next 3-5 years for which the scope is clearly defined. Finally, they contain out year funding estimates, calculated by facilities based on the remaining gap to be closed.

Over the next ten years, it is likely the $46 billion SCIP request could increase to address needs not currently identified, as new facility assessments are completed or there are shifts in standards or Veteran demographics (see Assessment A for discussion of potential demographic shifts). Nonetheless, the combination of the top down gap analysis and the bottom up project cost estimating, all within clearly defined guidelines, offers a robust methodology for calculating the size of the capital need. While the assessment team did not independently verify the 8,038 capital requests submitted through SCIP, we have reviewed the process for arriving at the $46 billion in capital need and believe it to be the best available calculation of the scale of the capital requirement.[12]

Additionally, the VA FY2016 Budget Submission anticipates an additional $5 billion in funding for major construction projects which are already in process (see Figure 3-1).[13] Together, this $51 billion investment would enable VA to improve facility conditions and address anticipated needs in space, energy, and other key areas.

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[11] SCIP funding levels taken from data provided by VA for the FY16 planning cycle, the most recent data available as of the writing of this report.

[12] The full SCIP process is discussed and assessed in detail within Section 5 (Capital Planning Assessment).

[13] Details of the SCIP request and the FY2016 Budget Submission are contained in Appendix B.3.

Over the last four years, VA's capital funding has ranged from $1.6 billion to $2.6 billion each year, averaging $2 billion. Given current objectives and current levels of program delivery effectiveness and provided that funding levels remain consistent with recent years, the $51 billion capital requirement would significantly exceed the anticipated funding level of $16-26 billion over the next 10 years. Furthermore, above the $51 billion capital requirement identified in SCIP and outstanding major construction budget requests, VA historically has experienced overruns in their major construction performance, as discussed in depth in Section 6 (Design and Construction Assessment: Major Projects). These overruns, if not averted through efficiency gains and process improvements, could increase the total need based on observed past performance. While this analysis focuses on specifically identified needs, our recommendations also identify the steps necessary to avoid additional cost from construction overruns.

Figure 3-1 details ten-year SCIP funding requests for FY 16.

Figure 3-1. 10-Year SCIP Action Plan Funding Request
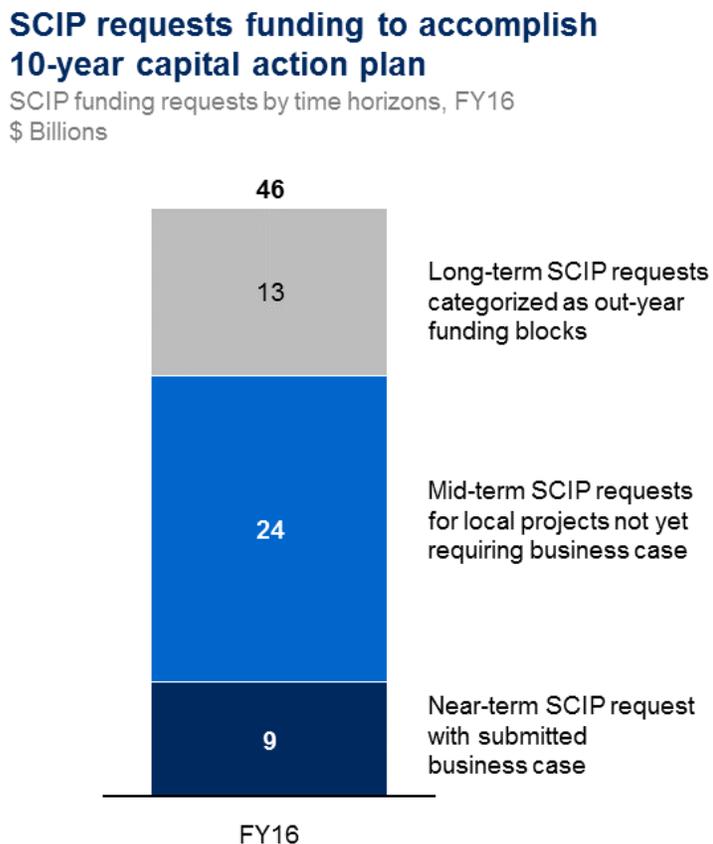
SOURCE: (FY16 SCIP Action Plan, 2014).

This ten-year forecast incorporates:

- Condition deficiencies (for example, maintaining current assets to desired quality and condition levels, including seismic concerns)

- Space needs (for example, ensuring adequate space increases or decreases given changing Veteran demand)

- Energy goals (for example, ensuring VHA facilities comply with energy standards for federal buildings)

- Other (for example, additional areas such as ensuring sufficient Veteran access or medical functionality)

Figure 3-2 details the breakdown of different needs within the submitted requests.

Figure 3-2. 10-Year Capital Need

VHA estimates ~$51 billion funding need for the next 10 years from FY16 SCIP requests and outstanding major construction budget requests

VHA funding requests for FY2016-FY26[1]

Billions

Condition deficiencies	14
Space needs	11
Energy goals	2
Other needs[2]	6
Non-allocated[3]	13
Major construction[4]	5
Overall identified need	51
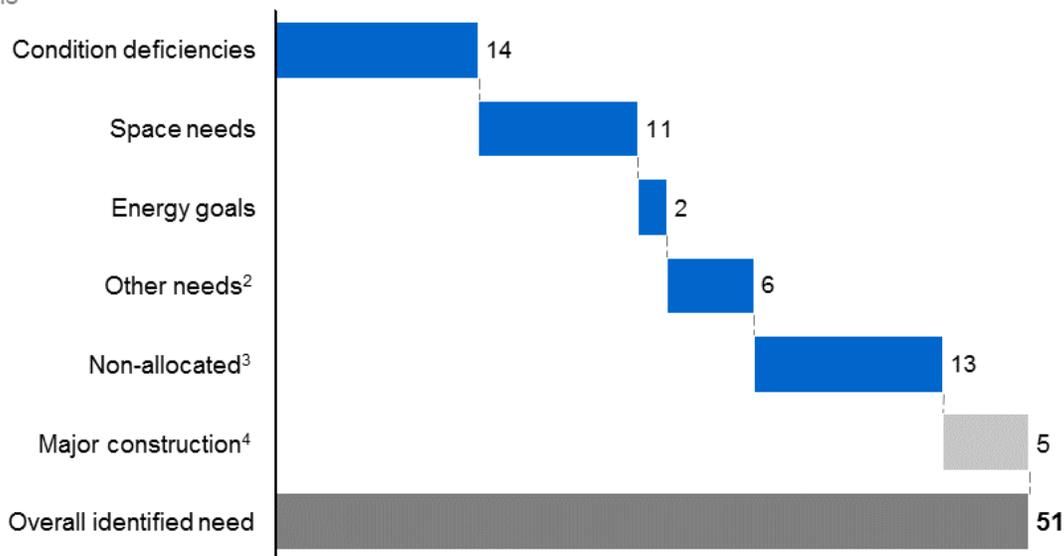
1 Funding requests aligned to primary gap identified in SCIP submission
2 Including functional, access, and utilization needs, as defined in SCIP
3 Anticipated needs currently defined by out year funding amounts which will allocated across need types as projects are designed
4 Request for on-going major construction projects for FY16 and beyond, as reported in FY16 VA Budget
SOURCE: FY16 SCIP submissions, OAEM; FY16 VA Budget   7

These estimates showcase a representative view of the breakdown for the ten-year capital needs of the VHA system. While out year funds, which fall into the non-allocated $13 billion, are not broken out in detail, they have historically followed the same trends as the specifically identified projects, heavily driven by condition and space deficiencies. As such, they are instructive in the ability to understand the overall viability of the VHA system over the coming years. We believe it is critical for VA, VHA, and Congress to look beyond the typical short term,

year-by-year funding horizons to understand whether VHA will be able to maintain and increase standards of Veteran care and access over the ten-year planning horizon and beyond under its current model of health care delivery. As we have examined these needs, we find that, even with ambitious targets for improved effectiveness in managing and delivering the VHA facility portfolio, there remains a need for increased funding and changes to VHA's model of delivering facilities and health care to Veterans.

3.2 Key Findings of VA Observed Performance on Core Assessments

Performance by VA in the four core assessment areas has been on par with public sector performance in most cases, but well below private sector performance.

Without substantial changes, VA will not be able to address the existing facility requirements and the evolving Veteran needs effectively. However, we have observed opportunities for VHA to capture value and reduce their capital need in each area of the facilities program. Throughout our assessment, we have identified a number of challenges that apply across the various aspects of VHA's facilities program, as well as challenges that are specific to each aspect of the facilities program (capital planning, design and construction, leasing, facility management). These are summarized below:

3.2.1 Shortfalls in Overall Accountability, Sense of Ownership, and Proactive Problem Solving Approaches Limit the Ability of VA and VHA to Deliver the Correct Projects on Time and on Budget

- **VA's facilities program is dispersed throughout the Department, limiting oversight, accountability, and controls.** Of the $6 billion medical facilities budget, approximately $2 billion each year ($1.6 billion to $2.6 billion per year from FY13-FY16) is dedicated to major and minor construction and non-recurring maintenance (NRM), the oversight of which is split between VA's Office of Construction and Facilities Management (projects over $10 million) and VHA engineering staff (projects under $10 million). Nearly $500 million additional covers annual operational lease obligations, paid out of VAMC budgets to sites of care approved through VHA. The remaining budget covers recurring maintenance, plant operations, and other facility management categories from VAMC operating budgets. Facilities functions are dispersed through VA, resulting in a lack of accountability for facilities outcomes, a mismatch between planning efforts and funding decisions, and the separation of project execution and facilities management. (See Section 6.1)

- **The broader culture of facilities functions are characterized by silos, risk-aversion, and ambiguity of roles, often resulting in an inability to consistently advance projects in an efficient manner.** On the Organizational Health Index (OHI), VA facilities staff at CFM and in engineering departments scored their organization in the bottom quartile of all organizational health outcomes apart from motivation. This is discussed in greater depth in Appendix B. "Bureaucracy" and "fear" were among the defining organizational attributes identified by CFM staff. Despite high levels of motivation in caring for Veterans, these cultural attributes can put employees in a defensive posture and stifle innovation

and entrepreneurship. A fuller discussion of these cultural dynamics across VHA can be found in Assessment L. (See Section 5.2.3.1).

- **External constraints limit VHA's ability to deliver and operate medical facilities at the level of private sector benchmarks.** Directives regarding the services provided within VHA medical centers, federal and VA procurement requirements, and approvals and procedures required by external parties contribute to increased costs and delivery duration for medical facilities. (See Section 6.2.2)

- **The contracting organizations are overwhelmed and burdened by complex approvals and struggle to effectively manage construction and leasing contracts.** Interactions between the contracting organizations and their customers (for example, VAMCs) are reported as ineffective by both parties, as also discussed in Assessment J. CFM contracting officers (COs) manage contracts for major construction and leases, while all other construction, leasing, and maintenance contracts are executed by VHA Network Contract Offices (NCOs) which are aligned with, but do not report to, VISNs. Both of these organizations face challenges including a heavy workload, a lack of training for the complexities of construction and leasing contracts, and lack of integrated involvement of the contractor and customer throughout the process. Some interviewees cited that COs cover double the contract volume as counterparts in the government, have not been effectively trained to cover the complexities of construction and leasing contracts, and due to the low approval authority given to most COs must pass leases through high levels of oversight which delay programs. (See Sections 5.2.2.4, 6.2.3.4, and 7.2.3.1)

3.2.2 Capital Is not Being Consistently Allocated to Projects That Could Address the Greatest Areas of Veteran Need in the Most Cost-Effective and Timely Manner

- **Lengthy approval and funding timelines hinder the ability of VHA to meet the identified space requirements to keep up with Veteran demand and invest in facilities updates that align with changing models of care**. The time from submission to approval typically lasts several years, and may be even longer for major construction projects, during which, Veteran needs may change and new standards of care could be established, possibly changing facility requirements. VA has several different planning cycles that stretch across multiple levels, with staggered approval at the facility, VISN, and Veterans Affairs Central Office (VACO) levels, each step adding time to the process and impairing the link between VHA strategy and execution. These delays can be costly both in delivering against identified need and in ensuring projects are delivering the most current medical designs and technology. (See Section 5.2.2.4)

- **The lack of a mechanism to evaluate achieved outcomes versus promised outcomes limits accountability during project execution.** After project completion, there is no formal feedback loop to verify performance versus originally-stated goals; moreover, project outcomes are not considered in subsequent planning efforts. (See Section 5.2.2.5)

- **Capital management in VA lacks a 'scrubbing' system to ensure business cases for submitted projects contain necessary analytic rigor and economic analysis**. The sheer

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volume of project requests, compared to the limited staff resources to review projects, prevents an effective review of business cases and potential alternatives prior to project scoring. This hampers the ability of VA to ensure an effective comparison and prioritization of projects with full consideration of the strategic merits. (See Section 5.2.2.3)

- **Capital project requests are often developed to optimize for non-strategic approval mechanisms over optimized project selection and delivery.** Competition for limited funds has led stations to make choices in developing their projects on the basis of perceived approval criteria rather than on optimal scope and execution plans, limiting the efficiency of the SCIP program. For example, VAMCs tend to combine smaller projects to address more scoring criteria in NRM and minor projects, "phase" larger construction efforts into several pieces, and focus on "hot button" issues that receive extra points rather than defining the most efficient projects to achieve specific objectives. (See Sections 5.2.2.2 and 5.2.2.3)

- **There is a significant disconnect between identified needs and funding levels.** Less than 30 percent of projects with business cases are funded each year, leaving more than 1,000 scored projects postponed for later years. Developing a competitive project submission requires significant staff resources from stations in order to develop a proposal which has a low probability of being funded and may not even receive a substantive review or feedback for improvement on merits. (See Sections 5.2.2.1 and 5.2.2.2)

3.2.3 VA Construction Costs Are Similar to Other Public Agencies in Most Cases, but Double Those of Private Industry Best Practice, and VA Time-to-Complete Exceeds Both Public and Private Peers

- **Project teams are designed and staffed to support compliance requirements but these structures have often resulted in reduced accountability for project delivery outcomes.** Particularly for major construction, project managers are responsible for overall project goals yet they lack authority over project teams (for example, resident engineers and contracting officers) to make decisions necessary to manage their teams and counterparties effectively (for example, architects, engineers, contractors). (See Sections 6.2.3.1 and 6.2.3.2)

- **Scope and design criteria for major projects are frequently subjected to major changes, especially during the design phase, affecting overall cost and schedule.** Project staff indicated that there are not clear guidelines to manage project modifications that may affect delivery timing. Station leadership often seeks to introduce changes in ongoing projects, even after construction has begun. These combine to increase time to completion, which carries secondary costs, such as Veteran access delays and outdated designs. (See Section 6.2.5.3)

- **VA design standards are perceived as a critical barrier to achieving private industry best-in-class cost and schedule.** Certain technical specifications and design standards are no longer applied in private industry and are not considered cost efficient. Also, design requirements resulting from resilience (for example, backup water supply, alternative

sources of power, progressive collapse designs), energy, security and community mandates can increase the initial cost of projects over the private sector. These requirements are consistently applied, rather than through a specific evaluation of the site and corresponding need for emergency preparedness. Federal design standards outside of VA's control add further construction requirements. (See Sections 6.2.2.1 and 6.2.2.2)

3.2.4 The Leasing Program Is not Effectively Enabling VHA to Provide Facilities Where and When They Are Required or at a Reasonable Cost for Major Leases

- **VA's lease timelines preclude it from benefitting from the speed and flexibility leasing typically can provide**. For large facilities, the time from identifying a need to having an operational leased facility is substantially longer than comparable public and private sector organizations. While the process to secure a large leased facility often takes VA up to nine years, private sector organizations can complete leases of similar complexity in approximately three years. These timelines are driven in part by the extensive approvals required by VHA – both internally and externally – and the length of the procurement process. (See Section 8.2.1.2)

- **VA lease rates for smaller facilities are close to benchmark costs, but higher than benchmark costs for major facilities.** While VA is performing on par with benchmark rates for smaller leased clinics, it pays significantly more than benchmark rates for the larger, build-to-suit clinics. Similar to the higher costs of hospital construction, this is likely largely due to the higher design standards and stricter requirements of VA facilities. (See Section 8.2.1.1)

- **VA leasing contracts are typically favorable to VA, but are often not enforced.** While VA does an excellent job negotiating tenant favorable terms while typically remaining within benchmark rental rates, these favorable terms are often not enforced. When VHA staff identify concerns about the quality of a facility, contracting staff may not enforce these terms with lessors, given skill and capacity constraints. (See Section 8.2.1.3)

- **External influence to VHA can further limit the effective use of leasing to promote agility in delivering health care.** There are real or perceived external influences that can affect the time it takes to execute a lease. When interviewees with knowledge of major lease timelines were asked a general question about the factors influencing delays in leases, 100 percent indicated that external influence had contributed to these delays. They described the nature of these delays as typically due to pressure to consider additional sites to locate a new-leased facility, expanding the time taken in the initial market research and related early stages of the leasing process. Documents shared with the assessors during the course of this assessment indicated higher levels of approvals required for leases that were relocated from one Congressional district to another. (See Section 8.2.2.2)

3.2.5 Facility Management Costs Across VHA Exceed Those at Comparable Medical Facilities

- **VA does not effectively manage the total cost of ownership of facilities.** Best practice facility management organizations take a total cost of ownership perspective towards critical facility decisions. VA does not incorporate a total cost of ownership perspective into planning decisions, sufficiently involve operational staff and perspectives in design decisions that have an impact on operating costs, or ensure dynamic adjustment of operational costs as facility conditions change. (See Section 9.2.2.1)

- **VA conducts more facility management activities in-house than comparable organizations.** Facility management costs (for example, recurring maintenance, environmental services) are on the average 2 to 3 times higher than comparable private medical facilities, largely due to in-house management of these services rather than utilization of potentially lower cost external service contracts. Facility management costs and practices are also highly variable across VHA facilities, with little incentive for individual stations to adopt cost effective measures. (See Section 9.2.3.1)

- **Space-adjusted facility management costs vary widely within VHA.** VHA facilities vary widely in the amount they spend to manage facilities, even after adjusting for factors such as space and age of the facility. There is also a significant gap between average VHA costs to manage and maintain hospitals and industry comparables, with VHA paying as much as two times comparable benchmarks. (See Section 9.2.1.4)

4   Recommendations and Implementation Considerations

4.1   Opportunities to Increase Capital Efficiency

If VA's capital program were to achieve best practice in capital efficiency, the $51 billion capital need could potentially be reduced by approximately 25 to 35 percent.

A study of major capital programs from around the world, drawing on more than four hundred case examples, has observed a potential aggregate savings in total capital investment of up to 40 percent when all proven best practices are implemented across a capital program.[14] However, no single entity in the study was able to demonstrate this level of performance improvement across the board, which illustrates the scale of the challenge. Given the difficulties in meeting this level of improvement and having considered the structural barriers which VA faces as a public entity, we identified a potential reduction of 25 to 35 percent for VA. These potential reductions are discussed in greater depth in Appendix B.3. Achieving this reduction would require a transformative realignment throughout the capital program to deploy best practice tools. These tools can be grouped under three capital efficiency levers.

- **Improve project selection and refine infrastructure portfolio.** Experience with other public and private facility portfolios has shown an opportunity to achieve a 10 to 15 percent reduction in costs through enhancing project selection criteria and rationalizing the portfolio of projects and facilities. For VA, this would involve optimizing standards and expectations for condition, space, and energy gaps. Additionally, the SCIP process and criteria should be reevaluated to include such changes as bolstering proposal reviews, refining capital project selection, improving alignment with workload, strengthening business cases, and enhancing assessment of outcomes.

- **Streamline project delivery.** A 15 to 20 percent opportunity exists in improving the delivery of facilities. Steps such as improving project controls, especially for the design stages, increasing accountability for projects through enhancing performance management systems, and potentially outsourcing certain capital projects to other organizations could both reduce costs and increase the speed of project delivery. A clear stage-gate process should be implemented to manage scope and design changes in the planning and design phases of projects and to limit scope and design changes that occur after a project receives funding and during construction. To increase ownership and accountability, project delivery teams should be restructured with clear roles and responsibilities, well-defined handoffs, and adequate staffing levels. Additionally, contracting and other supporting entities should be accountable and equipped to support a fast-paced project environment and facilitate the needs of construction projects and leases.

- **Make the most of existing infrastructure.** Experience shows additional savings opportunities can be achieved by maximizing the use of existing facilities. This requires

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[14] "Infrastructure Productivity How to save $1 trillion a year¨, January 2013 by McKinsey & Company. For this assessment, estimated savings have been adjusted to reflect requirements and constraints specific to VA.

incorporating a total cost of ownership assessment approach into design, capital planning, and facility management which evaluates the operational cost implications of design choices and pursuing opportunities to optimize capital and operating costs simultaneously. Additionally, it may be possible to better use existing underutilized space to fill projected space needs. By either refitting or shifting existing underutilized space, VHA could address projected space needs or provide a lower-cost alternative to proposed projects. A detailed analysis should be completed by VA to determine what possibilities exist to better utilize existing infrastructure. We did not include a size of the opportunity in the estimates.

Figure 4-1. 10-Year Capital Funding Request
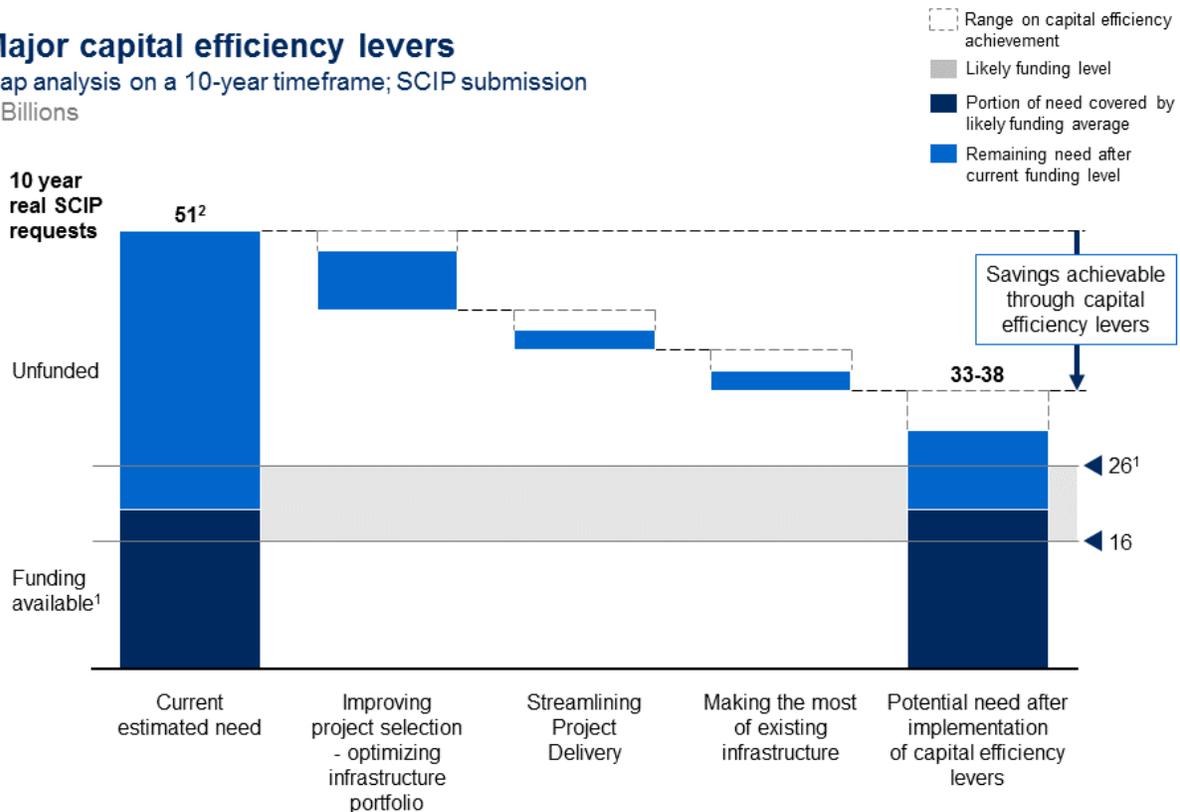
1 Based on four year average funding levels of $1.6 to $2.6 billion per year
2 Capital need calculated from FY16 SCIP requests ($46 billion) and outstanding major project commitments ($5 billion)

Provided that an extensive transformation of the VA capital program is undertaken to implement best practice processes, savings between 25 to 35 percent are possible. This would result in reducing the total capital need over ten years from $51 billion to between $33 billion to $38 billion. These are extremely challenging but necessary efficiency initiatives which should be implemented before spending additional resources to address the capital need. While this would require an intensive effort to accomplish, the extent of the capital gap necessitates sweeping action.

4.1.1 Improve Project Selection and Optimize Infrastructure Portfolio

VA could reduce its total capital requirement by reviewing which infrastructure projects are selected and rationalizing the overall capital allocation. We have identified two areas of opportunity:

Refine capital allocation. By setting strategic goals and funding limits, conducting regular performance assessments, and strengthening the quality of the business cases that are a part of SCIP submission, VA could ensure it is allocating capital to the right projects and removing unnecessary capital needs from the system. Specifically, we have identified the following options in which VA could optimize its capital planning process to focus effectively on the highest priority capital needs:

- **Refine capital allocation process (SCIP processes) to better align with VA strategic goals and realistic funding levels.** The current process is a significant step forward over past capital allocation systems, but should be refined to (i) increase transparency, (ii) simplify scoring to improve connection between results and strategic priorities, and (iii) utilize scenario modeling of the portfolio in addition to individual project assessments.

- **Strengthen business case submission process.** By increasing the analytic rigor and financial expertise involved in the development of business cases, projects could be more effectively compared and prioritized. Additional resources should be devoted to provide an independent scrubbing of project scopes and underlying assumptions as well as a deeper consideration of a project's strategic merits.

- **Develop accountability mechanisms to ensure projects meet promised objectives.** In order to ensure projects fulfill their originally stated goals, VA should develop a feedback loop in the SCIP processes whereby the performance of completed projects relative to closing identified gaps is included in subsequent capital planning efforts.

Optimize capital requirements. The overall capital need is determined by SCIP submissions that fall into condition, space, energy, or other categories. By adjusting the standards or expectations in each of these areas, VA can potentially lower the capital need. We have identified specific options in the three primary areas of capital need:

- **Shift from a focus on condition assessments of individual sub-systems to the condition of overall facilities.** Current VA expectations are that every subsystem or component in a facility receiving a D or F condition assessment be repaired or replaced to achieve an A level. Across VHA, scored components received an average grade of C minus (see Figure 4-2). By creating an overall facility score as well as evaluating the condition of individual components, VA could reprioritize and streamline condition assessments to highlight areas of greatest need. Introducing an average facility grade for consideration would make it easier to identify facilities, which, on average are scoring below a B and focus on bringing those averages to a sustainable level. This score, combined with a careful comparison to the replacement costs of the facility, would allow VA to identify structures which are no longer of sufficient condition to justify further capital investments. System critical and failing components in all other facilities should receive first priority. Further

discussion on these recommendations can be found in Section 5 (Capital Planning Assessment).

Figure 4-2. Facility Condition Assessment Gaps

FCA correction costs are concentrated in Grade D ratings
Facility Condition Assessment Ratings

Grade	Definition	Number items	Total correction cost $ Billions
A	Like-new condition	24,337	n/a
B	Over half of useful life remains	33,203	<1
C	Avg. condition, less than half of useful life remaining	55,841	<1
D	Poor condition, at the end of its useful life	59,919	13.5
F	Critical condition, requires immediate attention	8,574	2.4

SOURCE: Facility Condition Assessments taken from VA Capital Asset Database, March 2015

- **Focus on energy efficiency improvements that have a positive return on investment.** Utility costs are some of the largest ongoing facility operation expenses. A number of facilities have shown that utility costs can be reduced through a combination of demand reduction, efficiency, and innovative contracting methods. However often economically positive investments in efficiency (for example, LED lights, or a new cooling system) are reportedly overlooked in favor of more high profile or symbolic energy efficiency investments. VHA could remove obstacles to investing in economically positive efforts and enable extensive sharing of innovative approaches to reducing energy costs. These savings could then be used to cover capital needs. Additionally, slowing adoption of capital-intensive energy-efficiency measures with low or unclear returns in capital invested would reduce the overall capital needs associated with energy upgrades.

- **Optimize space requirements in line with current innovations in health care.** New space designs could improve the patient experience for Veterans through enhancing inpatient room designs, incorporating new medical technologies, and potentially improving nursing response times (Healthcaredesignmagazine.com, 2015). Additionally, reassessing the

assumptions used in planning required space needs (for example, the number of square feet required for a certain type of medical unit as projected by the Enrollee Health Care Projection Model[15]) and reducing those expectations that are above industry best practice could reduce overall capital needs associated with expanding VHA's physical space.

4.1.2 Streamline Project Delivery

Once the need for a particular project is determined, VA has an opportunity to limit the capital investment required by delivering projects more effectively. As described in Section 6 of this report, VA facilities are up to 70 percent more expensive than planned, which is in turn up to 50 percent more expensive than comparable private sector benchmarks on a square foot basis (see Figure 4-3 and Figure 4-4).

Figure 4-3. Health Care Facilities Construction Costs Benchmark (I of II)
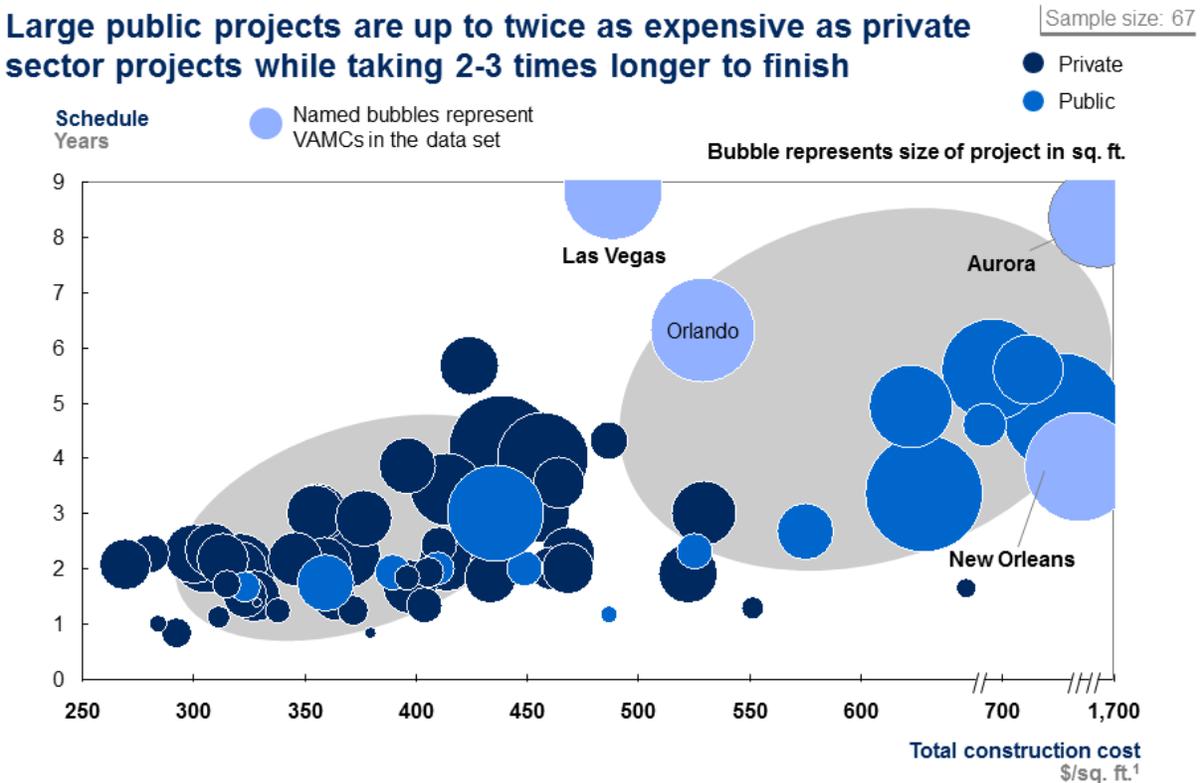
1 Dollars / sq. ft. adjusted to 2015 via internal factors for Design Cost Data Factors and ENR indices for others; adjusted to U.S. Nat'l avg. via RS Means CCI (2014 & 2013)

SOURCE: Internal cost benchmarking studies, proprietary construction databases, public websites (contractors, owners, designers)

Under the current model of a VA-specific construction management function for facility delivery, there are a number of opportunities that would enable it to reduce costs:

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[15] The Enrollee Health Care Projection Model (EHCPM) is the primary tool utilized by VHA for workload projections based on Veteran demographic trends. It was not within the scope of this assessment to evaluate the validity of EHCPM forecasts; however, a deeper analysis of Veteran demographic trends can be found in Assessment A.

Enhance the use of early warning project controls. By improving controls to catch problems earlier rather than later in the process, the design changes and scope increases that lead to increased costs could be mitigated or reduced. A stage-gate process should be implemented to manage scope and design changes in the planning and design phases of projects and to limit scope and design changes that occur after a project receives funding and during construction. Additional details on potential specific project controls are described in Section 6 of this report, regarding major projects.

Address current facilities relationships to reduce the distributed accountability that exists today and ensure full visibility and coordination of the overall capital program. The current functional structure and its dispersed responsibilities across the organization create multiple interfaces that need to be managed, favoring the creation of silos and limiting accountability within the organization.

Review resilience requirements. Current mandated resilience requirements (for example, ability to continue to operate in the case of disasters or attacks) increase the costs of constructing and operating VHA facilities. Because of the added cost, it is important for VA to carefully evaluate the application of critical resilience standards to ensure they are consistent with its mission and disaster preparedness needs while balancing capital constraints.

Review design standards for inefficiencies. There are a number of design standards (for example, interstitial floors, progressive collapse, green energy mandates) that increase the costs of delivering construction or major maintenance projects. These standards should be reviewed to remove outdated standards or those for which the costs exceed projected benefits.

Increase contracting efficiency. The interactions between the project and contracting organizations have often been cited as sources of delays – and thus cost increases – within VA. We have detailed a number of recommendations as to how this could be improved. Implementation of these recommendations could lead to further cost reductions for capital projects.

Develop a structured approach to best practice sharing. Ensure that the rich knowledge and innovative approaches distributed throughout the VHA network are surfaced and shared through a culture and system of continuous improvement.

Figure 4-4. Health Care Facilities Construction Costs Benchmark (II of II)

Medical facility construction estimates
National average for total construction costs
Dollar per square foot
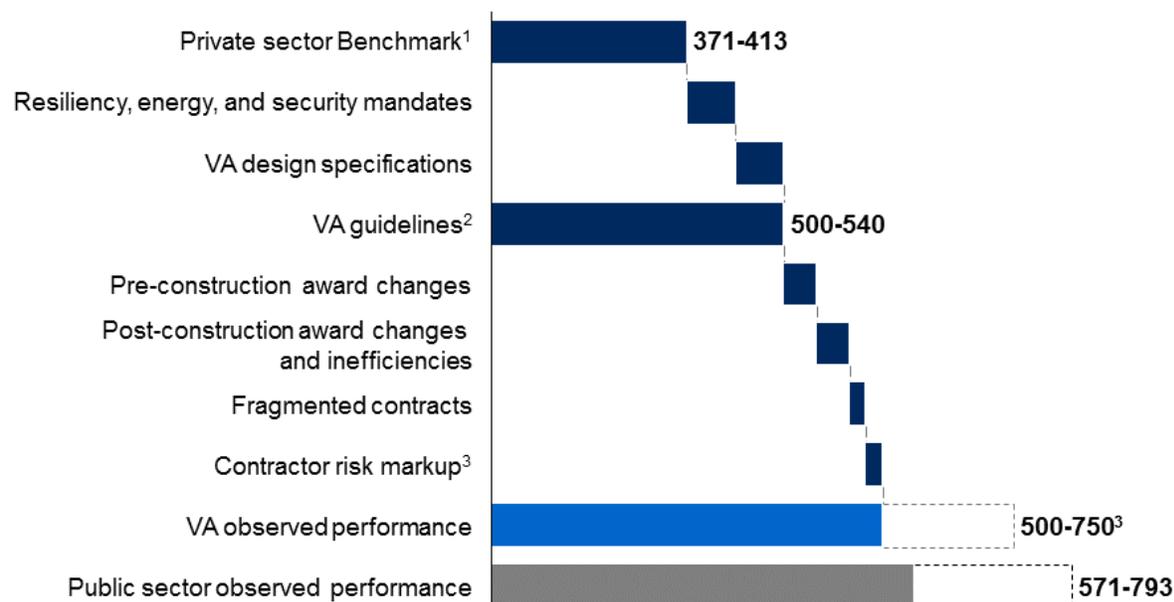
Private sector Benchmark[1]	**371-413**
Resiliency, energy, and security mandates	
VA design specifications	
VA guidelines[2]	**500-540**
Pre-construction award changes	
Post-construction award changes and inefficiencies	
Fragmented contracts	
Contractor risk markup[3]	
VA observed performance	**500-750[3]**
Public sector observed performance	**571-793**

1 See benchmarking methodology section
2 Building construction costs target per VHA internally published cost guide for new construction; ~15-20% added to arrive at total construction costs from building construction costs
3 Accounts for FAR/BAR regulation impacts
3 Excluding Aurora (approximately $1,700 / square feet)

4.1.3 Make the Most of Existing Infrastructure

By improving the utilization of its existing infrastructure, VA could address projected space needs or provide lower cost alternatives to proposed projects, reducing the overall capital need. Specifically, we have identified the following options:

Incorporate total cost of ownership (TCO) evaluations into facilities management activities to identify optimal balance between long-term renewal and short-term maintenance. By evaluating the business model of facility operations (in-house versus outsourced functions), more effectively managing operations, and sharing best practices across facilities, ongoing facility operations costs could be reduced while increasing facility quality.

Reduce lease costs both within and beyond lease term. Through rationalized geographic and technical specifications, improved contract terms, and on-time lease renewal, VHA could potentially reduce lease rental rates.

4.2 Opportunities to Reduce the Capital Gap

Even if VA were to achieve best in class operations, an unfunded gap of $7-22 billion is expected, requiring increased funding and more transformative changes.

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All of the recommendations above represent VA's opportunity to reduce its overall capital needs. By optimizing the portfolio of projects, delivering these projects more effectively, and making the best use of existing space, VA may be able to reduce its capital needs by 25-35 percent. However, this leaves $7 to $22 billion in remaining capital needs, even after the most aggressive assumptions of VA's ability to close the capital gap using the above levers. Fully closing the capital gap would require a combination of two things. Funding to VA must substantially increase over the coming decade and more fundamental changes in VHA's operating model will need to be considered.

When other institutions have faced similar capital shortfalls, they have considered a range of strategic and business model redesign options in addition to implementing the best practices in capital project delivery. This report highlights several strategic approaches for further consideration by VHA.

4.2.1   Maximize Operational Efficiency

In addition to optimizing the overall portfolio of infrastructure projects and ensuring that these projects are delivered effectively, operations should serve to maximize the efficiency with which existing space is used. By more effectively using existing space, VHA could reduce the need to expand existing facilities, or build or lease new facilities. Assessment K focused on the opportunities for improving capital efficiency, but Assessments E, F, G, and H offer recommendations on operating improvements which could reduce VHA's capital need. While VHA would need to further investigate the potential that these operating improvements could have on the capital need, other institutions have seen favorable results.

Four specific opportunities could be considered to more effectively use existing space:

Increase operating hours to balance workload requirements. Select VAMCs and Community Based Outpatient Clinics (CBOC) have already explored the use of expanded operating hours to meet heavy patient demand. Currently, VA planning assumptions are based on eight-hour days and five-day weeks for clinical operations. From the perspective of modeling capital need, this system is highly sensitive to changes in these assumptions, such as increasing the days of operation (for example, opening on Saturdays) or the hours of operation (for example, 10- or 12- instead of eight-hour days). Expanding this practice in areas with high demand for services or where Veterans desire additional flexibility in scheduling could provide an opportunity to reduce the space need. Expanding the use of this lever should be balanced against increased operating costs and staff availability and correspond with Veteran demand for and interest in expanded hours of service.

Improve scheduling efficiency. Assessment E has also identified opportunities to improve effectiveness through measures such as schedule and demand management (Assessment E [Clinical Scheduling], Section 6.2.1). More effective scheduling could increase the utilization of exam rooms and have implications on the space requirements and wait time assumptions utilized in space planning. Assessment G also discusses the implications of space on provider throughput (Assessment G [Clinical Staffing], Section 3.4.1)

Increase telehealth options. Opportunities are increasing to expand telehealth directly to the home. While a portion of VHA telehealth offerings still requires dedicated patient spaces, there is a potential to reduce the need for physical spaces in VAMCs and clinics. Assessment H (Health IT) discusses the potential of telehealth for Veteran health care.

Reduce or shift the average inpatient stay. Assessment F has identified opportunities to shift patient care from the acute setting and potentially decrease the overall length of stay (Assessment F [Clinical Workflow], 7.2.1, 7.2.3). While the full capital ramifications of this opportunity have not been explored, it will be important to assess how implementing these changes could affect capital needs, for example, decreasing the number of acute inpatient beds or increasing alternative space needs. It should be noted that reducing the number of beds requires Congressional approval.

4.2.2 Reassess How and Where to Best Serve Veterans

In similar circumstances, other organizations have considered strategic operating changes which result in a realignment in their capital portfolios. There are several different examples VA could investigate further, including geographic realignment, community partnerships, or a shift in service offerings.

Realign geographic footprint of facilities. By limiting investment in older facilities where new needs are more than a targeted percentage of replacement costs, organizations can save considerable costs from expensive investments in aging facilities. Hospital systems traditionally replace medical facilities more rapidly than VHA, whose buildings are five times older than the typical not-for-profit hospital.[16] These replacements can allow hospital systems to shift with emerging trends, such as smaller inpatient settings, and then eliminate redundancies such as dual campuses or locations in low-demand settings. As outpatient clinics can be constructed at a lower cost per square foot than full-service hospitals, they have proved an attractive alternate construction model to larger settings with an inpatient focus. Additionally, there may be places where Veterans would be more effectively served through a combination of an outpatient clinic and community-based care rather than the traditional VAMC. VA has faced resistance in the past when seeking to close VAMCs (Nettinga, 2015; von Zielbauer, 2003; Bruce, 2012). These discussions introduce additional factors into the facilities decision making process and may reduce VA's flexibility in assessing the benefits and costs of retaining facilities, some of which may be underutilized or in too poor of condition to justify continued capital investment.

Enhance community partnerships. Within VHA, some stations have already begun piloting projects which place VHA physicians in community hospitals for Veteran care. Under this model, medical procedures such as surgeries are provided by VHA staff, while the nursing is provided by the community hospital, and the equipment and space needed are effectively rented to VHA. Additionally, VA and DoD have initiated partnerships to share medical resources and facilities. VA and DoD currently have more than 200 health care resource sharing

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[16] 2013 analysis of 139 not-for-profit hospital systems in US, encompassing 1,362 hospitals.

Soule, J., & Keller, C. (2014). U.S. Not-For-Profit Health Care Systems Ratios: Operating Performance Weakened in 2013. RatingsDirect.

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agreements between their hospitals and nine joint ventures where both authorities directly provide health care services, such as those in Anchorage, Albuquerque, and Honolulu (Military Health System, 2015). In an even closer partnership started in 2010, VA and DoD established the Captain James A. Lovell Federal Health Care Center in North Chicago (Captain James A. Lovell Federal Health Care Center, 2015). The medical center integrates facilities, services and resources from the North Chicago VAMC and the Naval Health Clinic Great Lakes into a single medical center, which is jointly led by VA and DoD leadership. The health care center provides care for nearly 40,000 Navy recruits and 67,000 eligible Veterans.

Shift service offerings. Hospital systems have experienced success by specializing in select types of care and relying heavily on referrals to redirect types of care which are easily provided by other institutions in the community. VHA already relies on purchased care for certain services based on local demand and community options. Increased specialization could intensify the use of this approach.

4.2.3 Explore Alternative Vehicles for Capital Delivery

Alternative models of providing facilities have proved productive for some organizations. These models include contracting out capital investment, outsourcing facility management, and establishing innovative public private partnerships.

4.2.3.1 Contracting out Capital Investment

Currently, VA relies on leasing as a way of reducing its capital burden and shifting costs to an operating model. If VA were able to achieve best practice performance levels in capital delivery, it would also have a natural advantage in owning facilities, because of the low cost of borrowing and favorable tax structure available to government entities. However, given current levels of performance, VA is not able to fully capture these benefits and could consider pursuing different alternatives which would reduce the upfront costs to revitalize strained VHA infrastructure. Several different models exist:

- **Private entity construction and ownership facilities.** A private entity can be contracted to finance, design, build, operate, and maintain a facility through a public-private partnership. A variation of this model is already being used for build-to-suit leases within VHA. Specific financial and operating arrangements for such a model vary, however, these generally involve facility condition and service level commitments by the private entity in exchange for either upfront funding or annual payments committed over a period of time. Potential benefits of such a model include reduced capital expenditures through both efficiency and shifting capital expenditures to operating expenditures, as well as increased flexibility. This approach could be piloted for one or two facilities before being adopted in full.

- **Sale and lease-back.** Existing facilities can also be sold and then leased back from a private provider in order to raise capital and transfer the risk and responsibility for capital improvements and achieve operational savings. The new owner is then responsible for ensuring a specified condition of the facility over a given time period, operating the facility (for example, functions such as environmental services, maintenance, engineering,

would be operated by the new owner), and would lease the facility to the public entity to continue control over areas of core competency. This model is more common for administrative and clinic spaces.

- **Selectively outsource facility construction management, ownership, or operation**. A more narrow approach involves the outsourcing of a portion of the facility program, for example, by outsourcing construction or facility operations. This could reduce operating costs required to maintain in-house management capabilities of construction, and may reduce capital costs if contracted to a private sector entity who can more effectively deliver capital projects. There are a number of models for outsourcing construction and non-recurring maintenance, ranging from simply contracting the construction management function of certain projects to contractors, to fully outsourcing the construction management function to another agency or private sector entity. While outsourcing also raises potential concerns regarding staffing, it may provide sufficient cost savings to justify consideration.

While our assessment was in progress, the Senate passed an amendment to the National Defense Authorization Act, directing the Secretary of VA to "seek to enter into an agreement…with the Army Corps of Engineers or another entity of the Federal Government to serve, on a reimbursable basis, as the construction agent on all construction projects of the Department of Veterans Affairs specifically authorized by Congress." The Deputy Secretary for Veterans Affairs has stated, "turning everything to [the US Army Corps of Engineers] (USACE) would be a very big decision, and it would be a decision we would want to make on a very well informed basis" (Building a Better VA, 2015). At the completion of our assessment, this amendment had not been adopted by the House. Evaluating the delivery of facilities services by another agency was outside the scope of this assessment, and no resources or assessment activities were spent considering this directive.

4.3   Holistic Options to Reduce Current VA Capital Need

Following capital excellence best practices, we have identified a number of recommendations that can be used to close VA's capital funding gap. Research on a wide range of infrastructure portfolios shows that by applying these levers, there is substantial opportunity for savings. For each of these levers, we propose a set of approaches that would close the capital funding gap, and provide a high-level approach to quantifying the potential savings associated with that lever.

It is important to note that many of these recommendations are not independent and also present different capital impact, timing, and ease of capture. Some of them could also require statutory changes to be implemented. The extent of savings that could be captured by applying each lever is linked with the range of other actions that VA could take. For example, the savings associated with delivering projects more efficiently changes depending on how many projects are prioritized. As such, later in this section we present levels of performance improvement that represent internally consistent and quantified options for VA moving forward.

In order to translate the levers into actionable transformation plans, we followed a sequential process that included prioritizing the levers across impact and ease of capture and developing

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integrated sets of levers and associated quantified savings that represent different levels of transformation that VA could pursue.

4.4   Individual Lever Prioritization

As a first step, the levers were prioritized along three major dimensions:

- **Ease to operationalize**: Understand whether the proposed lever requires new capabilities or partnerships to be implemented increasing the difficulty to capture the estimated impact.

- **Ease of policy change:** Consider whether the proposed initiative could be carried out just with VA internal approval or requires external stakeholders consent (for example, Congress, GSA).

- **Overall capital Impact:** Estimate the overall impact over a 10-year period for the proposed lever.

Figure 4-5. Individual Lever Prioritization
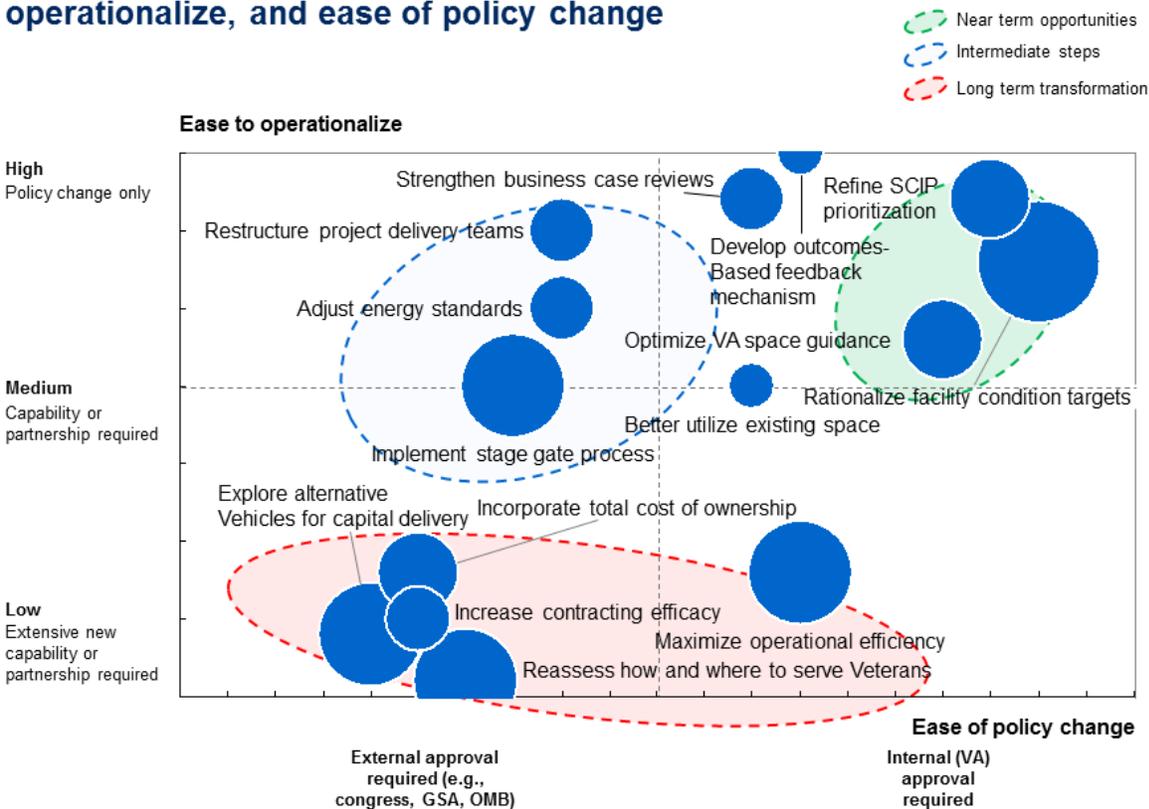
The prioritization exercise allowed the classification of the levers in three major categories that are illustrated in Figure 4-5 and described below:

- **Near term opportunities**: Levers that could be easier to implement and represent significant capital improvement , such as rationalizing SCIP criteria, optimizing space design ratios, and outsourcing facilities management.

- **Intermediate capital efficiency opportunities**: Levers with significant interdependencies or which may be difficult to institutionalize across the entire portfolio, such as restructuring project delivery teams, deploying a portfolio wide stage gate process, and revising design standards.

- **Long term transformative opportunities for consideration**: Levers that require significant capabilities and external stakeholder involvement needed such as selling and leasing back facilities, reducing footprint of underutilized facilities, or changing operating approaches.

4.5 Estimating Scale of Capital Efficiency Transformation

Given this prioritization, we then estimated the size of the opportunity if maximum capital efficiency was achieved. The potential value from each of these levers cannot be calculated independently and then added together in different combinations to identify the potential savings because of interdependencies in implementation, but we have developed a sizing which represents internally consistent combinations of savings levers and the potential value associated with these levers being used in conjunction. We have selected these levers based on a combination of their ease of implementation, the authority VA has to implement the change, and the potential value from making the change.

4.5.1 Sizing Savings From Capital Efficiency Levers

In the short term, and regardless of the strategic choices VA might make, VA and VHA should undertake a holistic effort to maximize the efficiency of their capital program. This effort could have the potential to reduce the capital requirement by $13 billion to $18 billion against the current estimated VHA capital needs (from $51 billion to between $33 and $38 billion).

A high level description of the associated potential savings is provided in chapters 4.5.1.1 to 4.5.1.3 while an in depth explanation of the sizing methodology is provided in Appendix B.3 of the report.

4.5.1.1 Improve Project Selection and Refining the Project Portfolio to Reduce Total Forecasted Capital Requirements by $7 to $8.5 Billion Over 10 Years

To size the potential impact of project selection and portfolio optimization in VA, we focused in three main areas:

- **Refine project prioritization:** By focusing the criteria and approval processes for capital projects, VA could concentrate capital spending on facility condition strategic priorities in order to invest first in critical repairs and high risk facilities reducing the capital need by $5.5 to $6.5 billion.

- **Increase scrutiny and scrubbing of projects:** We assumed that the top priority projects in the access, energy or functional need can be optimized by extensive review and refining

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processes to achieve improved project design and scoping, leading to a 10-15% reduction in capital need in these areas.

- **Space planning criteria:** By optimizing design standards to current industry design standards for medical rooms and improving the architectural design at the department level, square footage requirements could be reduced by 10 to 15% from current VA standards.

4.5.1.2 Streamline Project Delivery to Reduce Planned Capital Costs by $6 Billion to 9 Billion Over 10 Years and Avoid Potential Cost Overruns

We assumed the following efficiencies from the different construction programs if best practice efficiency levers are adequately deployed:

- **Major construction program:** Public and private sector case studies and expert interviews suggested an improvement potential from up to 50%. We assumed a range of approximately 25-30% improved cost performance for VA, which would bring their performance in line with their current internal cost objectives.

  Additionally, we assumed a decrease of historical overruns in major projects over the last five years as a result of the improved process and recommendations, generating an overall cost avoidance of $5.5 to 9 billion, over the $51 billion of capital need estimates.

- **Minor Construction program:** Based on existing research and expert interviews we assumed a conservative reduction of 10 to 15 percent of the final project cost, which would partially address the observed cost increases in the minor project program.

- **Non-Recurring Maintenance:** Similar to minor projects, we assumed a partial reduction in the observed average cost increases for NRM projects which would achieve an overall optimization of 5 to 10 percent in the overall portfolio over the next 10 years.

4.5.1.3 Make the Most of Existing Infrastructure and Capture Potential Savings in the Operating Budget by Reducing the Ongoing Operational Expenses in Line With Industry Standards

VHA could improve the utilization of its infrastructure ensuring that space planning programs regularly evaluate underutilized and vacant space to identify opportunities for increased utilization or to actively divest unusable properties. While most of these potential levers would fall outside the scope of Assessment K, experience shows that 10-20% opportunity capital reduction may exist from associated levers. We have not included this reduction in our sizing.

In summary, we estimate that the $51 billion capital requirement for VA could be reduced by $13 to $18 billion, or 25 to 35 percent of total need.

Figure 4-6. Potential Capital Reduction Through Efficiency Levels

Gross capital savings with initial capital efficiency levers against ten-year capital requirement
$ Billions

Legend:
- Potential redirected ops savings
- Unfunded gap
- Funded gap

10 year real SCIP requests: 51
~7-8.5
~5.5-9
~33-38[2]
26[1]
16

Unfunded
Funding available[1]
Series

Estimated Gap | Improving project selection - optimizing infrastructure portfolio | Streamlining Project Delivery | Making the most of existing infrastructure | Pending Gap (under current model)

1 Based on four year average funding levels of $1.6 to $2.6 billion per year
2 Final capital requirements shown in rounded numbers

4.6   Strategic Levels of Transformation

If VA is able to successfully implement current improvement initiatives, act on these additional recommendations listed above, and demonstrate best practice performance, VA would have a total capital need of $33 to 38 billion over the next 10 years. Based on average funding of $16 to $26 billion over 10 years, an unfunded gap of $7 to $22 billion would still exist. To close this remaining gap, funding would need to be increased and VA will likely need to consider more transformative options. Applying many of these strategic changes would require external approvals and significant, multi-stakeholder conversations around the future of VHA. While sizing the opportunity of these levers is not within the scope of Assessment K, we believe that the case studies discussed offer a real opportunity to close VHA's capital shortfall while still providing quality care to Veterans.

4.7   Implementation Challenges to Achieve Quantified Impact

Achieving the identified savings requires concerted leadership efforts at every level and a comprehensive effort to implement recommendations at scale. VHA is a massive organization composed of multiple capital programs which currently operate at varying levels of

sophistication. Many of the challenges we and other assessment teams have observed are interrelated and highly complex. Implementing solutions to long-standing challenges will require collaboration among Congress and the Executive Branch, VA leadership (VACO, VISN, and VAMC) and staff, as well as external stakeholders. This assessment should be seen as an opportunity for improvement, to be achieved by all stakeholders through a combination of local, regional, and national action. Addressing these challenges will require sustained commitment as a part of an integrated transformation effort for the system as a whole.

While some changes may be more quickly enacted than others, it is important to develop an integrated, thoughtful approach to implementing the recommendations in this report. As previously noted and in alignment with Section 201 of the Choice Act, Section 201 assessments, findings and recommendations were developed independently. We therefore expect these recommendations will likely need to be refined and integrated by VHA leadership and the Commission on Care into the ongoing efforts. In order to effect the necessary change, the following enabling factors would need to be addressed.

- **Empower VA and VHA leadership to implement necessary changes.** Under current law, VA is not empowered to carry out all of the recommendations contained in this report. For example, changes to the appropriation mechanisms for NRM, minor, and major construction projects, described in Section 4, require Congressional action. Additionally, major alterations to VHA's operating model require Congressional support. This support goes beyond statutory changes. Real or perceived external influence is such that VHA, VISN, and station leadership feel constrained in making strategic choices around opening, moving, and closing facilities. As one example of the heightened external sensitivity around such issues, internal VHA guidelines[17] requires any changes that shift the services of an outpatient clinic across Congressional boundaries be approved by the Undersecretary of Health, adding another layer of complexity and extending the timeline needed to make changes in response to shifting Veteran needs.

- **Clarify strategic priorities.** Capital decisions should serve as an extension of a clear and consistent VHA mission. Historically, capital projects at VHA have suffered from the multitude of priorities layered into the process. Stations alter projects in order to achieve perceived priority criteria, shifting between security, access, and patient experience to respond to changing priorities. Without greater clarity and consistency of strategic priorities, project development may continue to be reactive, leading to jumbled and inefficient projects and capital plans. Assessment L covers the importance of mission alignment in greater depth.

- Promote a culture of innovation. Across VHA's capital program, transformative change is stifled by a culture oriented around compliance. Reliance on the status quo consistently trumps new approaches. Without best practice sharing or capability building, local leaders have little insight into new practices for their capital management program and little incentive to better their performance. Instead of focusing on opportunity, local leadership

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[17] Guidelines for Notification for Community-Based Outpatient Clinics (CBOC) Changes.

becomes concerned with the risk of failure. In order to reorient the capital program, local innovations should be encouraged, endorsed, and shared.

- **Implement recommendations on an integrated timeline.** The different levels of transformation discussed above can be understood as steps along a process towards transforming VHA's approach to capital assets and management. Levers should be implemented as the groundwork is laid through policy changes, capability building, and stakeholder consensus. Relying only on quick wins or attempting to rush through the transformation could result in confusing an already complicated capital management program.

- **Develop systems and structures for accountability.** While performance management systems exist for leaders across VHA, those systems are typically focused on specific tactical metrics rather than outcomes, limiting flexibility for creative and innovative approaches. Instead of these narrow performance metrics, leaders and systems should be held accountable for comprehensive outcomes. In order to motivate leaders to accomplish the sort of systemic transformation discussed in this assessment, leadership evaluation would need to be tied to key milestones and outcomes, and leadership could be empowered to accomplish those goals. Under the current system, outcomes are difficult to track and responsibility is unclear.

Implementing systemic efficiency improvements and strategic changes requires an investment of time, resources, and energy. The potential to close the gap in capital need will be proportionate to VA's ability to address the challenges facing implementation.

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5 Capital Planning Assessment

5.1 Preface

The capital planning process creates the structure by which VHA can strategically allocate resources to capital projects in order to enhance the capabilities, capacity, and quality of a medical facility to deliver care to Veterans. At its best, capital planning is deeply linked to broader strategic planning efforts which incorporate non-capital solutions as well. This process stretches across all levels of the agency.

Capital planning begins with the systemic identification of patient needs through VHA's Health Care Planning Model (HCPM). In coordination with Veterans Benefits Administration (VBA) and National Cemeteries Administration (NCA), the Integrated Planning effort, launched by the Office of Construction and Facilities Management (CFM) in FY11, takes a 10-year view of needs across each region, the current ability to respond to those needs, and the potential projects to execute against those needs. Stations and networks have also historically developed their own strategic and capital master plans in order to provide a long-range view towards effective project development. The Integrated Master Planning effort has been piloted in four VISNs so far and will replace the more ad hoc planning process as it is rolled out across the country.[18]

These planning efforts are coordinated across the country through the Strategic Capital Investment Plan (SCIP), by which stations across VA (including VBA and NCA as well as VHA) submit 10-year Action Plans in response to identified gaps in the system, such as access, condition, utilization, and space. These gaps pull from data collected throughout the year, including Facility Condition Assessments (FCA) which are completed by independent assessors every three years and measure what it would take to bring all aspects of current facilities up to like-new condition. These Action Plans are supplemented with business cases for projects within the first fiscal year, all of which are evaluated and scored for funding.

These funding needs are then weighed against other needs within VA and across federal agencies for submission as part of the budget package. Funds are allocated through various mechanisms, including: (1) major construction projects coming from line-item Congressional allocation and held at VACO, (2) funds for minor construction projects allocated as a lump sum and distributed through VACO, (3) funds for non-recurring maintenance (NRM) distributed to VISNs through Veterans Equitable Resource Allocation (VERA) funding allocations, (4) major leases authorized by Congress and funded through station operation dollars and (5) funds for leases coming from station operating dollars allocated by VERA funding.

Figure 5-1 illustrates some of the key phases of capital planning, and who plays a key role at each stage.

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[18] VA Integrated Planning presentation, 2015.

Figure 5-1. Capital Planning Phase Definitions

Capital Planning: phase definitions

Key phases	Planning and requirements identification	Strategic capital investment plan	Budget authorization/ approval	Repurposing
What is done?	▪ Evaluation of health care needs (HCPM) ▪ Annual Capital Asset Master Plan (CAMP) ▪ Capital Asset Inventory (CAI) ▪ Development of design/construction standards, criteria, and specs ▪ Integrated Master Planning	▪ Development of investment decision criteria ▪ Target setting and gap analysis ▪ Submission of action plans/business cases ▪ Review, refinement and selection of projects ▪ Creation of 10-year Action Plan and budget	▪ Final approval of 10-year action plan and budget ▪ Incorporation with VA-wide budget ▪ Submission of supporting materials ▪ Refinements as necessary ▪ Congressional budget approval	▪ Evaluate space for reinvestment, reuse, or decommissioning ▪ Track and evaluate current assets ▪ Monitor current investments

Who is involved?

	Planning and requirements identification	Strategic capital investment plan	Budget authorization/ approval	Repurposing
VACO		VACO	VACO[1]	VACO
CFM[1]	CFM[1]			
OAEM	OAEM	OAEM[1]	OAEM	OAEM
VHA	VHA[1]	VHA	VHA	
Regional CFM	Regional CFM	Regional CFM		
VISN	VISN	VISN		VISN
Station	Station	Station		Station[1]

1 Primary entity leading effort

This assessment looks across all of the capital planning phases and is structured to address the following set of questions:

- **Outcomes:** How effectively do capital planning efforts respond to Veteran needs? Are capital funds effectively allocated to areas of greatest need within an adequate window? Does the current quality and capacity of facilities reflect this strategic allocation?

- **Process:** What are the processes for capital allocation? How are these processes integrated across regions and organizational levels? What are the key pain points or sources of inefficiency in the current process? Where are best practices or areas of strength evident?

- **People:** Are the right people involved in capital planning responsibilities? What training are they given to execute these responsibilities? Do people have sufficient time, resources, and authority to execute their responsibilities?

- **Systems:** Are the right tools in place for developing capital projects? What are the current limitations of those tools, and how might they be enhanced?

5.2 Findings

5.2.1 Outcomes

For VHA facilities, the gap between needs and resources continues to widen. The current 10-year capital need for VHA is approximately $51 billion. Over that time period, if additional needs are identified, the capital requirement could grow. Of the total, approximately $46 billion comes from the 10-year action plan developed through the SCIP process, and $5 billion comes from commitments to ongoing major capital projects. Average annual funding levels are well below that, at approximately $2 billion, leaving a $31 billion deficit from anticipated funding to 10-year identified need. Additionally, above the $51 billion identified in SCIP and outstanding major construction budget requests, VA historically has experienced significant overruns in their major construction performance, as detailed in-depth in Section 6. These overruns, if not averted through efficiency gains and process improvements, could escalate the total capital requirement to $56 to $64 billion.

Even with recent infusions of funds from the American Recovery and Reinvestment Act and the Veterans Choice Act, the scale and condition of facilities, combined with emerging needs, is such that VHA may not be able to construct, lease, and maintain medical facilities at a level to serve the entire Veteran population. Were VHA able to improve to best practice levels in each of these areas, there would still be a substantial funding gap unless there is a significant strategic shift and a marked increase in resources. As is illustrated by the four key findings below, the current capital management program does not keep pace with reported needs.

5.2.1.1 Investments in Facilities Are not Effectively Linked to Workload Growth

Facility needs are changing rapidly across VHA, with trifold pressures of shifts in care models, population centers, and medical standards. First, for both VHA and the health care industry, the model of care is shifting from intensive hospital treatments to outpatient care, often housed in the growing number of Community Based Outpatient Clinics (CBOCs). Between 2007 and 2014, outpatient visits increased 41 percent while inpatient Bed Days of Care (BDOCs) declined nine percent, see Figure 5-2. HCPM projects these trends to continue across the board. Some VISNs have experienced these swings even more dramatically. Outpatient clinic visits have increased as much as 70 percent (VISN 6), with five VISNs seeing growth rates above 50 percent. Inpatient bed days, however, have dropped as much as 21 percent in some VISNs.[19] Over the next twenty years, inpatient BDOC is expected to decline an additional 50 percent or more.[20]

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[19] VSSC Trip Pack II Reports, aggregated 2007-2014 data.
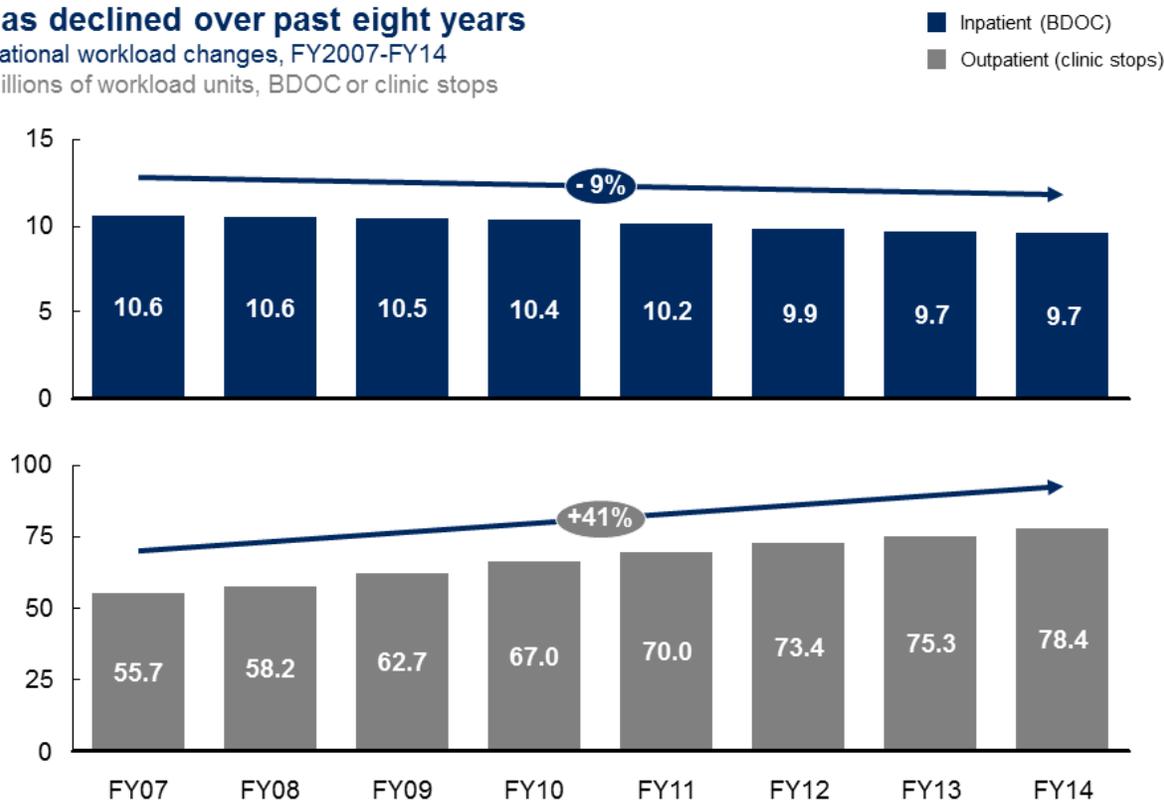
[20] Health Care Planning Model, BY13 Gap Analysis tool, June 2014.

Figure 5-2. Changes in VHA Patient Workload, FY07-FY14

Outpatient visits increasing dramatically as inpatient workload has declined over past eight years

National workload changes, FY2007-FY14

Millions of workload units, BDOC or clinic stops

- Inpatient (BDOC)
- Outpatient (clinic stops)

Inpatient (BDOC): FY07 10.6, FY08 10.6, FY09 10.5, FY10 10.4, FY11 10.2, FY12 9.9, FY13 9.7, FY14 9.7 — -9%

Outpatient (clinic stops): FY07 55.7, FY08 58.2, FY09 62.7, FY10 67.0, FY11 70.0, FY12 73.4, FY13 75.3, FY14 78.4 — +41%

SOURCE: VSSC Trip Packs, March 2015

Second, Veteran population shifts have mirrored shifts in the greater population, concentrating growth in the southern and western United States, while VISNs 1-4, located in the northeastern United States, are projected to face declining enrollment over the next 20 years.[21] Third, advances in medical equipment and facility standards across the industry, such as the move to private patient rooms, require corresponding changes within facilities in order to ensure Veterans receive the highest quality of care. Space requirements have gradually increased to reflect these changes. As the workload mix has adjusted, space within medical centers has been repurposed from inpatient to outpatient uses, often requiring significant remodeling.

This level of change would challenge the capital planning efforts of any medical system, but lengthy approval processes, construction delays, and modest budgets have combined to make this a formidable task for VHA. Capital investments significantly lag behind workload increases, or may be out of sync entirely. Projects currently in the pipeline to increase clinical space for outpatient needs, approved and under construction projects of all types, are not expected to meet the emergent growth in outpatient care. Figure 5-3 illustrates the mismatch between

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[21] Enrollee Health Care Projection Model Figures, 2014.

facility growth (in square feet) and workload growth (in clinic stops). Some of this mismatch may be attributable to delayed responses to long-standing needs.

Figure 5-3. Outpatient Capacity Mapping Versus Projected Workload Increase

Highest patient growth areas are not adding the most capacity
Outpatient space additions not matched with areas of highest growth
10 year percent change over FY14 baseline

— Percent of change in outpatient square footage
■ Percent of change in outpatient workload
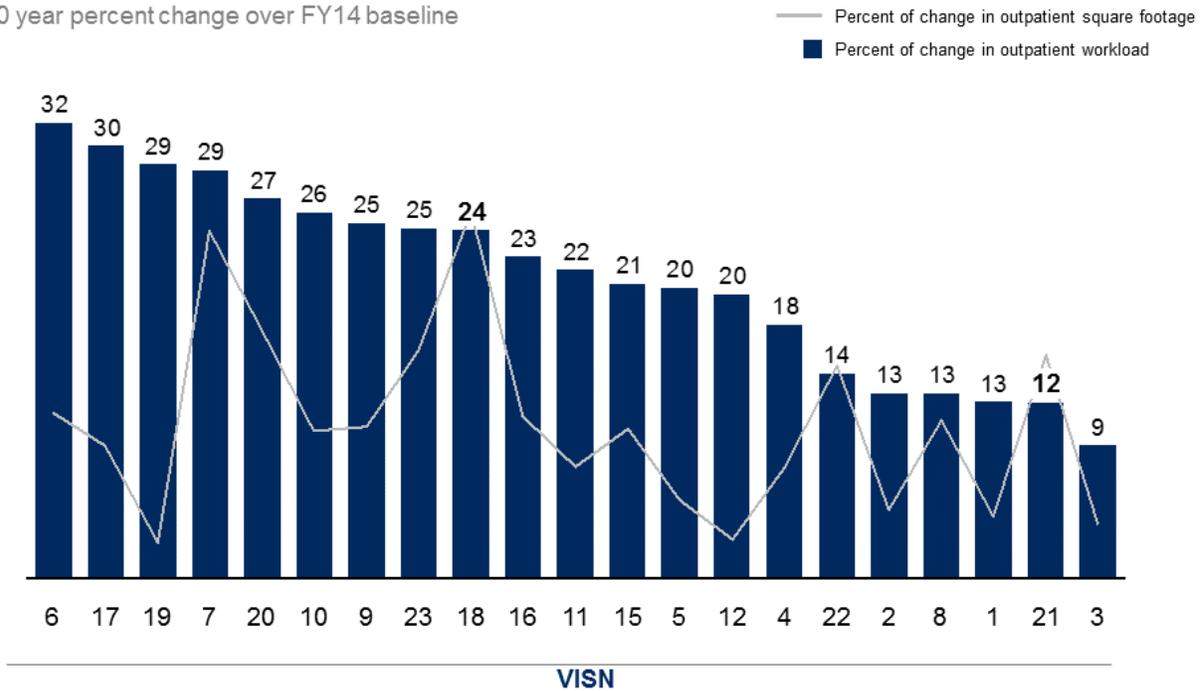
1 Non-clinical space includes administrative, common, infrastructure, research and swing/construction space

SOURCE: Outpatient workload projects (BDOC) taken from Healthcare Planning Model, June 2014; Space increases calculated as funded projects in the pipeline which were approved after the institution of the SCIP process (FY13-FY15)

At the same time, inpatient space is still being added to stations, despite consistently declining inpatient workloads. As seen in Figure 5-4, across the system, in-process inpatient space averages a five percent increase over existing inpatient space. Some of this is the result of changing space standards, such as the emphasis on private rooms and bathrooms for patients. More than 35 percent of the increase in inpatient space is driven by new or expanded Community Living Centers to provide long-term care.[22] Even with these considerations, the contrast between inpatient and outpatient workload and space expansions is striking.

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[22] Data regarding in-pipeline projects taken from SCIP database for all projects which have been funded for design and/or construction. Only projects approved for funding after the induction of the SCIP process in FY13 were consider in the analysis, in order to ensure only the consequences of the current planning process were considered.

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Figure 5-4. Inpatient Capacity Mapping Versus Projected Workload Change

Inpatient space is increasing even as inpatient workload declines

Percent decline in workload compared to percent increase in square footage
10 year percent change over FY14 baseline

■ Percent of change in inpatient workload
□ Percent of change in inpatient sq. ft.
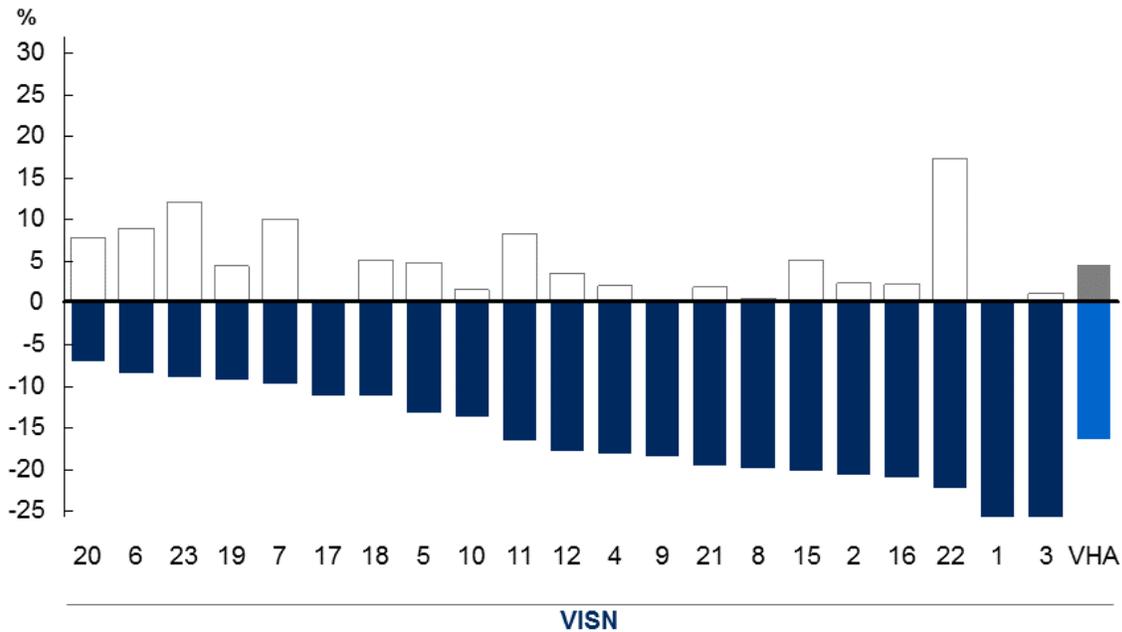
SOURCE: Inpatient workload projects (BDOC) taken from Health care Planning Model, June 2014; Space increases calculated as funded projects in the pipeline which were approved after the institution of the SCIP process (FY13-FY15)

A portion of the planned construction has a justification apart from workload increases. For example, VISN 22, an obvious outlier, has multiple on-going major construction projects and is also responding to seismic concerns, which are scored highly in the SCIP process. Nonetheless, the system-wide trend of significant construction efforts appears at odds with significant workload growth needs. Figure 5-5 illustrates the relationship between current station level space needs, based on currently acceptable medical square footage requirements, and pipeline projects to add square footage. While a slight connection between the space deficit and the in-process pipeline at a station exists, that correlation accounts for less than 30 percent of the planned construction. Moreover, major construction projects, expansion projects costing more than $10 million are even less connected with space needs than other construction and leasing types.

Figure 5-5. Project Pipeline Correlation with Space Deficit

Facilities with high space deficits are not more likely to have projects approved

◆ Station with major construction project in pipeline

Total in process projects[1]
Million square feet
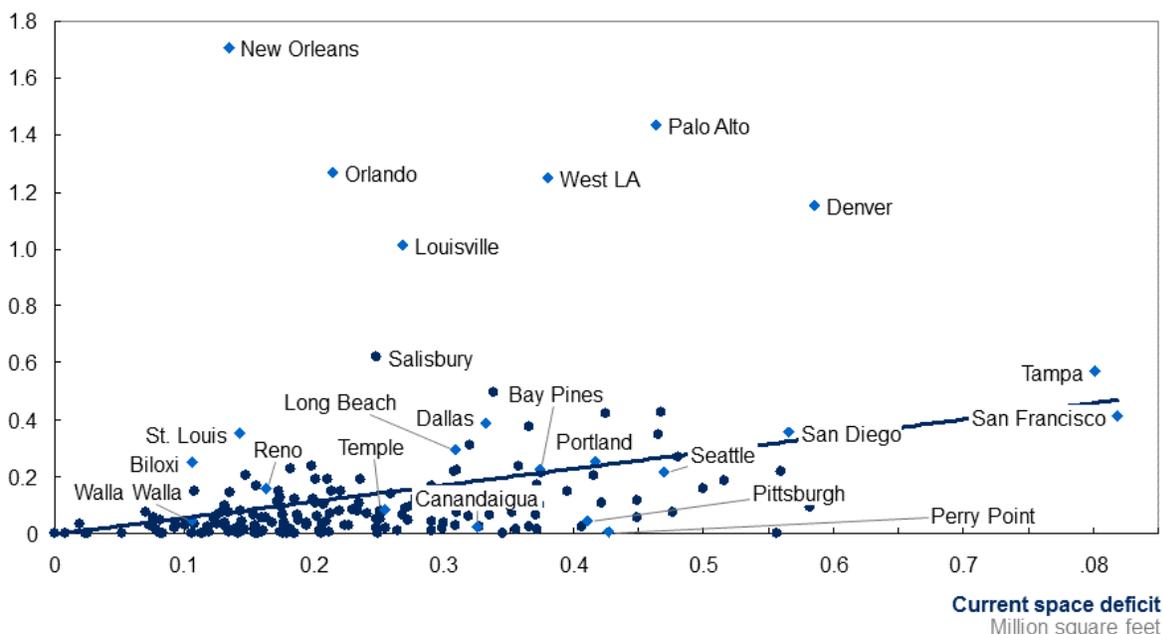
1 Defined as projects which are in progress, including those having received funding or design or construction (not all scored projects)

SOURCE: Source: FY2017 VA Space Analysis tool

5.2.1.2 Existing Space Is not Being Used at Its Highest Efficiency

Using VHA space guidelines for medical facilities, VHA records indicate a current need of 44 million additional square feet, while simultaneously recording 25 million square feet of underutilized space and 6.5 million square feet of vacant space (FRPP, 2014 and CAI, 2015; see Figure 5-6). The bulk of the underutilized space is administrative space. Some of the underutilized space is not easily repurposed because of age, condition, layout, or location. In many cases, one station will record excess space while another records a need. Sometimes this occurs even between two facilities in a dual campus station, meaning the existing excess space cannot be easily matched to patient needs.

In many instances, underutilized and vacant space may simply be unusable. The buildings currently being left vacant are, on average, ten years older than the typical VHA building and are typically non-medical space (VA Capital Asset Inventory, 2015). Older buildings, not designed to current medical standards, may be difficult or impossible to remodel to effectively meet current needs. Even where there are good reasons for not using this space, however, keeping vacant or heavily underutilized buildings within VHA's portfolio requires an unnecessary investment in upkeep which could be avoided by divesting these properties (Federal Asset Management, 2011).

Figure 5-6. Needed and Underutilized Space by Type

Majority of underutilized space is non-clinical
Underutilized space[1] by clinical subcategory
Square feet, Millions

Category	Value
Ambulatory Care	
Ancillary/Diagnostic	0.7
Mental Health	0.6
Primary Care	0.5
Specialty Care	0.8
Inpatient Bed	
Blind Rehab	0.1
Domiciliary	0.1
Intermediate Med/NHCU[2]	0.2
Medicine	0.2
Psychiatry	0.1
Residential Rehab	0.2
Spinal Cord Injury	0
Surgery	0
Non Clinical	
Administration	11.8
Research	0.5
Other	
Common Space	7.6
Other	0.8
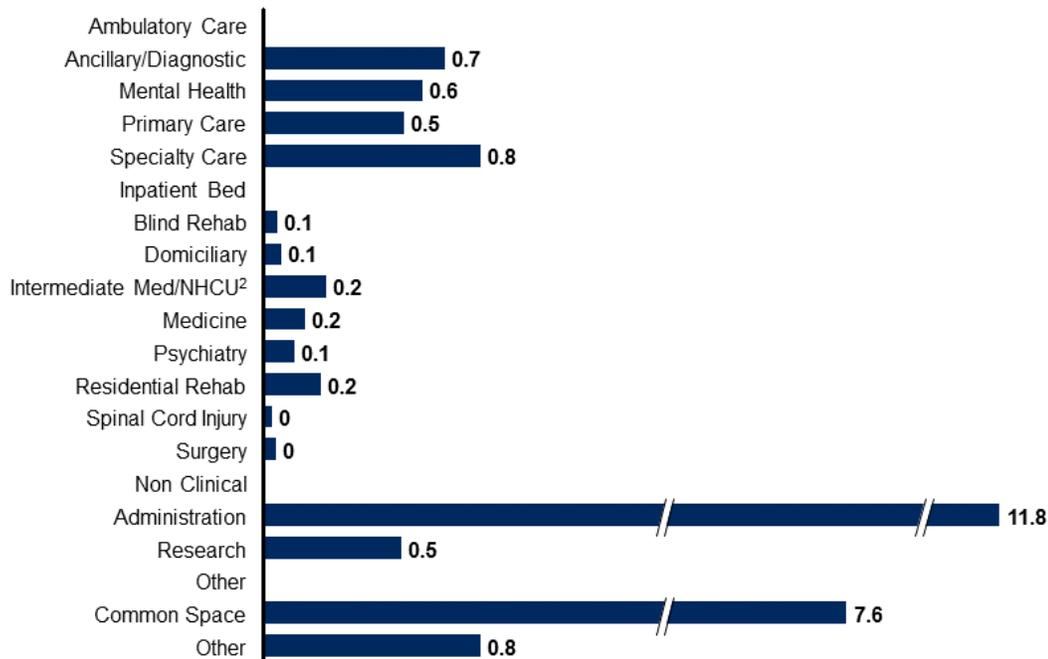
1 Underutilized space defined as areas with a section of the space unassigned
2 Nursing Home Care Unit

SOURCE: FY12 VHA Space Driver; FRPP 2014; CAI 2015

5.2.1.3   Facilities Are Being Pushed Well Past Their Useful Lifespans

VHA's system is dominated by older structures which require significant investment to maintain. The ability of the system to adjust to shifting needs is currently constrained by the cost of more basic upkeep demands. Moreover, the scale of the updates and repairs needed is such that funding levels are insufficient to meet the existing need. As a result, the gap between needs and investment is widening, and already aging facilities are only deteriorating further.

According to Facility Condition Assessments (FCAs), VHA systems average a C- on an A to F scale, as detailed in Figure 5-7 (Capital Asset Database, 2015). These independent assessments are completed on a rolling basis, with each facility being inspected every three years. Nearly 40 percent of scored components received a D or F rating. VHA facilities do not receive an overall grade, but their component parts are scored with accompanying costs to upgrade components. These inspections have identified $15.9 billion dollars in needed repairs to bring all facilities back to like-new condition. Executing these repairs would include additional costs, such as contractor fees, and raise the total dollar number needed to correct FCA deficiencies.[23]

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[23] Project costs include the labor, overhead, and associated costs.

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Figure 5-7. Major Deficiencies Identified in FCA

FCA correction costs are concentrated in Grade D ratings
Facility Condition Assessment Ratings

Grade	Definition	Number items	Total correction cost $ Billions
A	Like-new condition	24,337	n/a
B	Over half of useful life remains	33,203	<1
C	Avg. condition, less than half of useful life remaining	55,841	<1
D	Poor condition, at the end of its useful life	59,919	13.5
F	Critical condition, requires immediate attention	8,574	2.4

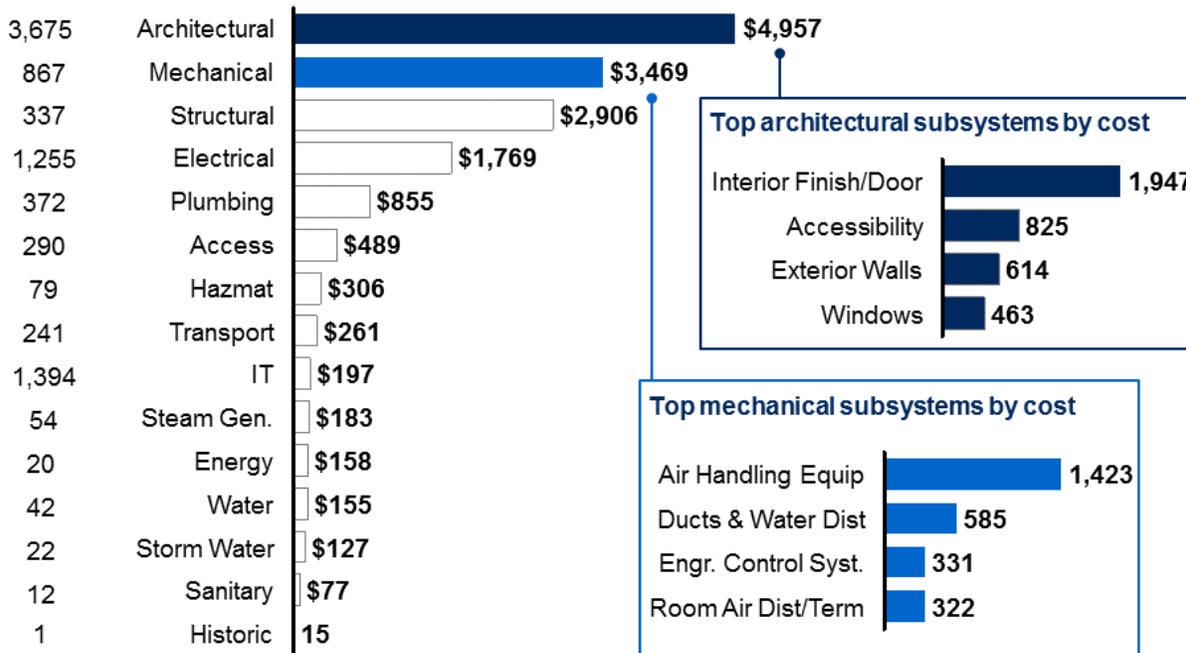SOURCE: Facility Condition Assessments taken from VA Capital Asset Database, March 2015

While some of these deficiencies are more superficial, many address critical infrastructure needs. Figure 5-8 illustrates the number of deficiencies across systems and the key drivers of cost.

Figure 5-8. Major Drivers of Condition D and FCA Deficiencies

Correction cost of FCA deficiencies by system, more than 60% of ~$16 billion are architectural or mechanical

USD Millions

No. of incidents[1]		
3,675	Architectural	$4,957
867	Mechanical	$3,469
337	Structural	$2,906
1,255	Electrical	$1,769
372	Plumbing	$855
290	Access	$489
79	Hazmat	$306
241	Transport	$261
1,394	IT	$197
54	Steam Gen.	$183
20	Energy	$158
42	Water	$155
22	Storm Water	$127
12	Sanitary	$77
1	Historic	15

Top architectural subsystems by cost

Interior Finish/Door	1,947
Accessibility	825
Exterior Walls	614
Windows	463

Top mechanical subsystems by cost

Air Handling Equip	1,423
Ducts & Water Dist	585
Engr. Control Syst.	331
Room Air Dist/Term	322

1 Number of items scoring a F (critical condition)
SOURCE: Facility Condition Assessments taken from VA Capital Asset Database, March 2015

While architectural and mechanical deficiencies make up the bulk of the cost, nearly $2.8 billion of the structural costs are driven by seismic concerns. Many of the other top-dollar categories, such as air handling equipment, consist of high-dollar projects, which can be challenging to work through the approval process because they hit a very narrow subset of the approval criteria for capital projects and therefore may not score high enough to be funded, as discussed further in Section 5.2.2.2.

5.2.1.4 Aging Infrastructure Negatively Affects Veteran Care

The average year of construction for VHA properties was 1965. The average building age in VHA is 50 years (Capital Asset Database, 2015).[24] In comparison, the building average of not-for-profit hospital systems in the United States is 10.5 years (Soule and Keller, 2014).[25] While most facilities have been extensively renovated, the renovations themselves have aged, and often

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[24] In order to control for varying facilities sizes, data on year built was weighted by square footage on a building level. This avoids skewing the data by given the same weigh to small, older structures, such as guard buildings or storage buildings, as to large hospital campuses. Year built, square footage, and historic designation were taken from VA Capital Asset Database, accessed March 2015.

[25] 2013 analysis of 139 not-for-profit hospital systems in US, encompassing 1,362 hospitals.

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were directly towards cosmetic rather than structural updates. Even when incorporating the renovation dates listed in the Capital Asset Inventory (CAI), the average age is still estimated to be approximately 41 years.[26] More than simply an issue of structural integrity, dated hospitals are built with designs which do not incorporate new models of care and cannot be easily adjusted to new approaches, such as the Patient Aligned Care Team (PACT) model.
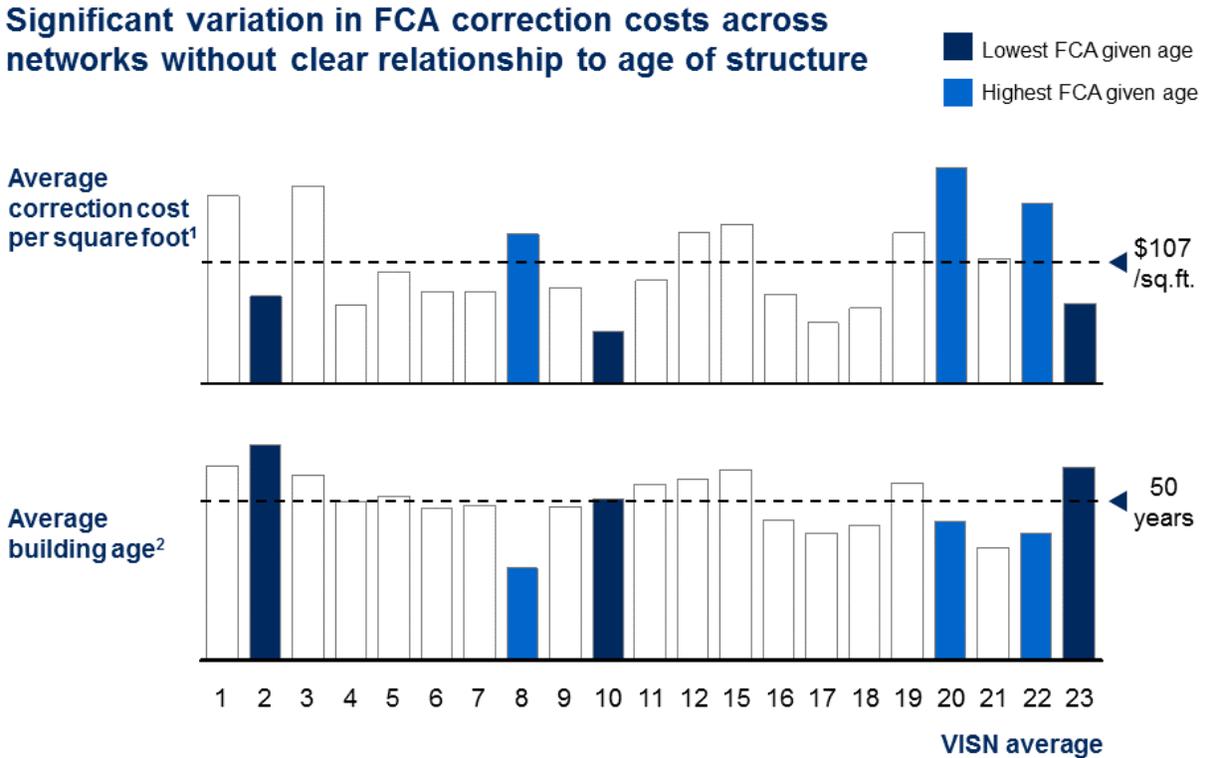
A large percentage of VHA properties are further restricted. More than 20 percent of the square footage owned by VHA is designated as either a National Historic Landmark or a National Register Listed property, limiting the manner of renovations which can be done to the property and the potential for resale or demolition. As a result, when these properties are no longer usable for clinical purposes, VHA may be obligated to maintain these properties or go through a burdensome process to dispose of them.

The age of a facility is not a clear proxy for condition. While there are some clear relationships between younger facilities and fewer condition deficiencies – VISN 17's relatively recent facilities have lower than average correction costs – there is not a consistent relationship. Age contributes to the facility condition, which is also exacerbated by such factors as neglected or underfunded maintenance needs, unfavorable climate, and building typologies. Figure 5-9 evaluates the connection between facility age and FCA correction costs per square foot on a VISN level.

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[26] Renovation years are often inconsistently applied in the CAI, and so should not be taken as a replacement for the year constructed when evaluating the age of the building.

Figure 5-9. Correlation Between FCA Costs and Average Building Age

Significant variation in FCA correction costs across networks without clear relationship to age of structure

Legend:
- Lowest FCA given age
- Highest FCA given age

Average correction cost per square foot[1] — $107/sq.ft.

Average building age[2] — 50 years

VISN average: 1 2 3 4 5 6 7 8 9 10 11 12 15 16 17 18 19 20 21 22 23

1 Sum of total FCA correction costs across all facilities in VISN, divided by total owned square footage from CAI
2 Year built, as reported in CAI; age weighted by relevant square footage

Under FEMA guidelines, buildings are considered eligible for replacement when the fully-loaded correction cost is more than half of the replacement value of the facility (OIG-14-123-D, 2014).[27] VHA calculates a replacement value for each building in their inventory as part of the CAI. This replacement cost does not include the cost of land, but does include the full project costs of constructing the building, as determined by estimates developed by CFM. The correction costs used for the CAI, however, do not include these project costs, but are based on the value of replacement systems, or construction dollars only. Because of this, these estimates underestimate the ratio of correction to replacement. The design and execution of those projects typically adds an additional 25 to 35 percent to the total cost.[28]

The differing calculation methods makes it difficult to fully apply the 50 percent of replacement value principle, but we can use the inventory numbers to arrive at a conservative estimate for the number of buildings which are in too great a state of disrepair to justify further repair.

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[27] This guideline is applied for public assistance grants to properties damaged by disasters. While the Office of the Inspector General (OIG) has identified challenges to effectively implementing this guidance, the general principle is widely held.

[28] The delta between construction costs and project costs is discussed more fully in the design and construction chapters.

According to the 2014 Federal Real Property Profile (FRPP), 508 buildings owned by VHA have correction costs exceeding 50 percent of their replacement value, totaling approximately seven million square feet, or 5 percent of the property owned by VHA. An additional 198 properties are borderline, with correction costs totaling more than 40 percent of the building's replacement value, which brings the total to nearly 7 percent of property owned by VHA. For these buildings, 11 of which are active hospital buildings larger than 50,000 square feet, these data suggest that investing in minor improvements, or even significant renovation, is no longer cost-effective. This is a significant concern across the system as the fully loaded replacement value of all VHA structures at $86 billion, correction costs system-wide stand at 19 percent of that total, and goes as high as 25 percent when considering full project costs (FRPP, 2014).[29]

5.2.2   Process

5.2.2.1   Expected Funding Levels Do not Support Identified Capital Needs

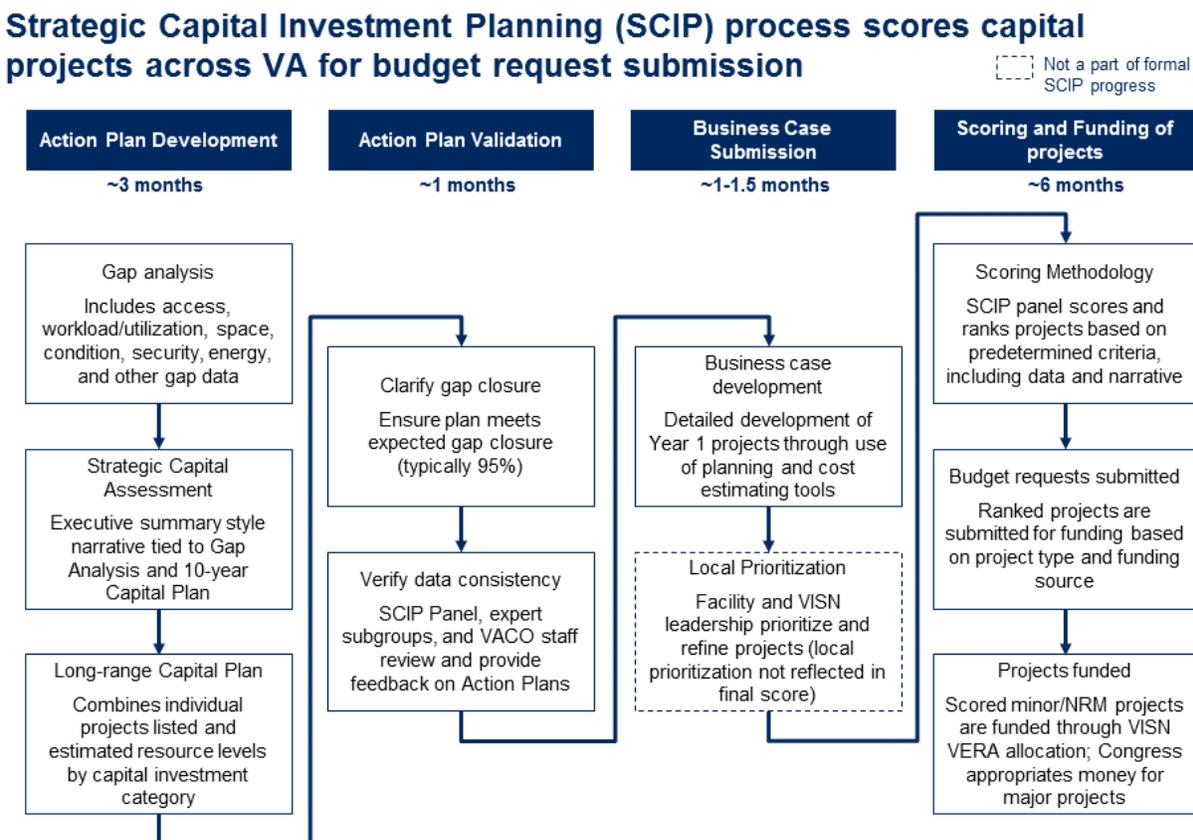While the forecasted need for capital investment is $51 billion over the next 10 years, actual funding levels for capital projects remain far below requested levels, with current funding levels likely providing approximately $16 to $26 billion over the next 10 years (VA Budget, FY13-FY16). As a result, stations compete for limited funds. Different project types are funded through different mechanisms, but all project types are evaluated through SCIP process conducted annually at a national level.

Through SCIP, stations develop 10-year action plans to close identified gaps in such categories as access, condition, and space and provide detailed business cases for all projects applying for funding in the first fiscal year. The sizing of these gaps comes from centrally managed databases, including the Facility Condition Assessments discussed earlier. Every year, stations are given new workload projections, based on EHCPM, which projects workload at the 5-, 10-, 15-, and 20-year marks. Additionally, stations can access planning tools such as a mapping database and the Healthcare Planning Model (HCPM) and capital asset inventories (including the facility condition assessments discussed earlier) throughout the year in order to help develop their projects and business case justifications. Figure 5-10 provides an overview of the process.

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[29] Of the FRPP database, only VHA properties considered.

Figure 5-10. Overall SCIP Process Details

Strategic Capital Investment Planning (SCIP) process scores capital projects across VA for budget request submission

Not a part of formal SCIP progress

Action Plan Development	Action Plan Validation	Business Case Submission	Scoring and Funding of projects
~3 months	~1 months	~1-1.5 months	~6 months

Gap analysis
Includes access, workload/utilization, space, condition, security, energy, and other gap data

Strategic Capital Assessment
Executive summary style narrative tied to Gap Analysis and 10-year Capital Plan

Long-range Capital Plan
Combines individual projects listed and estimated resource levels by capital investment category

Clarify gap closure
Ensure plan meets expected gap closure (typically 95%)

Verify data consistency
SCIP Panel, expert subgroups, and VACO staff review and provide feedback on Action Plans

Business case development
Detailed development of Year 1 projects through use of planning and cost estimating tools

Local Prioritization
Facility and VISN leadership prioritize and refine projects (local prioritization not reflected in final score)

Scoring Methodology
SCIP panel scores and ranks projects based on predetermined criteria, including data and narrative

Budget requests submitted
Ranked projects are submitted for funding based on project type and funding source

Projects funded
Scored minor/NRM projects are funded through VISN VERA allocation; Congress appropriates money for major projects

SOURCE: FY17 SCIP call memo; multiple interviews

The SCIP process, instituted for FY2013, offered a significant improvement in the level of data-based decisions used in the capital allocation process. Nonetheless, the evolving prioritization criteria and the resulting culture and process changes have created challenges throughout the system. Significantly, the lengthy time horizons from project delivery complicate any capital planning efforts, as advance planning efforts cannot be consistently implemented in time to respond to the needs they are designed to address.

While the Action Plans are designed to cover a 10-year time window, the submissions illustrate the challenges of effectively planning over a 10-year window during which facilities must compete for funds. All major and minor projects, as well as all NRM projects above $1 million, are scored and ranked across VHA. While roughly two billion dollars annually is given towards construction and maintenance projects, funding requests are consistently above this mark. This is particularly true in the first years of the Action Plan, for which facilities are developing more detailed projects (Figure 5-11).

Figure 5-11. SCIP Funding Requested by Year

SCIP requests far exceed funding levels and are crowded in the first years of the 10-year action plan

Size of total SCIP request by action plan year and budget year
USD Billions
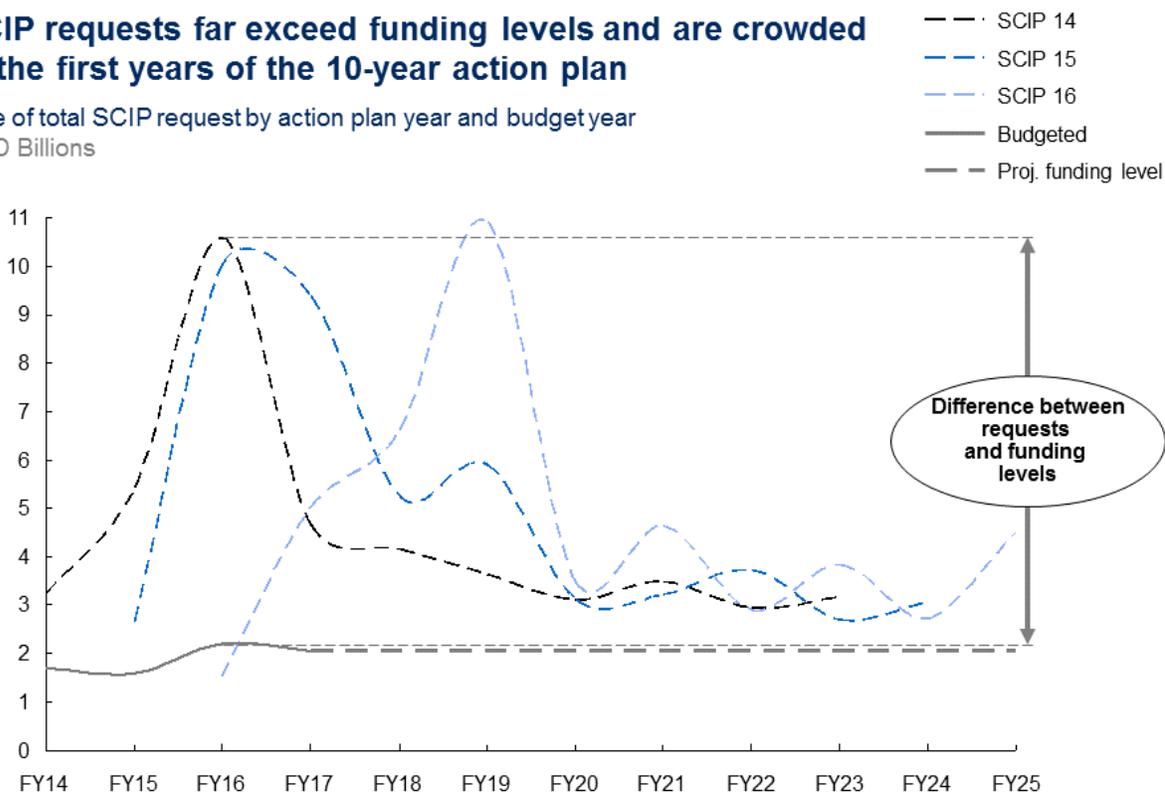
SOURCE: FY14-16 SCIP submissions; interviews

Less than 30 percent of projects are funded each year, leaving more than 1,000 scored and approved projects on the shelf at the end of each planning cycle (SCIP requests, FY14-FY16).[30] As each new planning cycle arises, unfunded projects and low approval rates cause stations to crowd lingering plans into the early years, diminishing the effectiveness of SCIP as a planning tool. Current estimates for fund requests four or more years out from the current fiscal year are largely based on block sums calculated as "out year funding" based on a calculation of the cost to close the remaining gap (VACO interviews, 2015). As projects remain unfunded in the near-term, those costs are then pushed out to the later years, with the "peak" funding year seen in Figure 5-11 being consistently rolled back with the submission of each new Action Plan. Interviewees reported that the uncertainty surrounding funding levels and the consistent delay of approved projects make it challenging for VAMCs to make realistic planning decisions about the best way to respond to budget constraints (VAMC/VISN interviews, 2015).

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[30] Applicable in the years for which detailed project proposals exist, typically the first five years of the Action Plan.
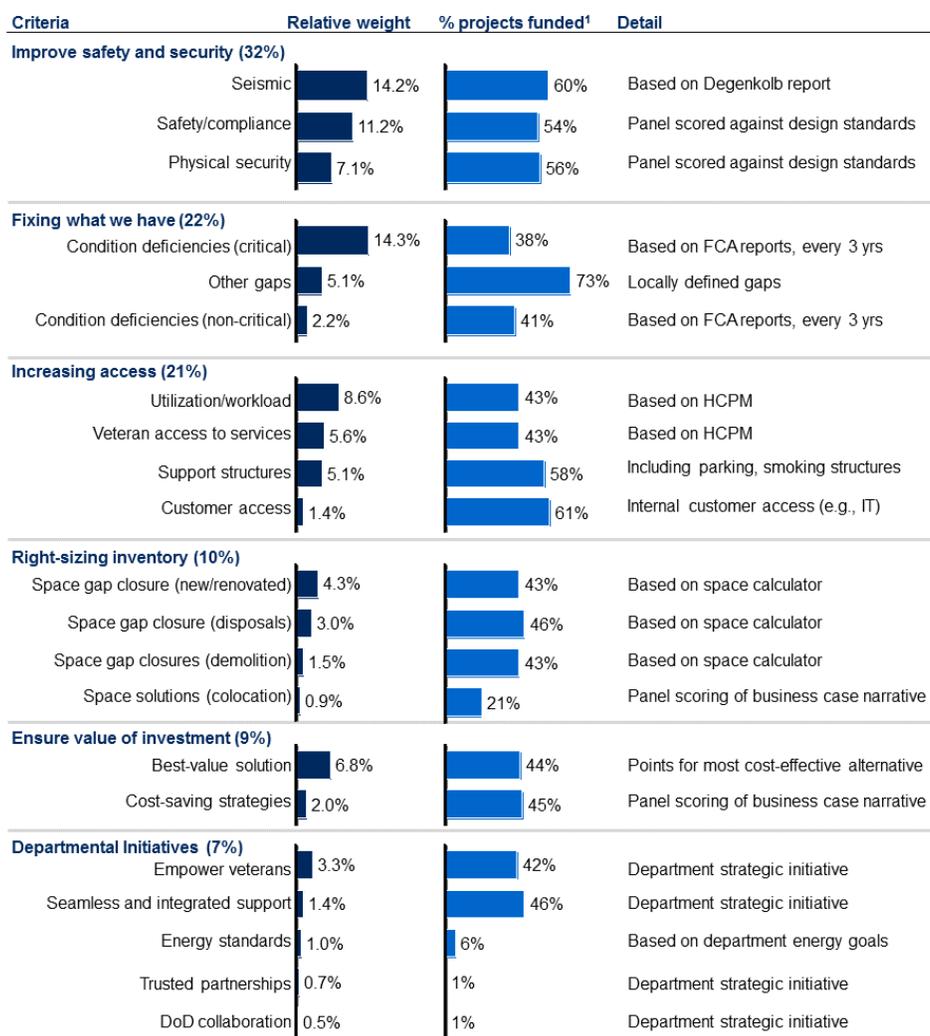
5.2.2.2 SCIP Scoring Does not Favor Projects With Highest Impact on Veteran Needs

The current SCIP scoring process also creates challenges in understanding which projects will rise to the top. The number of criteria alone creates a high level of complexity. Figure 5-12 details the 21 criteria used for the FY16 SCIP submission (SCIP Criteria, 2015). While these criteria are grouped into six high level priorities, they are calculated and evaluated on the subcriteria level. Each criterion is given a scoring unit, scoring methodology, and relative weight. Credit is given for the progress of each project against the total identified gap.

Figure 5-12. SCIP Scoring Criteria Details

FY16 SCIP scoring criteria overview

Criteria	Relative weight	% projects funded[1]	Detail
Improve safety and security (32%)			
Seismic	14.2%	60%	Based on Degenkolb report
Safety/compliance	11.2%	54%	Panel scored against design standards
Physical security	7.1%	56%	Panel scored against design standards
Fixing what we have (22%)			
Condition deficiencies (critical)	14.3%	38%	Based on FCA reports, every 3 yrs
Other gaps	5.1%	73%	Locally defined gaps
Condition deficiencies (non-critical)	2.2%	41%	Based on FCA reports, every 3 yrs
Increasing access (21%)			
Utilization/workload	8.6%	43%	Based on HCPM
Veteran access to services	5.6%	43%	Based on HCPM
Support structures	5.1%	58%	Including parking, smoking structures
Customer access	1.4%	61%	Internal customer access (e.g., IT)
Right-sizing inventory (10%)			
Space gap closure (new/renovated)	4.3%	43%	Based on space calculator
Space gap closure (disposals)	3.0%	46%	Based on space calculator
Space gap closures (demolition)	1.5%	43%	Based on space calculator
Space solutions (colocation)	0.9%	21%	Panel scoring of business case narrative
Ensure value of investment (9%)			
Best-value solution	6.8%	44%	Points for most cost-effective alternative
Cost-saving strategies	2.0%	45%	Panel scoring of business case narrative
Departmental Initiatives (7%)			
Empower veterans	3.3%	42%	Department strategic initiative
Seamless and integrated support	1.4%	46%	Department strategic initiative
Energy standards	1.0%	6%	Based on department energy goals
Trusted partnerships	0.7%	1%	Department strategic initiative
DoD collaboration	0.5%	1%	Department strategic initiative

1 % projects which received a score in this category and were then ranked above the funding line, FY16

Because of the dispersed weights of the different subcriteria and the development of projects to hit a broad range of criteria, approval rates for individual projects are not closely related to the ranks of the strategic criteria they emphasize. While this diminishes the impact of the individual strategic criteria, these rankings also provide insight into the project pipeline results discussed earlier. It is not surprising that new expansions are not closely linked to workload growth when the utilization/workload criterion is only worth 8.6 percent of the total score. Similarly, the high levels of construction on the west coast, unlinked to workload, are understandable when seismic concerns are effectively tied for first in strategic terms, being worth 14.2 percent of the total score.

The scoring process is reevaluated annually in order to allow for VA shifting strategic needs and reflect process updates. As illustrated in Figure 5-13, more of the scoring shifts to objective data

inputs in FY16. Roughly 45 percent of the scoring, however, remains scored based on the business case narrative. As a result, stations have learned to place considerable emphasis on the ability to write a business cases tailored to perceived high value criteria, using both in-house staff and consultants to try and maximize these scores. This introduces an unavoidable subjectivity to the process, where presentation affects scoring independent of project merits.

While SCIP criteria and planning tools do push stations to consider cost-effective alternatives and provide a best-value business case, less than 10 percent of the total score relates to ensuring the value of the investment.

Figure 5-13. Assessment of Different Parameters Weighting in SCIP
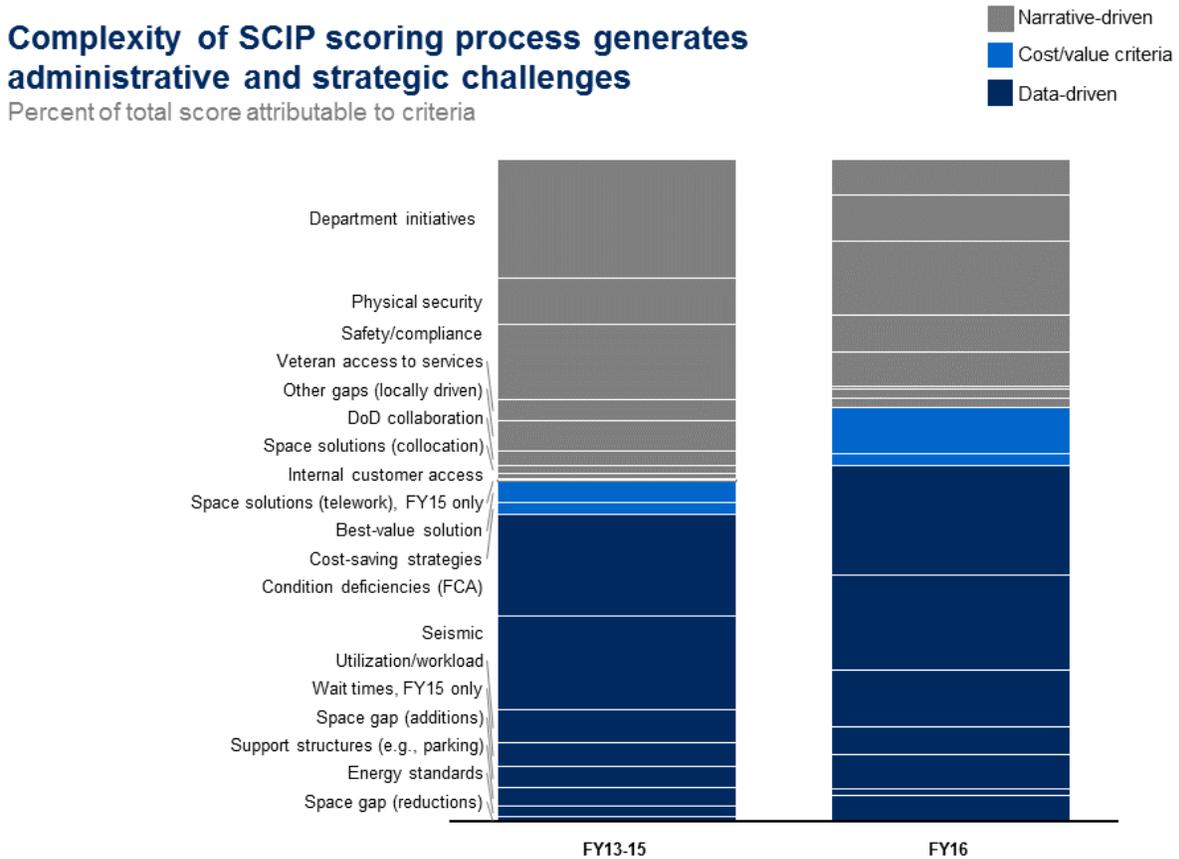
SOURCE: Internal SCIP weighting guides, FY15 and FY16

While the current SCIP framework provides a system for evaluating projects and includes several strategic assessment criteria, the system classifies and scores all project using the same methodology. However, best practice capital portfolio optimization processes typically segment projects and apply different evaluation methodologies for each category of project (see Figure 5-14 as an example).

In the sample prioritization breakdown shown in Figure 5-14, projects are divided among two main categories: mandatory and discretionary. Mandatory projects are those directly dictated by laws and regulations and are necessary for the safe operation of a facility. Mandatory

projects should be prioritized over discretionary. However, mandatory projects should not be automatically or immediately approved and their classification should be thoroughly reviewed. Non-capital solutions could be available which would decrease the need for capital investment, and some of the projects can be shifted in later timeframes. More importantly, mandatory projects that have very low return on investment, below the minimal expected rate of return on invested capital, should be intensely reviewed and alternative scenarios should be considered. This segmented approach can lead to reductions in the overall cost of infrastructure investments. Without a robust system of prioritization and segmentation, a portfolio of projects can become misaligned with overall strategic planning or fall short in delivering anticipated outcomes.

Figure 5-14. Features of Best Practice Capital Portfolio Optimization
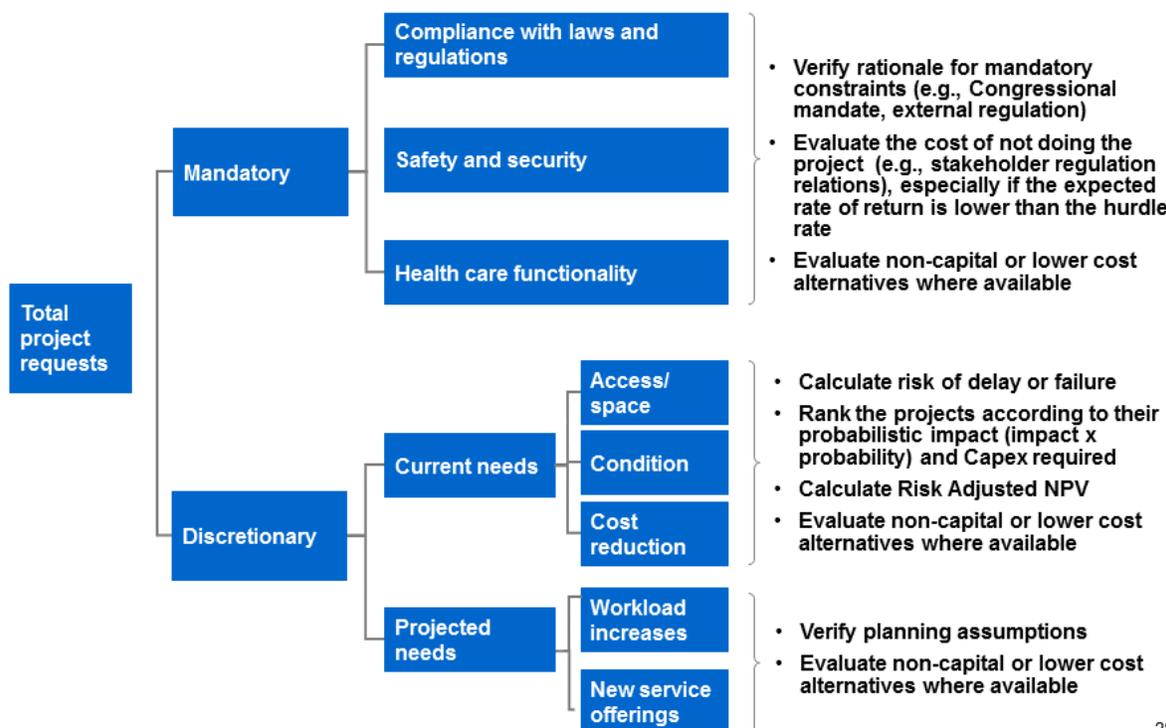
Discretionary projects include operational improvements, maintenance of current facilities, and potential new projects. Discretionary projects for current needs should be prioritized based on the strategic value they provide to the organization, often using their Net Present Value (considering adjustments for risk management and probable impact) or an alternative scoring of other benefits similar to those currently included in SCIP. For discretionary projects, it is also important to verify assumptions and ensure those assumptions are consistent across submitted projects. Non-capital and lower cost alternatives should be considered and discretionary

projects with return on investment below the minimal expected rate of return on invested capital should not be realized.

SCIP does not currently utilize this type of project classification in its scoring process, but evaluates all projects along the same criteria.

5.2.2.3 Stations Develop Projects With a Focus on Approval Criteria and Constraints Rather Than Project Efficiency and Clinical Merits

Competition for limited funds has led stations to make a range of choices in developing projects which favor approval strategies over efficient project delivery. Station leadership and central office administrative staff at VACO and VHA universally expressed awareness that projects are packaged in in order to fit above or below key thresholds, hit perceived high-value targets, and adjust scope. While the adherence to program constraints is commendable, those constraints have had the unintended consequence of shaping projects in inefficient ways.

One threshold with the greatest impact has been the division between minor and major construction projects. Major and minor projects expand the square footage of the facility in some way, but minor projects must cost less than $10 million and are executed by local VHA engineering staff. Major projects are executed by VA Office of Construction and Facilities Management (CFM), with input and coordination assistance from local VHA staff. Even more significant than the different execution arms for these projects, there is a dramatic difference in the approval rates of projects at each level. In the past three years, less than 5 percent of all new major construction projects submitted have been funded. While previously approved on-going major construction projects are still being funded through various design and construction phases, no new major construction projects were approved in either FY14 or FY16 (Figure 5-15).[31] The backlog for major construction projects has reached $10 billion,[32] and it is widely held across VHA that major construction will not be approved, and so there is little value in developing and submitting these projects. As a result, stations work to fit all projects below the minor threshold, even when the scale of the need is greater than that which can be easily accomplished under that limit.
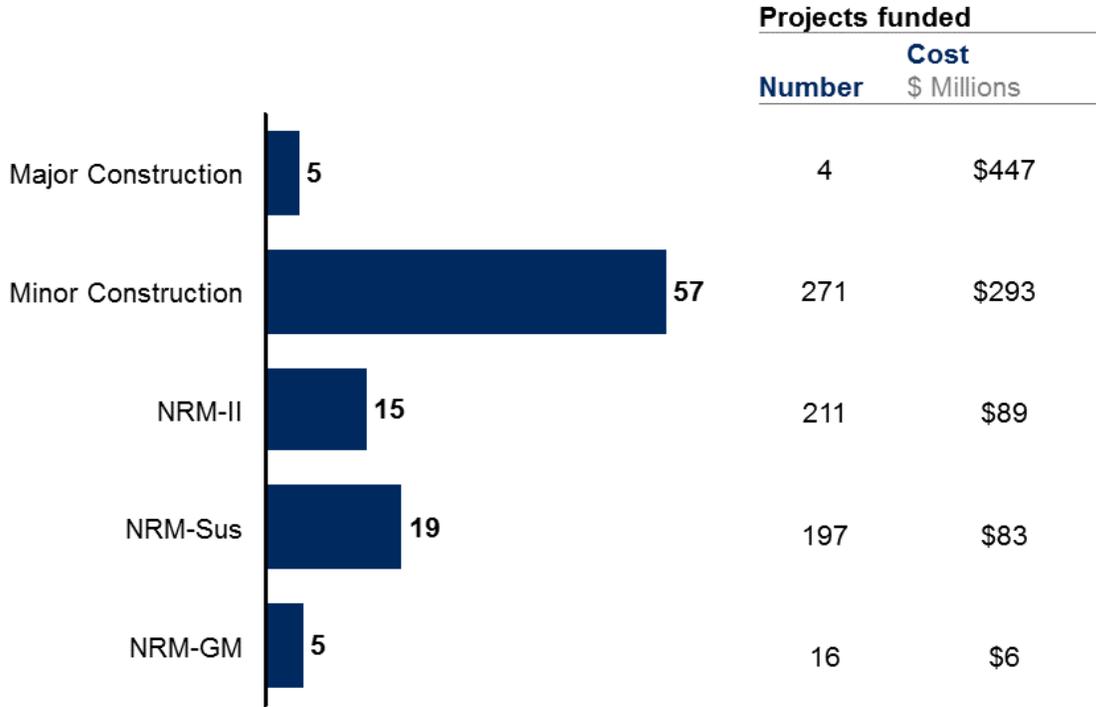
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[31] Major construction funds were still appropriated during these years for previously approved and on-going projects.

[32] Backlog calculated as the FY16 major construction budget request (~$1 billion), the anticipated future budget requests for current major construction projects (~$4 billion), and major construction projects above the funding line in SCIP scoring, but not yet funded (~$5 billion in FY16).

Figure 5-15. Assessment of Funding Likelihood by Program

Likelihood of project funding by capital program
Percent projects funded by type, FY14-16

	Projects funded	
	Number	**Cost** $ Millions
Major Construction	4	$447
Minor Construction	271	$293
NRM-II	211	$89
NRM-Sus	197	$83
NRM-GM	16	$6

Major Construction: 5
Minor Construction: 57
NRM-II: 15
NRM-Sus: 19
NRM-GM: 5

SOURCE: SCIP submissions and budget requests, FY14-16

Minor construction projects, however, are the most frequently approved project type, with 57 percent of projects receiving funding over the past three application cycles. This gives stations incredible incentive to keep their projects under the $10 million cap, or to break up projects which would typically cost more than $10 million into smaller, stand-alone projects with a better likelihood of approval. In fact, nearly 44 percent of all projects submitted in FY16 had cost estimates between $9-10 million (Figure 5-16).

Figure 5-16. Breakdown of Major and Minor Projects by Project Size

Volume of project submissions directly under $10 million Minor Construction threshold illustrates careful project packaging

Average size and number of FY16 SCIP Major and Minor Construction requests
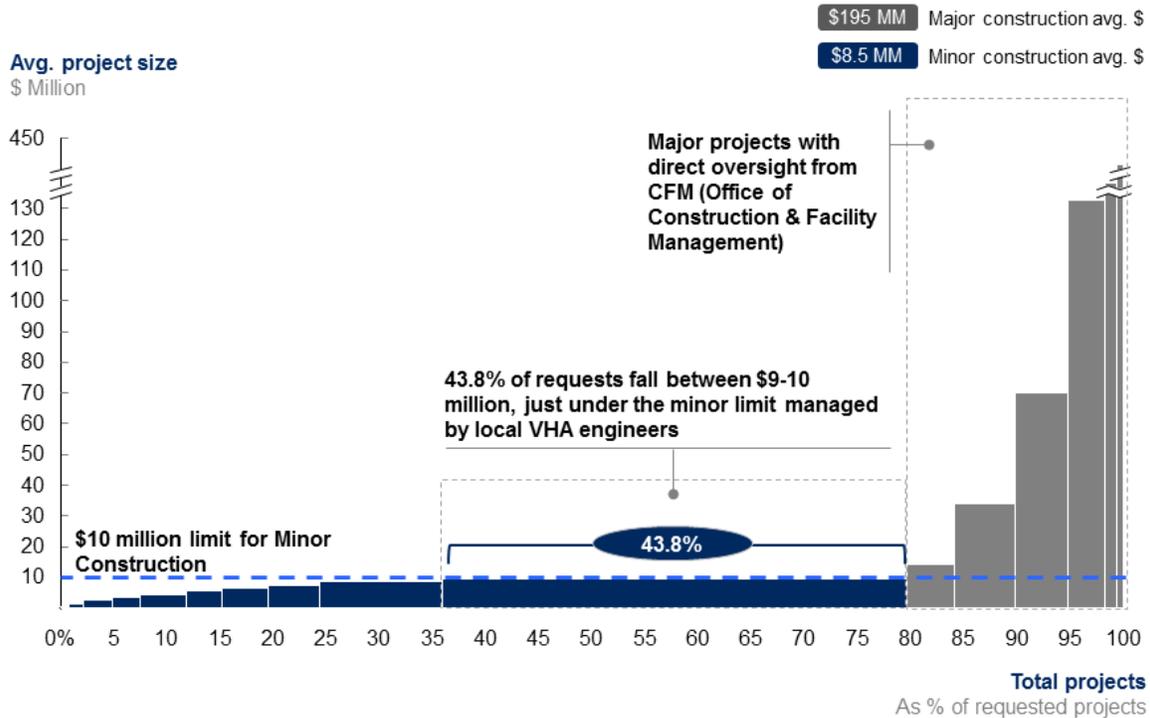
SOURCE: FY14-16 SCIP submissions; interviews

In some cases, projects are reduced in scale to fit under the threshold. Given the low likelihood of approval for projects above the threshold, stations have a strong motivation to ensure their projects fit below threshold. All minor projects are also required to write in a 20 percent potential scale reduction through "deducts," reductions in project scope which can be used to reduce the project cost if bids come in too high. It is also common to phase projects by breaking one larger construction effort into several pieces. In order to discourage phasing, rules require that one project be 95 percent complete before the next can be started, that new construction may not be modified for one year, and that design and construction may not happen in the same year. As a result, two floors of a new building may be added, only for a second, and sometimes third and fourth, separate effort to be launched in order to expand with additional floors. This type of de facto phasing results in duplicate costs (for example, design costs, project management), wasted effort (for example, building a roof to remove it the next year) and inefficient designs (for example, putting mechanical space in the building rather than on the roof).

NRM projects do not experience this same clustering under a threshold (Figure 5-17). This may be in part because NRM projects above $10 million are allowed if they are pure infrastructure projects (for example, a new boiler plant), but also because NRM projects, with the limit on additional square feet, are naturally constrained by project type, rather than by threshold.
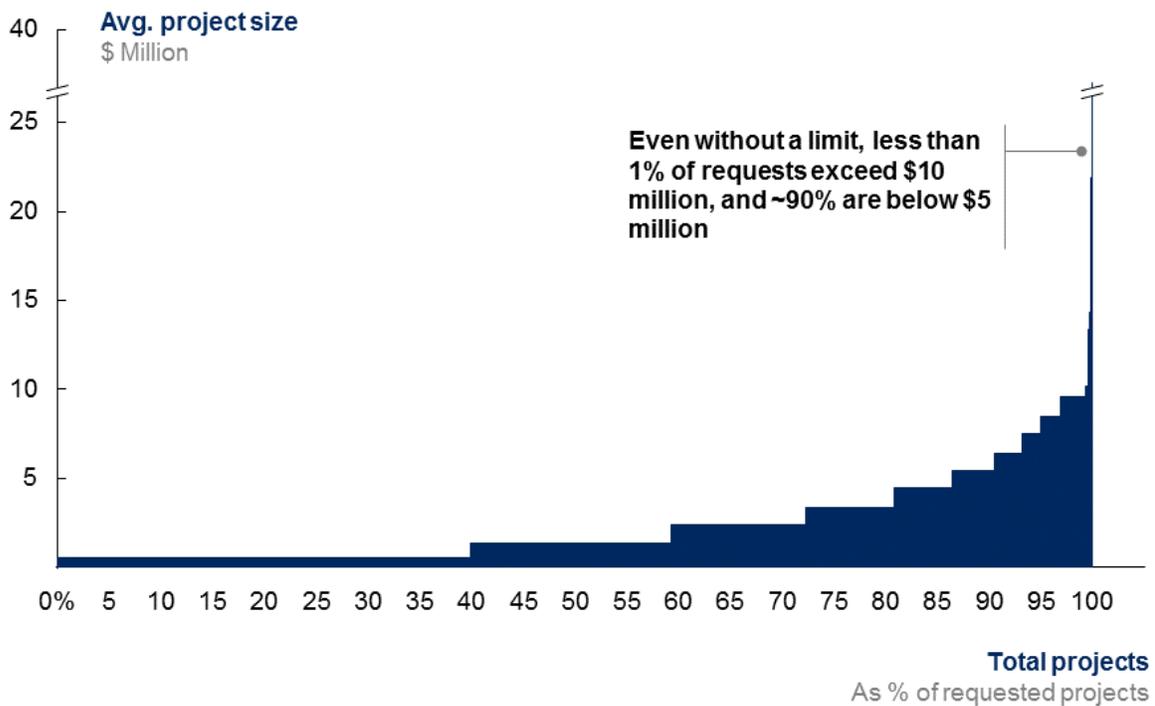
There is, however, some evidence of this same phenomenon, as there is a somewhat larger percentage of projects below $1 million – the level at which NRM requests are tracked through SCIP, but not scored for central approval. These projects make up roughly 40 percent of all NRM requests.

Figure 5-17. Breakdown of NRM Projects Requested by Project Size

SOURCE: FY14-16 SCIP submissions; interviews

Projects can be strategically repackaged through methods other than managing cost. Owing to the highly distributed weighting of scoring criteria, projects benefit significantly from addressing multiple criteria in their business case. Even relatively low scores in multiple categories contribute to advancing the project. As a result, projects are often designed to aggregate several smaller, related projects which address different strategic needs into one larger package with a higher chance of approval (VACO/VISN/VAMC Interviews, 2015). Figure 5-18 highlights the correlation between approval rates and number of criteria addressed in the SCIP business case. In fact, this correlation becomes even stronger when major construction projects are removed from the dataset. Because major construction projects have such a low likelihood of approval in the face of construction backlog, these projects may not be funded despite their ability to address a wide range of criteria.
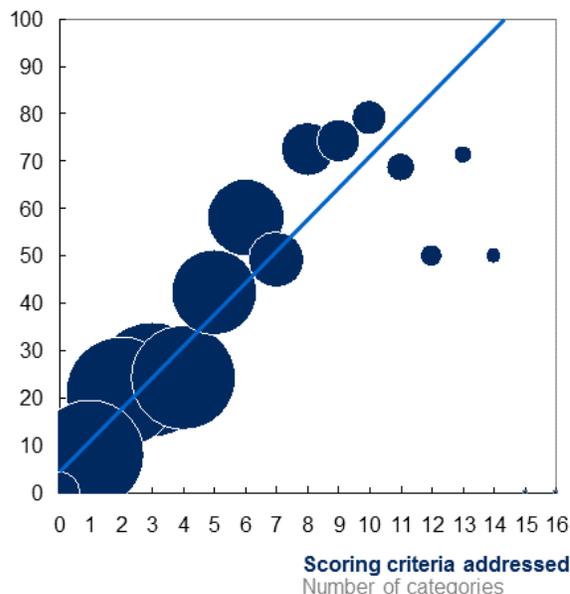
Figure 5-18. Correlation on Gaps Addressed and Likelihood of Funding
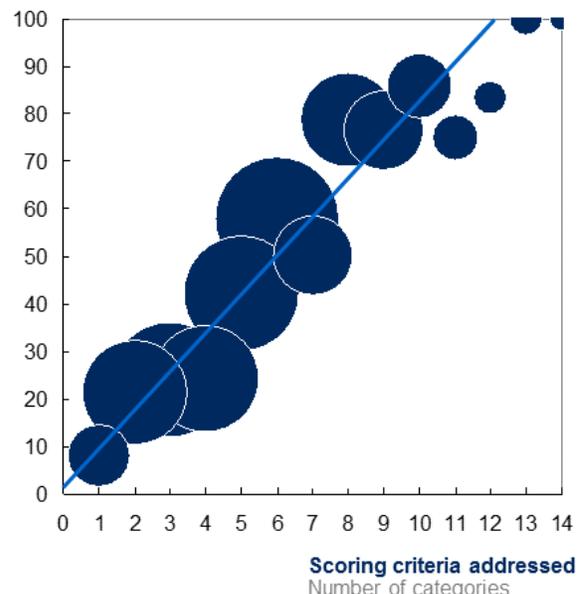
Given that criteria related to cost effectiveness account for less than 10 percent of the total score, projects can benefit when adding additional components to the project, even if they increase the cost of the project. Stations consistently report they have had better success with "hybrid" projects which combine multiple strategic initiatives or proposals into one entity than in having the most targeted projects approved. Charting out SCIP funding rates at different cost levels makes it clear that, up until the major construction threshold, larger projects are actually more likely to receive approval. This scale advantage actually disincentivizes efficient, targeted projects as well as pure infrastructure or preventative maintenance projects. While it is not possible to determine exactly what share of projects suffer for this sort of project packaging, the data indicate it is not uncommon and this conclusion is backed by interviews across VHA.

5.2.2.4 Protracted and Misaligned Planning Calendars Stretch Approval Process Over Multiple Years

Lengthy project approval times currently limit the agility of the system and its response to patient needs. Part of this is driven by delays in the construction and leasing process, but the time from submission to approval typically lasts several years, and for major construction projects may be even longer, during which time, new standards of care or medical technologies could emerge which change project requirements. Limited funding levels force projects into
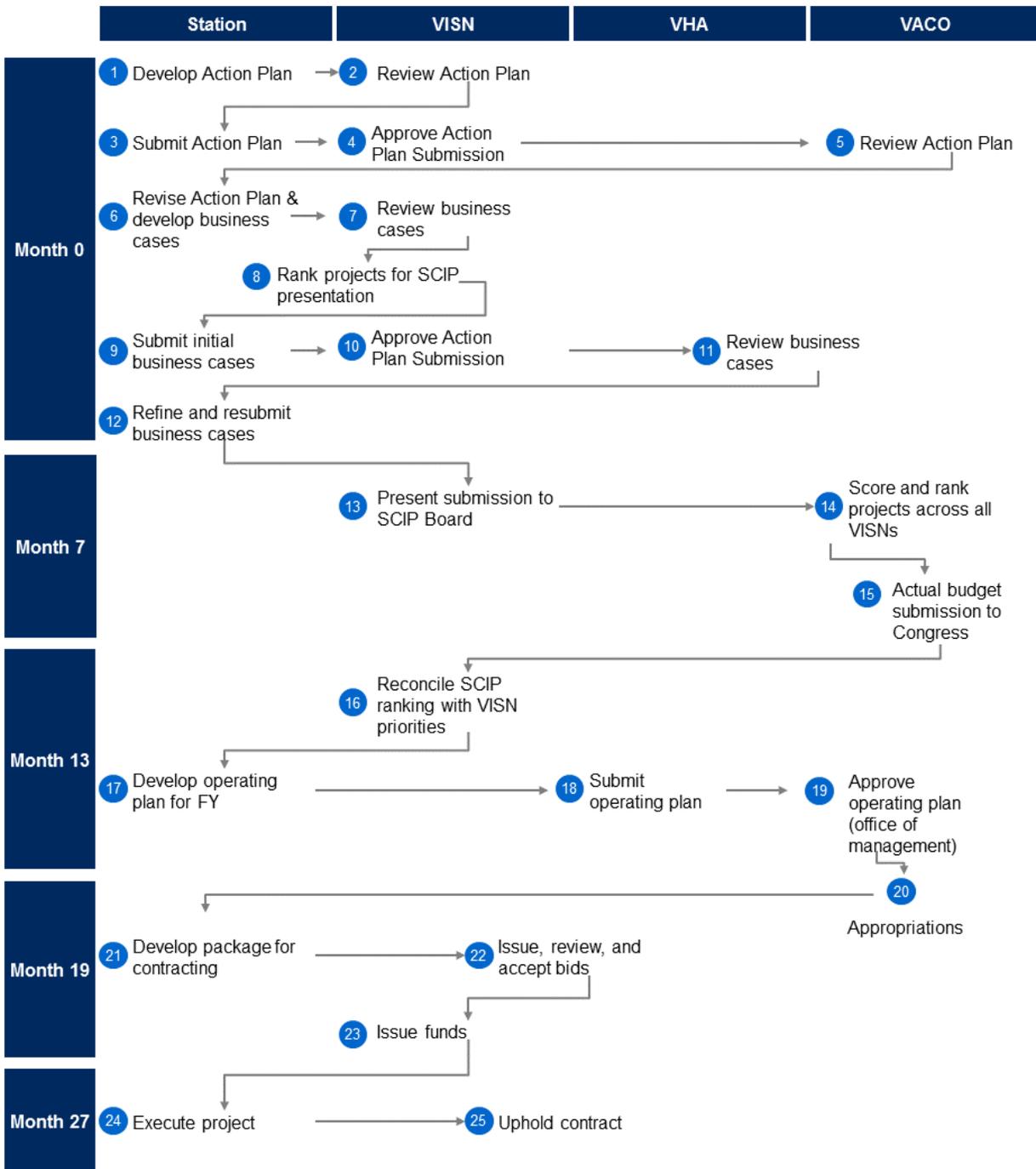
later years, and these delays are compounded by mismatched planning. VA has several different planning cycles, of which SCIP is the most prominent for capital projects, as well as the development of the operating plan. These multiple calendars stretch across various levels, with staggered approval at the facility, VISN, and VACO levels, each step adding time to the process. The result is the delayed response to workload changes addressed early – the system simply cannot flex quickly enough in response to changes. Figure 5-19 details the handoffs involved throughout the process. Beginning with the development of projects for SCIP submission, one project could be handed between different offices within VA or VHA as many as 25times, even without considering general tracking information and submissions developed for different offices. Whenever the project involves establishing a new site of care, the Access Expansion Plan process increases the handoffs and timeline even further.

Figure 5-19. Key Steps and Handoffs for NRM Projects

Key handoffs during lifecycle of NRM projects

Station	VISN	VHA	VACO

Month 0
1. Develop Action Plan → 2. Review Action Plan
3. Submit Action Plan → 4. Approve Action Plan Submission → 5. Review Action Plan
6. Revise Action Plan & develop business cases → 7. Review business cases
8. Rank projects for SCIP presentation
9. Submit initial business cases → 10. Approve Action Plan Submission → 11. Review business cases
12. Refine and resubmit business cases

Month 7
13. Present submission to SCIP Board → 14. Score and rank projects across all VISNs
15. Actual budget submission to Congress

Month 13
16. Reconcile SCIP ranking with VISN priorities
17. Develop operating plan for FY → 18. Submit operating plan → 19. Approve operating plan (office of management)
20. Appropriations

Month 19
21. Develop package for contracting → 22. Issue, review, and accept bids
23. Issue funds

Month 27
24. Execute project → 25. Uphold contract

The lengthiest portion of the SCIP review process occurs when SCIP priorities are combined with other funding needs across the VA system in coordination with the Office of Management and Budget, highlighted in Figure 5-20 and detailed in Figure 5-21. Each specific type of
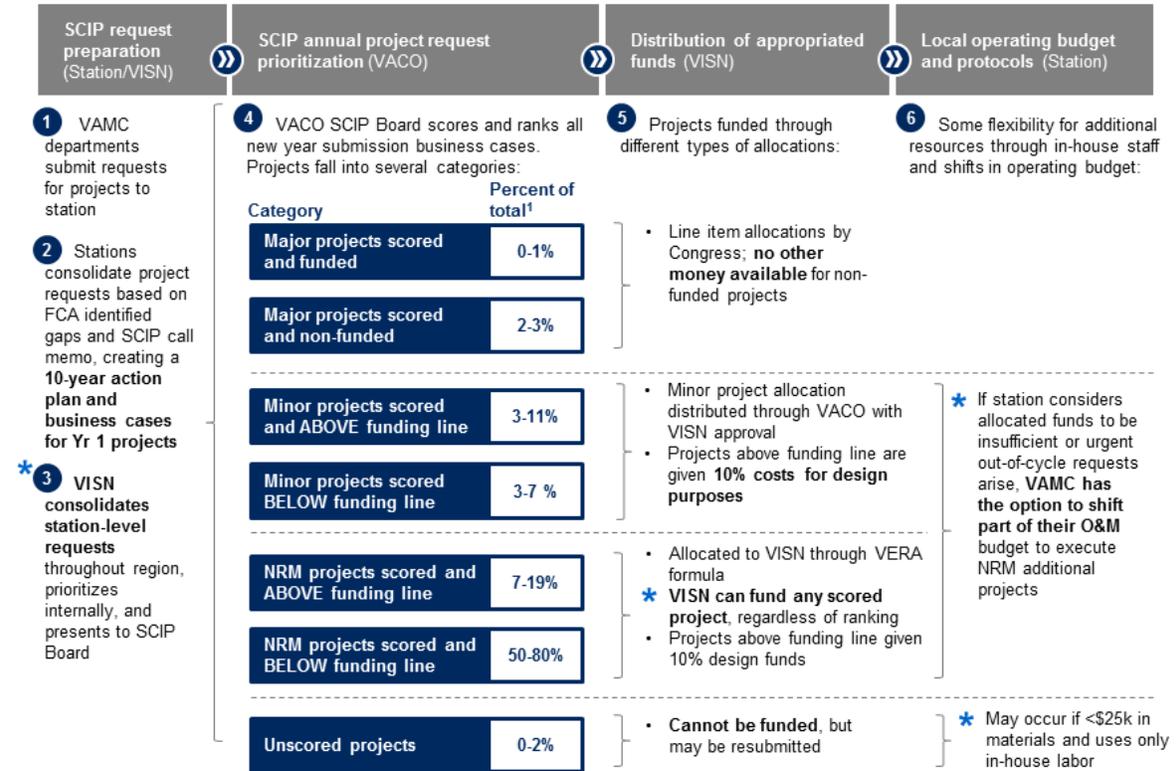
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appropriation comes with specific mandates on how the money can be used and how it will be distributed. Figure 5-21 details the how different capital projects work their way through the funding system.

Figure 5-20. Different Approval and Funding Mechanisms for Projects

Each funding stream carries its own complexity and level of competition for funds. Major projects, even when approved and given design funding, may wait for years before construction funding is issued. Minor project funds are held at VACO, and obligated as station level projects are ready. NRM projects are perhaps the most complex. They fall into two primary categories – (1) projects less than $1 million, which are tracked in SCIP but do not need scoring or approval, and (2) projects above $1 million, which are scored and can receive 10 percent of the total project cost for design purposes through SCIP. In both cases, however, the actual funding for the projects comes not through SCIP, but through VERA allocations for NRM.

The VERA allocation, which can vary significantly from year-to-year, is distributed to the VISN, which develops an operating plan delineating how these funds will be distributed to different stations. Projects above $1 million are expected to have been scored by SCIP before they are included in the operating plan, but do not have to be executed in the order prioritized through SCIP. Each VISN has its own mechanism for determining fund allocation. Some use their own scoring rubric and others allow facility leadership across the network to vote on projects.

Regardless of the mechanism chosen, the number of needed projects consistently outweighs the available funds, leading to competition and negotiations for funds.

VA Best practice case studies – Prioritization of NRM VERA funds

Several VISNs have developed sophisticated methods for evaluating NRM projects for submission to SCIP and funding distribution after scoring. These VISNs offer a best practice starting point for how funds can be effectively distributed at a network level and can provide a template for how to execute against the Section 5 recommendation for fully delegating infrastructure projects to VISN management.

Selected examples:

- **VISN 10** reviews all NRM and minor projects from the VISN well in advance of the SCIP submission, first reviewing for internal validity and consistency and then scoring and ranking against a clearly defined scoring matrix. Particularly with NRM projects, they then look at past years to understand the likely funding cut-off and constrain their SCIP business case submissions to a modest level in relation to the expected cut-off level. These scored and ranked projects are then recommended for funding to the Capital Management Council in the VISN, which includes the VISN Capital Asset Manager, Chief Engineers, and representatives from station senior leadership and select other departments. Only then are projects submitted to SCIP, and after SCIP scoring, the VISN allocates funding according to the approved list from the Council as projects are fully ready for contracting.

- **VISN 6** allocates NRM dollars through a May meeting where station leadership gathers to distribute NRM dollars. Each VAMC Director presents brief slides on their selected projects, and then directors and chief engineers throughout the VISN are each given a vote, and cannot vote for their own projects. Votes are measured against five clearly defined voting criterion, and the results are used to develop the operating plan for the fiscal year.

As an additional layer of complexity, NRM projects also have a narrow window for execution, illustrated in Figure 5-22. Lengthy contracting times and strict parameters for what proportion of funds must be obligated by each quarter can delay or cancel NRM projects altogether. Because of this risk, stations and VISNs are allowed to oversubscribe on projects in their operating plan, so that if one project falls through, another is ready to be executed.

Figure 5-21. Timeline for Projects Funding and Approvals in NRM

## Approvals and funding processes for NRM projects

Overall timeline 2014 2015 — Fiscal Year 16 October 2015 — 2016

- Project request FY16 Jan 2014
- VISN Summit May 2015
- FY16 Operating Plan Jun 2015
- Contracting Packages FY16 Jul 2015
- Design Packages for FY17 execution request Jul 2016

- Regional Project Request Prioritization (2nd Funding round)

- Overall sequence is:
  - January 2014– May 2015: Submission of projects < 200k to complement existing SCIP projects
  - May 2015: Prioritization done at VISN level
  - May – June 2015: Final approval confirmation
  - June – July 2015: Package preparation to send to Contracting Officers (approved & funded projects)

- Initial Contract time (no real project activities can happen before October – fiscal year)

- Award, Design & Package Build for projects in construction FY17

- Missing July 2016 deadline represents project gets delayed to FY 18 construction

Note that PALT[1] is ~180 days (6 months)

1 PALT: Procurement Administrative Lead Time
SOURCE: Multiple VAMC and VISN interviews, 2015

Additionally, NRM funds may be redistributed across the Network or full VHA system later in the year, if it is apparent that some networks will not be able to obligate their allotted dollars in the time allowed. Obligations refer to the contractual commitment to spend funds which happens before the funds are actually expended. Stations then supplement VERA funds through additional money from their operating budget, or through capturing excess dollars after obligation deadlines. This can be seen in the wide variation in how much money different stations obligate each year for NRM projects, detailed in Figure 5-23. In FY14, VISNs spent between $4 and $33 million additional dollars, above VERA, on NRM projects. The consistent supplementing of NRM funds by VISN leadership indicates the depth of the current need over and above existing funding levels.

Figure 5-22. VERA Allocation and NRM Obligations by VISN
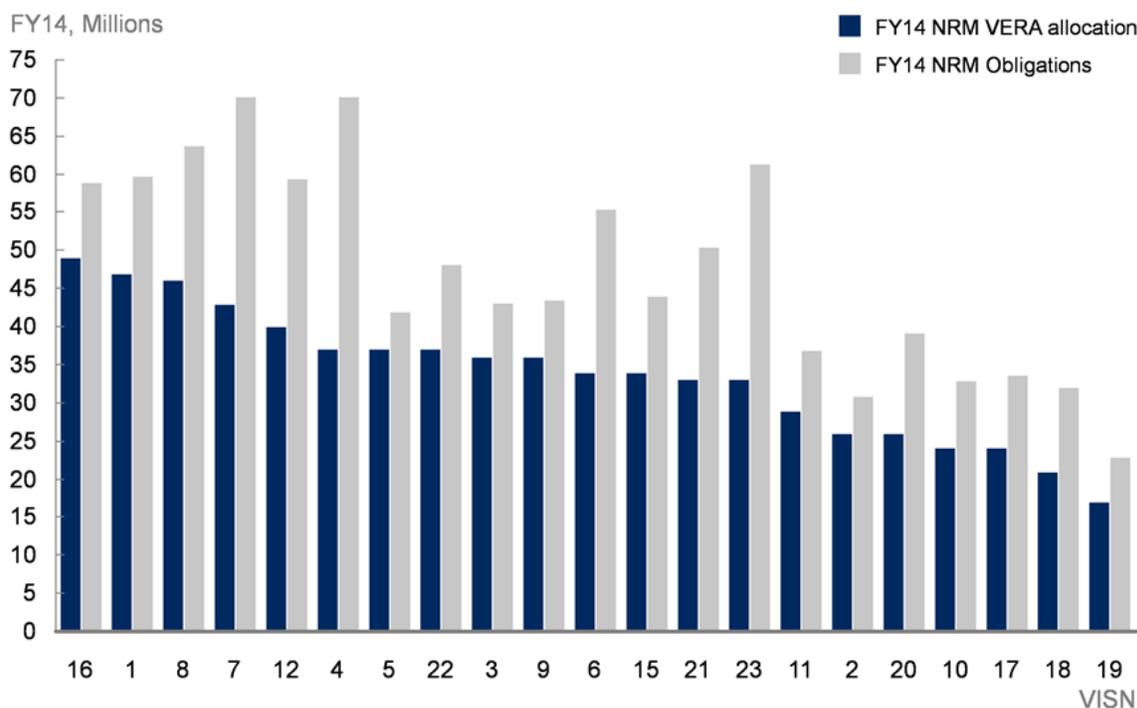
SOURCE: 2014 Veterans Equitable Resource Allocation; Department of Veterans Affairs; FMS Budget obligations FY14

5.2.2.5 Lack of Feedback Mechanisms Results in Uncertainty as to Whether Capital Projects Have Achieved Anticipated Outcomes

The SCIP process itself includes several opportunities for specific feedback on project development, though that is primarily focused on ensuring proposals are complete and compliant, rather than engaging with the merits of the proposal or the outcomes that are ultimately achieved. When it comes to reviewing how project execution has achieved the objectives of the approved proposal, however, no formal feedback mechanism exists, and informal mechanisms are rare. Projects are approved and prioritized on the basis of their ability to close identified gaps, but if projects fall to close these gaps, that failure is not identified or addressed.

Figure 5-23 provides an overview of the key gaps between current VHA processes and best practices across the discussed spectrum, but the largest gap comes with the lack of feedback mechanism. Without accountability for project design, delivery, and operations against stated objectives, it is not possible to understand in real time the effectiveness of the planning and prioritization of projects, whether done at the local or national level. Until addressed, this gap could hinder the effectiveness of any other policy or procedural changes in the capital planning process (SCIP Directive, 2014; VACO/VISN/VAMC Interviews, 2015).

Figure 5-23. Best Practices in Capital Planning Design
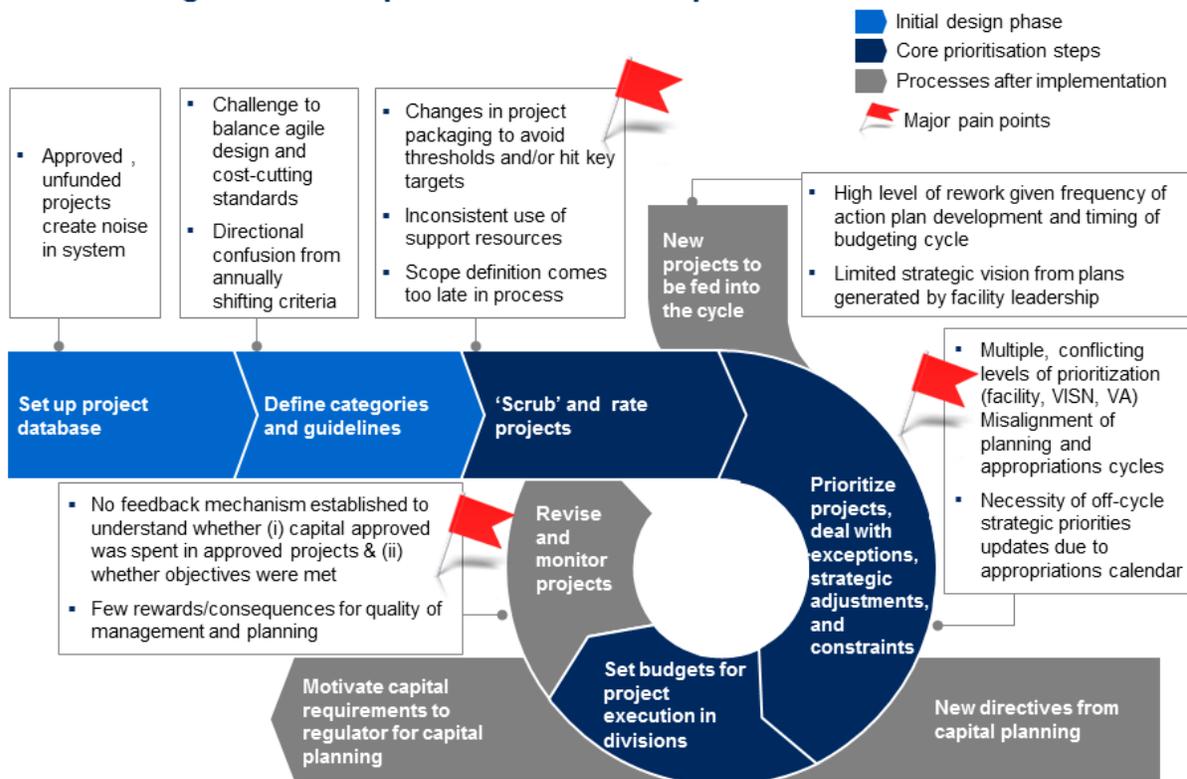
5.2.3 People

5.2.3.1 Staff Tasked With Capital Planning Are not Fully Equipped for the Task

Chief engineers and other facilities staff have the needed qualifications for the critical elements of the construction and facility management efforts; however, they may not be the best positioned to challenge the objectives of the project or the effectiveness of alternative, non-capital solutions. Despite stated VA objectives of developing cost-effective, pragmatic capital projects which consider creative methods of cost savings,[33] the responsibility for developing these projects and preparing the business cases for the SCIP process often falls on those who are not well positioned to evaluate strategic and non-capital solutions against typical capital approaches. Stations delegate this task as they choose, with some variety across the system, but most commonly this work is primarily the purview of the Chief Engineer. With an engineering and facilities background, it is natural for these staff to turn to capital solutions as the first recourse to address needs. Chief Engineers have the overall technical profile needed to speak to the practical needs of project development and how proposals would best fit in with

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[33] As detailed in SCIP call memos and through the HCPM process.

the existing structure, but may not have the training to analyze the return on the investment and the potential alternatives including non-capital solutions. Moreover, besides being outside their natural area of expertise, the addition of this responsibility on top of the numerous other tasks delegated to the chief engineer can pull focus from other important project-based and recurring maintenance responsibilities.

Perhaps reflective of this disconnect, the "capabilities" outcomes on the Organizational Health Index (OHI, discussed further in Appendix B) is the one outcome where VHA facilities staff scored significantly below both VHA as a whole (33 percent lower) and their counterparts in CFM (31 percent lower). This outcome addressed the practices of talent acquisition and development as well as process based capabilities (VHA OHI, 2015).

VA has developed a series of tools to assist in the development of these business cases, including cost estimating guides (CFM), cost effective analysis templates (OAEM), prototype designs (CFM), Space Equipment Planning System (CFM/Department of Defense) and a space calculator (OCAMES/OAEM).[34] These tools, however, would be more effectively utilized with the input of budget analysts, from the facility level through to the VACO review conducted by the SCIP Panel, including staff support from OAEM and OCAMES and input from subject matter expert committees pulled from across VA. Facility planners can also serve a vital role in the development of business cases, but the facility planner position is inconsistently staffed across VHA. At some of the selected site visit locations, the facility planner tasks were an additional responsibility for someone dedicated to another role, another location staffed a small department for this function. Confusion over how and with whom to best fill this responsibility reduces the potential of the business cases to be a truly robust consideration of all options, both capital and non-capital.

5.2.4   Systems

5.2.4.1   Tools for Developing SCIP Business Cases Rely on User Creativity and Capabilities to Consider Creative Alternatives to Capital Solutions

The tools themselves also limit full consideration of creative, cost-effective alternatives. The Cost Effective Analysis template (CEA), a required component of the business case, evaluates new construction, leasing, contracting out, and collaboration for expanded clinical space. Interviews, however, demonstrate that this tool rarely, if ever, genuinely shifts the station's preferred alternative. Some of this can be attributed to user bias – most values and assumption are user inputs at the station level, allowing for a fair level of variation in the specific terms of the analysis. For example, the cost per gross square foot and land acquisition costs included in the analysis are both user generated inputs which are only reviewed at a high level by central office staff.

Another limit to the tool is that the alternatives considered and the funding structures behind those alternatives. For example, the cost of VA purchased care is based on operating budget assumptions which do not consider the capital investment behind patient care, which removes

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[34] Tools housed on VA intranet, including the Technical Information Library housed on CFM's website.

a significant cost component from the in-house cost estimates (GAO, 2011; discussed further in Assessment B). For a station, the calculation involves losing workload reimbursement for a patient in their system and expending the cost of that care elsewhere.

5.2.4.2   Current Resources Are Inadequate to Provide Robust, Merit-Based Analysis of Business Cases

While facilities are encouraged to consider non-capital alternatives, first through HCPM and then through recommendations on the call memo and the CEA, if a station is not equipped or inclined to fully evaluate those alternate mechanisms, the review is unlikely to enhance their assessment by more than a rough compliance check against the tool and VA standards. While the act of completing the CEA is undeniably beneficial in clearly defining the scope of a project and a rough look at the possibilities, a more robust analysis is called for in order to be truly strategic with capital decisions.

Perhaps more significantly is the shortage of manpower assigned to address the volume of projects. There are nearly 1500 business cases that were submitted for FY16 and only 4-5 full-time people (both staff and contractors) assigned to review the cases in less than one month. In addition while there are subject matter experts who are drawn into the process, they are responsible for a full review of an individual project, focusing only on key themes. The SCIP board, made up of leaders from across VA, meets for 1-2 weeks to review and prioritize the full set of projects (VACO Interviews, 2015). This creates substantive review challenges for the staff tasked with reviewing SCIP requests and has led to a perception in the field that the centralized review process offers little value. While the review process developed by OAEM does involve several checks and a range of experts to consider the cases, limited resources still lead to an abbreviated review process.

5.2.4.3   The Decision to Lease Versus buy a Facility Does not Take Into Account the Full Range of Implications and Costs

There are also limitations to VA's current approach to deciding between leasing or owning a facility when new space is required. There are three default settings that apply to different types of facilities:

- **The default for on-site space expansion is owned construction.** Expansions to space on site, once proposed as construction projects, are not compared to off-site leased facilities, or to alternate on-site options such as partnerships with private sector developers that could build and operate space on-site in return for a lease payment.

- **The default for off-site clinical or administrative space is leasing.** Smaller, off-site facilities are almost always leased, with little consideration of purchasing or building new properties to own. This applies both to small clinics as well as larger, build-to-suit clinics (major leases).

- **The default for large new hospitals is owned construction.** All new major hospitals are constructed for ownership by VA.

While, technically, both leasing and owning options are included in the CEA, which provides stations with a tool for careful cost estimation, no surveyed station reported changing a capital decision (for example, lease, build, renovate) based on the results of this tool. In lease versus buy decisions, facilities have a built-in incentive to pursue capital projects, which are funded upfront through centrally provided funds, as compared to leases which are funded annually though station operating budgets. This process is slightly different for capital leases, for which all funds for a lease must be obligated at the outset and where total rental payments amount to greater than 90 percent of the value of a new property, amongst other criteria. While this approach may make sense from an accounting perspective, in terms of recognizing what should be considered capital cost, it also diminishes the advantage leasing has in allowing projects to be enacted without bearing the capital burden up front. VA does not typically enter into capital leases, as discussed in Section 8.2.2.

Best practice tools for evaluating a lease versus buy decision include a tool for comparing these two strategic options, as well as other options, such as sell and leaseback and subletting excess owned space. Additionally, the tool should include sensitivity analysis for real estate growth rates and discount rates. VA's Real Property Services (RPS), located in CFM, developed the lease scoring template for major leases to facilitate decision making among different offerors for a specific leased project. However, this scoring template does not reflect key elements of this strategic evaluation. Instead, it primarily provides an internal check on lease rates and support compliance verification. Given this focus and the design of the tool, it does not fill the need for an analytically based strategic decision-making tool.

The template inputs include building specific metrics, such as building use, size, stories, location, duration of the lease, and lease acquisition method, and costs, such as annual rents, recurring costs, and site acquisition cost (if any). Using this input data, the NPV of the total rental cost is calculated for all the offers and compared with the fair market value (FMV) of the building, based on construction costs. This comparison allows RPS to compare NPVs across offers and verify that the proposed lease meets the standards for an operating lease, as set forth by OMB and GSA (OMB, Circular No. A-94; GSA Leasing Desk Guide, Appendix F). However, the leasing template does not compare the strategic option between leasing and VA constructing the building. The tool is also limited since it calculates FMV using RSMeans average construction costs, which are significantly lower than VA's average construction cost, and does not assign any resale value to the property.

Most importantly, this approach often does not take into account a net present value calculation of the total cost of ownership, including factors such as the potential positive disposal value of an owned asset, challenges to disposing of assets in the current climate, the costs and benefits of lessor-provided facility management, and the likelihood that VHA will renew the lease, which would increase the ratio of total rent payments to total facility value. While it does make sense to treat leasing as the default option for smaller facilities, VHA would benefit from a more detailed examination of the lease versus buy decision for larger facilities, using a complete total cost of ownership approach.

5.3 Recommendations for Consideration

VHA capital planning efforts are currently shaped to respond to the gap between the size of the capital need and the significantly lower level of anticipated funding. Making only incremental improvements to the project development and prioritization model will be insufficient to address the overall gap and its implications for the planning process. Sections 3 and 4 discuss the full range of capital efficiency improvements and potential strategic changes for further discussion. The following recommendations are concentrated on improvements which can be delivered within the current approach to delivering health care to Veterans.

5.3.1 Reassess Project Thresholds and Authority Levels

5.3.1.1 Separate Pure Infrastructure Projects From the SCIP Scoring Process and Delegate Control Over Funding Decisions Fully to the VISNs

Currently, the definition of NRM projects includes any project which does not increase the square footage of the facility by more than 1,000 square feet. As a result, a project to update the elevators at a VAMC is considered with the same scoring mechanisms as a project to update an imaging suite or expand a waiting area, and both are funded out of the same category of money. These projects should not be evaluated against the same criteria, as they are fundamentally different in nature. Pure infrastructure process, currently categories as Non-Recurring Maintenance Infrastructure Improvement projects (NRM-II) are essential to ensuring the safety and usability of facilities over time. NRM Sustainment (NRM-Sus) and Green Management (NRM-GM) projects are focused on increasing the capability or capacity of a facility. Both are essential, but attempting to compare the two under the same system leads to an inconsistent application of scoring criteria and potentially incoherent project development.

This recommendation would refine how projects are categorized so that they can be reviewed and scored under different systems, tailored to that specific project type. Under the current model, VISNs control funding for all NRM projects, but are subject to SCIP scoring, and therefore longer approval timelines, for all projects over $1 million. This proposal would reduce the overall VERA NRM allocation to a level which reflects only investments in infrastructure projects. This funding level should be carefully set, and consider the age of facilities and major systems, using a usable lifecycle approach to developing NRM budgets.

5.3.1.2 Recategorize NRM-Sus and NRM-GM Projects Over $1 Million as Minor Projects

Following on the last recommendation, the NRM projects which are not geared towards infrastructure improvements, namely NRM-Sus and NRM-GM projects over $1 million, should be shifted into the same review and funding process as currently exists for minor projects. These projects address the same strategic objectives as minor construction projects, with the only substantive difference being the overall change in square footage.

Combining NRM-Sus and NRM-GM and minor construction projects would remove the distinction of whether additional square footage is being added and class all capability and

capacity projects together and evaluate them under the same strategic criteria. Additionally, the two-year money model of minor projects would be extended to include everything in this category, rather than the NRM one-year money approach. Projects would still be executed by station-level engineering staff, but money would flow from VACO rather than through VISNs. This removes some of the challenges of one year money, described in Section 7.2.1.2, and tightens the link between project scoring and funding.

Small rehab projects, including those previously described as NRM-Sus, which fall under $1 million could be completed out of station level ops budgets at the discretion of station leadership. Projects would still be reported through SCIP for tracking purposes, but funds could be obligated and projects initiated on timelines set up at the facility, independent of any national review or approval.

5.3.1.3 Remove Hard Line Threshold Distinction Between Major and Minor Projects

In addition to modifying the classifications of NRM projects, described above, VA should reassess the threshold between minor and major projects. As described in Section 5.2.2.3, these project thresholds significantly impact the development of proposals, the likelihood of approval, and the on-time and on-budget percentage of projects. Given the scale of these ramifications, it is vital to set these thresholds thoughtfully, or to retool the implications of these thresholds so that they do not exert the same level of force throughout the process.

VA is currently reviewing proposals to increase the minor project threshold from $10 million to $25 million. While this may remove some of the constraints in project development, it does not sufficiently address the implications of having such clear thresholds on project design, and VA would likely see the same sort of project clustering under the $10 million threshold to develop under the $25 million threshold in the near future. Instead, thresholds should shift to consider different factors relating to scale and complexity of projects. At minimum, this would involve pegging thresholds to the location factors provided in the CFM cost estimating guides and price changes due to inflation or deflation. More sophisticated analysis would consider the complexity of a project. For example, a $20 million parking garage is a much more straightforward project to design and execute than an $8 million inpatient space conversion or operating room suite. Given this, closer scrutiny should be given to projects given their complexity, rather than emphasizing solely dollar amounts.

By removing the hard line distinction, projects could be optimized to address the identified need rather than to meet a cost threshold. The SCIP process could serve as the mechanism for vetting whether borderline projects should fall into the major or minor category. Accomplishing this would require devoting more manpower to the SCIP review process than is currently available, but that investment in manpower could be returned in improved project efficiency.

5.3.1.4 Assign Project Ownership Based on Capacity and Capability Rather Than Funding Thresholds

The current hard line distinction in funding levels is paralleled by a hard line distinction in managing project execution. This model places a disproportionate emphasize on dollar amounts as a measure of difficulty. While scale is certainly a relevant factor, and large ticket

items should fall to an organization dedicated to construction, the delineation of that line is not as straightforward as current controls imply.

Instead, there should be level of projects where a review process is used to determine whether project ownership should rest with local engineering staff, CFM staff, or under a hybrid model where CFM provides a high level of technical assistance and local staff manage the day to day. This review process could directly parallel the considerations described in funding categorization above or could come as part of a supplementary review which considers the capacity of station level engineering staff to executive projects given their current project pipeline.

5.3.2 Refine SCIP Prioritization With Clear Focus on Cost Effectiveness and Strategic Goals

In order to maximize the strategic impact of SCIP, the criteria at the root of the scoring mechanism should be clear and straightforward. The current reliance on nearly two-dozen subcriteria lowers the impact of highly strategic criteria and creates a system which is perceived as a black box by the field. Additionally, projects should advance based on their ability to help achieve system-wide goals in a cost-effective manner, without reference to scale of the project or ability to address a multitude of criteria. Scenario-based optimization has proven an effective way for large systems to evaluate capital projects. This approach assesses projects by (1) link to strategic goals (focused set of clear targets), (2) likelihood of achieving objective, and (3) cost-effectiveness.

By using a scenario approach to evaluate projects, proposals which score high in 1-2 categories could more accurately be evaluated for their progress against targets. Under the current model, given two projects, (a) a project to replace steam radiators with a FCA score of "F", and (b) a small renovation project which addresses several minor condition items, energy upgrades, and workload increases, project (b) would likely score better under the current model given its ability to address multiple criteria, even though project (a) may be far more urgent and affect a much broader range of Veteran care. A scenario model would allow each project is evaluated with consideration for the overall goal it is advancing rather than a scatter-shot criteria approach and would more effectively acknowledge the criticality of major infrastructure items. Additionally, under a scenario approach, cost-effectiveness is measured by determining which combination of projects most effectively advances the system-wide strategic goals for the same cost.

Whether as part of this change or as an interim step, local priorities should be reflected in the SCIP scoring mechanisms, as well as the integration between the proposal and any existing Integrated Plans (applied as they are rolled out through the system).

5.3.2.1 In the Short Term, Rationalize and Prioritize Capital Requirements at a Sustainable Funding Level and Focus on the Most Critical Items That Contribute to Veteran Care

Before considering more fundamental strategic changes, there are adjustments which can be made to help reconcile the disconnect between current funding levels and identified gaps. Given the funding gap, current targets can only be described as aggressive stretch goals. When developing the focused set of targets described above, VA leadership should be sure to set realistic targets and encourage facilities to develop correspondingly realistic project packages. For example, the current expectation is that all $15.9 billion of FCA gaps will be closed within a 10-year window. At current funding levels, doing so would take every available dollar of major, minor, NRM, and recurring maintenance funding, and do so without any attention to other vital gaps such as access, space, and function. If budgets only allow for these extreme cases to be addressed, then that should be determined and acknowledged upfront.

VA can address this by incorporating an FCA score for the condition of overall facilities, both at a building and campus level, in order to reprioritize and streamline condition assessments to highlight areas of greatest need. Introducing an average facility grade for consideration would make it easier to identify facilities which, on average, are scoring below a B and focus on bringing those averages to a sustainable level. This score, combined with a careful comparison to the replacement costs of the facility, would allow VA to identify structures which are no longer of sufficient condition to justify further capital investments. System critical and failing items in all other facilities should receive first priority.

It is important to point out that any non-critical deficiency, ignored long enough, will become critical. This recommendation should not be treated as a way to simply eliminate all future repairs in certain categories. Instead, focusing on currently-failing items or high-risk building systems (such as fire protection, chillers, and generators) helps to clearly prioritize these projects. Under the current system, non-critical FCA repairs would boost the score of another project directed towards closing a space gap. By eliminating the strategic benefit of non-critical FCA projects, the condition gap would be clearly focused on the highest priority areas, at a level more in keeping with anticipated funding levels.

5.3.2.2 Regularly Assess all Facilities to Determine Their Usable Remaining Lifespan

With the rollout of the Integrated Planning efforts coordinated by CFM, every station should have the opportunity, in partnership with their VISN, to develop a long-range master plan on a five-year rolling basis. This analysis should consistently consider the likelihood that any given facility would need to be replaced in a 10-year window, based on established metrics, such as: (a) ratio of correction cost to replacement cost, (b) percentage of anticipated growth, and (c) adaptability of current floor plans and building envelope. These measures should then be incorporated into all future assessments of major project need on a competitive national basis through the SCIP process. Significant investments in aging or underutilized infrastructure should be limited, and facilities should develop projects with a view towards whether they would be eligible for consideration for a replacement project within a 10-, 20-, or 30-year time horizon.

This goes a step further than the current FCA evaluations, and instead looks a full business case review of VAMCs and clinics on a regular cycle, ideally synched with Integrated Planning.

5.3.2.3 Develop a Feedback Mechanism to Hold Project Leadership Accountable for Effectiveness in Meeting Stated Goals

In order to ensure projects are accomplishing the strategic goals set forward by VA, projects need to be evaluated for their ability to meet targets. VA does not currently have a mechanism to look back and evaluate whether a project successfully delivered its stated objectives. Without this, it is possible for those developing a project to claim achievements, and the corresponding higher score, without delivering. Project outcomes could be linked to additional flexibility or funding in future cycles, thereby increasing incentives for business accuracy. The lengthy lifecycles of project execution make it challenging to use ultimate project outcomes to evaluate staff. In order to facilitate evaluations of personnel, interim milestones can provide a measure of accountability. For example, these measures could include alignment between business case cost estimates or project deliverables and final contract. In keeping with the recommendations on performance management in Assessment L (Leadership), evaluations should be focused on outcomes.

5.3.2.4 For all Projects Addressing Access or Workload Gaps, Conduct Robust Review of the Cost Effectiveness of Different Models of Care

Ensuring the best value and quality for the money spent requires a more demanding cost and alternatives analysis than is currently conducted for capital construction efforts. While existing planning and cost estimating tools have begun moving in this direction, significant enhancement is needed to both tools and process in this area. In order to ensure adequate time and resources are invested in this analysis, this intensified analysis only need apply to potential expansion projects.

First, current tools need to diversify the set of alternatives that facilities are asked to consider when developing a proposal. Investigation of such options as Veterans Choice, extended operating hours, and collocation with affiliates and other community clinics should be standard. In order to facilitate this analysis, users will likely require more directive tools with less user-generated inputs than the current CEA excel template and mechanisms to differentiate by clinical type. Not all of these tools need to be complex financial models. Most stations currently operate with a default choice from the alternatives, at times based in regulation (for example, Freeze the Footprint, limited approval of major construction projects), but also based on with what models leadership is most familiar and comfortable. Internal benchmarks across the country can be leveraged to understand the costs of possible gap closures. Additionally, a simple checklist which ran through the alternatives, most relevant situations, and potential considerations, would provide an important layer of genuine consideration of alternatives before staff focus on the mathematical exercise of putting assumptions into an excel template.

Second, new processes should involve facility leadership and fiscal staff in project development from the earliest stages. To increase accountability and ensure facility leadership has acknowledged the alternatives, a checklist similar to the one above could be signed off on by

facility staff, indicating they have reviewed cost-effective alternatives. This step, particularly if tied to real performance management, would raise the bar on the scrutiny given to capital investments. Developing the economics of the business case and alternatives investigation should not be exclusively the responsibility of the engineering department, but should be proactively supported by a budget analyst, located at either the station or VISN, who can work to provide a comprehensive look at alternatives.

5.3.3 Review and Streamline the Planning Processes and Calendars to Minimize Response Time to Identified Veteran Needs

Myriad planning cycles and approval levels extend the length of time it takes to have a project approved. Stations currently submit non-emergency SCIP requests up to two fiscal years in advance. Combined with contracting and construction timelines, this means the earliest any identified need can be met is 3-4 years, and many take longer to address. Approval times should be reviewed for any and all opportunities to condense approval cycles and eliminate duplicate work.

5.3.4 Execute all Non-Capital Levers Before Proceeding With a Minor or Major Project

Nearly one-third of the $51 billion VHA capital need is driven by space gaps. In some cases, these gaps may be closed without the construction of additional square footage. First and foremost, the clinical and scheduling efficiency recommendations offered by Assessments E and F would reduce the space required for both inpatient and outpatient care, as discussed in Section 4.2.1, could have implications for existing and projected space gaps. While these operational improvements may have varied impact on the space gap, it is important to review potential gains as a first order measure. The cost and time commitment in capital projects is such that it should be the last lever pulled to close a space gap, not the first. Space-related capital projects should not be approved for stations which have not implemented these other efficiency measures.

5.3.5 Increase Best-Practice Sharing Between Stations and VISNs

Across VHA, stations and VISNs have implemented different approaches to strategic master planning, business case development, and project selection/prioritization. Many have independently developed detailed tools to improve their processes, such as detailed guides for including users in project design and development, Veteran advisory boards, project scoring matrices, and comprehensive master planning efforts. These are laudable and proactive efforts which should be encouraged. At the same time, other stations and VISNs can learn from and adopt these approaches. By creating interest groups for engineering leadership, promoting and communicating the excellent work done at high-performing stations, and creating forums for leadership to discuss shared challenges and solutions, the entire system could benefit from existing pockets of excellence.

The views, opinions, and/or findings contained in this report are those of the assessment team and should not be construed as an official government position, policy, or decision.

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6 Design and Construction Assessment: Major Projects

6.1 Preface

VHA, with support from the VA Office of Construction and Facilities Management (CFM), undertakes numerous capital projects to increase and maintain its asset base of owned facilities to meet Veteran needs. Section 201 of the Choice Act calls for assessment of the capital management programs specifically relating to the design and construction management processes. This assessment is structured to address the following four aspects of the design and construction program:

- **Outcomes:** How do VHA hospital construction costs compare to the private sector? How does VHA perform in project delivery outcomes including cost, schedule, and quality across all of its construction programs? To what extent do construction projects and processes affect facility utilization or Veterans' health access?

- **Process:** What processes do VHA and CFM have in place for construction programs? What pain points exist across these processes? Do construction processes address the identified current and future needs in a timely fashion? Can VHA improve the processes or other aspects of construction to improve quality?

- **People:** How do VHA and CFM structure and staff their project delivery teams to deliver projects effectively? How does culture impact project delivery?

- **Systems:** What systems are employed in the delivery of the projects? Do they drive efficiency and enable best practice performance for project delivery?

6.1.1 Overview of the VA Construction Program

6.1.1.1 Construction and Renovation of VHA Facilities Is Executed Through Three Main Programs, Each Defined by Amount and Type of Construction

The major construction program represents approximately half of VHA's 2016 capital program and is managed centrally by CFM. The other half of the capital program is managed locally via VISN and VAMCs (OAEM, 2015; 2016 VA Budget, 2014).[35]

- **Major construction program (9 projects, 51 percent of total[36])**: Projects that address construction, alteration, extension, or improvement of any facility, campus or integral service, including parking construction and site acquisitions above $10 million. The program primarily includes two informally defined types of projects, both of which are managed by CFM and are line item appropriated by Congress:

  - o **Mega projects** (approximately >$500 million, although not formally defined): Typically the largest construction project in each of the three CFM regions, mega

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[35] 2016 VA Budget Request; NRM and Minor projects include oversubscription, i.e. projects approved but below the threshold of current funding limit; % total is of total budget request for VHA only (not VA).

[36] Total by amount requested in the 2016 VHA capital program of NRM, Minor, and Major construction.

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projects are given additional on-site support. These are normally replacement medical facilities like Aurora, New Orleans, and Las Vegas or new medical facilities construction, both with greater complexity than an average project.

- o **Major projects** ($10 million-500 million, although not formally defined): These projects are normally expansions or major area renovations to existing medical centers, structural reinforcing (for example, seismic projects), or supporting structures (for example, parking garages).

- **Minor construction program (174 projects[37], 13 percent of total)**: Projects that address construction, alteration, extension, or improvement of any facility, including parking structures, site acquisition, and demolition by replacement, with costs equal to or less than $10 million, managed by local VHA engineering staff.

- **Non-recurring maintenance (NRM) program (866 projects, 36 percent of total):** Projects that renovate existing facilities and associated infrastructure with expansion of space not to exceed 1000 square feet. The program primarily includes three types of projects: Infrastructure Improvement, Sustainment, and Green Management, all managed by local VHA engineering staff:

  - o **NRM sustainment ($25,000 to $10 million):** Projects focused on renovation and modernization of existing facilities and infrastructure (for example, lab renovation). Projects in this category are often driven by national-level mandates instead of station needs (for example, upgrades for the water systems due to legionella).

  - o **NRM infrastructure (Greater than $25,000):** Projects focused on replacing, upgrading or expanding infrastructure systems or focused on facility condition assessment (FCA) deficiency backlog (for example. HVAC replacement).

  - o **NRM green management:** Projects include environmental, energy, green building, and fleet management-related activities in support of reducing energy (for example, upgrade to LED lighting).

  - o **Clinical-specific initiatives (up to $5 million):** The CSI program is funded out of the NRM budget for up to 10 percent of the budget. The program focuses on high-profile projects that are difficult to plan but require additional space to support care for the Veteran. These projects increase space by more than 1000 square feet. Current approved CSI categories include: polytrauma, mental health, high-tech and high cost medical equipment installations, women's health, site prep for donated space, and others. It should be noted that CSI projects do not go through the SCIP process.
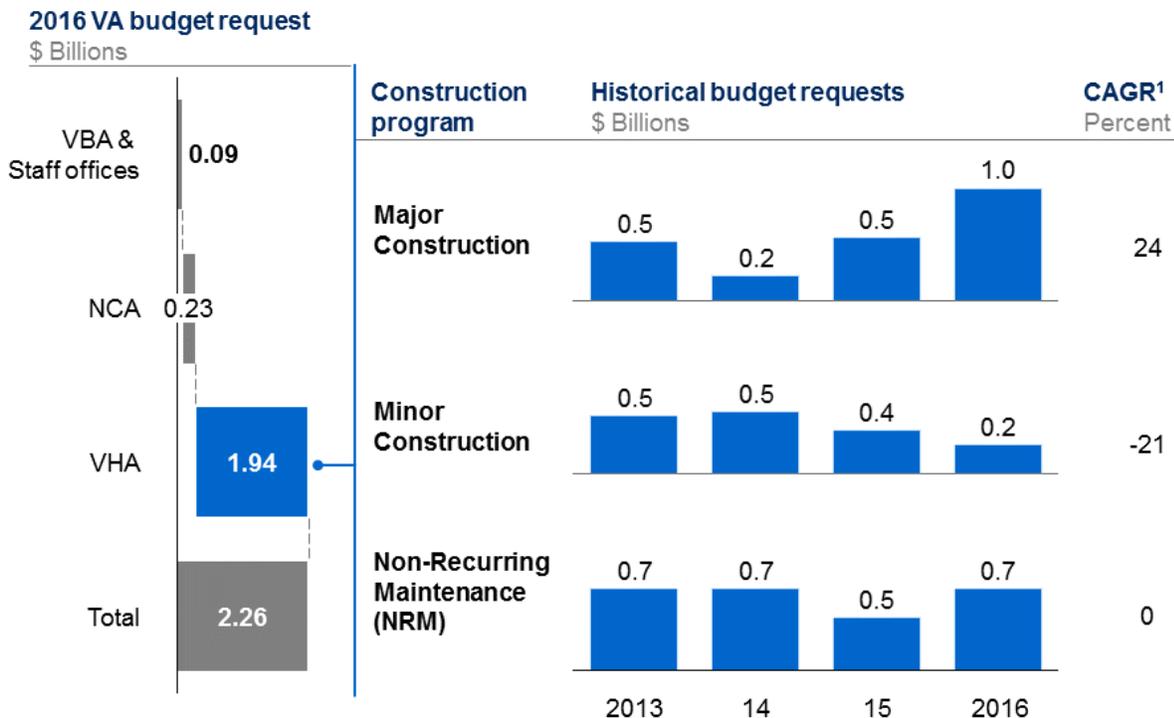
Figure 6-1 shows the variation in budget requests across the construction programs over the past four years. NRM and minor project funds often fluctuate due to special funding initiatives such as the American Recovery and Reinvestment Act of 2009 or the Veterans Access, Choice, and Accountability Act of 2014. For example, the Veterans Choice Act is funding $0.5 billion in minor projects and $1.5 billion in NRM projects over the next few years.

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[37] Per 2015 budget; 2016 plan still in progress.

Figure 6-1. Breakdown of VA Capital Program

Budget requests for construction programs

6.1.1.2 **Responsibility for the Planning, Financing, Contracting, and Executing Functions of the Three Construction Programs Is Distributed across Various Offices**

- **Office of Asset Enterprise management (OAEM):** OAEM works to facilitate processes that recommend effective capital asset policies, demonstrate improved capital planning and identification of needs, ensure all investments undergo an appropriate level of analysis, oversee the analysis and monitoring of VA's capital asset performance management system, and evaluate the effectiveness of VA's implementation of capital asset management policies, principles, standards and guidelines.

- **Office of Construction and Facilities Management (CFM):** CFM is responsible for the planning, design, and construction of all major construction projects greater than $10 million. In addition, CFM acquires real property for use by VA elements through the purchase of land and buildings, as well as long-term lease acquisitions. CFM also manages facility sustainability, seismic corrections, physical security, and historic preservation of VA's facilities.

- **Office of Capital Asset Management and Engineering Support (OCAMES):** OCAMES provides VHA guidance, oversight, and technical support for capital initiatives and engineering operations. Programs supported include major construction, minor construction, non-recurring maintenance (NRM), clinical specific initiatives (CSI), leasing, sharing use of space, enhanced use leasing, energy, fleet, engineering operations, and state home construction.
- **VISN:** Oversee execution of capital projects and maintenance in coordination with OAEM, CFM, OCAMES and VA Medical Facilities (VAMCs).
- **VA Medical Facilities (VAMCs):** VAMCs are involved in each construction program in defining the source of need for a business case and providing design and construction input as the eventual owner and manager of the facility delivered.

Projects are typically divided into major phases of their lifecycle including: concept and scope definition, capital allocation, design, construction and activation, and facilities management. We can observe the different approaches by type of project. For major projects VAMCs are responsible for project scope definition, business case creation including alternative stress test and cost estimation, and project SCIP submission to OAEM. Once the project is approved and funded for design, CFM is responsible for the overall design, construction and activation process, handing over the project to the station level (VAMCs) for operation and maintenance. Throughout the process, each of these organizations may play a supporting role in each step as outlined in Figure 6-2 (for example, CFM supporting VAMCs in business case definition).

Figure 6-2. Involvement of Different Entities in Major Projects

Responsibility for major construction distributed throughout VA

Legend:
- ☐ Supporting role
- ■ Critical role
- — Direct reporting
- ---- Indirect

Phases: Concept and scope definition → Capital allocation → Design → Construction and activation → Facilities management

OAEM (Office Asset & Enterprise Management)
- Capital allocation: Score business cases & prepare budget request; Receive line-item approval & funds
- Construction and activation: Approve construction funding

CFM (Office Construction & Facilities Management)
- Concept and scope definition: Support business case creation
- Design: Award A/E & use APF to fund design; Provide specifications; Design project to 100% CDs
- Construction and activation: Award contract; Oversee construction

OCAM (Office Capital Asset Management)

VISN
- Concept and scope definition: Review and approve business cases
- Facilities management: Receive O&M and NRM funding via VERA

VAMC
- Concept and scope definition: Create and submit business cases
- Design: Provide input in design as requested
- Construction and activation: Coordinate during construction; Lead activation
- Facilities management: Operate and maintain facility

6.1.1.3 Major Construction Program in VHA Include 37 Active Projects With Approximately $1 Billion Estimated Funding for 2016

VHA reports 37 active projects[38] in various phases from planning to construction including 21 out of the 37 projects in the construction phase. From a regional perspective, there is a high concentration of ongoing major projects (9 out of 21) in the west, primarily driven by the seismicity of the region and the focus on seismic retrofits in the capital planning criteria.

As shown in Figure 6-3, 13 of the 21 projects under construction received funding for more than 50 percent of their total estimated cost before 2011. This shows the status on current projects to understand the current stages, geographic concentration, and sizes of ongoing major projects

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[38] We consider active projects (37) those in the following stages: planning (1), schematic design (4), design development, construction documents (7) and construction (21).

Figure 6-3. Major Ongoing Projects for VHA (at 2016 Request Submission)

Major projects ongoing in VHA (2016 request submission)
Number of projects

	Number	Total cost of projects $ Millions
Total	65	12,994
Canceled	1	2
Planning	1	1,028
Schematic design	4	1,988
Design development	4	1,130
Construction documents	7	1,695
Construction	21	5,960
Financially complete	1	13
Physically complete	26	1,178

Breakdown by region

Number		$ Millions
Central	5	1,706
Eastern	7	2,058
Western	9	2,196

Breakdown by total cost
$ Millions

<$100	5	311
$100-$500	11	2,697
>$500	5	2,952[1]

Percent of total cost funded before 2011

<50	8	2,095[1]
>50	13	3,865

1 Cost for Aurora replacement facility is not included in the budget request and hence not included here

SOURCE: 2016 VA Budget Request, Volume IV, Appendix F (history of VHA Projects Update)

The VA budget request for 2016 includes funding for nine major projects that are active and entering the construction phase including St Louis, Louisville, American Lake, San Francisco, West Los Angeles, Long Beach, Alameda, Livermore and Perry Point (Figure 6-4). The request also includes funding for design activities on additional projects through the Advance Planning Fund that is used to support the initial phases of design of a major project before projects are approved and appropriated.

Figure 6-4. 2016 Major Construction Budget Request by Projects

VHA major construction budget request
$ Millions
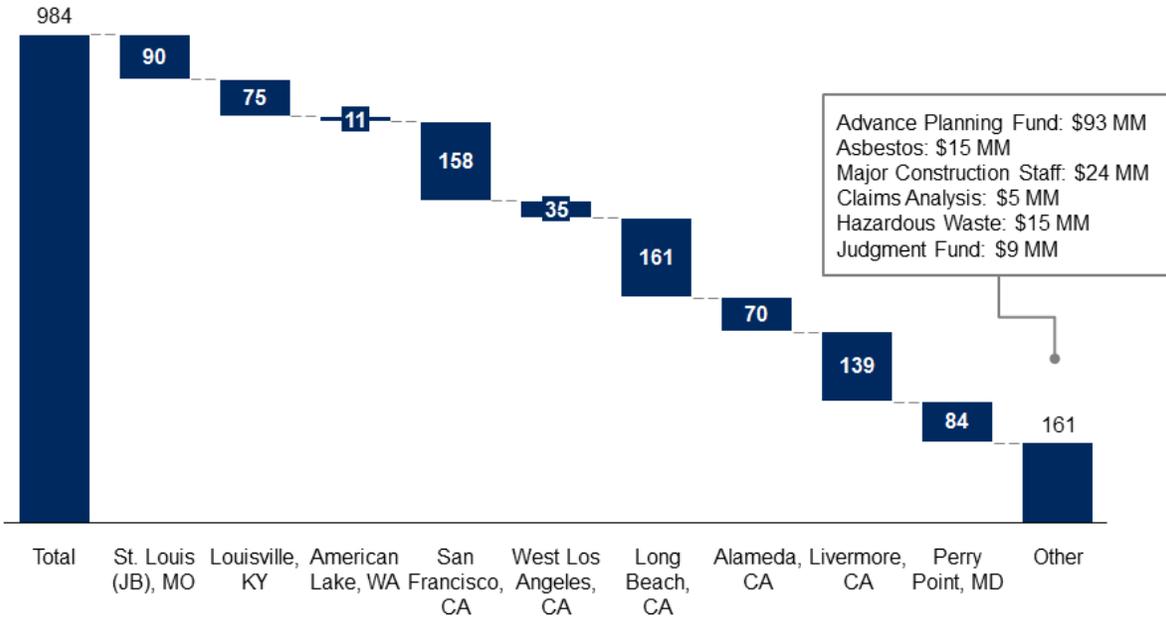
> Advance Planning Fund: $93 MM
> Asbestos: $15 MM
> Major Construction Staff: $24 MM
> Claims Analysis: $5 MM
> Hazardous Waste: $15 MM
> Judgment Fund: $9 MM

1 Of the 4 projects in 2015 budget request, Long Beach, and West LA are the only ones included in 2016. San Diego and Canandaigua, NY from 2015 are not included for 2016

VA appropriations for major construction vary significantly from year to year, as illustrated in Figure 6-5. Appropriations nearly doubled between FY15 ($548 million in VHA construction) and FY16 ($984 million). This type of variation is typically driven by either the introduction of new major projects or major transitions between projects. Between FY15 and FY16, a number of projects are expected to move into the construction phase, where the bulk of costs are incurred.

Figure 6-5. Changes in Major Construction Budget Request

VHA major construction budget request
$ Millions

Legend:
- ■ $ available through 2015
- ■ 2016 request
- ■ Future request

Left waterfall chart:
- Other (light blue), VHA (blue)
- 2015: 14 | 548 → 562
- Increase in requested funding: 147 | 435 → 582
- 2016: 160 | 984 → 1,144

2016 major construction budget request breakdown				Current phase[3]
St. Louis (JB), MO	242	90	34	367	Construction
Louisville, KY	75	75	775	925	SD/DD
American Lake, WA	145	5	11	162	CD
San Francisco, CA	22	158	166	347	CD
West Los Angeles, CA[1]	71	265	35	371	Construction
Long Beach, CA[1]	126	161	30	317	CD
Alameda, CA	70	153	17	240	CD
Livermore, CA	55	139	221	416	SD/DD
Perry Point, MD	9	84	0	93	CD
Other[2]	0	161	161	N/A

1 Of the 4 projects in 2015 budget request, Long Beach and West LA are the only ones included in 2016. San Diego and Canandaigua, NY from 2015 are not included for 2016
2 Other includes Advanced Planning Fund, Asbestos, Claims Analysis, etc.
3 SD is Schematic Design, DD is Design Development, and CD is Construction Documents

6.1.1.4 Five Projects within VHA Are Informally Classified as Mega Projects and Receive Additional Resourcing and Oversight due to Their Scale and Complexity

While there is no formal classification for mega projects within VA, projects are loosely classified in this category based on scale and complexity and receive additional attention. The US Army Corps of Engineers (USACE) defines megaprojects via eight key attributes ranging from size and delivery method of the project to its national significance and uniqueness of scope.

Adapted from the USACE Engineering and Construction Bulletin No. 2014-14, the following reflects some characteristics of mega projects that make them more challenging and warrant additional attention in the VHA facilities program:

- Cost and duration: Large project budgets that usually represent higher risk in achieving project outcomes and longer projects by duration which also indicate performance risk.
- Uniqueness: One-of-a-kind projects or projects involving unique and highly complex systems, processes, and technical challenges may be characteristic mega-projects.

- Acquisition strategy and delivery method: The contract type, solicitation, evaluation, and compensation methods allocate risk between the contracting parties which may drive complexity of project delivery.

- National significance: Projects of national or international significance may be characteristic mega-projects.

- Critical nature of completion date and/or funding constraints: Projects with completion dates established in law or treaty, tight or incremental funding requirements, and/or other requirements which dictate ultimate cost and completion of project

- Coordination of multiple prime contractors, architecture/engineering firms (A/Es), and stakeholders: Multiple general contractors on-site leading to complex coordination efforts. Projects requires the coordination of multiple design agents, multiple public agencies, may be characteristic of mega-projects

- Overlapping or dependent project phases: Projects where authorization, funds, or physical constraints determine the pace of execution may be characteristic mega-projects

Though CFM has not defined the attributes of mega projects, it has been observed that projects above $500 million of total estimated costs are considered large projects that require the appointment of a Project Executive. Of the ongoing major projects, five are considered replacement facility mega projects with costs above $500 million (Aurora, Las Vegas, Orlando, New Orleans, and Palo Alto).

Figure 6-6. Recent VHA Mega Projects

	Description	TEC $ Million	Size Million sq. ft.	Expected completion
Aurora	▪ A tertiary care medical complex including a new inpatient medical center including a Spinal Cord Injury (SCI) Center, an Outpatient Clinic, a Community Living Center (CLC), a Research building, a Central Utility Plant, and parking facilities	1,730[1]	1.0	2017[1]
Las Vegas	▪ A comprehensive Medical Center Complex including up to 90 inpatient beds, a 120 bed Nursing Home Care Unit, an Ambulatory Care Center, administrative and support functions, and space for co-located Veterans Benefits Administration offices	585	1.1	2015
Orlando	▪ New medical center consisting of a 134-bed hospital, a large medical clinic, 120 bed nursing home, 60 bed domiciliary, and full support services on a new site	616	1.2	2015
New Orleans	▪ A new tertiary care medical complex with acute and long term inpatient beds and the full range of ambulatory services. It includes outpatient center, including primary care, mental health, specialty care, surgical capabilities, and expanded treatment, diagnostic, and ancillary services; research facility; and a parking structure	1,035	1.6	2016
Palo Alto	▪ This project will construct Centers for Ambulatory Care and Polytrauma Rehabilitation at VA Palo Alto Health Care System's (VAPAHCS) Palo Alto Division	717	0.6	2015[1]

1 Internal VA updates show TBD; latest TEC from for Aurora from April 2015 testimony by Secretary Gibson; completion dates from VA budget requests and VAMC trip packs

SOURCE: VA budget requests from 2008 through 2016 and internal VA project updates

6.2   Findings

To accurately assess the overall performance of VA's medical facilities program, we conducted a benchmarking exercise to understand the performance of comparable projects across the public and private sector and to identify the drivers of variability between projects. Using the benchmarking database, we conducted quantitative analyses based on cost per square foot and schedule duration in medical facilities construction. We have also carried out qualitative and quantitative assessment of project performance as well as assessed the processes, people, and systems used to carry out projects.

6.2.1   Outcomes

6.2.1.1   VA Construction Costs Are Typically Similar to Other Public Agencies That Deliver Health Care Projects, but Are Double Private Industry Best Practice Cost Levels

An internally conducted cost comparison effort revealed that public sector construction costs are approximately 1.5 to 1.9 times higher compared to private sector. With a 95 percent

confidence interval, based on the 87 projects in the database, we observed that public projects cost $570 to $790 per square foot compared to private sector costs at $370 to $410 per square foot (see Figure 6-7). Furthermore, the private sector experiences a much lower variation in the dollar per square foot costs compared to public sector. The standard deviation for private sector projects was $80 per square foot, whereas the standard deviation for public projects was $320 per square foot.

Figure 6-7. Major Construction Costs Performance

Public sector agencies delivering health care projects that we surveyed experienced similar cost performance, up to twice the cost of the private sector. VA estimates anticipate some of these cost levels and target $500 to $540 per square foot for new medical facilities based on Federal and VA design and construction standards.

For VA, the cost performance data obtained for major project performance ranges from $500 to $750 per square foot based on a sample of publicly available information for latest completed projects excluding Aurora. VA performance for major projects is similar to other relevant public project delivery agencies in North America (for example, USACE, NAVFAC). Data from our set of benchmark projects identified USACE construction costs, ranging from $500 to $900 per square foot, and NAVFAC costs, ranging from $400 to $650 per square foot.

Figure 6-8. Comparison of Construction Costs Versus Major Public Agencies

Major construction cost ratios are in line with public agencies

Project location	Project details	Year & contract	Construction cost[5] $ Millions	Size Million sq. ft.	Average cost[1] Dollar / sq. ft.	Const. sch. Years
Construction & Facilities Management						
Aurora, CO	Tertiary care complex with SCI, clinic, suppt. bldgs	2017, IDC[4]	1,621	1.04	1,693	8+
Las Vegas, NV	90 inpatient beds, 120 bed nursing home, plus supporting bldgs.	2015, DBB	536	1.05	489	8.8
Orlando, FL	134 bed hospital, 120 bed nursing home, clinic plus suppt. bldgs	2015, DBB	535	1.16	530	6.3
New Orleans, LA	Tertiary care with acute and long-term inpatient beds and suppt blgs	2016, IDC	992	1.56	728	860 (580)[3]	4.7
USACE[2]						
Fort Belvoir, VA	Full scale 7 story, 120 bed hospital	2011, IDC	1,000	1.27	892	3.8
Fort Benning, GA	70 bed hospital plus an outpatient clinic	2014, DBB	390	0.75	623	4.9
Fort Riley, KS	47 bed, 5 level hospital plus clinics	2015, ECI	334	0.55	713	5.6
Fort Bliss, TX	Main hospital, 2 clinics, supp. bldgs	2016, DBB	648	1.13	696	5.6
Fort Irwin, CA	Tertiary care, emergency, clinical support + clinic renovation (9,000 sq. ft.)	2016, DBB	160	0.23	693	723	4.6
NAVFAC[2]						
Pendleton, CA	60 bed facility with ancillary depts.	2013, DB	447	1.01	437	3
Bethesda, MD	6 story ambulatory care, 4 story emergency care, 2 parking garages	2013, DB	833	1.50	629	533	3.4

1 $/sqft adjusted to 2015 for delivered projects via ENR cost indices and to U.S. National Average via R.S. Means City Cost Indices
2 Most USACE and NAVFAC projects were completed under BRAC which had strict duration targets
3 Excluding Aurora
4 IDC (Integrated Design Contract), DBB (Design Bid Build), ECI (Early Contractor involvement) and DB (Design Build)
5 Construction costs are calculated as TEC excluding land acquisition and utilities costs
SOURCE: Publicly available information from owner/A-E/contractor websites, reports, internal VA project status updates – April 2015

6.2.1.2 VA and Other Public Sector Health Care Projects Generally Take Twice as Long to Finish Compared to Private Sector Projects

From a schedule perspective, public sector projects also take approximately two to three times as long to complete compared to private sector projects. This is partially due to the larger scale of public projects. The majority of the private sector projects in our database were completed within two to two-and-a-half years compared to public sector projects which usually take from 2.7 to 4.6 years. More recent public sector projects have demonstrated somewhat longer construction durations. Interviewees have identified prioritization of projects and the time pressure resulting from previous Base Relocation and Closure (BRAC) schedules as a primary driver which enabled the acceleration of earlier public sector projects in our database.

Figure 6-9. Major Construction Costs Performance
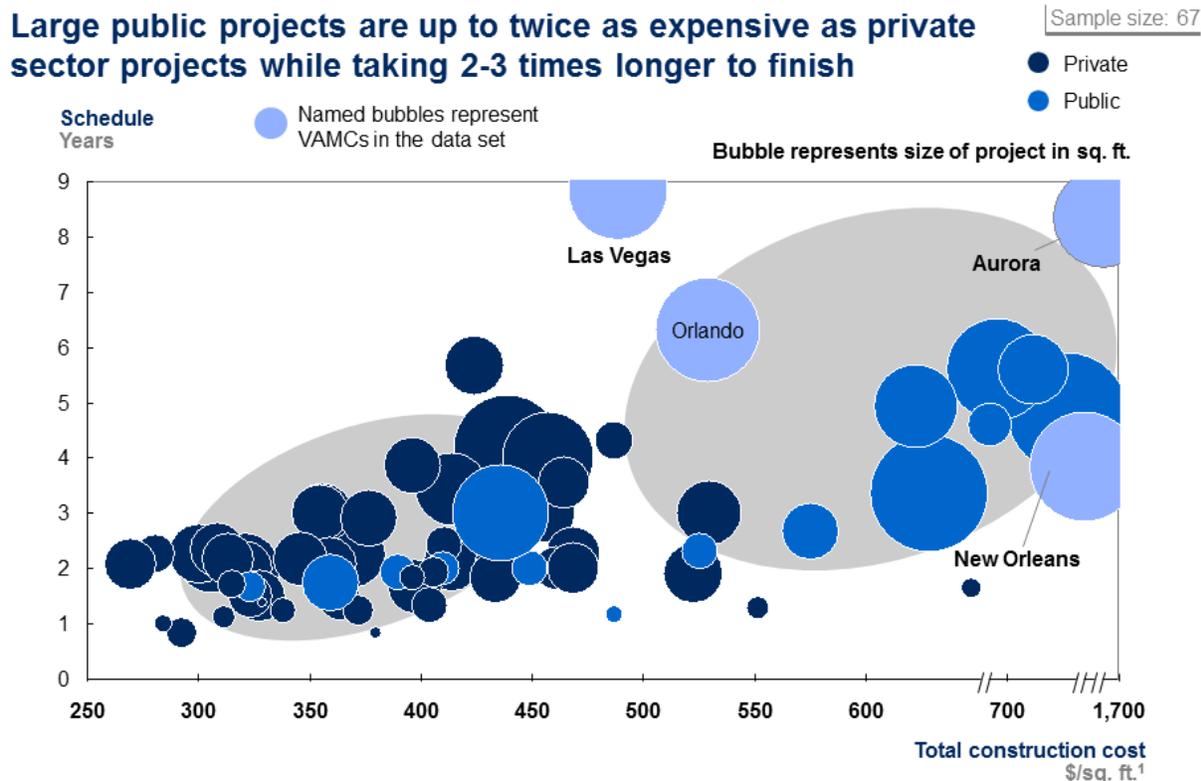
Large public projects are up to twice as expensive as private sector projects while taking 2-3 times longer to finish

Sample size: 67

● Private
● Public

Schedule Years

Named bubbles represent VAMCs in the data set

Bubble represents size of project in sq. ft.

1 Dollars / sq. ft. adjusted to 2015 via internal factors for Design Cost Data Factors and ENR indices for others; adjusted to U.S. Nat'l avg. via RS Means CCI (2014 & 2013)

SOURCE: Internal cost benchmarking studies, proprietary construction databases, public websites (contractors, owners, designers)

6.2.1.3   VA and Other Public Sector Health Care Projects are 2 to 2.5 Times Larger Than Private Sector Counterparts

Public sector projects are generally larger than private sector projects with many of the public projects exceeding one million square feet. On average, public sector projects in the database are approximately 650,000 square feet with some projects close to one million square feet, whereas private sector projects on average are 300,000 square feet. We have observed that the number of medical services provided, the size of individual medical rooms, and the size of the circulation spaces are the main drivers that explain scale difference in public versus private projects.

As an example, public sector medical facilities usually include outpatient services and administrative offices on the same medical campus whereas private sector facilities focus primarily on inpatient services and outsource the administrative functions to locations outside the campus.

The scale of public sector mega health care projects could be a driver of construction costs and time to completion primarily due to the complexity of these larger projects. Our benchmark indicates that larger projects do correlate with longer time to completion timelines both in

public and private sector.[39] However, the private sector is able to maintain similar cost per square foot across projects of all scales, while the public sector delivers larger projects for 30 to 60 percent more on a cost per square foot unit rate compared to smaller projects.

6.2.1.4 Hospitals Constructed Adjacent to VA Hospitals Experience Similar Market Conditions but Have Been Delivered at Significantly Lower Cost and Shorter Schedule Duration

In the course of our benchmarking exercise, we identified several public and private sector hospitals being constructed directly adjacent to VA hospitals. These construction projects should experience similar market conditions and provide a reasonable demonstration of the variability in cost between VA and other hospitals. Details of these projects are included in Figures 6-10 and 6-11.

- The VA New Orleans Medical Center and the Louisiana State University (LSU) Medical Center replacement projects are both replacement projects undertaken in the aftermath of Hurricane Katrina. The projects are similar across many dimensions including size, location, time of construction, and project delivery method. However, the New Orleans VAMC is expected to be completed in 4.8 years at $661 per square foot, whereas the LSU Medical Center is expected to be completed in less than 4 years at $433 per square foot.

- In Denver, both the University of Colorado Hospital (UCH) expansion and the St. Joseph hospital expansion are being completed in close proximity to the Aurora VAMC. The UCH Hospital expansion was completed for $356 per square foot in 1.8 years. The St. Joseph hospital, a privately owned replacement hospital, was recently completed in 2.5 years and under $460 per square foot. In addition, the St. Joseph hospital provided double the bed capacity for less than half the cost of the Aurora VAMC. The Aurora VAMC is still under construction with an uncertain completion date and a current estimated cost of $1730 per square foot range based on the latest information available.[40]

It is valuable to note that both the LSU Medical Center and UCH hospital expansion are university hospital systems. These programs share characteristics of both public sector and private sector hospitals and demonstrate that construction can be completed close to private sector cost and schedule targets.

In each of these cases and as shown in our benchmarking exercise, non-VA hospitals were delivered in similar market conditions at significantly lower costs. The root causes of these differences are explored in the following sections that evaluate the process, people, and systems used to deliver VA projects.

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[39] We consider large projects medical facilities to be those above 300,000 square feet.

[40] Update provided by VA on March 17, 2015.

Figure 6-10. Comparison of VA Project with Next-Door Public Project

New Orleans VAMC	LSU Medical Center
▪ Ownership: public (VA)	▪ Ownership: public (state)
▪ Site size: 30 acres	▪ Site size: 40 acres
▪ Building GSF: 1.6 million gsf	▪ Building GSF: 1.6 million gsf
▪ Beds: 200	▪ Beds: 424
▪ Type: replacement VAMC	▪ Type: replacement teaching hospital
▪ Delivery method: IDC (CM at risk)	▪ Delivery method: CM at risk
▪ Cost: $1.03 billion	▪ Cost: $692 million
▪ Construction start: May 2011	▪ Construction start: Sep 2011
▪ Construction finish: Feb 2016	▪ Construction finish: Spring 2015
▪ Schedule length: 4.8 years	▪ Schedule length: <4 years
▪ Dollar / sq. ft.: $661	▪ Dollar / sq. ft.: $433

Note: Numerous factors drive the cost difference including but not limited to design criteria requirements (e.g., security mandates) which are explored in detail in following sections

SOURCE: public websites; VA budget requests

Figure 6-11. Comparison of VA Project with Next-Door Public and Private Projects

Aurora VAMC	UCH Hospital expansion, Aurora	St. Joseph, Denver
▪ Ownership: public (VA) ▪ Building GSF: 1.04 million gsf ▪ Beds: 182 ▪ Type: replacement VAMC ▪ Delivery method: IDC (CM at risk) ▪ Cost: $1.67 billion ▪ Construction start: Aug 2010 ▪ Construction finish: Dec 2017[1] ▪ Schedule length: TBD ▪ Dollar / sq .ft.: $1730	▪ Ownership: public (UCH) ▪ Building GSF: 735K gsf ▪ Beds: 276 ▪ Type: tower and critical care addition ▪ Delivery method: CM at risk ▪ Cost: $262 million ▪ Construction start: Feb 2013 ▪ Construction finish: Dec 2014 ▪ Schedule length: 1.8 years ▪ Dollar / sq. ft. : $356	▪ Ownership: private ▪ Building GSF: 831K gsf ▪ Beds: 360 ▪ Type: replacement hospital ▪ Delivery method: CM at risk ▪ Cost: $380 million ▪ Construction start: Sep 2011 ▪ Construction finish: Dec 2014 ▪ Schedule length: 2.5 years ▪ Dollar / sq. ft.: $457

Note: Numerous factors drive the cost difference including but not limited to design criteria requirements (e.g., security mandates) which are explored in detail in following sections; expansion projects may not involve as much site work as the replacement facilities projects; excluding land and utility costs IDC: Integrated Design Construction; DBB: Design-bid-build

1 Internal VA project updates show completion date as TBD; completion date based on VAMC trip pack

SOURCE: public websites; VA budget requests and internal project updates

6.2.2 Process

To identify the main factors that drive higher construction costs and schedule for public versus private sector, we conducted a review of major cost drivers for capital projects and the processes that contribute to these drivers. We assessed detailed project costs breakdown and identified common themes that explained the observed cost difference.

The factors below were identified from our assessment as the main drivers that result in costs differences between public projects like VA's and private projects:

- **Government resiliency, energy, and security mandates (Section 6.2.2.1):** VA is required to follow public sector mandates for energy performance, green building requirements, physical security, and mission critical facility requirements.

- **VA design specifications (Section 6.2.2.2)**: VA design specifications drive project design from space planning to specific finishes, which impact the overall cost of the project.

- **Pre-construction award changes (Section 6.2.2.3)**: Throughout the planning and design phases of a major project, we identified significant scope changes to projects resulting from input from architect/engineering firms, VAMC Directors, and the CFM Project Managers

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- **Post-construction award changes and inefficiencies (Section 6.2.2.4)**: During the execution phase of the project, we identified cost increases due to scope changes and execution efficiencies.

- **Phased contracts (Section 6.2.2.5)**: Due to limited financial resources based on appropriations, most major projects are phased over several years resulting in less efficiency delivery compared to simultaneous planning, design, execution, and activation of all phases.

- **Contractor risk markup (Section 6.2.2.6)**: Complicated management processes, long lead times to approve invoices and changes, Federal Acquisitions Regulations, and Veterans Acquisition Regulations are perceived by interviewees throughout the industry to require a higher effort in execution than the private sector. Many interviewees and industry experts suggest that this could lead to increased design and construction bid costs for public agencies such as VA.

The approximate scale of each of these drivers is illustrated in Figure 6-12. Private sector targets for hospital construction range from $370-410 per square foot. However, VA guidelines which incorporate government requirements and VA design specifications lead to VA targets from $500 to $540 per square foot. Challenges in VA performance before and after contract award resulted in the observed increases in construction cost. These ranged from $500-750 per square foot (excluding the Aurora project).

VA could address some of the cost difference drivers to reduce the observed gap between private and public sector performance ($370-410 versus $500-750 per square foot). Levers detailed in Section 4.1.2, such as enhancing the use of early warning project controls, reviewing design standards for inefficiencies, and increasing contracting efficiency could address some of the cost difference drivers outlined above. Specifically, VA could reduce cost difference related to design specifications, pre-construction award changes, post-construction award changes and inefficiencies and phased contracts and risk markups.

We acknowledge, however, that if VA aims to completely close the gap versus private sector performance, there are factors such as resilience, energy, and security mandates as well as Federal and VA acquisition regulations that would need to be revisited.

Figure 6-12. VA Construction Cost Drivers Estimates

Medical facility construction estimates
National average for total construction costs
$ Dollar / sq. ft.
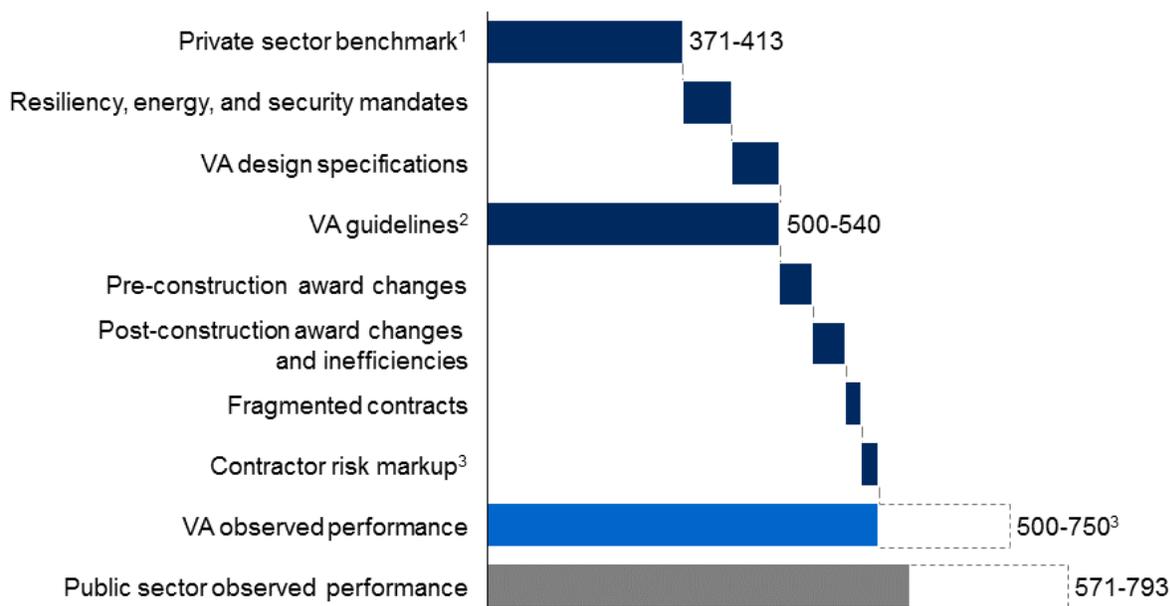
Private sector benchmark[1]	371-413
Resiliency, energy, and security mandates	
VA design specifications	
VA guidelines[2]	500-540
Pre-construction award changes	
Post-construction award changes and inefficiencies	
Fragmented contracts	
Contractor risk markup[3]	
VA observed performance	500-750[3]
Public sector observed performance	571-793

1 See benchmarking methodology section
2 Building construction costs target per VHA internally published cost guide for new construction; ~15-20% added to arrive at total construction costs from building construction costs 3 Accounts for FAR/BAR regulation impacts
3 Excluding Aurora (approximately $1,700 / sq. ft.)

6.2.2.1   Government Resilience, Energy, and Security Requirements

By mandate, VA design standards exceed those of the private industry. A 2009 study conducted by an outside construction management firm on behalf of VA indicated that energy and security mandates increase construction costs by more than 10 percent compared to similar buildings in the private sector.

Mission critical facilities are required to continue operations during a natural or manmade extreme event. Per Public Law 107-287,[41] Department of Veterans Affairs Emergency Preparedness Act of 2002 enacted November 7, 2002, the Secretary must take appropriate actions to ensure that facilities can fulfill their obligations as part of the federal response to public health emergencies. Currently, VA considers all VA medical centers and long-term care facilities, major outpatient clinics or clinics in locations where these are the only available health care facilities for a locality, research facilities, major data processing centers, and other facilities which serve a unique function for the Department as mission critical facilities. Under such classification, VA hospitals are currently required to be operational and provide shelter to

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[41] Physical Security Design Manual for VA Mission Critical Facilities (January 2015 edition).

the community in case of extreme events via appropriate planning (for example, water and fuel storage, alternative sources of power, progressive collapse and blast resistant designs) which significantly increases their costs versus comparable private industry projects.

In addition to the mission critical facilities requirements, VA hospitals must also comply with the federal security mandates which drive higher costs for the design and construction of VA buildings. The New Orleans case study below showcases some of the resiliency requirements mandated by the government for VA medical centers.

Finally, VA hospitals are federally mandated to comply with green building and energy performance mandates. VA Sustainable Buildings Program was established to comply with these mandates. Execution of such standards potentially increase construction costs for VA compared to the private sector.

New Orleans case study: Government resiliency requirements

The New Orleans VAMC was severely damaged from flooding following Hurricane Katrina. To replace the medical center, Project Legacy was created to design and construct a new medical center. The project is currently under construction and was one of the active mega project construction sites visited during the assessment.

Key information for New Orleans VAMC replacement project:

- Site size: 30 acres
- Building gross square feet (BGSF): 1.6 million square feet
- Beds: 200
- Type: replacement VAMC
- Delivery method: Integrated Design Construction
- Cost: $1.03B
- Construction start: May 2011
- Construction finish: Feb 2016
- Schedule length: 4.8 years
- $/square feet: $661

In order to meet the resiliency requirements, the New Orleans VAMC included certain features absent in the buildings of the neighboring Louisiana State University (LSU) Medical Center campus. Specifically, the following design criteria were included in the New Orleans VAMC due to the mandates for the emergency preparedness mission:

- Survivability: The campus must be able to accommodate 1,000 people for 5 days in an extreme event. The campus must also be equipped for independent power generation for standby and emergency. Finally, the campus must include a military helicopter landing area.
- Emergency storage: The campus must store fuel for power generation; water for domestic use, fire protection, and process; sewage; and meal and supplies.

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- Operations: The campus must have flexibility in patient room design to shift to a 2 beds per room configuration to increase capacity. All mission critical functions must be located on or above the 2nd floor level. All buildings must be designed for a facility lockdown scenario in an emergency.

- Hurricane mitigation: The campus is designed to resist 130mph, 3 second gust (a Category 3 Hurricane) as defined by the International Building Code. The mission critical elements are designed above the current CORPS surge model levels (Category 5).

- Physical security: The campus must be compliant with all federal physical security requirements for mission critical buildings. Finally, the campus must also be able to secure its perimeter in the event of civil unrest or national emergency.

6.2.2.2 VA Hospitals Are Designed Physically Larger Than Private and Public Sector Peers

6.2.2.2.1 Mix of Space in VHA Facilities Impacts Overall Size and Has Cost Implications

VA hospitals are larger than comparable private hospitals. Differences are driven in part by incorporation of a large range of functions within a single facility or campus. Whereas private sector facilities focus space allocations primarily on clinical activities and often locate administrative functions at less expensive off-campus sites, VAMCs usually include inpatient services, administrative offices, outpatient units, community living centers (CLCs), and research spaces into the same medical center campus.

The volume of hospital space devoted to non-inpatient services is illustrated by the relatively large amount of medical center space per inpatient bed in VAMCs. The square feet per bed ratio can serve as a rough proxy for percent of space dedicated to inpatient uses. Using VAMC square footage data, compiled at the station level and excluding all off-site outpatient clinics, and authorized beds[42] to compare VHA facilities with for-profit, non-profit, and other public hospitals currently in operation across the US (AHA Hospital Statistics, 2015),[43] our analysis indicated that VHA is using approximately 130 to 140 percent more square footage per bed than private sector hospitals and 85 to 105 percent more than public and non-profit hospitals.

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[42] Analysis used authorized beds by station, excluding CLC and domiciliary beds, which are not reflective of inpatient hospital care. Authorized beds are defined as "the potential bed capacity of a medical center, which is the sum of the operating beds and beds that are temporarily unavailable" (VHA Handbook, 2010). Authorized beds are likely an overstatement of the beds currently in use at the VAMCs, but as interviews raised questions about the validity of the number of operating beds reports by VAMCs, this analysis used authorized beds as a conservative number. We were not able to fully account for any issues of data integrity in bed count. See Assessment F (Clinical Workflow), Section 6.2.1.1 for a deeper discussion of inpatient bed counts.

[43] This data set includes 1,252 hospitals currently in operation across the US, regardless of year of construction, and reinforces the scale differences discussed earlier in the benchmarking of recently constructed hospitals in Section 6.2.3 and Figure 6-9.

This extra space seen in VAMCs is primarily driven by other uses in the hospital and does not specifically reflect room sizes.

VHA's integrated solution can offers some advantages, such as enhancing the continuity of care, but it also carries disadvantages in terms of cost and ease of construction. Building a hospital unit that includes subunits with significantly different architectural, safety, resilience and medical requirements likely results in building the subunits at higher standards, with their correspondingly higher costs, and can increase the cost of the whole facility. For example, a square foot of medical space costs approximately 45 percent more than a square foot of CLC space and nearly 60 percent more than administrative space (VA Cost Estimating Guide, 2015).[44] It is current design practice to separate buildings with medical use as much as possible from buildings that house less acute medical cases or administration space. For example Kaiser Permanente builds only the functions dictated by the local building code in the main hospital building and all other services and office space are located in an adjacent medical office building (Building Design + Construction, 2015). For VHA, these tradeoffs should be weighed carefully.

6.2.2.2.2 VHA Space Planning Criteria Lead to Larger Hospitals for Similar Service Levels Than Comparable Private Sector Facilities

Differences in size can also be attributed in part to VA space planning criteria and design specifications for the standard square footage of each clinical space VHA hospital designs during the conceptual phase are driven by the Space Calculator – a planning tool maintained by OCAMES. After project approval, the detailed design of the hospital is carried out via the Space and Equipment Planning System (SEPS) – a tool jointly owned by Department of Defense (DoD) and CFM. During the conceptual phase, the planner uses space planning guidelines of the space calculator which is generally aligned with SEPS programming. Planning of a hospital requires conversion of workload into specific departmental net square feet – for example, projected inpatient-days are converted into a specific number of beds for medical inpatient unit department which is then converted into a total square footage per use.

Industry space planning guidelines for the public and private sector are established by the Facilities Guidelines Institute (FGI). FGI publishes guidelines every four to five years in the Guidelines for Design and Construction of Hospitals and Outpatient Facilities. The latest guidelines available to the industry at the time of writing of this report are 2014 FGI Guidelines for Hospitals and Outpatient facilities. Because FGI guidelines are not all inclusive, local building codes also apply for design and construction of facilities.

Local building codes in general are updated every three years via adoption and amendments of the International Building Code published by the International Code Council (ICC). ICC 2015 codes have been published at the time of writing of this report and are in the process of being adopted by local jurisdictions. Similar to building codes, FGI guidelines are amended and adopted by the State in which the facility is located. Agencies such as VA and DOD have

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[44] These cost estimates are for administrative space located inside a hospital, which is still significantly above typical office space construction costs.

developed their own version of the Guidelines for use in design and construction of their facilities.

VA also publishes its own guidelines on the Technical Information Library (TIL) for designing VA facilities. The TIL guidelines define the space planning requirements for 66 departments that are identified by VA. These guidelines are incrementally updated on a department by department basis every five to ten years to keep up with health care industry and best practice design. At the time of writing of this report, space planning criteria publishing dates ranged from 2006 through 2014 with majority of publications in 2008 in conjunction with a major update of SEPS.

Using these guidelines, we have observed that the current CFM guidelines prescribe approximately 10 percent more square feet on average for medical rooms than FGI guidelines (see Table 6-1). Current industry trends call for smaller, more versatile rooms, where research has validated that the same functionality levels can be achieved in a smaller space and with the same or better patient satisfaction levels. For example, in the last few years, the University of Pittsburgh Medical Center East hospital reduced patient room sizes to 10 percent smaller than the FGI guidelines after a comprehensive design study considering architectural features, medical functionality, and patient satisfaction (Healthcare Design Magazine, 2014).

Table 6-1. Comparison of Medical Room Size Guidelines

Medical Room[45]	VHA (sq. ft.)	FGI (sq. ft.)	% Difference
Medical/Surgical Room	280	250	12%
General Exam Room	120	120	0%
Office	100-120	100	10-20%
Operating Room[46]	660-900	600-800	10-13%
		Average	**10%**

Finally, more efficient architectural design at the department level can lead to significant savings in square footage in the departmental circulation space. Currently, VHA guidelines, reviewed across 24 departments, recommend approximately 4 percent larger department net to gross conversion factors than the DoD guidelines. This 4 percent is over and above any difference in room size. Department net square feet is the floor area within the boundaries of a functional department, as defined by space planning criteria, and department gross square feet is the floor area within the boundaries of a functional department, including the floor area occupied by the rooms, walls defining the spaces, and circulation corridors connecting the different rooms of the department. The department net to gross conversion factors are a measure of the efficiency of the departmental design.

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[45] Values quoted for general use room only.

[46] FGI prescribes that a traditional operating room should have a minimum of 400 SF, while specialty and hybrid operating rooms can vary between 600-800 SF and we are comparing those with the VHA operating rooms.

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6.2.2.3   Pre-Construction Award Changes

6.2.2.3.1   Significant Cost Growth in Major Projects Usually Occurs in the Design Phase, Before the Construction Contract Is Awarded

VHA major projects undergo significant cost growth over the course of their lifecycle. On average we have observed that projects undergo approximately a 90 percent increase in costs from their initial total estimated costs (TEC) to completion by the project contractor. More than half of the cost growth is actually incurred before the construction contract is awarded.

Figure 6-13. Cost Growth for Projects Currently Under Construction

21 major projects under construction are expected at +87% of initial TEC

Project location	Project description	Initial TEC $ Millions	Current TEC $ Millions	TEC Variation Percent over TEC
Bay Pines,FL	Improve Inpatient / Outpatient	$174	$158	-9%
Biloxi,MS	Restoration of Hospital / Consolidation of Gulfport	$175	$286	+63%
Dallas,TX	Spinal Cord Injury	$89	$155	+74%
Denver,CO	New Medical Facility	$328	$1,730	+427%
Fayetteville,AR	Clinical Addition	$56	$88	+57%
Las Vegas,NV	New Medical Facility	$325	$585	+80%
Long Beach,CA	Seismic Corrections-Bldgs. 7 and 126	$103	$130	+26%
Manhattan,NY	Medical Center - Flood Recovery	N/A	$207	
New Orleans,LA	New Medical Facility	$625	$1,035	+66%
Orlando,FL	New Medical Facility	$254	$616	+143%
Palo Alto,CA	Seismic Corrections Bldg. 2	$34	$54	+59%
Palo Alto,CA	Ambulatory Care / Polytrauma Rehab	$450	$717	+59%
Pittsburgh,PA	Consolidation of Campuses	$191	$272	+42%
San Antonio,TX	Polytrauma Center	$66	$49	-26%
San Juan,PR	Seismic Corrections-Bldg. 1	$145	$277	+91%
Seattle,WA	B101 Mental Health	$179	$192	+7%
Seattle,WA	Correct Seismic Deficiencies B100, NT, and NHCU	$43	$44	+2%
St. Louis (JB),MO	Medical Facility Improvements & Cemetery Exp.	$69	$367	+432%
Tampa,FL	Polytrauma / Bed Tower	$224	$232	+4%
Walla Walla,WA	Multi-Specialty Care	$71	$71	+1%
West Los Angeles, CA	Seismic Correction of 12 Bldgs.	$155	$371	+139%

SOURCE: GAO-13-302, VA budget requests 2006-16, internal VA project status update as of April 30, 2015

Average   +87%

Figure 6-14. Cost Growth for Major Projects

Cost growth for major projects occurs primarily in the design phase – before construction contracts are awarded

Total Estimated Cost (TEC) growth
Percent of initial costs

Average of latest projects surveyed ~187% or +87% above initial TEC

Other costs included in TEC
- Escalation costs
- Pre-design development allowance
- Technical services
- Impact costs
- Construction management
- Market conditions allowance
- Utility agreements
- Reserve funds

100
~30
4-5 — Construction contingency
~65 — Base construction costs

~60-94

~160-194

9-11
13-16
(4-5)

Subtracting the Construction contingency part from the total TEC growth after construction awards

169-205

Initial TEC | TEC growth before construction contract awards | Actual TEC before construction contract awards | TEC growth after construction contract awards | Final TEC

SOURCE: GAO-13-302, VA budget requests 2006-16, internal VA project status update as of April 30, 2015, project update documents for Palo Alto Ambulatory Care/Polytrauma Rehab project,

6.2.2.3.2 Increases in initial TEC Are Driven by Design Changes Requested During the Project Planning and Design Phase

Typically, a major project evolves significantly from the time of conception to the time of construction contract award. Design changes to ensure that projects most efficiently meet the needs of Veterans and VAMC staff should be anticipated throughout this process. However, our reviews identified significant changes in scope throughout the project development process and after projects were initially planned. These changes include the addition of major clinical uses, increases in square footage of specific uses, and changes requested by A/E firms, VAMC Directors, and Project Managers.

We have also observed that A/E firms are given significant latitude to create their own designs, sometimes converting them into signature projects and limiting the potential for standardization of designs across VHA. Furthermore, A/E firms view VAMC Directors as their client, accommodating requests and changes to initial project design. Without clear guidelines and accountability to manage scope modifications, Project Managers struggle to control costs during the design stages.

Interviewees have also indicated that project scope changes incurred during the construction of one phase can be reflected in the construction contract of a different phase, instead of being reflected in change orders.

Other organizations have mitigated these sorts of design changes through increased standardization. For example, with the development of their in-house standardized hospital design template, Kaiser Permanente was able to achieve faster delivery of new facilities and significantly reduced construction costs, while building efficient and safe hospitals. The template incorporated best practice designs for emergency departments, patient rooms, and other individual clinical spaces into a single configuration for an entire hospital. The buildings consisted of a diagnostic and treatment block, nursing units, and a separate medical office building. The template standardized the hospital from structural elements to furnishings, but allowed the necessary flexibility, such as different sizes of medical inpatient units. Kaiser Permanente simulated all design elements before the actual construction to test for a wide of spectrum of patient experiences and update and improve template as appropriate (Heatlhcaredesignmagazine.org, 2015).

An example of project scope changes during the course of the planning and design phases is included below.

Figure 6-15. Project Development Phase

Project Development Phase

Major painpoints

	Planning and A/E selection	Project design	Contractor solicitation and selection
HQ CFM	▪ Receive approval of project via the SCIP process ▪ Coordinate with regional CFM to define project requirements	▪ Review final costs and request construction funding for project from VA	▪ Receive construction funding approval from VA
Regional CFM	▪ Coordinate with HQ CFM to define functional requirements ▪ Conduct feasibility studies, explore alternative designs, and select single project delivery ▪ Solicit and award A/E contract	▪ Review design and provide input across all 4 phases of design (e.g. value engineering) ▪ Coordinate with HQ CFM on detailed projects costs for funding	▪ Receive construction funding from HQ CFM ▪ Solicit and award contract for GC ▪ Assign Resident Engineers to work on-site to monitor construction processes
VISN / VAMC		Coordinate with Regional CFM to provide input at milestones during the design phases	

A/E firm or Contractor	▪ A/E: Submit bid for A/E contract
	▪ A/E: Coordinate with CFM to finalize A/E contract
		▪ Conduct design in 4 phases
		  – Pre-design
		  – Schematic Design
		  – Design Development
		  – Construction Drawings
		▪ Scope changes lengthen project
			▪ Contractor: submit bids and sign contract if awarded
			▪ A/E: support via RFI's if needed

Sample activities	▪ Conduct a feasibility study to define the location and square footage of the facility	▪ Review schematic design drawings with local VAMC	▪ Review Master Specifications and GC contract
Sample output	▪ RFP for A/E ▪ Contract for A/E	▪ SD drawings, 50% CD, 100% CD ▪ Approval for construction funding	▪ RFP for GC ▪ Contract for GC

Case example for project growth during planning and design phase

In the course of our assessment we observed a number of projects that experienced significant scope increases. We have illustrated one of these cases in Palo Alto Ambulatory Care and Rehab project.

In this example, the project has experienced growth of 59 percent in total estimated costs with the majority of the scope changes occurring before the largest phases of the project were contracted out.

Figure 6-16. Sample Project Showcasing Cost Growth over Project Lifecycle

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6.2.2.3.3 The Process for Capturing, Approving, and Changing Project Requirements Is not Well Defined, Leading to Drastic Changes After Approval

Many of the changes to project costs that we previously described arise from insufficient scoping and scope management processes during the planning and design process. The business case for projects submitted via the SCIP process is currently not scoped well enough to lead to an accurate cost and schedule estimate. This has resulted in multiple costs overruns as a result of evolving scope and design principles (as detailed in Aurora case example).

OALC (CFM) and the Office of Management, in a joint effort, recently implemented a stage gate process "Capital Program Requirements Management Process (CPRMP)" that enforces at least three compliance reviews during the project lifecycle and a 35 percent minimum design threshold for project authorization and approval (see Figure 6-17). This process could help to limit the uncertainty in scope and design principles and help control future budget increases for VHA projects.

The recently implemented program should also help manage the changes in scope for major projects after they have been approved via SCIP. The CPRMP process is a step in the right direction however, we have identified a few challenges in the CPRMP process that may limit its effectiveness:

- **Scalability**: The CPRMP process is not scalable based on the size and complexity of the project. All major projects - $10M or $1B – are required to undergo the same process for approval of changes. Hence the process is more prone to being impacted by resource constraints to review all the proposed changes for major projects.

- **Resources and training**: The CPRMP process currently involves the CFM, SCIP Board, Acquisition Decision Authority, and Construction Review Council with support from OAEM as needed. Of all the above organizations, CFM and OAEM are best matched to assess the changes in project scope although they are significantly under resourced to implement the CPRMP process consistently.

- **Implementation**: The CPRMP process was implemented in February 2014 and the in-field adoption has not been fully realized. The relatively slow adoption of the process in the field, especially given all the entities involved, allows for scope changes for on-going Major projects. The process itself is complex and, as reported in interviews, has not always been effectively communicated to the field.

Figure 6-17. CPRMP Details and Requirements for Compliance Reviews
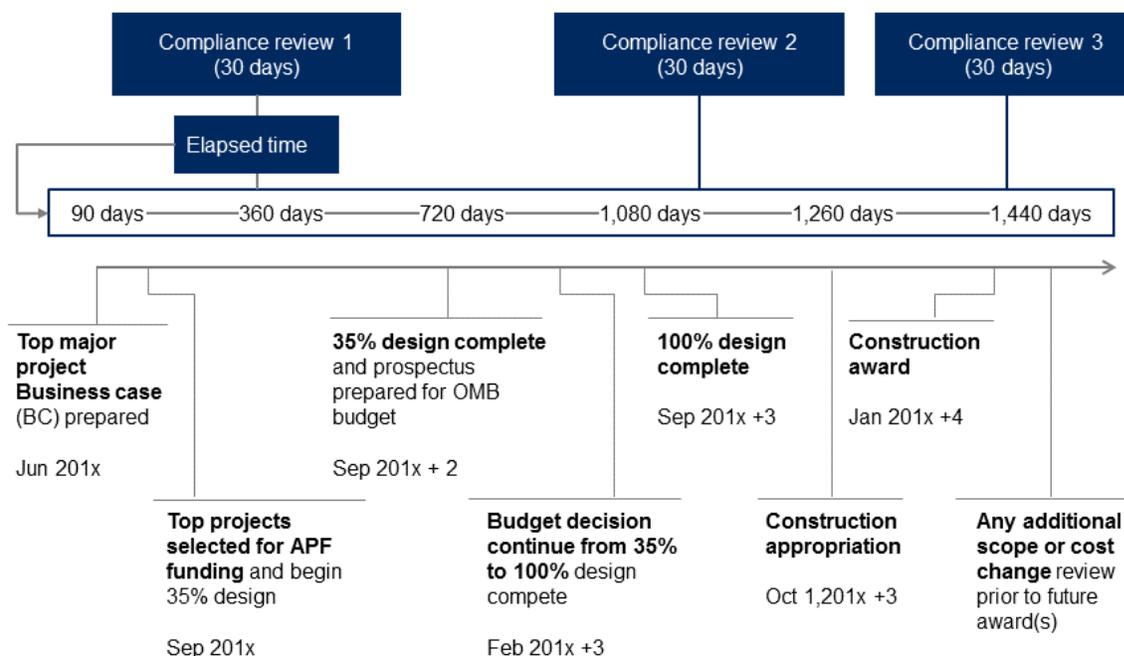
6.2.2.4   Inefficiencies and Changes After Construction Award

6.2.2.4.1   Contract Modifications After Construction Contract Award Still Account for 15 to 20 Percent of Increases in Project Costs

As discussed in the previous section, project cost growth occurs primarily in the design phase. However, post contract award changes are often also a significant source of project cost and schedule increases. In the past 10 years, 25 projects have experienced at least 10 percent cost increases over TEC driven by change orders, with 8 of them experiencing at least 30 percent overruns. Over 60 projects have experience delays as compared to initial plans and almost 10 projects experienced at least 9 months delay.

We define costs overruns as the total increasing funding requests over the initial total estimated costs (TEC), which includes forecasted project contingencies.

Figure 6-18. Completed Major Projects Performance after Construction Contract Award

Cost growth from change orders account for approximately 15-20% above initial TEC

SAMPLE SIZE = 87

Number projects phases completed

■ 0-50 MM   ■ 50 MM+

Number of VHA projects with cost overruns in past 10 years
Percent

	0-50 MM	50 MM+	Total	Original contract USD Millions	Change orders USD Millions
0 to 10	53	9	62	1,941	124
10 to 30	14	3	17	376	59
30+	8	0	8	45	28

Number of VHA projects with schedule overrun past 10 years
Months

	0-50 MM	50 MM+	Total		
<=0	14	2	16	303	18
0-9	53	9	62	1,851	150
9+	8	1	9	208	43

SOURCE: VA CFM project data for completed projects (and phases) from 2006 to March 2015

6.2.2.4.2 CFM Has Experienced Similar Performance in Contract Modifications Compared to Its Peers Over the Past Five Years

One of the critical factors to assess in execution of the major projects is contract management. Figure 6-19 shows that CFM is on-par with comparable entities in managing contract modifications, one key aspect of contract management. Contract modifications increased costs by 7.5 percent for CFM, whereas it increased costs by up to 13 percent for its peers. On average, CFM experiences about 1.3 modifications per million dollars of value compared to 0.34 modifications per million dollars for its peers.

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Figure 6-19. Contract Modification for Hospital Construction

SOURCE: Fpds.gov; NAICS code = 236220; product description = *hospital construction*

6.2.2.4.3 Complexity of Contract Modification Process Results in Cost and Execution Schedule Increases

It was shared during VA stakeholder and expert interviews that the contract modification processes is one of the major pain points for the major project delivery teams given the number of steps and stakeholders involved.

The overall contract modification process for a major project during construction involves multiple stakeholders, many of whom do not reside within CFM or even VA. For instance, as highlighted in Figure 6-20, many levels of approval are needed for relatively small-value change orders (as little as $100,000 on a multi-million dollar project). Lack of in-field approval on such change orders impacts project execution, bringing execution to a halt in many cases due to dependencies on unresolved changes. Delays and stop work orders extend the project schedule and ultimately increase the cost.

Figure 6-20. Contract Modification Process for Major Projects

Change order process (>$100K, 20 days) – Major Construction

	Initiated	Approved	Funded
Duration	Up to 8 weeks if complex	4 -15 weeks	2 days
HQ CFM		▪ Review and approve change order if >$250K	
Fiscal			▪ Upon notification from CO, records the obligation
OGC/CRB/T		▪ Review and approve change order	
Regional CFM — Dir.		▪ Review and approve change order if <$250K	
Regional CFM — CO	▪ Review PNO submitted by SRE and approve for negotiation	▪ Review final docs submitted by SRE ▪ Undergo IOP review process	Upon receipt of admin approval (Regional Director or Central Office), CO awards action
Senior Resident Engineer	▪ Review proposal draft a Price Negotiation Objective to submit to CO ▪ Upon PNO approval, negotiate with contractor		
Contractor	▪ Identify changed condition via RFI (or other means) ▪ Submit proposal per SRE's request		Contractor initiates work (if not already initiated with a small amount earlier)
Sample activities	▪ Conduct estimate if change order is greater than $20K	▪ Address peer review comments	▪ Approve funding
Sample output	▪ SF30, VA Estimate (if >$20K), PMDRI, PNM	▪ Submit to HQ for approval	▪ SF30 signed and funded

SOURCE: VHA wide interviews

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6.2.2.4.4 The Activation Phase Encounters Funding Challenges That Drive Schedule Delays

The activation phase encompasses activities that identify, plan, manage, and execute logistical and operational requirements to bring a new facility to full planned operations.

Activation activities include, but are not limited to: equipment and furniture inventory, high cost/high tech equipment procurement, recruitment, selection, staffing, orientation and training, validation of infrastructure and equipment commissioning, move planning, and in-situ simulation testing and hazard mitigation (VA Activation Process Guide, February 2015). The validation of infrastructure and equipment commissioning process in VA is outlined in Figure 6-21. The following factors have been observed which make the activation process difficult to execute, potentially leading to delays in the operation of the facility:

- Activation funding is separate from construction funding and may not be approved in a timely fashion
- Activation funding is often not identified early in the project lifecycle to account for the lead time necessary to drive to "patient day 1"
- The activation team may not be involved early enough in the project lifecycle to define commissioning requirements
- Lack of involvement of the activation team can lead to maintenance issues. Personnel may not be trained well to identify and execute recurring maintenance leading to significant spending on maintenance.

A recent initiative has been launched to establish an activation office that supports commissioning efforts throughout VHA. Based on the interviews conducted during the VAMC visits, significant impact has not been observed yet.

Figure 6-21. Validation of Infrastructure and Equipment Commissioning Phase

Validation of Infrastructure and Equipment Commissioning

	Conduct testing of building systems	Document construction and create operating manuals	Transfer of knowledge to building operations team
HQ CFM	• Monitor progress via updates from Resident Engineer (or Contracting Officer) • Facilitate resolution of any escalated issues		
Regional CFM	• Resident Engineer: facilitate execution of Functional Performance Testing resolution of deficiencies	• Resident Engineer: review and approve Systems Manuals	• Resident Engineer: review and approve training plan • Review and approve Final Commissioning Report
VISN / VAMC	• Review commissioning issues log and provide input as appropriate	• Review and comment on Systems Manuals	• Schedule appropriate personnel in accordance with training schedule
Commis-sioning Contractor Or GC or A/E	• Commissioning: conduct Functional Performance Testing and identify issues / deficiencies in the systems • GC: provide qualified technicians for Functional Performance Testing	• Commissioning: prepare Systems Manuals • Contractor and A/E: provide data and drawings necessary for Systems Manuals	• GC: develop training plan schedule • Commissioning: review and approve training plan; execute Systems Training; create and submit Final Commissioning Report; handover to O&M staff on Day One
Sample activities	• Test fire / safety systems of the facility • Document commissioning activities	• Write detailed procedures for operation of systems	• Deliver Systems Training sessions
Sample output	• Project Systems Manual • Commissioning issues log	• Project Systems Manual	• Systems training presentations • Final Commissioning Report

6.2.2.5   Phased Contracts

VHA Multi-Year Projects Are Executed Under Phased Construction Contracts Limited by Funding Cycles

Funding for major projects is generally phased based on stages such as land acquisition, design, construction, and activation. Even projects in the construction phase do not receive full project funding, but have been phased across multiple years. Phased contracts increase project costs due to multiple interfaces and remobilization efforts.

The phased project approach lends itself to planning multiple projects with limited financial resources driven by appropriations. Hence, a single major project many involve multiple phases each with a different general contractor. Such fragmentation of projects leads to higher costs as general contractors demobilize and remobilize multiple times during each interface of the phase.

Furthermore, phased projects are likely to undergo personnel changes both from CFM and within VAMC, over the course of the project, making central management even more challenging and increasing the likelihood of scope and design changes.

6.2.2.6   Contractor Risk Markup

Contractors Factor in Perceived Risks in Working With VA Charging a Premium in Contract Bids

In the course of our VA contractor and industry expert interviews, it was noted that the contractor community considers VA projects to have higher design and execution risks than other public and private clients. Specifically, VA is considered by the contractor community to have:

- Strict Federal Acquisition Regulations (FAR) and VA Acquisition Regulations (VAR) contract requirements that result in increased costs in the value chain.
- Slower decision making process that impact construction (for example, response to a Request for Information [RFI], change order approvals) resulting in longer execution schedules.
- Outdated design standards and specifications that prevent contractors to maximize cost effectiveness of alternative project designs or constructability approaches.
- Reactive approaches to problem solving and contractor/owner relationship, limiting the potential synergies that could be achieved on a collaborative environment.

Contractors have indicated that they factor the issues identified above into the tendering processes, effectively building an additional contingency to account for higher risks in working with VA. Recent arbitration and litigation between VA and contractors has strongly favored contractors in the recognition of these challenges.

In summary, the main factors highlighted in this section (Government resilience, energy and security mandates, VA design specifications, pre-construction award changes, post-construction award changes and inefficiencies, phased contracts and contractor risk markup) drive public

sector construction costs 1.5 to 1.9 times higher versus private sector. In some cases, specific drivers (for example, pre-construction and post-construction award changes) have caused significant deviations versus initial estimated costs posing significant challenges for the VA major construction program.

While it is not the scope of our assessment to specifically review the replacement VAMC at Aurora, the assessment team visited the Aurora construction site during the week of March 9, 2015 and conducted interviews with members of VA's project delivery team and contractors that were active on site. This visit followed the same review methodology as other construction site visits completed during our assessment. During our review, we observed many of the construction challenges discussed throughout this assessment and highlighted throughout Section 6. More comprehensive reviews of the Aurora project are documented in Congressional testimony, findings of the United States Board of Contract Appeals, and reports by GAO. A brief summary of these findings is provided in Appendix B.2 (Kiewit-Turner, a joint venture, v. Department of Veterans Affairs, 2014; GAO-06-472, 2006; GAO-13-302, 2013).

6.2.3 People

In assessing the organization responsible for delivery we explored the way in which VHA and CFM structure and staff their project delivery teams (PDT) to deliver projects efficiently and what is the impact that culture may have in VHA project delivery.

In CFM, project delivery teams consist of the following key positions for a major projects:

- **Contracting officer (CO):** Responsible for overall contract compliance and approvals. They are normally involved after a project is approved via SCIP and funded
- **Resident Engineer (RE):** Responsible for the technical areas of projects. They are normally involved when projects enter the construction stage. They form different teams to cover specific trades (for example, mechanical, electrical)
- **Senior Resident Engineer (SRE):** Overall responsibility for technical areas of projects, and leading teams of Resident Engineers
- **Project Manager (PM)**: Responsible for cost and schedule oversight of the project. They are normally involved in the design phase and their involvement goes through project activation. In the case of mega projects, the PM still leads the project during the design phase with Project Executive taking the lead in the execution phase
- **Project Executive (PE)**: PE's are typically only staffed in mega projects (>$500 million), PEs are responsible for cost and schedule oversight of the project.
- **VHA VAMC Coordinator**: Responsible for coordinating project execution with the VAMC Director and responsible departments.

The composition of teams varies significantly depending on project type, while every project has a combination of Contracting Officer, Resident Engineer and Project Manager. Only Mega projects normally have a dedicated staff.

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6.2.3.1 Project Teams Are Designed and Staffed to Support Compliance Requirements at Times to the Detriment of Project Efficiency

Project team structures, while designed to support compliance requirements, have resulted in reduced accountability for project delivery outcomes and a limited ability to develop solutions to manage cost overruns and schedule delays. On a major project, each of the key roles in a project delivery team (for example, CO, PE, RE) follow different reporting lines (for example, Project Managers to Director of Project Delivery, Contracting Officer to Director of Acquisition and Resident Engineers to Director of Facilities Operations, per Figure 6-22). This situation generates a coordination challenge as it generates three silos (for example, technical, contracting, cost-schedule) within a team with potentially different directions or objectives (VACO/CFM/VISN Interviews, 2015). These silos were created in order to ensure accountability to specific outcomes but result in challenges to overall leadership. For example, contracting officers' order of priorities may not be fully aligned with project execution needs impacting project timelines.

Given the different reporting structures, there are different views in the organization on who is the overall project owner (for example, Project Manager, Senior Resident Engineer, Contracting Officer) and who is accountable in the different project phases (for example, Design, Construction, Activation). Based on CFM manuals, Project Managers are effectively responsible for overall project goals. However, they lack formal authority over the other key figures in project teams (for example, Resident Engineers and Contracting Officers) and according to interviews they do not feel empowered for fast and effective decision making.

6.2.3.2 There Are not Consistent Staffing Guidelines for Major Projects That Consider Size or Complexity of Projects

There is not a clear policy that sets project staffing guidelines for major projects. Currently, there is not visibility on how critical project factors such as volume or project technical complexity are factored in to design project teams.

It has also been shared during VA stakeholder and expert interviews that VA project staffing levels are significantly below other major agencies (such as USACE, NAVFAC), especially in the Resident Engineer and Contracting side. In some projects, the relationship of CFM staff to Contractor is above 1:10, and project managers could oversee portfolios of approximately $1 billion. This situation limits the ability of CFM staff to address all issues identified in the field, thereby impacting project execution timelines.

Figure 6-22. Project Delivery Team for Major Projects
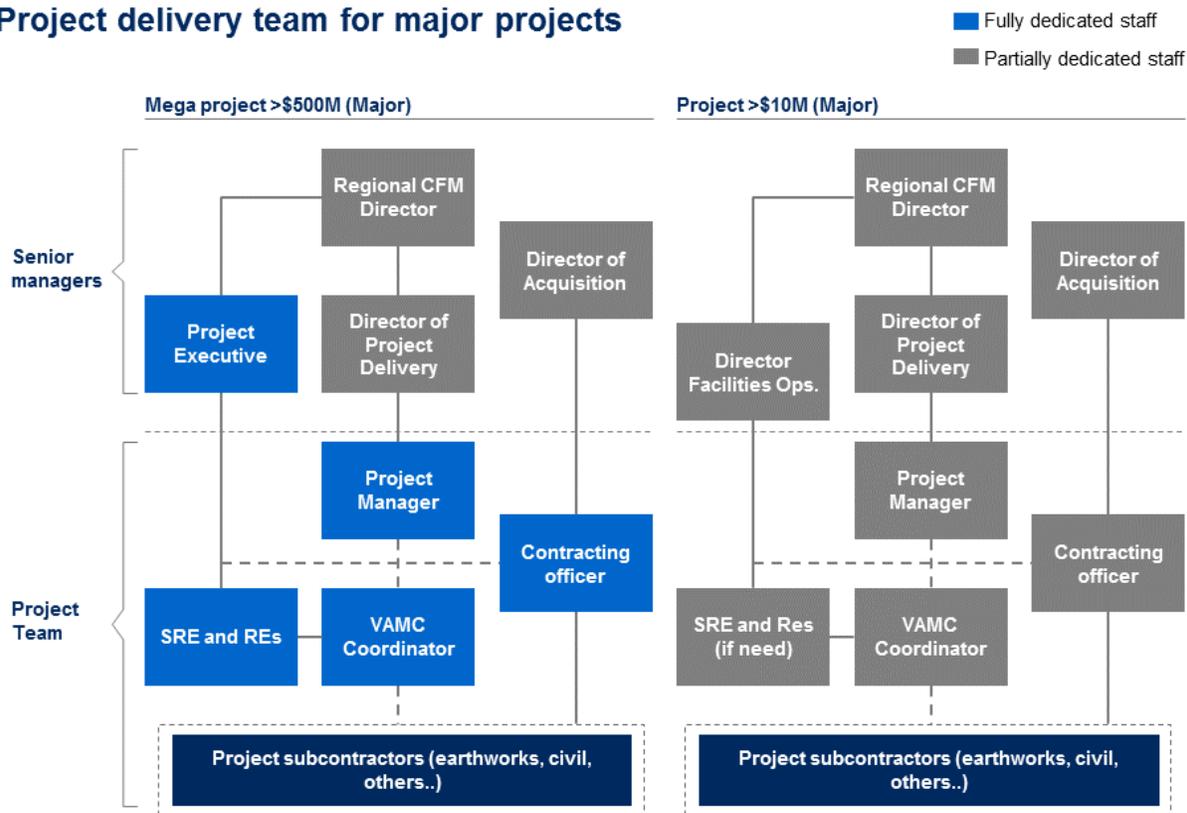
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6.2.3.3 Organizational Practices Limit VA's Ability to Complete Projects on Budget and Schedule

As part of Assessment K, CFM employees completed the Organizational Health Index Survey, designed to measure the health of an organization. The results were then compared to the OHI global benchmark, as well as the public sector benchmark and a health care benchmark. The public sector benchmark is comprised of 27 surveys (n=47,159), and the construction and engineering benchmark is comprised of 18 surveys (n=24,005). When compared to peers, CFM lags in every outcome, and all organizational health outcomes apart from motivation lie in the bottom quartile of all survey respondents (Figure 6-23).

Figure 6-23. CFM OHI Outcomes Against Benchmarks

When compared to public and private sector peers, CFM lags across outcomes

Percentage agreement on outcome effectiveness
Difference between organization and benchmark median, percent

Comparison to Benchmark
- Stronger (> +5)
- Comparable
- Weaker (< -5)
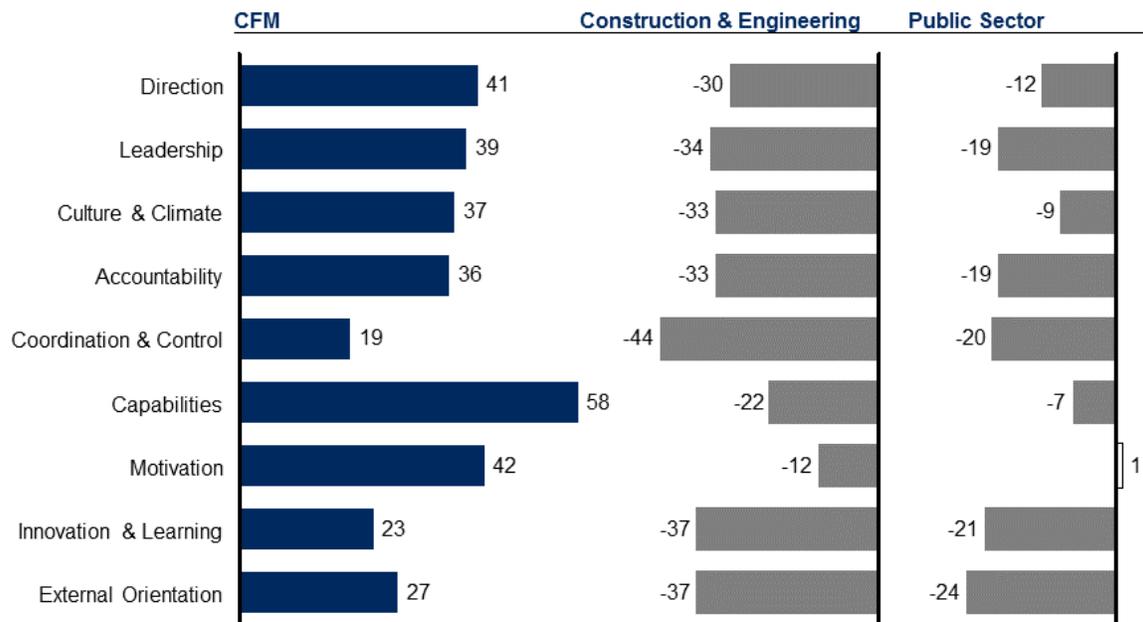
	CFM	Construction & Engineering	Public Sector
Direction	41	-30	-12
Leadership	39	-34	-19
Culture & Climate	37	-33	-9
Accountability	36	-33	-19
Coordination & Control	19	-44	-20
Capabilities	58	-22	-7
Motivation	42	-12	1
Innovation & Learning	23	-37	-21
External Orientation	27	-37	-24

SOURCE: VA-CFM (Veterans Affairs) 2015 (N=79); Public sector benchmark (N=47,159, no. surveys=27); Construction & engineering benchmark (N=24,005, no. surveys=18)

Additionally, looking internally at how practices were prioritized, key operational practices such as financial management and operational discipline were ranked among the least prioritized practices by CFM employees (Figure 6-24). While there were bright spots in how CFM prioritized vision, values, and talent, the low rankings for such important practices has concerning implications for CFM's ability to deliver projects. Interviews bore out these same concerns about role clarity, internal handoffs and operational management.

Figure 6-24. CFM Prioritization of OHI Practices

CFM employees rate vision and values high, but describe role clarity, operational discipline, and financial management as underemphasized

Top 10 practices emphasized	Bottom 10 practices by emphasis
Ranked by respondents	Ranked by respondents
1. Performance contracts	28. Authoritative leadership
2. **Capturing external ideas**	29. Consultative leadership
3. **Shared vision**	30. Top-down innovation
4. **Talent acquisition**	31. Business partnerships
5. Talent development	32. **Role clarity**
6. Financial incentives	33. **Risk management**
7. Process based capabilities	34. **Operational management**
8. **Meaningful values**	35. Gov & community relations
9. Competitive Insights	36. **Operationally disciplined**
10. Rewards & recognition	37. **Financial management**

SOURCE: VA-CFM (Veterans Affairs) - 2015 (n=79)

Throughout the OHI results, it was also clear that employees had significantly more negative views on how the organization scored against key metrics. Scores dropped substantially for employees who have been with CFM for more than one year.

6.2.3.4 Contracting Organization Is Overwhelmed and Burdened by Complex Approvals for Construction

During the VA interviews it has been shared with the assessment team that CFM Contracting Officers cover higher contract volumes than their government counterparts and have not been effectively trained to cover the complexities of construction and leasing contracts, and the low approval authority given to most COs requires passing leases through high levels of oversight which delay programs.

6.2.4 Systems

This section explores the tools used by VA in the delivery of major projects. Specifically, we aim to understand what systems are employed in the delivery of the projects and whether they drive efficiency and enable best practice performance. The observations in this section are based on interviews and evaluating the type, quality and speed of data provided during our

assessment to provide a secondary indicator of the availability and comprehensiveness of data. Some of the key observations are presented below:

6.2.4.1 The IT Systems Used by VA Are not Well Integrated To Help Deliver Projects Efficiently

A variety of tools and databases exist in VA to capture data for upward reporting and project management.

- **Project budgeting and cost control**: to provide selected financial information, VHA leverages Tririga, CFM information system (CFMIS) and Financial Management System (FMS), Project Management Data Retrieval and Integration (PMDRI)
- **Project planning and scheduling**: to plan execution activities, VHA typically leverages Primavera (P6) and Microsoft Project
- **Contract management**: to record all contracts and relevant modifications, the contracting organization leverages the Electronic construction management system (eCMS)
- **Past project performance**: to consult past performance metrics for major projects VHA uses the CFM Information System (CFMIS)

During interviews, VA staff shared that there is little integration among the different systems, limiting their effectiveness as a project management tool. Specific observations included:

- Data capture is occurring at multiple levels and through multiple tools. (See Figure 6-25 for the list of known tools and databases and relevant pain-points for each database.) The lack of an integrated system leads to multiple "sources of truth" about the status of the capital program.

- Manual reconciliation of data across multiple systems is tedious, leading many individuals to create personal spreadsheets to track scope, schedule, and quality. Across the site visits, the team observed numerous spreadsheets by Project Managers, Senior Resident Engineers, and Project Executives to keep track of relevant data across the multiple systems. Because most of these spreadsheets are personally held, the best available source of data on the current project is often not transparent to centralized leadership.

- Central reporting relies heavily on personnel to provide information instead of retrieving data via a centrally accessible system. Interviews have indicated that frequent reporting to multiple organizations has burdened the project team with information management instead of project management.

Figure 6-25. Catalog of Known Tools

The IT tools and databases used by VA are not fully integrated to help delivery projects efficiently

Tool or database	Description	Applicability and adherence	Key pain points
TRIRIGA (Oracle software)	Major project management software recently deployed by CFM to replace Paragon	• Major only • Low adherence (waived for Denver)	• Steep learning curve due to recent deployment • Not integrated with other systems
CFMIS (CFM Information System)	Select project details for all Major Construction projects	• Major only • Low adherence	• Similar information is stored in TRIRIGA, PMDRI, FMS but not linked • Manual entry to update
FMS (Financial Management System)	Financial management system to track funding obligations	• All • High adherence	• Official record of spending, but not linked to other software
Primavera (P6)	Major project scheduling tools used as record of status for payments to contractor	• Major • High adherence	• Is administered by a third party contractor
eCMS (Electronic Construction Management System)	"Filing cabinet" for procurement function with all contracts and relevant modifications	• All • High adherence	• Limited to no access for personnel outside of contracting • Link to FMS, CIFMS, and PMDRI unclear
VSSC – Capital Asset Database	Intranet database with performance metrics on currently active and past projects	• Minor and NRM • High adherence	• Need manual input to link to FMS • Project Tracking Reports do not include leading indicators or interim milestones
PMDRI	Financial and select project detail information	• Major and Minor • Medium to high adherence	• Linked to FMS

SOURCE: CFM interviews

6.2.4.2 Systems Do not Consistently Capture Key Performance Indicators (KPIs)

The metrics are also not standardized across VA. This leads to multiple iterations of data gathering and reporting. Existing centralized information systems require manual input by Project Managers or Senior Resident Engineers and field teams expend considerable resources in data collection and management efforts. This has also contributed to the development of personal tracking tools, stored on individual desktops, by leaders through the system.

The Project Review Board (PRB) is currently being piloted to ensure that senior decision makers in CFM have consistent and relevant information to drive successful project execution to partially address the issue of standardizing key reported metrics. The initiative remains in the early stages and, according to interviewees, has not met consistently since implementation. A summary of the design of the PRB is included in Figure 6-26.

Figure 6-26. Project Review Board

Project Review Board (PRB)

PRB objectives

- Identify opportunities for improving policies and business practices that affect project execution

- Provide forum for Project Managers to alert senior leaders to issues requiring their support and/or action

- Promote senior leader interaction with Project Managers

- Provide visibility on key metrics and milestones in project performance:

  - **Metrics**: 18 metrics across budget, schedule, safety, and quality that trigger an in-depth project review (e.g., cost growth of >10%)
  - **Milestones**: 5 key milestones identified for a mandatory briefing (e.g., 35% design complete)

PRB approach

- The project review board is conducted at two different levels, at the Office of Acquisition, Logistics, and Construction (OALC) and at the Office of Construction and Facilities Management (CFM):

  - For the **Office of Acquisition, Logistics, and Construction (OALC),** PRB is set as a monthly meeting chaired by the OALC principal director. The attendees are the associate executive directors at CFM, OGC and regional directors and project managers as requested

  - For the **Office of Construction and Facilities Management** (CFM), PRB is set as a monthly meeting chaired by the CFM executive director. The attendees are the associate executive directors at CFM, OGC and the regional directors for acquisition.

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6.2.4.3 Field Teams Rely on a Variety of Cost and Schedule Projection Methodologies for Major Projects with Little Guidance or Support

While industry peers and other public sector agencies may often use sophisticated methods such as the Earned Value Management to forecast the potential outcomes of a project and make changes to management approaches to improve performance, VA currently relies on the field team (Senior Resident Engineers and Project Executives) and Project Managers in regional offices to develop project updates and projections with little guidance or support. In our interviews, project team members described an array of approaches that are being deployed with little standardization.

6.3 Recommendations for Consideration

VHA will likely face accelerating and unfunded capital requirements, driven by maintenance to aging infrastructure, projected growth needs to serve the Veteran population, and inefficient capital management

Consistently deploying world class practices in capital management has the potential to improve performance significantly and address some of the capital constraints VA faces, but would require an extensive overhaul of VA capital program and supporting organization.

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VA has begun to initiate programs which should contribute to improved performance in capital delivery. These initiatives are providing tools to address some of the challenges that we have observed, however, there are also likely implementation challenges with these programs that should be addressed going forward.

6.3.1 Ongoing Initiatives

VA is pursuing a set of initiatives that intend to address some of the challenges identified in the assessment, all announced within the last year. It is early to see impact from these initiatives, particularly given the long-term nature of major construction projects. Internal and external interviewees have expressed concern about VA's ability to implement all of these given current resource levels. This should be part of a broader transformation plan to ensure a sustained impact. The detailed measures are presented below:

- **Project Delivery Manual**: Create an overarching, easily-accessible document that maps all the key processes involved in project delivery. As this manual is developed, it should be written to incorporate the recommendations contained in the Assessment and continue to develop as processes improve.

- **Capital Program Requirements Management Process (CPRMP)**: Introduce a stage gate process which would include compliance and milestone reviews throughout the lifecycle of major construction projects.

- **Project Review Board (PRB)**: CFM has initiated the PRB process to: a) identify opportunities for improving policies and business practices that affect project execution, b) provide a forum for Project Managers to alert leadership to issues requiring their support, and c) ensure continuous communication via PM centric reporting (Figure 6-26).

- **Project Management Plan (PMP)**: Outline major steps to accomplish acquisition from planning through activation and ensure clear communication throughout the project. The PMP is developed by the Project Manager for each major project.

- **VHA National Activation Office**: Ensure integration of facility activation into the construction process for timely facility openings.

- **Pre-construction reviews**: Implement a Major construction projects "constructability" review by a private construction management firm to review design and engineering factors that facilitate ease of construction and ensure project value.

- **Medical equipment planner:** Integrate medical planners into the construction project teams from concept design through activation.

6.3.2 Detailed Recommendations for Consideration

Building on existing initiatives when possible, we have structured a set of recommendations for consideration, to ensure VA delivers projects better, faster, and more cost efficiently:

6.3.2.1 Implement a Stage-Gate Process to Limit the Impact of Scope and Design Change on Overall Cost and Schedule Building on the CPRMP Program

The implementation of a stage-gate process would help CFM and control scope changes across the project lifecycle. Specifically, a stage-gate process would identify the specific points in time during the lifecycle where project objectives, scope, and project funding is approved, as well as:

- **Challenge accuracy and validity of A/E firm designs:** Ensure that the A/E design and technical solution complies with the design standards and is optimized from a cost-benefit standpoint with no superfluous elements without clear benefits for Veterans.

- **Implement "cold-eye"[47] and constructability reviews:[48]** A consistent peer and constructability review process before construction contract solicitation process could improve project scope and reduce contract modifications related to design omissions and errors.

- **Test standardization and consistency of outputs:** Ensure that the project maximizes standard and tested features from other projects that could significantly reduce procurement costs and execution times.

6.3.2.2 Design, Staff, and Empower Project Delivery Teams (PDT) to Increase Ownership and Accountability and Ensure Project Delivery Success

- **Provide clarity in the definition for individual roles and accountability for key decisions:** Create a standard project charter that includes a clear definition of roles and responsibilities, reporting lines and transparent links in outcomes and individual performance.

- **Ensure sufficient staffing of team roles at different stages of the project evolution:** Project teams require adequate staffing to oversee and provide guidance to contractors in field execution issues. Understaffing on the owner team side limits the team's ability act in a fast-paced environment and increases the risk of cost and schedule overruns.

- **Provide clear guidelines on staffing needs and skillset over the life of the project**: Project needs evolve as they progress from design to construction. Additionally, different construction stages require different technical expertise and capabilities (for example, earthworks and foundations, main structure, mechanical and electrical installation, architectural finishes). As a result, VA should define a clear staffing model that factors in differences in project size, complexity and stage (for example, design, construction, activation) to adequately resource project delivery teams.

- **Establish a clear documentation system and handover on transition points along the different stages of project:** Major projects are multi-year efforts with multiple transition stages, and different stakeholders. Decisions need to be tracked, documented and handed over in different stages to prevent delays and major cost impact.

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[47] "Cold-eye" reviews are structured reviews conducted or facilitated by independent individuals with the required expertise to identify potential issues and recommend areas of improvement.

[48] Constructability reviews are structured reviews conducted prior to execution.

6.3.2.3 Develop Performance Management Systems That Quickly Identify and Mitigate Risk, as Well as Serve as Tools for Fast-Paced Decision Making

CFM-wide, standardized management tool should access data from consolidated databases to provide clear perspective to Project Delivery teams on:

- **Project costs and funding levels:** Reports should provide a perspective on initial project costs (baseline), construction progress, a detailed breakdown of real unit costs in key activities, and fact-based analysis of deviance versus initial estimates.

- **Integrated project schedule and critical path:** Reports should present an integrated master plan with a critical path and detail on engineering progress, construction, and activation activities. The overall schedule should be cost loaded to provide a detailed cash flow forecast.

- **Critical activities progress KPIs:** For each of the critical path activities, the standard report should provide progress curves to compare estimated versus real productivity and recovery plans for delayed or underperforming activities.

- **Safety standards and quality control:** Reports should include clear metrics on evolution of safety and quality parameters, as well as potential causes to trigger liquidated damages for contract non-compliance.

- **Risk matrix:** Report should include an up-to-date risk matrix, ranking different risks based on likelihood of occurrence and potential impact, as well as detailed mitigation plans for high risk & high impact identified risks.

- **Stakeholder management:** Report should include a stakeholder mapping with a clear communication plan and a detailed calendar for different committees' meeting cadence.

6.3.2.4 Transform the Contracting Organization to Align Contracting and Contract Modifications Approvals Processes to a Fast-Paced Environment

This would include:

- **Conduct an effort to map and streamline major processes and systems within the contracting organization** (for example, approval processes for contract modifications, response for RFIs) to increase agility of the decision making process and alleviate current workload levels.

- **Consider increasing warrants on site for faster decision making:** Increase skill requirements and warrant levels for SREs. For example, other delivery organizations required all SREs to have Professional Engineering Licenses and level 2 contracting warrant to reduce workload for contracting officers.

- **Adequately staff projects** with contracting officers and support teams to ensure contract compliance and rapid response, including on-site teams for mega projects.

6.3.2.5 Periodically Revisit Design Specifications and Standards With the A/E and Contractor Community to Ensure Cost-Efficient Designs and Solutions Are Included in the VA Manuals

VA should establish periodic feedback mechanisms with leaders in the industry to ensure specifications and design standards do not become outdated and costly.

6.3.2.6 Evaluate Optimal Delivery Model for Each Project Individually Factoring Complexity, Project Size Timing Constraints, and Internal Capabilities

Different projects could benefit from alternative delivery models (for example, design build, early contractor involvement) to optimally deliver project in cost and time. The decision to choose one over another should be a conscious one, understanding the pros and cons of every alternative as well as the different risk allocations. Regardless of the final decision or choice for every project, VA should provide adequate training to their project delivery teams on the contract specifics and best practice.

The views, opinions, and/or findings contained in this report are those of the assessment team and should not be construed as an official government position, policy, or decision.

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7 Design and Construction Assessment: Minor Projects and Non-Recurring Maintenance

7.1 Preface

VHA undertakes numerous minor and non-recurring maintenance capital projects to increase and maintain its asset base of owned facilities to meet Veteran needs. Section 201 of the Choice Act calls for assessment of the capital management programs specifically relating to the design and construction management processes. The assessment is structured to address the following four aspects:

- **Outcomes:** How do VHA hospital construction costs compare to the private sector? How does VHA perform in project delivery (cost, schedule, quality) across all it across construction programs? To what extent do construction projects and processes affect facility utilization or Veterans' health access?

- **Process:** What processes does VHA have in place for its minor and NRM construction programs? What pain points exist across these processes? Do construction processes address the identified current and future needs in a timely fashion? Can VHA improve the processes or other aspects of construction to improve quality?

- **People:** How does VHA structure and staff its project delivery teams? How does VHA culture impact project delivery?

- **Systems:** What systems are employed in the delivery of the projects? Do they drive efficiency and enable best practice performance for project delivery?

7.1.1 Overview of the Minor and NRM Construction Programs

VHA manages construction and renovation of its owned facilities through three main programs: major construction, minor construction, and Non-Recurring Maintenance (NRM). This section covers minor and NRM construction programs, detailed below:

- **Minor construction program (174 projects, [49] 13 percent of total)**: Projects that address construction, alteration, extension, or improvement of any facility, including parking structures, site acquisition, and demolition by replacement, with costs equal to or less than $10 million, managed by local VHA engineering staff.

- **Non-recurring maintenance (NRM) program (866 projects, 36 percent of total):** Projects that renovate existing facilities and associated infrastructure with expansion of space not to exceed 1000 square feet. The program primarily includes three types of projects: infrastructure improvement, sustainment, and green management, all managed by local VHA engineering staff:
    - **NRM sustainment ($25,000 to $10 million):** Projects focused on renovation and modernization of existing facilities and infrastructure (for example, lab renovation).

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[49] Per 2015 budget; 2016 plan still in progress.

Projects in this category are often driven by national-level mandates instead of station needs.

- o **NRM infrastructure (Greater than $25,000):** Projects focused on replacing, upgrading or expanding infrastructure systems or focused on facility condition assessment (FCA) deficiency backlog (for example, heating, ventilation, and air-conditioning [HVAC] replacement).

- o **NRM green management:** Projects include environmental, energy, green building, and fleet management-related activities in support of reducing energy (for example, upgrade to LED lighting).

- o **Clinical-specific initiatives (CSI, up to $5 million):** The CSI program is funded out of the NRM budget for up to 10 percent of the budget. The program focuses on high-profile projects that are difficult to plan but require additional space to support care for the Veteran. These projects increase space by more than 1000 square feet. Current approved CSI categories include: polytrauma, mental health, high-tech and high cost medical equipment installations, women's health, site prep for donated space, and others. It should be noted that CSI projects do not go through the SCIP process.

7.1.2   Numerous Parties Drive the Minor and NRM Projects Process

More so than for major construction projects, minor and NRM projects work through multiple parties for approval, development, funding, and execution. VAMCs take a lead role in the development of minor and NRM project, with responsibility for project scope definition, business case creation (including alternative stress testing and cost estimation), SCIP submission, and project execution.

Approval and funding, however, is a more complex process, partially handled by VACO, VISNs or stations in turn. Minor projects are approved through the SCIP process that is managed by OAEM and funded centrally through VACO as individual projects are ready to obligate. NRM projects may receive approval for design funding through SCIP, but project funds come through the VERA allocation to VISNs and may be supplemented by station operating budgets for medical facilities.

Once a project is approved and funded for design, VAMCs are responsible for the overall design, construction and activation process, but they rely on VISN support for contracting and technical oversight capabilities and may rely on OCAMES for engineering support.

CFM does not have a designated role in minor and NRM project execution, though CFM design standards and cost estimating guides are applied to these projects as well. Additionally, stations can request a CFM Resident Engineer be tasked to their facility to cover complex projects beyond the capabilities of their local engineering staff, though this is a rare request and CFM is not obligated to comply.

7.2 Findings

7.2.1 Minor Construction Program Outcomes

7.2.1.1 Minor Construction Projects Experience an Average Cost Overrun at Completion of 10 to 15 Percent

VHA has delivered 280 minor projects at a cost of $1.5 billion over the past four years. [50] Most of the completed minor projects fall between $5 million-9 million due, in part, to a legacy threshold of $7 million between minor and major projects (Figure 7-1).

Figure 7-1. Minor Project Performance

Minor project cost and schedule performance based on planned estimates

Minor projects completed in CYs 2011-14[1]

■ Minor projects, $5-$9M
■ Minor projects, >$9M
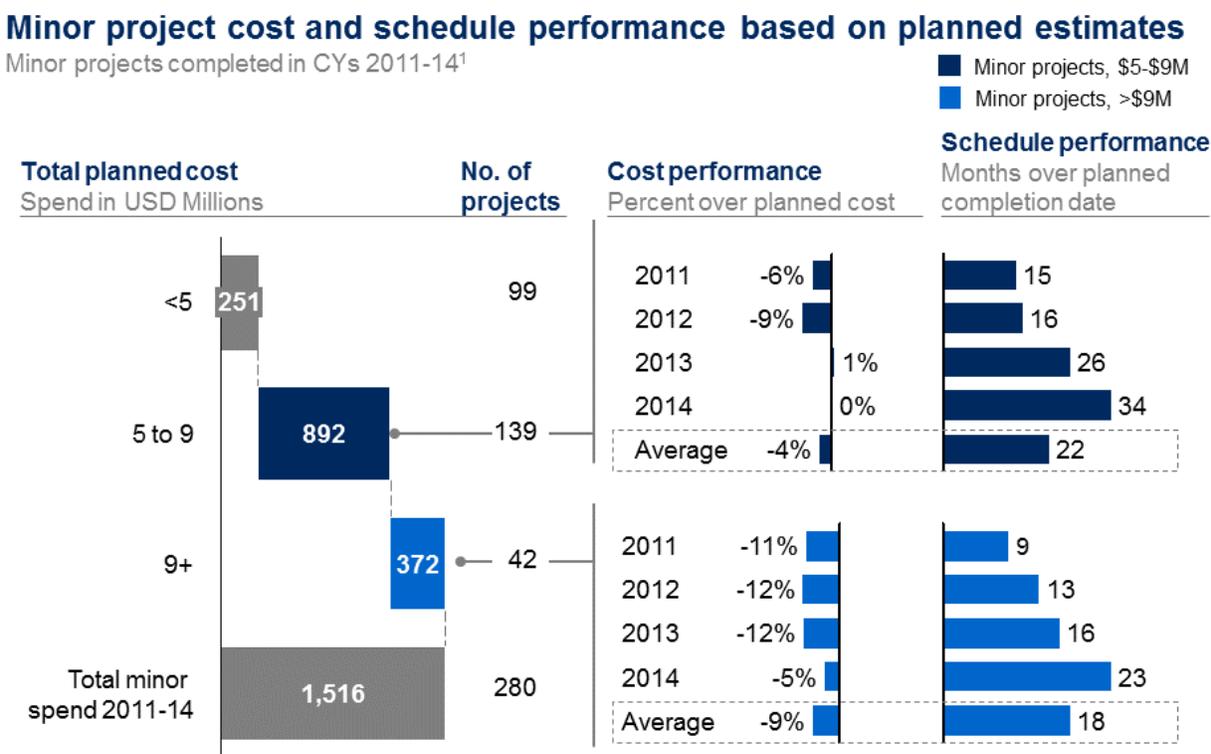
1 A $6 million project not included due to incomplete / potentially erroneous information

SOURCE: Minor Project Tracking Report for projects completed in CY 2011-2014

Compared with original planned costs, VHA averages 4 percent under budget for projects $5 million-9 million and 9 percent under budget for projects above $9 million. However, planned costs do not represent original construction contract costs, but the initial costs at business case submission. At the time of submission, project estimates generally include contingencies – including escalation rates – for both design and construction contracts, to ensure costs stay

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[50] As a percentage of the original contracted award.

below the final threshold. With these contingencies included, project estimates are allowed to exceed CFM cost estimating guides by up to 25 percent.

The presence of contingencies allows minor projects to keep cost overruns lower than NRM projects, which do not have such contingencies. Since most of these contingencies are percentage based, higher cost projects receive more contingencies – even more so if the project cost is close to $9 million and facilities are concerned about the $10 million threshold. In recent years, projects have been completed closer to planned costs – under budget by 1 to 5 percent. When overruns are instead measured as a percentage of the original contracted award, projects experience average overruns of 13 percent, as illustrated in Figure 7-2 and Figure 7-3.

Figure 7-2. Minor Project Performance

Minor project performance based on contract data
Minor projects completed in CYs 2011-2014[1]

Total planned cost (Spend in USD Millions)		Cost overrun in % of original contracted award	Number of projects
0 to 5	112	19	50
5 to 9	363	11	53
9+	73	16	8
Available minor spend 2011-14	549	13	111
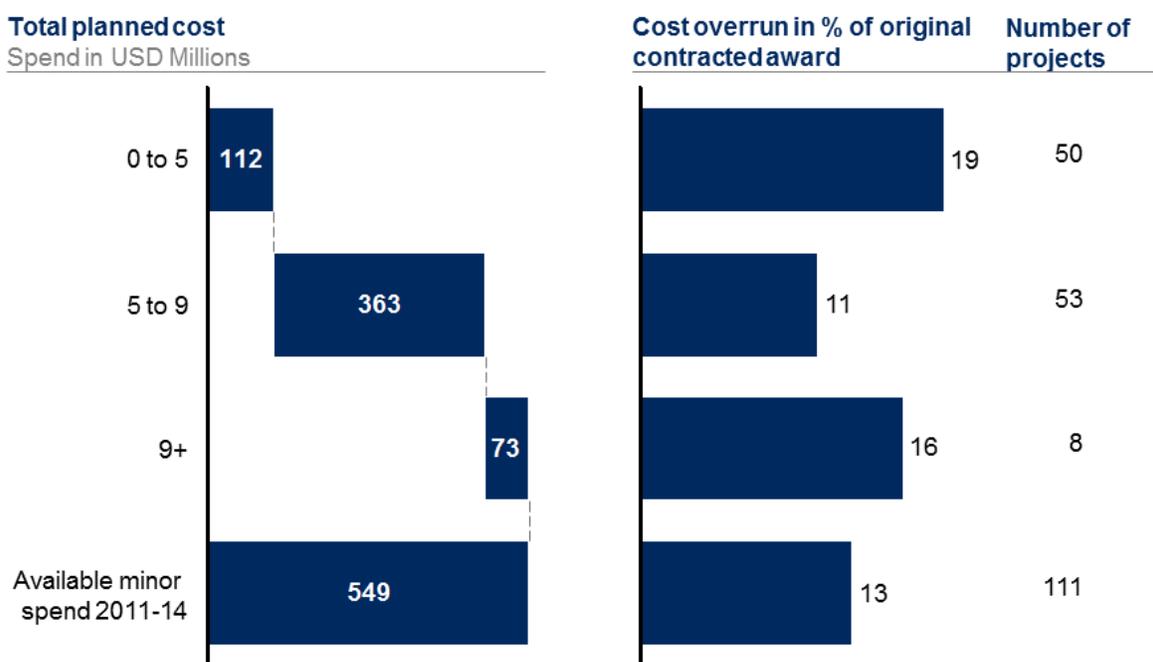
1 Sample sized adjusted based on completeness of information available

SOURCE: Internal VA database Contract awards and modifications for available projects completed between 2011 and 2014

Figure 7-3. Minor Project Cost Overruns by Phase

Minor project performance by phase
Final cost to planned cost

■ $100k-$1M
■ $1M+

Design cost overrun: sample size 158[1]
Percent over planned design cost

18
1
6
-1
-14
-41
-9
-4
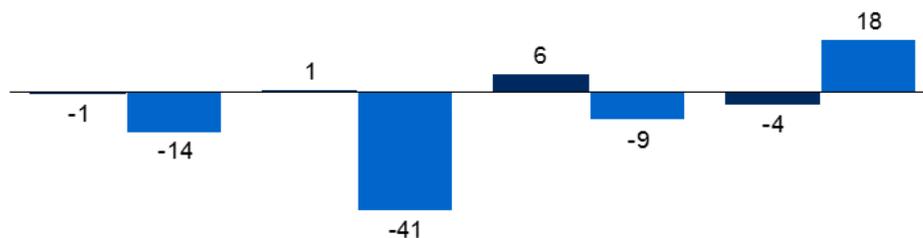
Construction cost overrun: sample size 181[1]
Percent over planned construction cost

0
0
-6
-11
-9
-8
-12
-6

2011   12   13   2014
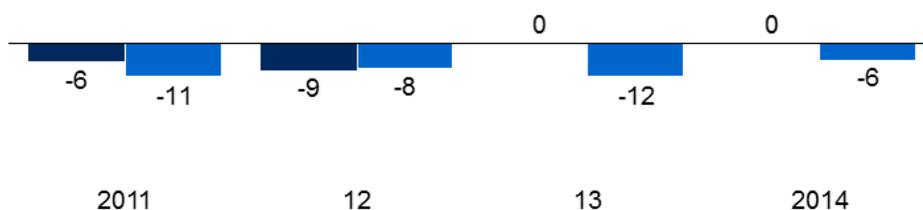
1 Sample sized adjusted based on completeness of information available

SOURCE: Minor Project Tracking Report for projects completed in CY 2011-14

7.2.1.2 Minor Projects Increasingly Struggle to Meet Their Schedule Forecasts With Delays Ranging From 9 to 34 Months Over the Last Four Years

While project costs are managed aggressively on schedule performance, we observed that projects with planned costs from $5 million to $9 million were delayed for an average of 22 months, and projects with planned costs greater than $9 million were delayed for an average 18 months. Over the last four years, average minor project delays more than doubled for projects above $5 million. We observed a few consistent drivers for project delays including:

- **Forecasting errors:** Schedule delays are based on Project Tracking Reports. When a minor project is funded, the Project Engineer at the facility estimates initial schedule - which remains unaltered throughout the course of the project. Variation in the estimation approach of initial project schedules may account for part for the project delays.

- **Obligation delays:** Delays in the procurement process account for up to 5 months of overall delays including both design and construction contracts (Figure 7-4).

- **Execution delays:** Execution delays including change orders make up the bulk of the total delay period for minor projects experiencing average delays of 18 to 22 months. Within execution, we have observed a number of causes that drive delays such as differences in

field conditions compared to the expected designs (for example, location of electrical services is found to be different from expected once a project begins) and unexpected reshuffling clinical areas to accommodate remodeling or expansion projects among others.

Figure 7-4: Minor Project Performance for Projects Above $5 Million

All projects suffer from schedule delays in both construction and design
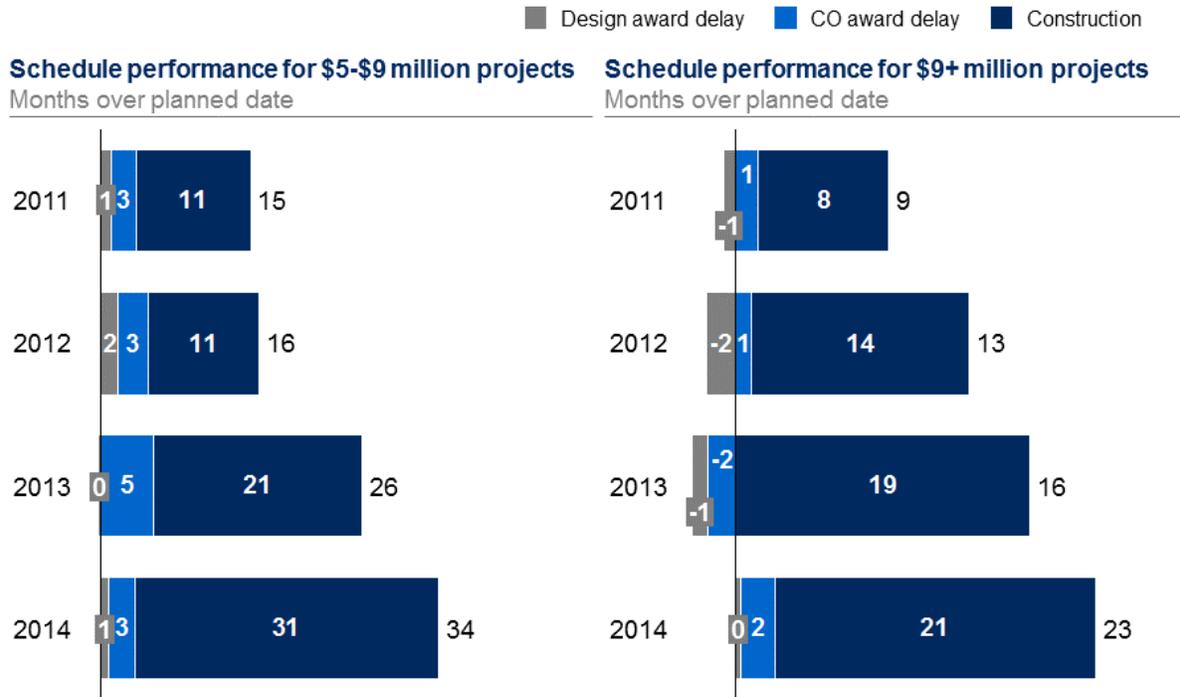
When data are assessed on a VISN level, we observed similar performance across all VISNs on minor projects except for VISN 2 which delivered projects ahead of schedule on the average. Variation in cost performance across VISNs may be indicative of forecasting errors or execution delays. We did not identify any correlation between the volume of Minor projects (by dollar value) completed by each VISN with their ability to complete a project on schedule.

Figure 7-5. Minor Project Performance by VISN

Minor projects performance by VISN
Minor projects completed in CYs 2011-14
$ Millions
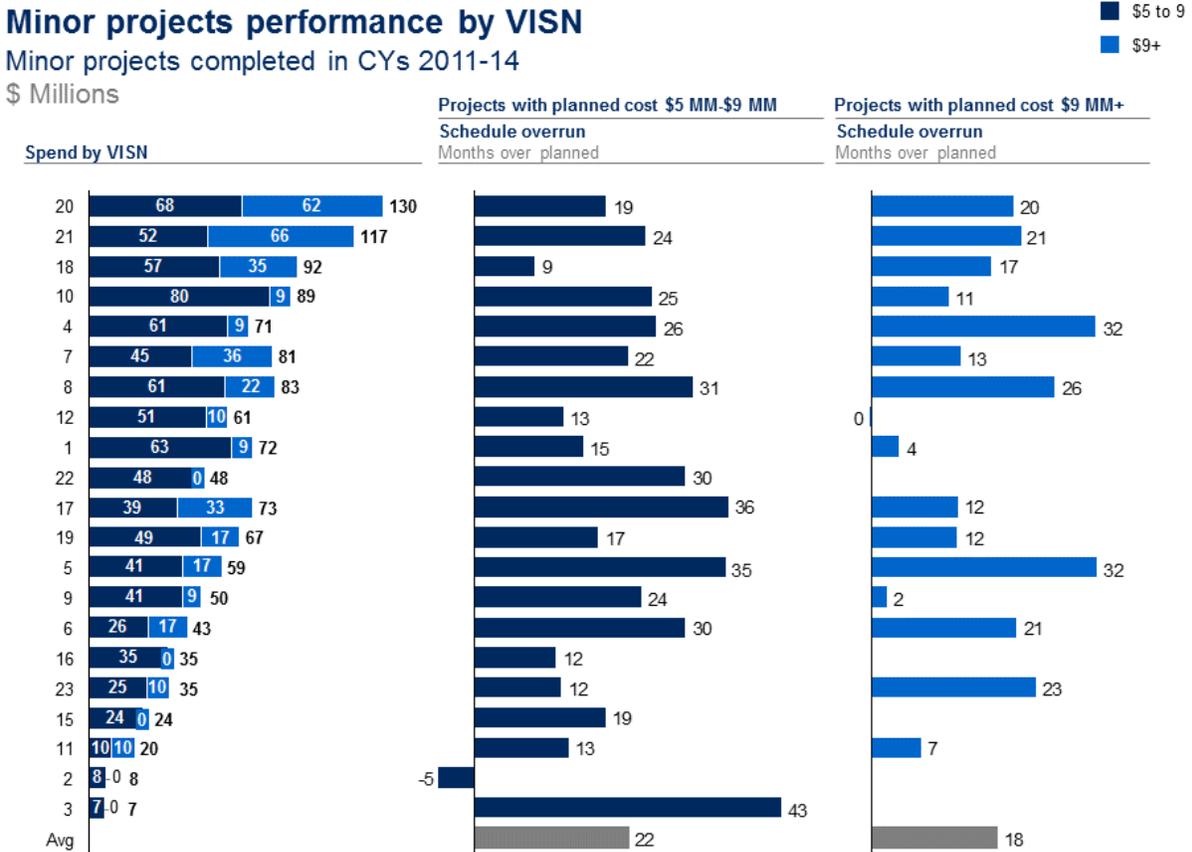
SOURCE: NRM Project Tracking Report for projects completed in CY 2011-2014

7.2.1.3 Minor Project Scopes Are Optimized to Fall Just Under the $10 Million Threshold, Sacrificing Capital Efficiency

By statute, minor projects cannot exceed $10 million. Additionally, minor projects are not allowed to be designed as multi-phase projects, with each phase under the $10 million cap, but must be able to be completed on a standalone basis. This threshold has proved a challenge for station planning efforts, as discussed in Section 4.2.2. As a result, minor projects are consistently developed to stay just below the threshold. Figure 7-6 illustrates this behavior in recent SCIP submissions. These planning decisions have important implications for how projects are executed.

In some cases, projects are reduced in scale to fit under the threshold. All projects are also required to write in a 20 percent potential scale reduction through "deducts," reductions in project scope which can be used to reduce the project cost if bids come in too high. Stations routinely accept these deducts to shrink the scale of the project, though the exact scale of these deducts is impossible to determine, as they are not closely tracked at a national level.

Additionally, the limit is strictly governed for in-process projects. While there is a defined process to receive a cost limit increase, that process is burdensome, such that stations avoid it

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if possible, reducing the scale or even abandoning the project if necessary. Both were seen in projects reviewed by the assessment.

Figure 7-6. Breakdown of Minor Projects by Project Size

Volume of project submissions directly under $10 million minor construction threshold illustrates careful project packaging

Average size and number of FY16 SCIP, minor construction requests only

$ Millions

$8.5 M   Minor construction avg. $

55% of Minor requests fall between $9-$10 million, just under the minor limit managed by local VHA engineers

$10 million limit for minor construction

Total projects
As % of requested projects
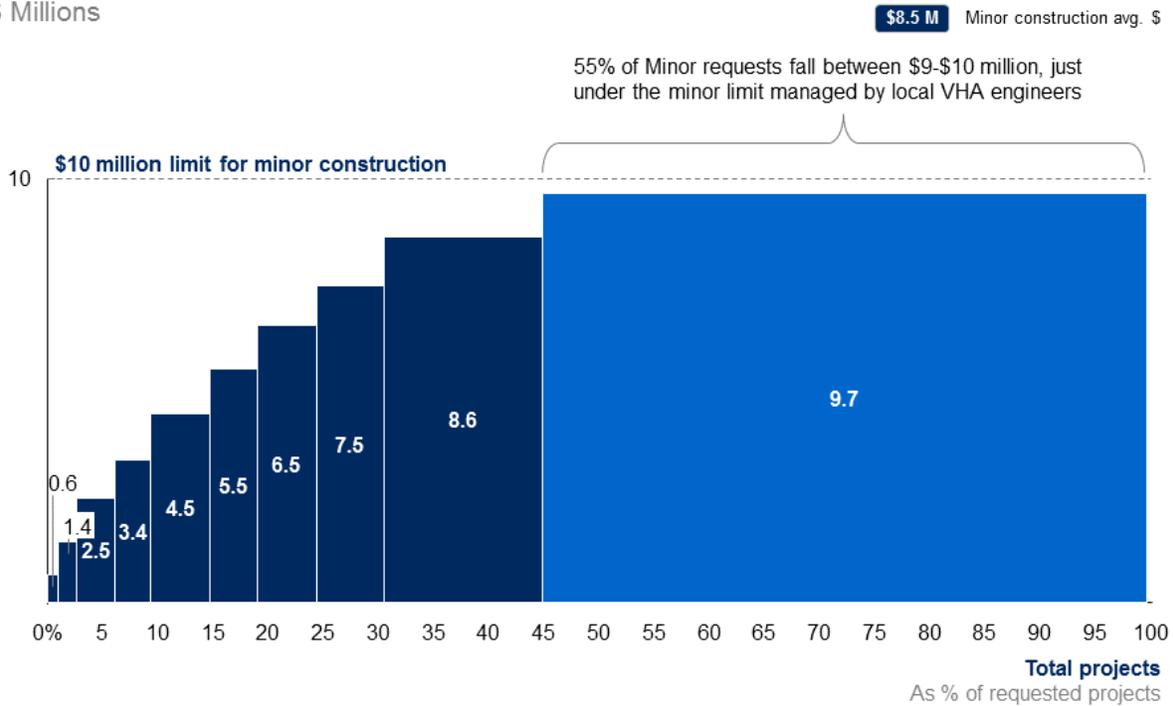
SOURCE: FY14-16 SCIP submissions; interviews

7.2.2   Non-Recurring Maintenance Construction Program Outcomes

The NRM program accounts for the largest spend category over the past four years among the construction programs. NRM funding is often supplemented by stimulus-related legislation such as the American Recovery and Reinvestment Act and the Veterans Choice Act.

7.2.2.1   NRM Projects Struggle to Meet Costs and Schedule Across the Board

Over the past four years, VHA has completed more than 7,500 NRM projects with total cost of $5.4 billion (Figure 7-7). Approximately 85 percent of NRM projects are below the $1 million threshold at which NRM projects must undergo the SCIP prioritization process; however, such projects account for only 44 percent of the 2011-2014 spend.

Figure 7-7. NRM Project Performance

Projects above $1 million in planned costs account for majority of the NRM spend and seem to perform better on cost than on schedule

NRM projects completed in calendar years 2011-2014

Legend:
- Projects $0.1-$1 mil (dark blue)
- Projects >$1 mil (light blue)

Total planned cost — Spend in Millions:
- <$0.1 mil: 229
- $0.1 - $1 mil: 2,116
- >$1 mil: 3,043
- Total NRM spend 2011-14: 5,388

No. of projects:
- 2,035
- 4,323
- 1,158
- 7,516

Cost performance — Percent over planned cost (Projects $0.1-$1 mil):

Year	Cost performance	Schedule performance (Months over planned completion date)
2011	16	10
2012	27	9
2013	30	10
2014	25	9
Average	25	10

Cost performance / Schedule performance (Projects >$1 mil):

Year	Cost performance	Schedule performance
2011	5	11
2012	5	16
2013	8	18
2014	9	23
Average	7	17

SOURCE: NRM Project Tracking Report for projects completed in CY 2011-2014

Cost overruns for NRM projects between $100,000 and $1 million are more than three times compared to cost overruns for NRM projects above $1 million, 25 percent and 7 percent respectively. The consistency of overruns during the past four years is driven in part by the following factors:

- **Large projects are more likely to take scope deducts.** Projects over $1 million are more likely to deduct scope than to fund a change order due lack of resources for NRM projects. Unlike minor projects, NRM projects are not allocated project-level contingencies. VISNs facilitate change orders, and can only approve additional funds when resources are available. As NRM projects are oversubscribed, access to these funds is often limited and dependent on how these funds have built-up over the course of the year as projects either fall through or come in below estimates. Since the visibility on this available pool is limited until the end of the year, a change order approval is often dependent on size rather than importance. Often times, smaller, urgent NRM items divert money away from the fund and prevent larger blocks of funding from coming available for larger projects.

- **Projects submitted to SCIP go through more rigorous business case development and cost estimation.** Projects over $1 million require a full business case to be completed as part of the SCIP submission. This requires Chief Engineers do significant cost estimating

and project definition for these projects as compared to projects under $1 million. Regardless of any reviews through the SCIP process, this initial investment from station-level engineers may provide more reliable capital estimates for projects.

7.2.2.2   Delays in Obligation of Awards Make it Challenging for NRM Projects to Meet Project Schedule

Figure 7-8 shows the cost and schedule performance of NRM projects by phase – design and construction. Delays in obligation awards are measured against the expected date of contract award to actual date of contract award. Delays in obligation of up to four months for NRM projects between design and construction phases contribute significantly to the overall NRM delays of 10 to 17 months. Interviewees have consistently cited a lack of resources in the procurement organization as the root cause obligation delays. From a network perspective, all VISNs struggle equally to meet schedule on NRM projects (Figure 7-9).

VA best practice case studies – Contracting processes

During the course of site visit interviews, a few locations stood out as best practice examples of how to facilitate interactions between the station and VISN leadership and their contracting counterparts.

Selected examples:

- **Alabama VAMC:** The local team created an online tracker system with electronic signatures to monitor different approvals and contributions to RFIs and contracting packages. The system allowed the organization to have visibility on bottlenecks and have performance dialogues on how to optimize response times and time to approvals.

- **VISN 4**: This VISN takes a long term strategic approach to the implementation of its NRM program by using a rolling plan to strategically prioritize projects VISN-wide across fiscal years. With this system, the capital team can develop contracting packages in advance of the next fiscal year, using the historical funding levels as a predictor the volume of projects which will be funding in the coming fiscal year. This enables projects to be ready for award during the first quarter of the fiscal year, increasing the likelihood that projects will be completed as scheduled. As a result, VISN 4 is a leader in the amount of funds obligated for NRM projects, though it should be noted that this has not improved their construction execution timelines.

7.2.2.3   NRM Projects Experience Higher Design Cost Overruns Than Construction Cost Overruns

On cost performance, design costs overruns for NRM projects may escalate due to different factors such as unforeseen conditions for renovation-type projects and scope change depending on evolving needs. Without clear boundaries around project scope defined during business case submission, and even design completion via the design funds, NRM projects have a higher likelihood of design changes during construction. Construction costs overruns for $1 million are lower potentially due to a more rigorous approach enforced by the SCIP process.

From a network perspective, cost overruns on projects greater than $1 million are limited to a few VISNs.

Figure 7-8. NRM Project Performance by Phase and Size

NRM projects above $1 million experience the lowest construction cost overruns, whereas all projects suffer from similar schedule delays

■ Projects $0.1-$1 mil
■ Projects >$1 mil

Schedule: delays in obligation of award

Delay in design award (planned obligation date to actual obligation date)
Months over planned date (n=1,426[1])

1.6 1.4 1.4 1.4 1.7 1.1 1.4 1.7

Cost: overruns compared to planned cost

Design cost overrun
Percent over planned design cost (n=1,364[1])

12 21 15 13 95 33 26 31

Delay in construction award (planned obligation date to actual obligation date)
Months over planned date (n=778[1])

2.6 1.7 2.7 3.0 2.6 2.8 3.0 4.0

Construction cost overrun
Percent over planned construction cost (n=767[1])

21 12 39 15 87 12 49 12

2011 12 13 2014

2011 12 13 2014

1 Sample sized adjusted based on completeness of information available
SOURCE: NRM Project Tracking Report for projects completed in CY 2011-2014

Figure 7-9. NRM Project Performance by VISN

Though all VISNs struggle with schedule, there are pockets of excellence, such as VISN 8, from a cost management perspective

NRM projects completed in CYs 2011-14
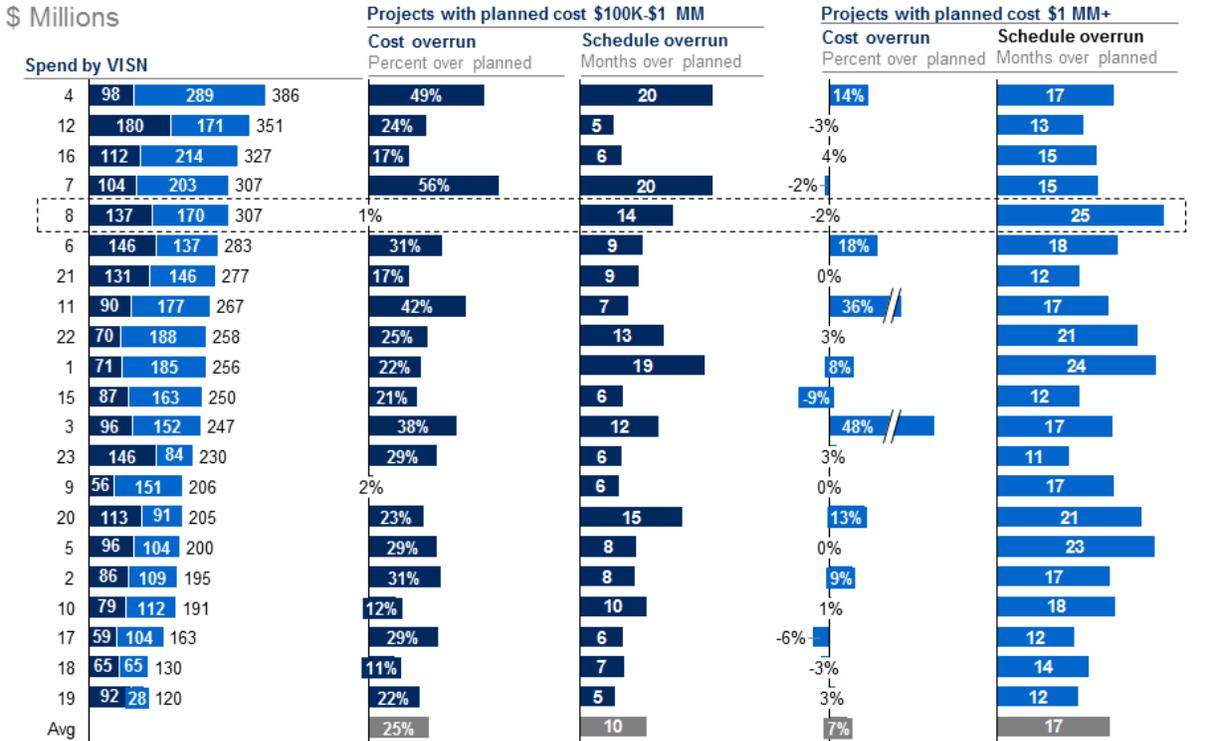
SOURCE: NRM Project Tracking Report for projects completed in CY 2011-2014

7.2.3   Process

7.2.3.1   Minor and NRM Programs Follow Similar Processes and Require Complex Multi-Stakeholder Approval Impacting Cost and Schedule of Projects

Minor and NRM projects experience similar phasing from concept, approval, design and execution. However, the activities and responsibilities vary. Figures 7-10 and 7-11 describe the process across the project lifecycle from concept and scope definition, capital allocation, design, construction and activation, and facilities management and illustrate the different approaches by type of project.

For minor projects, VAMCs are responsible for project scope definition, business case creation (including alternative stress test and cost estimation) and project SCIP submission to OAEM. Minor projects are approved without accounting for the funding limitations resulting in oversubscription of approved projects. Once the minor projects funding is appropriated, VACO allocates funding to projects as projects are ready to be obligated. Once funded, the VAMCs and VISNs lead project contracting and execution. The Contracting Officers lead the contracting process with help from VAMCs as needed. Following contract award, the primary manager of a minor project in the field is the Project Supervisor under the Chief of Engineering. Capital Asset

Managers at the VISNs help coordinate contract awards and modifications if necessary between Contracting Officers and VAMCs to help drive project execution.

Figure 7-10. Involvement of Different Entities in Minor Projects

Facilities functions distributed across VA
Minor projects

Legend: Supporting role / Critical role
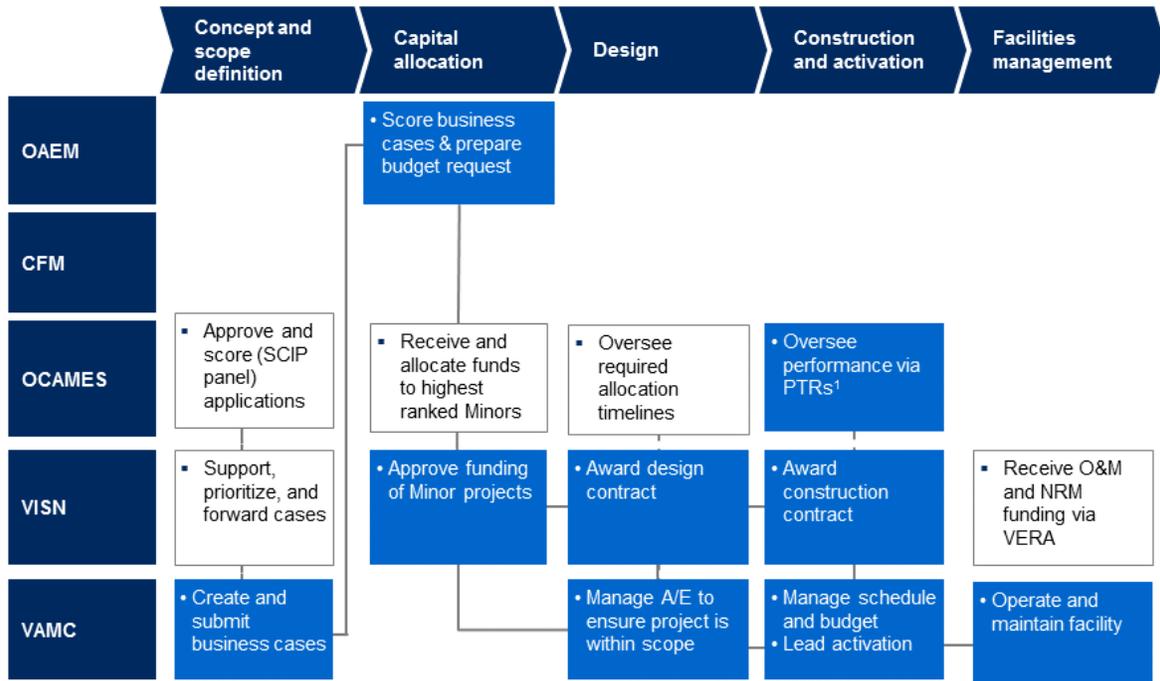
1 PTR: Project Tracking Reports

Figure 7-11. Involvement of Difference Entities in NRM Projects
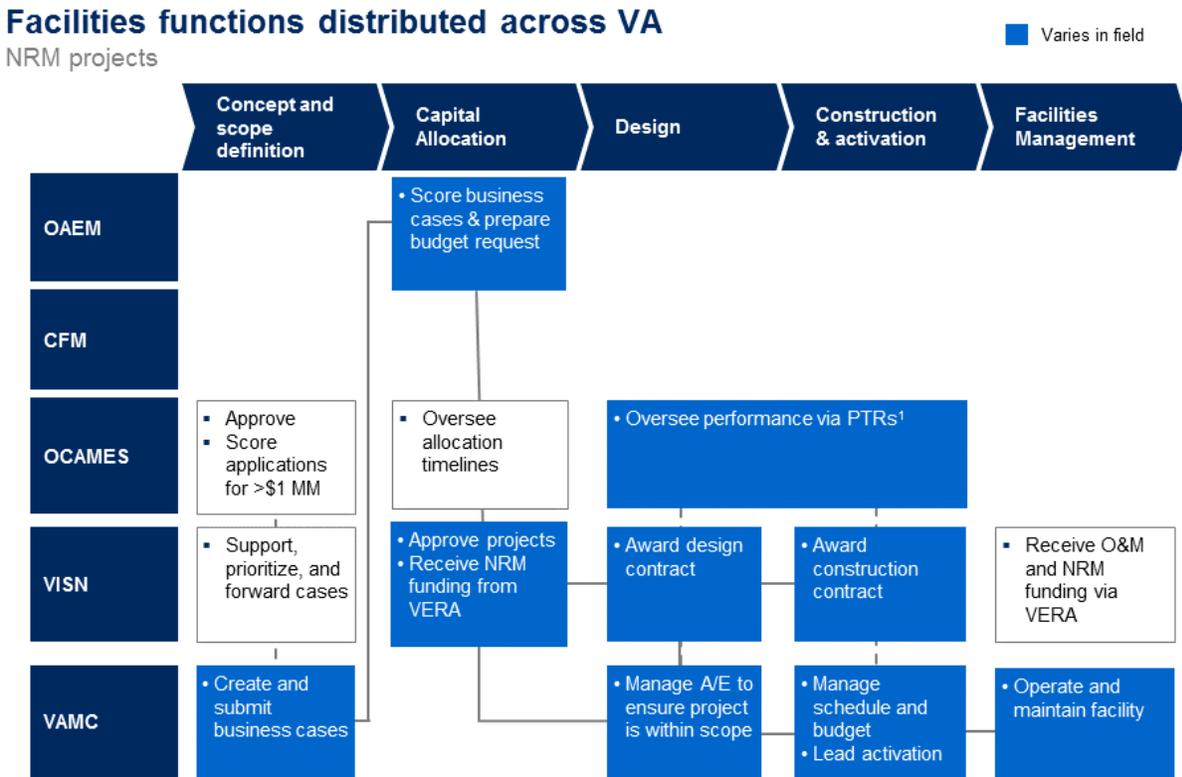
Facilities functions distributed across VA
NRM projects

For NRM projects, the process is very similar to minor projects in project scoping and SCIP applications, but differs in funding and approval process. Once a project is approved via SCIP and is ready to be obligated, VACO funds the design phase of the project which represents approximately 10 percent of the total project cost. Once funded for design, the VAMCs fund the construction phase with VERA allocated dollars.

For both project types, change order approvals are driven by available funding. For minor projects, contingency funds are already programmed during the planning phase making the process for change orders manageable. For NRM projects, the change order process requires multiple levels of approval centrally. NRM project funds are obligated in one fiscal year but executed in the next fiscal year. The timeline for NRM projects (Figure 7-12) is tight given the contracting timelines. Because NRM appropriations expire within one year, change orders – which are approved during execution phase – for projects obligated from one fiscal year cannot be funded from the same fiscal year funds without an approval process. The prior year fund approval process requires searching for available funds within VISN and then centrally at VACO and is complex, leading to schedule delays in the field. When funds for change orders are unavailable, the most likely levers executed in the field are scope deductions.

Figure 7-12. Timeline for Projects Funding and Approvals in NRM
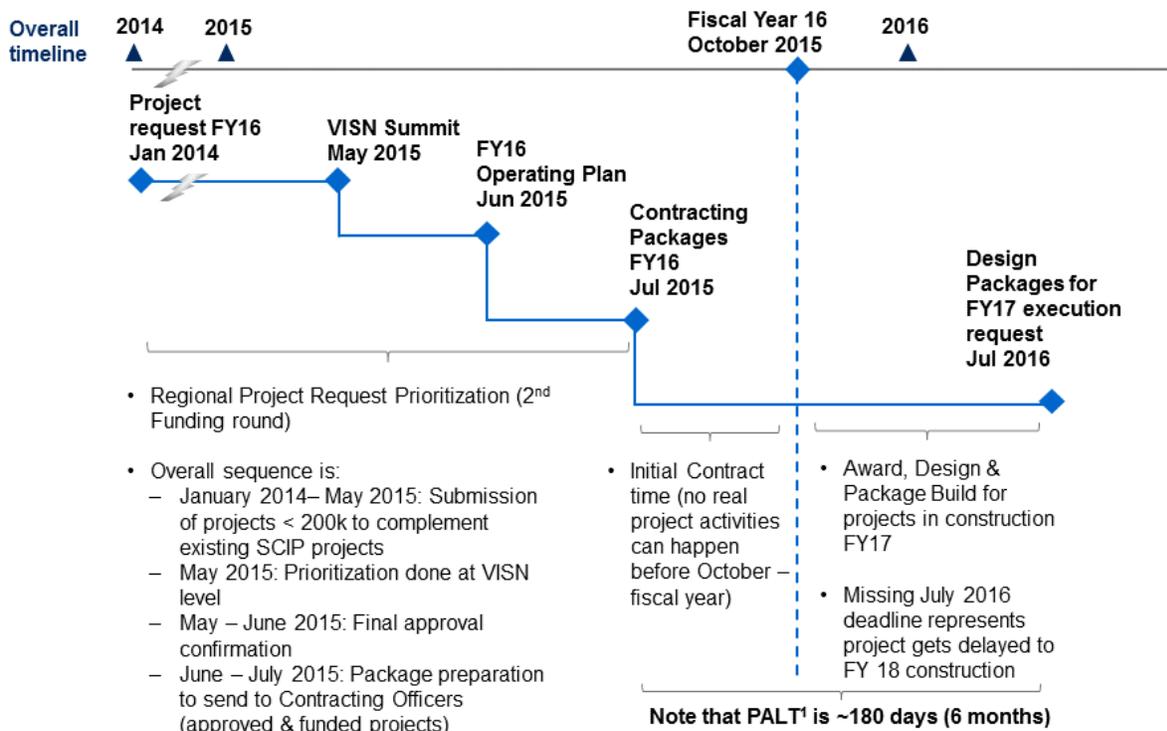
1 PALT: Procurement Administrative Lead Time
SOURCE: Multiple VAMC and VISN interviews, 2015

7.2.4 People

In assessing the organization responsible for delivery we considered the way in which VAMCs structure and resource their project delivery teams (PDT). We also assessed the impact that culture may have in VHA project delivery. Project delivery teams consist of the following key positions for a minor or NRM project:

- **Contracting officer (CO) at VAMC, VISN, or NCO:** Responsible for overall contract compliance and approvals. They are normally involved after a project is approved via SCIP and funded. The location for COs varies between local facilities, VISN, and NCOs across the organization.

- **Project Engineer at VAMC**: Responsible for project management in partnership with Contracting Officer and Contracting Officer Technical Representative (COTR). Project Engineers are usually involved from design through execution of the project. They also provide regular updates for active projects to OCAMES via Project Tracking Reports.

- **Capital Asset Manager (CAM) at VISN**: Responsible for providing general oversight during the planning, approval, and execution phase of the project

- **Contracting Officer Technical Representative (COTR) at VAMC**: Responsible for oversight and tasks delegated by the Contracting Officers for the project

7.2.4.1 Project Teams are Designed and Staffed to Support Compliance Requirements but These Structures Have Resulted in Reduced Accountability for Project Delivery Outcomes and a Limited Ability to Develop Solutions to Manage Cost Overruns and Schedule Delays

Minor and NRM project experience the same challenge of dispersed accountability between technical, contracting, and operations personnel. For minor and NRM projects, the Project Engineer leads the project execution in the field (see Figure 7-13) and is often responsible for project design. However, similar to major projects, the general contractor in the field is often unclear who the primary project owner is. The dispersion of contracting and execution creates silos that lead to potentially different objectives for the project. Such silos drive schedule delays due to unresolved issues with dependencies in project execution.

Figure 7-13. Project Delivery Team for Minor and NRM Projects

Project team structure for NRM and minor
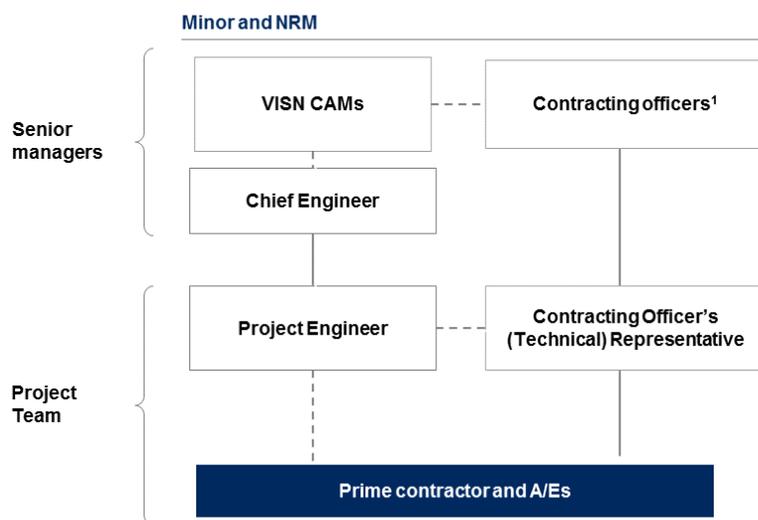
1 Contracting officers may be located on-site at facility or at VISN offices

SOURCE: VAMC interviews, NRM and Minor project handbooks

7.2.4.2 Facility-Level Engineers Are Understaffed and Undertrained to Manage Multiple Complex Projects

Project Engineers (PE) are often staffed on multiple projects simultaneously and have indicated that this prevents them from addressing field execution issue that may arise is a timely manner. This staffing situation for PEs is primarily due to a lack visibility on future workload. The opacity, variability, and length of the process from project submission to project funding does not allow a station to plan its workload accurately for a given year. In conjunction with long staffing

timelines, the Chief Engineer can struggle to balance workload with staffing capacity (VISN/VAMC Interviews, 2015).

Furthermore, Project Engineers likely need a wide skillset to successfully deliver all the projects they are managing – from leading project design to coordinating project execution of projects as small as $25,000 (NRM) to as large as $10 million (minor). The projects require considerable coordination with the facility staff given that minor and NRM projects are executed while maintaining the operations of the facilities. To manage the project successfully, the Project Engineer has to swiftly and successfully engage all the stakeholders – facilities staff, OCAMES, VISNs, A/Es, and general contractors, Contracting Officers, and COTRs.

7.2.5   Systems

7.2.5.1   The Tools and Databases Used at VA Are not Well Integrated, Impairing the Efficient Delivery of NRM and Minor Projects

A variety of tools and databases exist in VA to capture data for NRM and minor progress reporting and project management.

- **Project budgeting and cost control**: to provide selected financial information VHA leverages Financial Management System (FMS)
- **Contract management**: to record all contracts and relevant modifications, the contracting organization leverages the Electronic construction management system (eCMS)
- **Past project performance**: to consult past performance metrics for minor and NRM projects VHA has the Capital asset database (VSSC)

Similar to our observations in major projects (see Section 6.2.3), it has been shared during our interviews that there is little integration among the different systems, limiting their effectiveness as a project management tool, with data capturing occurring at multiple levels and manual reconciliation leading to confusion on the ultimate source of truth. Specifically, interviewees reported:

- Data capture is occurring at multiple levels and through multiple tools. (See Figure 7-14 for the list of known tools and databases and relevant pain-points for each database.)
- Manual reconciliation of data across multiple systems is tedious, leading many personnel to create and rely on their own spreadsheets to track project-related data. Across the site visits, the team observed numerous spreadsheets by Project Engineers, Chiefs of Facilities, Capital Asset Managers, and Contracting Officers to keep track of relevant data across the multiple systems and stakeholders.

Figure 7-14. Tools Used for Minor and NRM Program

The various tools and databases used by the VA are not fully integrated to help delivery projects efficiently

Tool or database	Description	Applicability	Key pain points
FMS (Financial Management System)	Financial management system to track funding obligations	• All	• Official record of spending, but not linked to other software
eCMS (Electronic Construction Management System)	"Filing cabinet" for procurement function with all contracts and relevant modifications	• All	• Limited to no access for personnel outside of contracting • Link to FMS, CIFMS, and PMDRI unclear
VSSC – Capital Asset Database	Intranet database with performance metrics on currently active and past projects	• Minor and NRM	• Need manual input to link to FMS • Project Tracking Reports do not include leading indicators or interim milestones
PMDRI	Financial and select project detail information	• Major and Minor	• Linked to FMS

SOURCE: VAMC interviews

7.2.5.2 VHA Has Standardized Financial Tools to Track Obligations but Limited Performance Management Systems to Track Minor and NRM Project Execution

VHA employs multiple tools for the management and execution of NRM and minor projects. Two primary tools encountered by the team are managed centrally by OCAMES: Project Tracking Reports (PTRs) and Performance Monitor Reports. Both reports are updated monthly. PTRs provide a review of the ongoing projects, and the Performance Monitor Report reviews the obligation status. Locally, the VISNs maintain a shared spreadsheet between Capital Asset Manager, Chief of Engineering, and the Network Contracting Manager with these data.

The primary purpose of the tools above is either a) tracking projects before contracts are awarded or b) tracking projects after contracts are awarded. The focus of the organization from Project Engineer to VISN and OCAMES is on meeting obligation targets throughout the year, particularly for the NRM program. Because NRM funds expire within one year, VHA has internal targets by quarter for the obligation of allocated funds. For example, each VISN must obligate 80 percent of funds by the third quarter of fiscal year. The variability in NRM funds due to stimulus funds further increases the necessity to obligate the appropriated funds in time.

Project execution tools such as PTRs contain key metrics that describe the project health, but are not well utilized in the field to drive actionable decisions. The primary challenge in executing tools such as PTRs is the accurate collection and validation of data. Project Engineers are required to initiate PTRs once the project is funded and are required to update them monthly. However, given the dispersed accountability across technical, contracting, and operations, as mentioned in the Section 7.2.3 above, Project Engineers may not necessarily have all the required information, such as the estimated date for design contract award. Finally, the systems lacks a feedback loop, either positive or negative, back to the Project Engineers from the upward reporting exercise, except for the lack of action of filling out a PTR.

7.3 Recommendations for Consideration

VA minor and NRM construction programs present a significant opportunity for increased efficiency. By shifting focus from meeting yearly obligation target to optimal project prioritization and delivery, VA can significantly optimize its capital requirements while addressing the right needs for Veterans.

The following recommendations are concentrated on improvements which can be delivered within the current minor and NRM capital program to deliver the right projects in a faster and more cost effective manner:

7.3.1 Enhance Merit-Based Project Scrubbing to Test Scope and Overall Cost and Schedule Prior to Business Case Submission

The implementation of additional control points can help VHA ensure proposed projects are adequately scoped rather than optimized for approval strategies (for example, budgeted right below the $10 million threshold) at the cost of project merits or efficiency (VACO/VISN Interviews, 2015). Specifically, items which could be tested include the following:

- **Scope alignment to identified needs:** Ensure that the business case submitted responds to initially identified needs (for example, space, access, energy) and addresses them in a holistic and cost-efficient way (for example, avoid project fragmentation to fall below the Major Construction threshold).

- **Benchmark project costs:** Assess cost efficiency benchmarks for similar projects conducted within the same VISN to ensure that budget costs and contingency are accurate.

- **Emphasize the need for adequate project design**: Lengthy approval processes can cause VAMCs to compress the aspects of the schedule within their control leading VAMCs to shortcut engineering stages to meet approval and funding timelines within fiscal years. Adequate engineering times would allow risk identification and diminish cost overruns.

- **Test standardization and consistency of outputs:** Ensure that the project maximizes standard and tested features from other projects that could significantly reduce procurement costs and execution times.

7.3.2 Empower CFM and OCAMES to Effectively Share Know-How, Lessons Learned, and Design Standards

OCAMES could be leveraged as a "center of excellence" to provide input along the minor and NRM project lifecycles. Creating regular best practice sharing, forum, and working groups between VAMCs would enhance project definition, design and delivery.

7.3.3 Set up Performance Management Systems That Serve as Tools for Fast Paced Decision Making, Early Risk Identification and Mitigation

Leverage systems and reports included in the major project recommendations (Section 6.3) to standardize output across VA capital management program. The reports, while adjusted to minor and NRM projects characteristics, should also serve as a management tool and provide a clear perspective on:

- **Project costs and funding levels:** Reports should provide a clear perspective on initial project costs (baseline), construction progress, and fact-based analysis of deviance versus initial estimates.

- **Integrated project schedule and critical path**: Reports should present an integrated master plan with a clear critical path and detail on construction and activation activities. The overall schedule should be cost loaded to provide a detailed cash flow forecast.

- **Critical activities progress KPIs:** For each of the critical path activities, the standard report should provide clear progress curves to compare estimated versus real productivity and recovery plans for delayed or underperforming work fronts.

- **Risk matrix:** Report should include an up-to-date risk matrix, ranking different risks based on likelihood of occurrence and potential impact as well mitigation plans for high risk and high impact areas.

Additionally, the system should also include references to safety and quality control standards, as well as a clear perspective on stakeholder management.

7.3.4 Staff and Train Project Delivery Teams (PDT) According to Minor and NRM Technical Complexity and Ensure Project Delivery Success

- **Provide clarity in the definition for individual roles and accountability for key decisions:** Especially for minor and NRM projects, which rely on local staffing rather than the full team CFM uses, clarity for roles and guidance on recommended interactions is critical for project success.

- **Ensure sufficient staffing of project team roles:** Even if minor and NRM projects fall below the $10 million category, staffing and oversight from OCAMES should consider complexity of the projects (for example, construction over an existing structural, mechanical and electrical reality) and whether they require additional resources to deal with all interfaces and challenges successfully.

- **Ensure the appropriate level of coordination between medical center and construction staff:** Roles such as the construction liaison, which bridges the gap between medical staff

needs and construction teams, have reduced the inefficiencies and challenges that most brownfield projects face. Coordinators could also monitor changes in technology and equipment which could have an impact on projects. This and similar liaison roles should be considered.

7.3.5 Transform the Contracting Organization to Align Contract and Change Order Approvals Processes With a Fast-Paced Environment

This would include:

- **Conduct an effort to map and streamline major processes and systems within the contracting organization** (for example, approval processes for change orders, response for RFIs) to increase agility of the decision making process and alleviate current workload levels.

- **Ensure proximity of Contracting Officers with facility:** Latest centralization efforts have resulted in increased challenges for VAMCs to interact with contracting officers. Dedicating specific personnel and ensuring a clear cadence of in-person visits and interactions would help reduce system inefficiencies and speed up processes.

- **Consider the unique needs of construction contracts when incorporating structural changes to contracting organization.** Construction contracts require a high degree of specialized knowledge as well as the ability to view site conditions both before and during the project. Structural changes to the contracting organization, pursuant to Assessment J, Section 5.2.1, should reflect these needs.

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8 Leasing Program Assessment

The existence of a strong leasing program is a critical component of VA's ability to adapt to changing Veteran needs. Leasing can provide the opportunity to decrease upfront capital cost and accelerate delivery of clinics, offices, research facilities, warehouses, and other facilities. Section 201 calls for an assessment of the medical facility leasing program. We have evaluated four aspects of the leasing program, and have explored a set of questions within each:

- **Outcomes:** Is VHA paying a fair price for leased facilities? Do contract terms ensure that VHA gets the most out of its leased facilities? Does the leasing program enable VHA to quickly scale capacity up and down to maximize Veteran access to care?

- **Process:** Has VA instituted an optimal process for medical facilities to acquire new or renew existing leases? How consistently is that process adhered to, and does it result in timely execution? What pain points exist and how could those be alleviated?

- **People:** Are the right entities involved, with clear roles and responsibilities? Do staff members have the right capabilities to fulfill those responsibilities?

- **Systems:** What systems are employed in the delivery of the leasing program? Do they facilitate efficiency and enable strong oversight and performance management?

8.1 Preface

8.1.1 Overview of VHA's Lease Portfolio

While nearly a quarter of all VHA buildings are leased, these facilities tend to be smaller than owned facilities and represent just over 10 percent of the physical space VHA occupies (FRPP, 2014). Of the approximately 1,600 facilities leased by VHA, nearly half are used primarily for the direct delivery of patient care, with the remainder primarily utilized for administrative functions and Veteran community centers. A relatively small number of other medical, research, and residential properties are also leased by VHA.

Figure 8-1. Lease Portfolio Overview
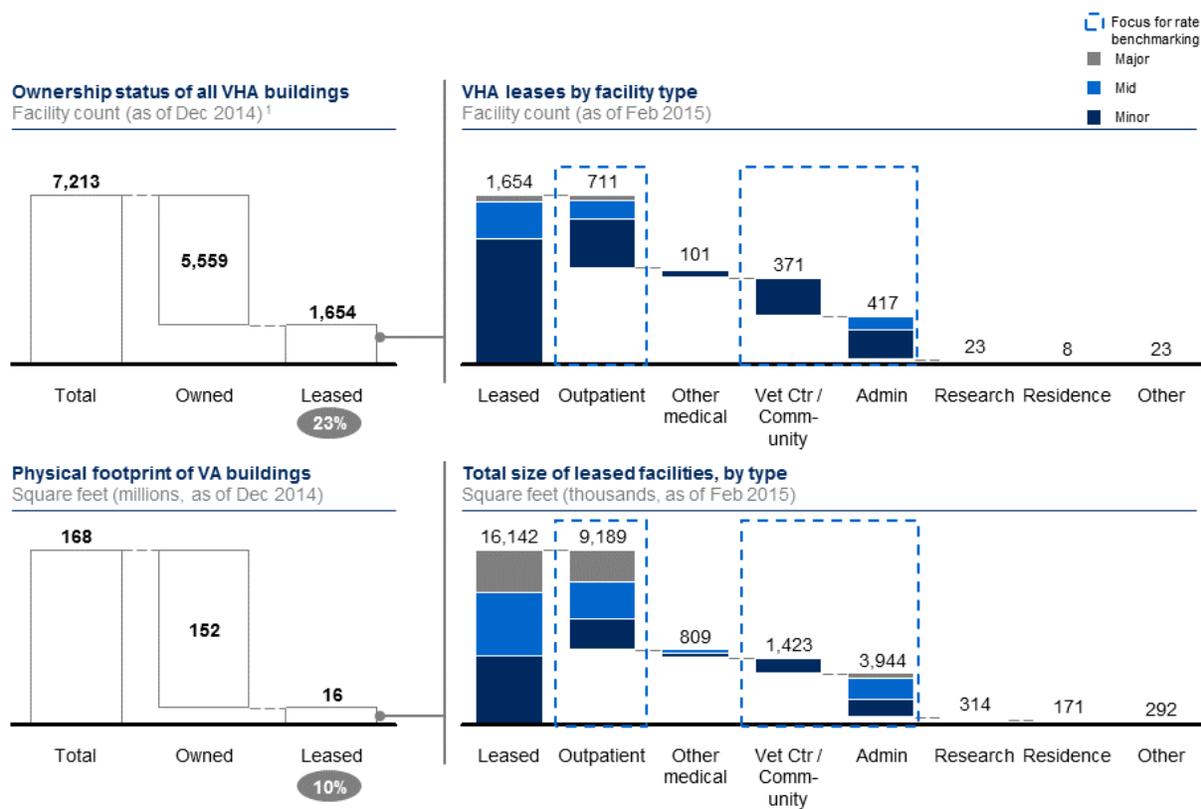
1 Data from FRPP submission adjusted to include GSA Occupancy Agreements and non-building leases (e.g., land) to reconcile figures with CAI lease data

SOURCE: OAEM data from 2014 FRPP submission; Capital Asset Inventory database

According to the Capital Asset Inventory database, existing lease contracts obligate VHA to spend approximately $420 million annually on rent for its leased properties.[51] In line with its footprint, just over half (approximately $250 million) of this spend is for outpatient care facilities such as community-based outpatient clinics, satellite outpatient centers, and other similar facilities. Medical centers typically view leasing as the default option when they need to expand their physical footprint to provide increased access to outpatient care for Veterans. Leasing is perceived as a method of acquiring space more quickly than construction, acquiring small spaces for which construction is not an option, and acquiring space without having to secure approval for a major construction project. Leased administrative space costs VHA just under $100 million in annual unserviced rent,[52] with community facilities, other medical facilities, research, and residential facilities comprising the remainder.

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[51] While this represents annual obligations, lease contracts are multi-year and the long-term costs of VHA's leasing program have been estimated at $5.5 billion and growing (Government Accountability Office, 2014).

[52] Unserviced rent is defined as "the base rent, including real estate taxes, insurance, and any amortized build-out, but excluding operating expenses" (VA Directive 7815, 2012).

Figure 8-2. Lease Portfolio by Rent and Size

Facility type $ Millions annual unserviced rent		Avg annual rent $ Thousands	Avg size Thousand square feet	$ / NUSF	Leases Total	Majors
Outpatient ($251)	CBOC	275	10.2	23.9	575	24
	Satellite OPC	946	32.0	23.9	52	14
	Outpatient	467	13.8	23.2	26	2
	Hosp Based OPC	721	24.5	24.4	18	3
	CBOC/Vet Center	106	5.1	21.1	15	0
	Independent OPC	1,266	31.5	39.2	13	6
	Telehealth	48	2.5	20.2	7	0
Administrative ($98)	Office	212	9.6	21.8	266	3
	Parking	288	5.8	N/A	61	1
	Warehouse	99	13.3	8.3	47	0
	Administrative	349	16.1	N/A	44	3
	CMOP	662	79.7	8.2	6	0
Community ($35)	Vet Center	87	3.6	25.9	293	1
	Outreach Clinic	89	3.9	23.0	61	0
	Community	245	8.0	25.4	17	1
Other medical ($20)	Mental Health	182	7.7	22.3	63	0
	Specialty	217	8.5	24.6	36	1
	Hospital	278	12.0	23.2	1	0
	Drug Treatment	26	1.6	16.5	1	0
Research / Education ($12)	Research	570	14.6	33.4	19	3
	Education	180	9.2	19.5	4	0
Residence ($3)	Domicilary	388	18.2	21.2	6	1
	Nursing Home	524	26.0	20.1	1	0
	Residential rehab	497	36.0	13.8	1	0
Unspecified[1] ($3)	Not specified	123	6.3	N/A	21	0
Total portfolio		$420 million	16 million sq. ft.		1,654	63

1 16% of VHA leases were originally categorized as Other and were manually recategorized based on lease name descriptions

SOURCE: Capital Asset Inventory Database as of February, 2015

Geographically, leased properties are spread across the United States. While leasing occurs in every VISN, some rely on it more heavily than others. VISN 8 (comprised of Florida, Georgia, Puerto Rico and the Virgin Islands) and VISN 17 (Texas) account for 12 percent and 10 percent of VHA's total annual rent obligations, respectively. Other small VISNs (5, 3, and 2) combined comprise less than 5 percent of total rent obligations.

Figure 8-3. Lease Portfolio by Geography

Leasing activity by VISN

Number of leases ● | XX | X% | ● Share of VHA rent obligations

Share of total VHA rent obligations
High ▉▉▉▉ Low
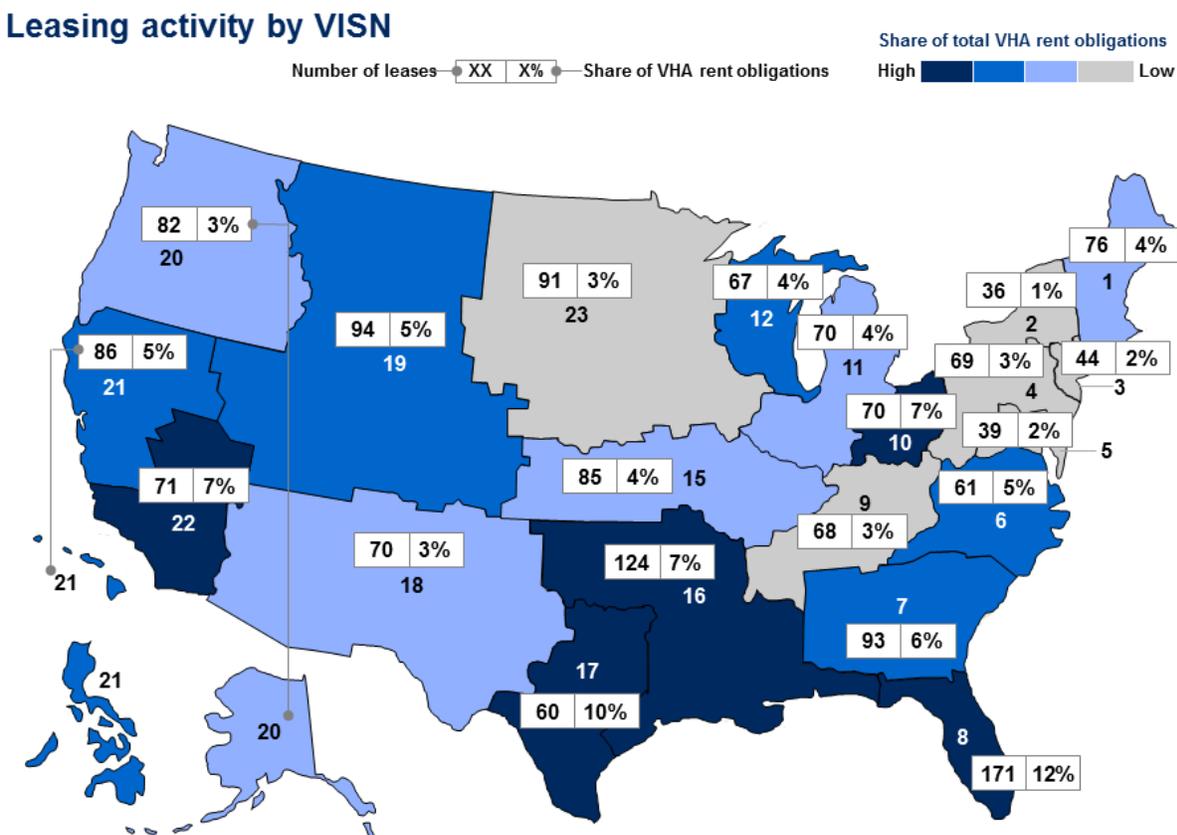
Note: Puerto Rico not included in map given lack of leases in OAEM index   78

8.2   Findings

8.2.1   Outcomes

As pressures mount for health care providers to effectively deploy capital, focus on the core business, and take advantage of cost savings associated with the transition to outpatient care, health care systems are increasingly turning to leasing to fulfill their facility needs. As such, VHA's focus on leased facilities is in keeping with current thinking in the industry. However, to be considered successful, a health care leasing program would need to achieve the following:

- **Costs:** Optimize the costs of meeting facility needs by freeing capital for more effective use.

- **Time and flexibility:** Enable more rapid and flexible fulfillment of facility needs than could be achieved through owned facilities.

- **Quality:** Provide high-quality facilities and facility-related services to patients, providers, and administrators. This is determined largely by quality stipulations in the lease contract and willingness to enforce the contract.

Our findings suggest that VHA has room for improvement in some of these areas. Below we provide an overview of our assessment of VHA's performance against these three outcomes. In the subsequent sections we explore the underlying causes of these outcomes through an assessment of the processes, people, and systems that support the leasing program.

8.2.1.1 VHA Lease Rates Are Similar to Benchmark Rates for Smaller Facilities, but Higher Than Benchmark Rates for Larger Facilities

To assess VHA's cost outcomes, we conducted an extensive cost benchmarking exercise of VHA rates. Using CoStar, a database of U.S. real estate data and price information, we benchmarked VHA rates against market rates for comparable properties of similar class and size in close proximity (within five miles) of the VHA location. We completed this exercise at the individual facility level for more than 280 leased VHA properties that were associated with the stations randomly selected for our site visits. Benchmarked facilities included major, mid, and minor outpatient facilities as well as administrative buildings and Veteran Centers.

We then tested the benchmarking results of the above large-sample approach with an in-depth study of a smaller sample of leased facilities. To do so, we conducted a detailed examination of the lease contracts of this smaller sample of facilities and benchmarked adjusted rental rates against a specific set of comparable properties. We verified the comparability of these rates with real estate brokers, appraisers, and other real estate experts.

In order to ensure comparability of benchmark rental rates with the rental rates of VHA facilities, we made two adjustments to the benchmark rental rates (see Figure 8-4):

- **Rentable square feet (RSF) to net usable square feet (NUSF).** While benchmark rates in the CoStar database are denominated in RSF, the VHA database used NUSF. These are both standard approaches that measure different amounts of space in a given building, with RSF typically approximately 15 percent higher than NUSF in VHA clinical facilities. Given the benchmark rents were addressing RSF, we applied this 15 percent factor to be comparable to the smaller NUSF numbers used in the VHA database.

- **Office space to medical space.** Second, we adjusted the benchmark rental rates– to account for the increased cost to rent clinical spaces. Clinical space carries specific physical requirements to meet medical needs, such as room configuration (including private patient bathrooms), wide doorways for access, higher structural requirements, specialized ventilation, and sound control for improved patient experience and privacy. While we attempted to find comparable clinical spaces in the benchmark database, this was not always possible. VA's Office of Construction and Facilities Management (CFM) and Office of Asset Enterprise Management (OAEM) suggested a 35 percent adjustment to account for the premium paid to rent clinical space. This number was validated with a set of outside experts. As such, our benchmark rates were inflated by 35 percent to compare to VHA clinical spaces.

Figure 8-4. Lease Rate Benchmarking Results
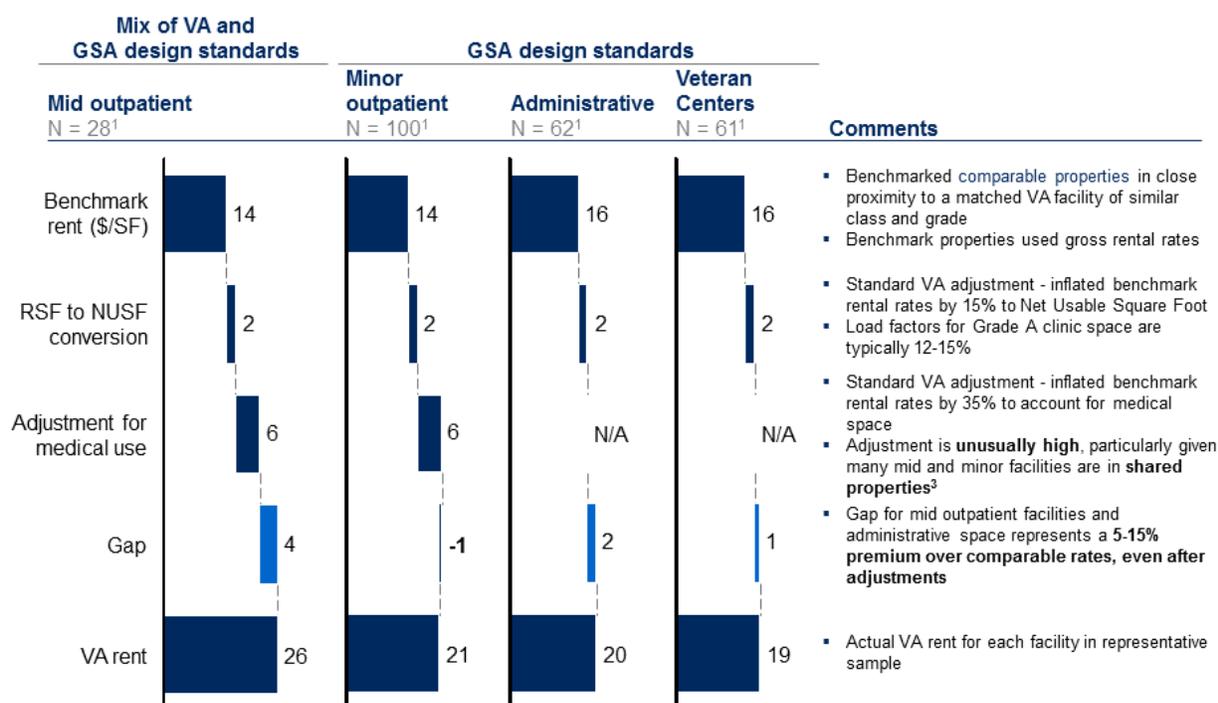
1 The sample included all outpatient, veteran center, and administrative leases associated with a representative sample of 24 VA medical centers which represent the VAMC system as a whole across critical facility demographic and performance outcome metrics. 251 leased VHA facilities were included

2 CoStar database was used to benchmark current VHA lease rates on a square footage basis, using comparable office or medical buildings within 2-5 miles of the leased facility and classified as 2-3 star buildings

3 Properties shared with other tenants who are paying lower rents – the only premium VA should be paying are for internal fit-outs (sinks, shelves, etc.)

SOURCE: VA Rental Rate Explanation for GREX; CoStar Database, CBRE Global Office Occupier Guide

After applying the necessary adjustments we found that for the smaller and simpler facility types (minor and mid-sized outpatient clinics, administrative space, and Veteran centers) VHA rates were, on average, very close to benchmark market rates. While there are some gaps ranging from VHA paying approximately $1 per square foot less than market rates for minor outpatient clinics to $2 per square foot more than market rates for administrative facilities, these differences are within expected variability. This appears to demonstrate that VHA's approach of ensuring market competition for such leases is working well in achieving market rates for facilities that do not require significant structural customization to meet VHA-specific design standards.

Some mid-sized outpatient facilities, and nearly all major outpatient facilities, however, were built specifically to meet the design specifications of VHA. In these "build-to-suit" leases, VHA contracted a developer to design and build a customized facility, which was then leased to VHA. According to our benchmarking (see Figure 8-5), there is a gap between the VHA's rates and market comparables, which may be attributable to two characteristics unique to VHA. First, and most importantly, VHA facilities are subject to more stringent design specifications than benchmarked facilities (for example, resilience and structural security requirements, as well as environmental standards, discussed in Section 6.2.5.1). Given that the larger premiums over market rates appear with mid-sized leases – some of which are build-to-suit, and are highest for

the major leases – it is likely that these unique requirements for major outpatient clinics are a significant factor in the higher rental costs. Second, VA is constrained in the geographies and timing of lease activations; as a result, it may have less flexibility than private sector competitors and may be in a disadvantageous negotiating position.

Figure 8-5. Major Lease Rate Benchmarking Results
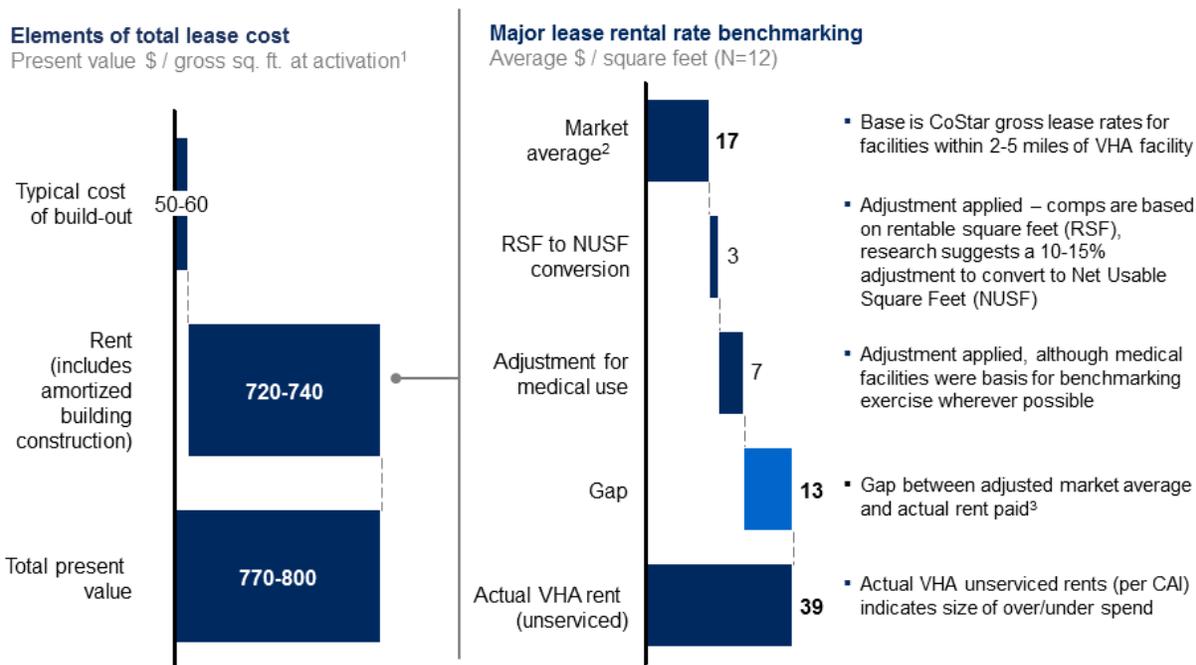
1 Average cost, derived from 28 major lease prospectuses included in the VA 2014 Budget. Using OMB A94 20-year discount rate of 3.1% and inflation rate of 2% for 20 year term and including projected build-out costs incurred at year of activation
2 CoStar database was used to benchmark current VHA lease rates on a square footage basis, using comparable office or medical buildings within 2-5 miles of the leased facility
3 For the 12 facilities, the unexplained gap clustered around 40% with 2 outliers where the VHA rate was below benchmark (Jamaica Plain [Boston, MA] and San Jose, PR)

8.2.1.2   Lease Timelines Preclude VHA From Benefitting From the Speed and Flexibility Leasing Typically Provides, Often Taking Over Twice as Long as Private Sector Benchmarks

One of the primary values of a leasing program is its ability to respond to changing facility demands faster than owned properties. However the time it takes to execute a lease often precludes VHA from effectively realizing this flexibility. Including the time required for planning, approvals, budgetary authorizations, project development, construction, and activation, CFM's guidance for the total time required to secure a major lease (see below for detailed descriptions of lease types) is approximately six to eight years (Figure 8-6). In reality, major leases that have been completed are taking almost nine years.[53] These lengthy timeframes are

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[53] Data on major leases provided by Real Property Services (CFM) in May 2015.

in contrast with other public sector agencies that often complete major leases in significantly less time and private sector expectations of build-to-suit leases that often take less than three years.[54] While minor leases are much faster than major leases, largely because of the more limited approvals required, delays have been introduced as a result of the GSA delegation of authority to VHA being rescinded, and the resulting addition of required approvals for VHA leases. In an encouraging sign, the most recent major leases have been completed closer to the guideline of 65 months.

Figure 8-6. Major Lease Timelines, VA and Private Sector

Time associated with each major lease stage
Months

Legend:
- CFM guidance[1]
- VHA actual[2]
- Private sector benchmark[3]

		Gap, VA plan to actual	Gap, VA actual to private sector
Planning and SCIP	12 / 12 / 6	0	6
Approvals and budget authorization	12 / 18 / 2	6	16
Project development, construction and activation	52-67 / 74 / 24	7-22	52
Total time	76-91 / 104 / 32	13-21	72
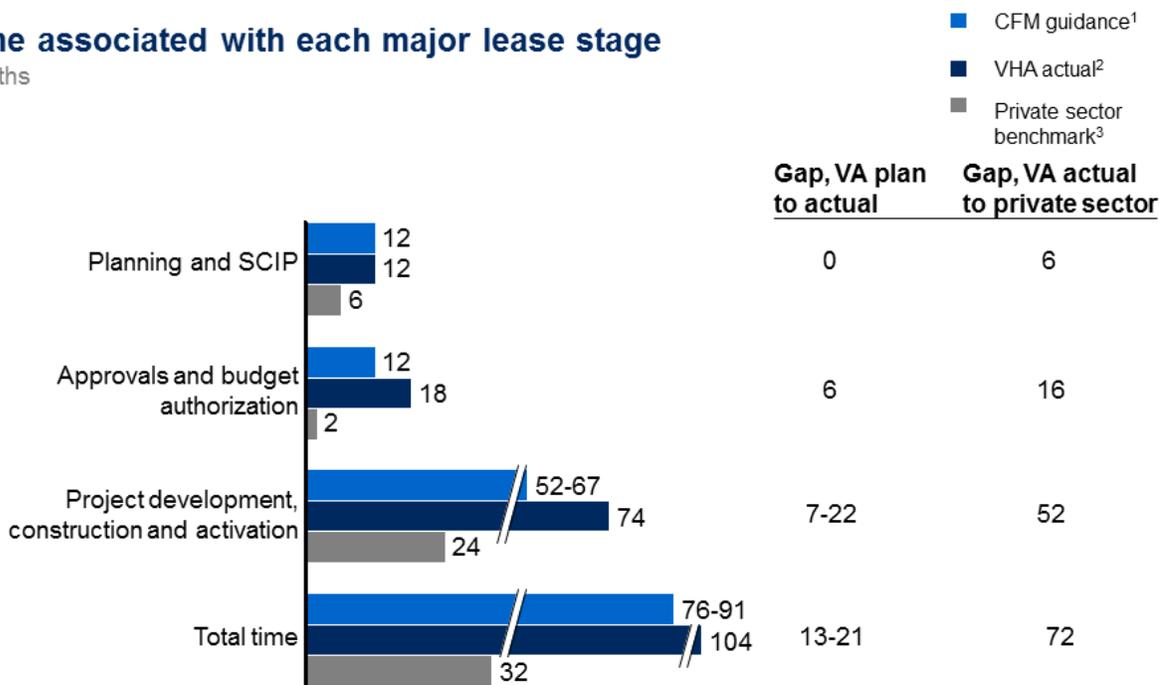
1 Estimate based on published documentation and interviews with VAMC , VISN, NCO, and VACO staff
2 For Planning and SCIP, and Approvals and budget authorization, estimates are based on interviews and existing guidance; for other stages, based on the average number of months from Congressional authorization to facility activation for 20 major lease based on data from CFM Real Property Service as of May 2015
3 Based on interviews with current or former C-level executives at 5 private sector hospital groups, with experience leasing facilities of similar size

SOURCE: VA Directives; Staff Interviews; OIG Report; GAO Report "VA Real Property", CFM Real Property Service

These timelines have three main ramifications. First, and most importantly, access to care for Veterans is negatively impacted. The duration and unpredictability of the leasing process makes it difficult for VHA to adapt the scale and location of capacity to changing Veteran demographics, and – as some leases expire before others are activated – can result in gaps in the availability of care. Second, this extension of the lease process creates substantial work for employees across VA, increasing internal capacity needs and costs, and diverting resources away from other activities. For example, station and contracting staff must constantly monitor and shepherd a lease throughout a multi-year approval and contracting process, creating

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[54] Expert interviews and experience of leasing brokerage firms that work extensively with the federal government.

capacity constraints. Third, an extended leasing process increases the likelihood and volume of requests to modify the requirements of a leased property, particularly for major leases, increasing cost of the project and creating a reinforcing cycle of delays. This is particularly consequential for the high-cost, build-to-suit leases.

8.2.1.3 VHA Lease Contract Terms Are More Tenant-Favorable Than Industry Standards, but These Terms Are Often not Well Enforced

In addition to cost benchmarking, we conducted a detailed review of the contractual terms typically included in VHA leases. Based on a sample of leases selected to represent different facility types and lease values, we observed a trend of tenant-favorable provisions that are often not found in standard leases of comparable facilities (Leases for full contract analysis, OPL, 2015). Specific VHA terms that are unusually favorable are as follows:

- Broad rights to assign or sublease to another party, often with no restrictions
- No specified tenant insurance requirements
- Minimal to no restrictions on alterations to be performed by tenant during the term
- No obligations to restore the property to its original condition
- No specified penalties for tenant defaults, including late charges or interest
- Tenant receives a discount on operating expenses if tenant vacates a portion of the space

There were two areas where typical provisions were potentially unfavorable to VA:

- No right to audit landlord's books regarding operating expenses
- Renewal rights (for option years) are pre-specified; while this provides cost certainty for the tenant, it limits the ability to capture any favorable changes in market rates

On the whole, it appears that VA negotiates favorable contract terms, and for the most part, does so while paying fair market prices. However, while contracts may include favorable terms, these contracts are often not enforced (VACO/VISN/NCO/VAMC Interviews, 2015). While facility management staff generally indicated that the vast majority of lessors fulfilled their contractual obligations and provided excellent space and service to VHA, interviewees indicated numerous instances in which a lessor was not fulfilling perceived obligations in regards to maintenance activities. In no cases, however, did interviewees indicate that the contractually provided recourse was taken, and both contract officers and station staff indicated a reluctance or lack of capacity to actively enforce contracts.

8.2.2 Process

8.2.2.1 Overview of the Leasing Process

We have conducted a high-level review of the processes supporting the leasing program, which include planning and funding; procurement, construction, and activation; and ongoing management and renewal. The specific process steps a given lease goes through depend on the category into which the lease falls. The criteria that determine the lease category include

The views, opinions, and/or findings contained in this report are those of the assessment team and should not be construed as an official government position, policy, or decision.

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square footage, cost, duration of the lease contract, and other criteria such as parking spaces and portion of the building's value that is covered by the lease contract (Figure 8-7).

Figure 8-7. Lease Types

Our review of VHA's leasing program has looked at multiple lease types
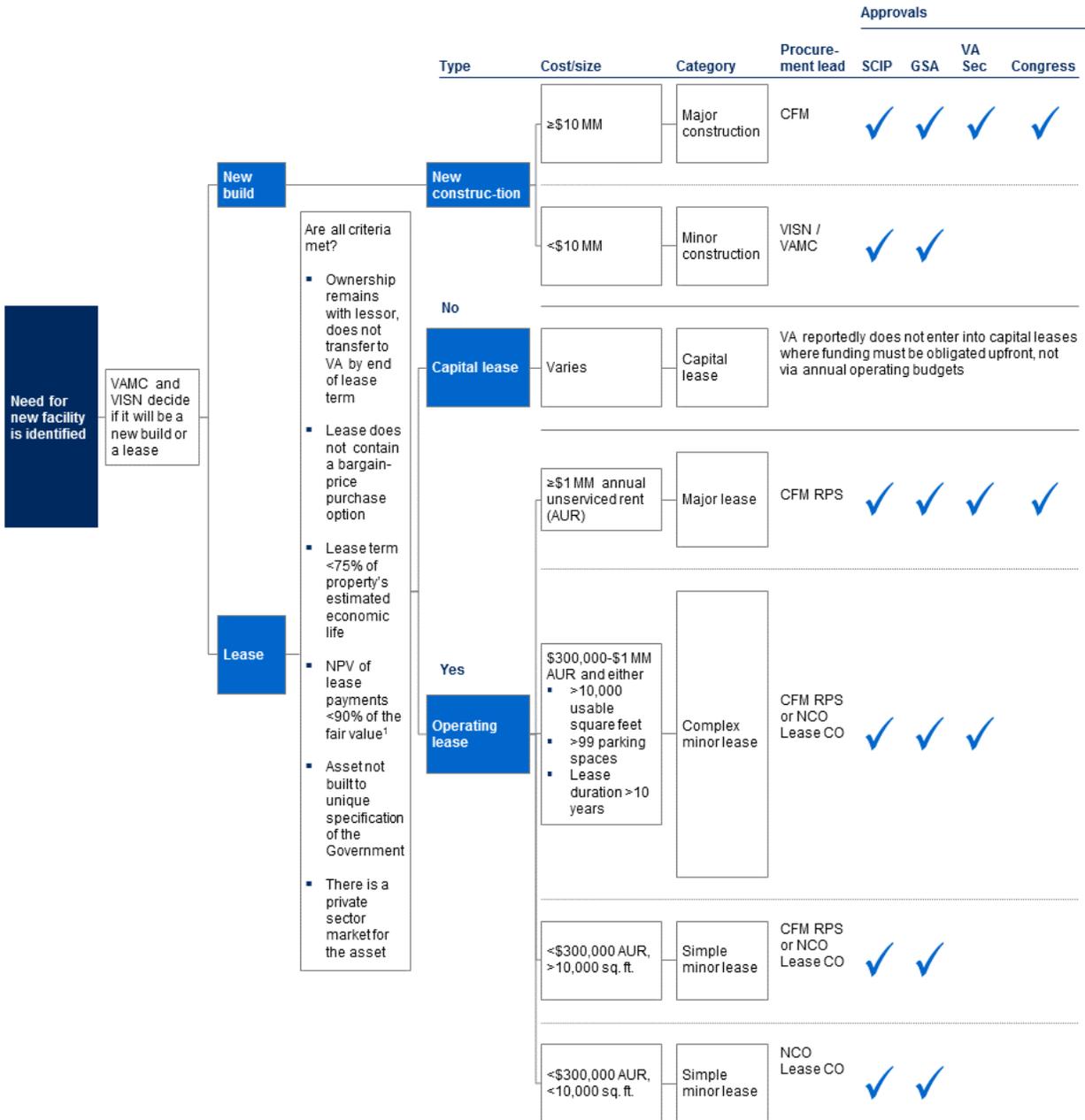
1 As scored by RPS at key project milestones

SOURCE: OMB Circular A-11 Appendix B; Staff Interviews; VA Handbooks and Directives

Broadly, there are four categories of leases, each of which follow different processes and necessitate different levels of approvals:

- **Capital leases** involve the transfer of ownership, a net present value (NPV) of lease payments greater than 90 percent of the asset's value, a purchase option, the construction of a facility that cannot be utilized by another lessee, or an ownership shift. These leases require upfront obligation of all lease costs, and are thus very rarely used for VHA facilities.

- **Major leases** do not meet the capital lease criteria, but are above $1 million in annual unserviced rent. As with leases of all sizes, stations must formally submit these leases for approval through the Strategic Capital Investment Planning process, as well as receive approval from GSA, the VA Secretary, and Congress. Once approvals are secured, major lease procurement and management is handled centrally by the Real Property Services group within the Office of Construction and Facilities Management. According to the Capital Asset Inventory database VHA has 63 major leases representing 37 percent of total annual rent obligations ($154 million).

- **Complex minor leases**, which are above 10,000 square feet, have greater than 99 parking spaces, or include a contract duration of more than 10 years, may be handled centrally by Real Property Services or by the Office of Procurement and Logistics' Network Contracting Offices (NCOs) at the discretion of the VAMC Director. However, Real Property Services has submitted a formal proposal to delegate the procurement and management of these leases to the NCOs and local medical centers. VHA has 361 leases that fall into this category, representing 32 percent of annual rent obligations ($135 million).

- **Simple minor leases**, which are below $300,000 annual unserviced rent and less than 10,000 square feet are procured and managed by the Network Contracting Offices and local medical centers. These represent the large numeric majority of VHA leases, covering 1,230 facilities and 31 percent of annual rent obligations ($132 million).

Regardless of the lease type, there are 8 stages in the end-to-end leasing process, with the following owners for each stage:

1. Planning and requirement identification – station

2. Strategic capital investment planning – VISN, OAEM and VAMCs

3. Approvals from VACO and GSA – OCAMES and OAEM

4. Lease project development – contracting officer (either NCO or CFM RPS)

5. Construction tenant improvement – VAMCs and contracting officer

6. Activation – contracting officer and station

7. Management – contracting officer and CORs

8. Renewal – contracting officer and station

The figures below map out the end-to-end process required to complete major and minor leases, identifying challenges that VA staff described at different stages of the process.

Figure 8-8. Process and Pain Points in Phase 1
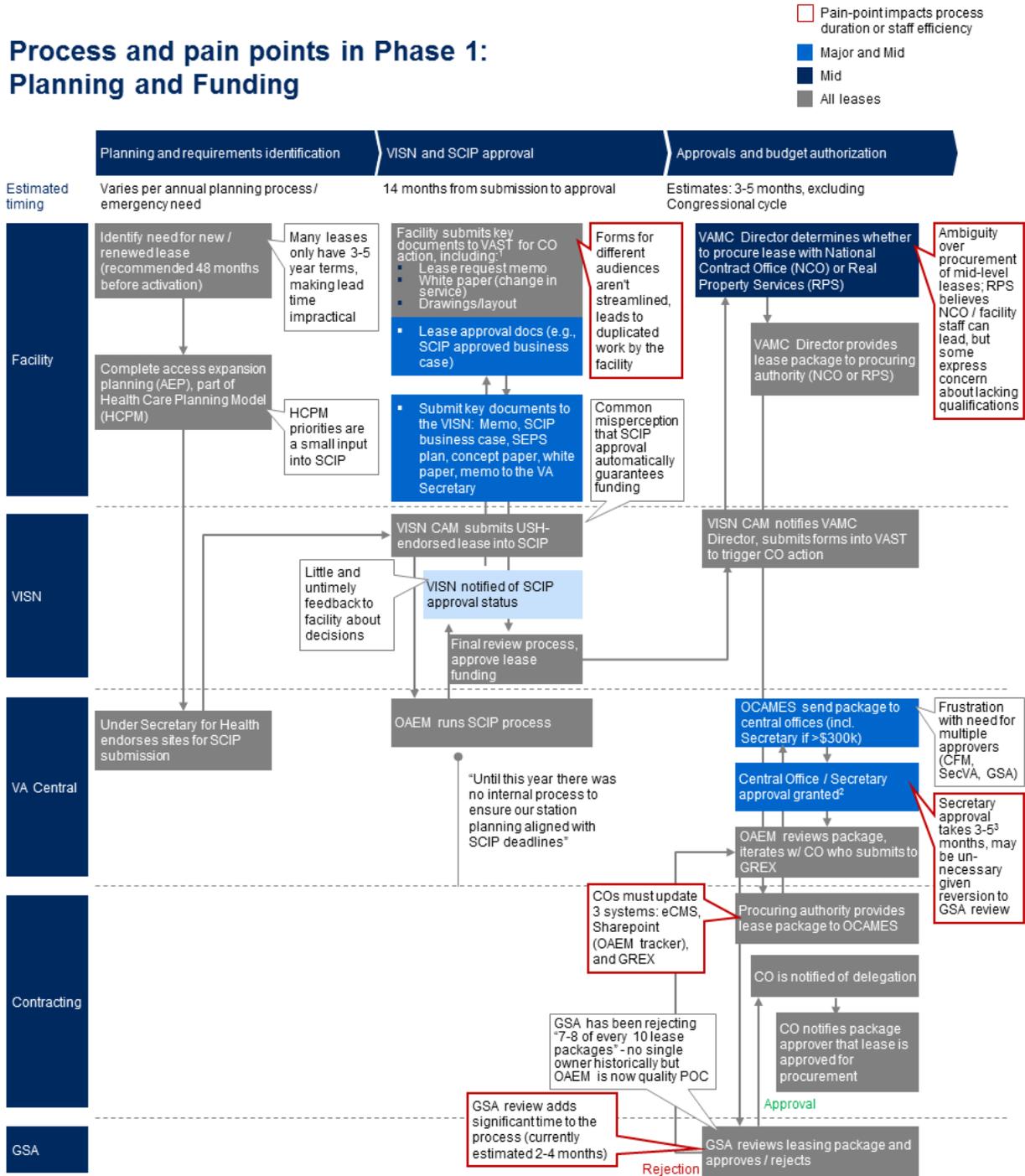
1 Major leases require additional forms: OMB 300, lease prospectus, SEPS plan
2 Major leases require Congressional action and are included in the budget request for authorization
3 Based on May 29th document "Request for Approval to Rescind and Replace the Existing Secretarial Approval Requirement for Mid-Level Lease Procurement (VAIQ 7511099), SECVA approval requirement was removed for lease packages under $1 million

Figure 8-9. Process and Pain Points in Phase 2

Process and pain points in Phase 2:
Procurement, Construction, and Activation

Legend:
- Pain-point impacts process duration or staff efficiency (red outline)
- All leases (gray)

Project development: Solicitation[1] / Procurement / Design | Construction | Activation

Estimated timing: 14 - 17 months | 12 months | 8 months | 12 - 24 months | 6 months

Facility
An extended approvals process increases likelihood that VAMC / VISN needs will have changed, requiring significant re-design

Equipment / furniture installation
Clinic opens
Inspection and building activation

VISN
"RPS staff are much more skilled than we (NCO leasing COs) are, and they get brokers – we aren't sufficiently trained to do this and need assistance"

Obligate funds for lump-sum build-out and first year's annual rent (future budget through annual general purpose funds)

Post-award kickoff and user group meetings

Design approval (at 75% and 95%)

"Sometimes a 'completed' building still has a punch list of 15,000 items that fall to facility staff to complete"

VA Central
IDIQ task orders for real estate broker and A/E

Advertise and conduct market survey

Develop conceptual design (to 35%)

Develop solicitation document

Conduct site due diligence

Hold pre-bid conference and clarify requirements

Receive, evaluate, negotiate offers

Award lease and submit congressional notification

Significant variance in time due to complexity and staffing constraints

Project justification and SCIP approval documents often lack robust planning, requiring significant design work and longer solicitation timeframes

"Sometimes we (COs) get pressure to approve a bid even if the facility is low quality – then we're expected to manage it"

"Despite design templates, the VAMC Director has final say – we should remember the customer is all Veterans and we can't customize everything for each MC"

Activation funds are expensive and not line-item budgeted, causing a significant hit to the VISN budget if requests are not fully funded (VISN needs to complement funding)

Contracting
"Political considerations can influence site selection"

"We (NCO leasing COs) aren't located near sites and don't have travel budgets to do necessary diligence – we should be affiliated with a station"

Contract for all equipment required for activation

External
Competition requirements may a require solicitation re-issue if insufficient bids

Developers submit bids

Site/construction preparation

Construction

1 VAMC, VISN, VACO (RPS) and NCO may all be involved in solicitation depending on lease size and solicitation stage

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Figure 8-10. Process and Pain Points in Phase 3
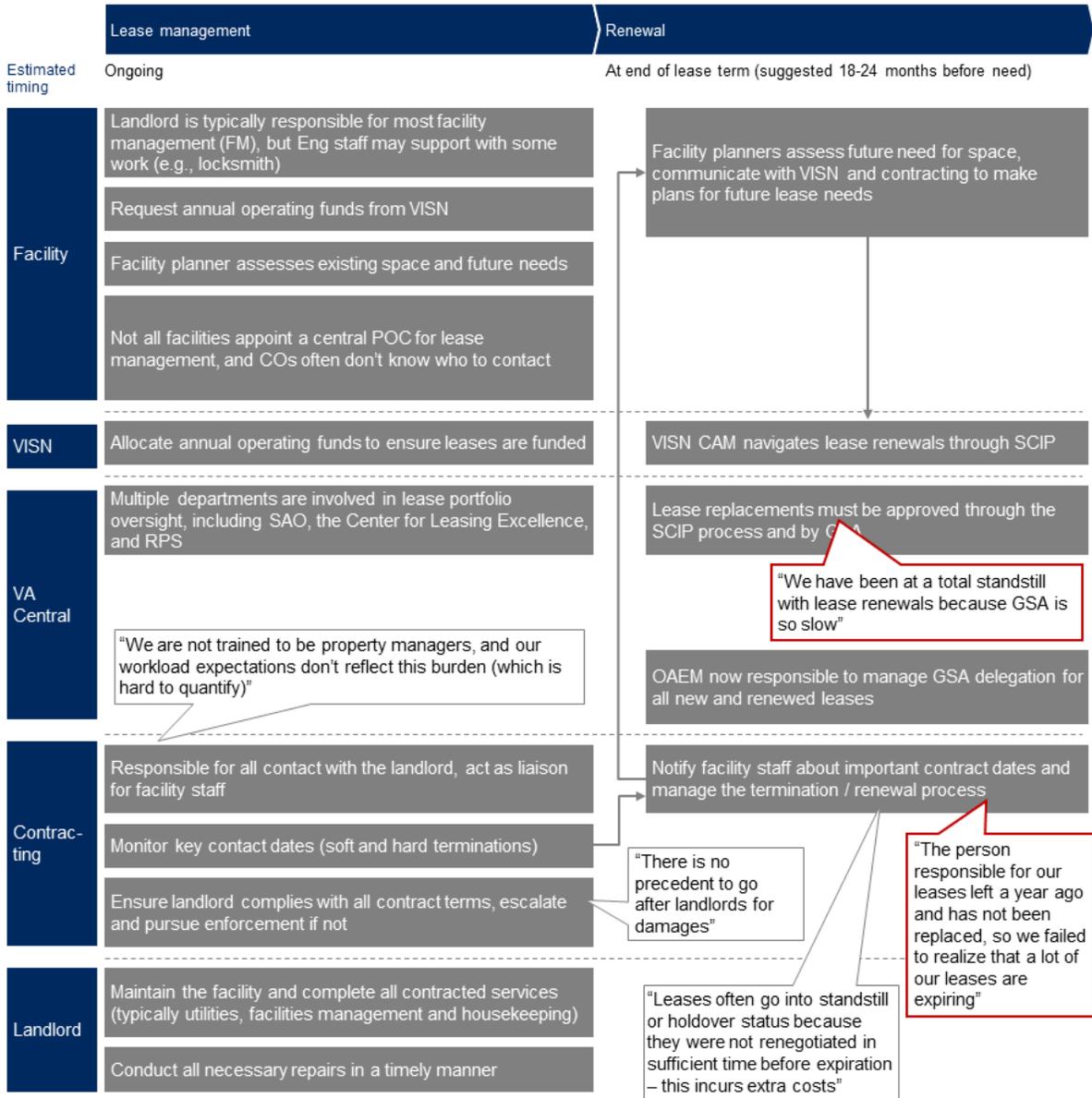
8.2.2.2   Each Step of the Leasing Process Contains Pain Points Which Either Prolong the Process or Lead to Suboptimal Outcomes for VHA

Based on our interviews with the multiple stakeholders involved in the leasing process, we have identified issues within each step of the leasing process that either prolong the time required to procure and activate leased facilities or lead to suboptimal outcomes for VHA. These are described below.

1. **Planning process must begin 48 months in advance of desired activation date.**
   According to current OCAMES guidance, facilities are advised to start the planning process for leased facilities 48 months before the desired activation date. This extensive lead time reduces the VHA's ability to nimbly respond to changes in Veteran needs and is unrealistic given the usual lengthy leasing process. The result is leases that extend beyond their contracted duration and can lead to gaps in Veteran accessibility.

2. **SCIP approval is an unnecessary and redundant approval above Access Expansion Plan (AEP) facilitated by Health Care Planning Model.**
   Interviewees described a disconnect between the Health Care Planning Model process required to secure Under Secretary for Health approval to pursue a lease and the SCIP process. The capital planning section of this report elaborates on these concerns. Station staff also explained that while all leases must be approved in the annual SCIP process, approval is not accompanied with funding which must still be allocated at the VISN level. This can lead to misunderstandings whereby a lease is "approved," but activation is still dependent on local resourcing and may be an unnecessary approval step that delays leases without significant added value.

3. **Rescindment of GSA leasing delegation has added several months to leasing process.**
   In 2014, GSA rescinded the delegation of full leasing authority it had previously granted to VHA, and now requires VHA to gain GSA approval for all leases, regardless of size. While it is beyond the scope of this assessment to evaluate the justification for this step, it is clear that this additional approval is increasing the time it takes to process a lease. Initial estimates were that it would add two to four months to the approvals process, but the impact of the policy change was compounded because the lease approval process was disrupted for months, creating a significant backlog. Furthermore GSA initially rejected the large majority of lease packages submitted for review due to their perceived incompleteness, adding even more time to the process.

   In response to these changes, the Office of Asset Enterprise Management (OAEM) has created a new process to improve the quality of lease packages submitted into GREX (the system by which the GSA receives documents from other agencies), as well as track how long it takes for leases to progress throughout the process. Given the historical absence of data and insight into how long the leasing process takes, this is a positive step. Furthermore, there is a weekly coordinating call between the various entities (GSA, Construction and Facilities Management Real Property Services, VHA Center for Leasing Excellence (CLE), VHA Office of Capital Asset Management and Engineering Support (OCAMES), and the VA General Counsel) that is credited with improving the process and

will hopefully increase GSA's package approval rate and decrease the time required for approvals.

An additional challenge is that for leases with annual unserviced rent greater than $300,000, approval is also required by the Secretary. OCAMES is responsible for this process and acts as the liaison between VHA facilities / VISNs and the other departments. Interviewees suggested this approval can take an additional three to five months, and were not fully clear as to the content and purpose of this review step – particularly given GSA's recently rescinded delegation of authority. Near the conclusion of this assessment, an internal directive "Request for Approval to Rescind and Replace the Existing Secretarial Approval Requirement for Mid-Level Lease Procurement (VAIQ 7511099)" was issued which removed the SECVA approval requirement for lease packages under $1 million which could help to improve lease timing.

4. **Multiple handoffs and limited training hinder lease project development.**
   This phase is driven by the Contracting Officer (whether in an NCO or Real Property Services) and includes sub-phases of solicitation development, procurement, and design. There are a number of challenges with this stage of the leasing process:

   o **Interactions between the station and contracting.** Both station staff and Network Contract Office staff indicated that their interactions often led to significant delays in lease approvals. Station staff indicated a lack of clarity as to the specific requirements of the contracting process, and a lack of visibility into what was driving the time taken by contracting to complete lease procurement processes. Contract Officers indicated frequently attributed delays to incomplete lease packages or non-responsiveness on the part of some local station functions (for example, finance, engineering, primary care) in gathering information critical to progressing a lease. However, there were some facilities for which these interactions were not a challenge. These exceptions – where interviewees felt the interaction between the station and contracting was effective – were often in situations where there was early involvement of Contract Officers, facility management staff, accounting, and other affected stakeholders and ongoing interaction in a cross-functional team throughout the lifetime of a lease.

   o **Lack of pre-qualified brokers.** The solicitation process is longer than peers as VHA does not always maintain a list of prequalified brokers or developers to help secure leases. Using pre-qualified lease brokers is an effective way for many organizations with large facilities footprints to accelerate their leasing processes while ensuring similar or better outcomes in terms of cost and contract terms. VHA's approach to typically delivering these functions in-house may forfeit the benefits of these accelerated timeframes.

   o **Design requirements.** In the past, most build-to-suit clinics have been designed based on unique requirements for each new clinic, significantly increasing the time and costs involved in the design phase. Further, stations often adapt their design requirements after a lease is approved. Real Property Services has recently developed a limited set of design templates for leased facilities. These three templates meet different profiles of needs for outpatient facilities and should reduce

the time to complete a lease solicitation, as well as the time and cost required to build and activate the leased facility. Given the recent change, there is insufficient information on the results of this effort, but this, and related efforts, may operate to simplify the pre-solicitation phase of build-to-suit leases.

○ **External involvement.** There are also real or perceived external constraints that affect the timeline with which leases are processed. These constraints affect the leasing process in two ways. First, they influence the time it takes to select a site for leased facilities. Second, they may influence the final location selected for a leased facility. Pressure from various stakeholders to locate a new leased facility in a particular geography may extend the process of market research while multiple locations are considered that would not be considered without such external involvement. While these external pressures certainly do not account for the entirety - or even the majority - of delays in the leasing process, interviewees unanimously indicated that they did indeed affect the time taken in the initial market research and related early stages of the leasing process. In addition, documents shared with the assessors during the course of this assessment explicitly indicated higher levels of approvals required for leases that were relocated from one Congressional district to another. These increased approval requirements by definition extend the time required to process a lease and increase the likelihood that leased facilities stay within Congressional districts. For example some internal guidelines required additional levels of notification and approval by a Deputy Undersecretary if VHA proposed to move a lease across Congressional districts. This external involvement can lead to delays in providing facilities for Veteran care (VACO/VISN/VAMC Interviews, 2015).

5. **Post-design changes, construction of leasing is typically effective and straightforward.** For major leases that require construction, once the developer is selected and designs are complete, the construction process is not typically a major driver of schedule delays. It is critical to have an active CO and COR to overlook the construction process and ensure alignment with VA quality standards, however lease contracts generally incentivize the developer and future lessor to complete the project on time and within quality standards.

6. **Often problems aligning timing of activation funding to project completion.** While facility activation did not typically drive major cost or time overruns, funding for lease activation is often an issue. Staff report that it is unclear whether these funds must be provided by the VISN or the Medical Center, yet the costs can be quite significant – especially for major leases. Furthermore, activation funds must be used within the year specified in their appropriation – and given the uncertainty associated with lease timelines – it is difficult for VISNs and facilities to plan around when to allocate funding.

7. **Management of leases adds significant additional workload to leasing COs.** Leasing is fundamentally different from other service contracts in that it requires relatively intensive ongoing management by the CO assigned to the lease. This individual is the only person authorized to interact with the lessor, and must act as an

intermediary between the station staff who hears about facility issues from front-line staff and patients and the lessor. Given the significant demands on COs' time, it can be a challenge to balance these demands with other ongoing commitments, particularly if the CO is responsible for other lease procurements underway. Stations described numerous examples of lessors violating their contract service level agreements with no recourse because of a lack of willingness or ability on the part of COs to pursue enforcement action.

8. **The lease replacement process is unreliable, causing extensions of leases beyond the life of the contract and potentially increasing costs.**
   The lease replacement process is unreliable, causing extensions of leases beyond the life of the contract and increasing costs. Given the fragmented accountability for leases, there is often insufficient tracking of leases requiring renewal or replacement. This can lead to lapsed lease contracts, or leases that require urgent processing to ensure the leased facility can continue to be occupied. When a lease expires, VHA typically can continue to occupy the space but, beyond option years, must renegotiate the lease terms for this extension. Given the short timeframes involved, VHA is often in a weak negotiating position at this point, creating risk of rental rate escalation. According to the Capital Asset Inventory database, 10 percent of VHA leases have already expired and an additional 10 percent of the portfolio representing $50 million in annual rent will expire by the end of 2016. While there were insufficient data to quantify the costs of late renewal of lease contracts, this puts likely VHA in a position of vulnerability vis-à-vis lease renewals.

Figure 8-11. Lease Termination Dates

Leases with hard termination dates each calendar year

Approximately **10% of leases have already expired** – VHA may be paying option year prices for these leases

An additional 285 leases will expire in 2015 and 2016, **representing over $50 million in annual unserviced rent**
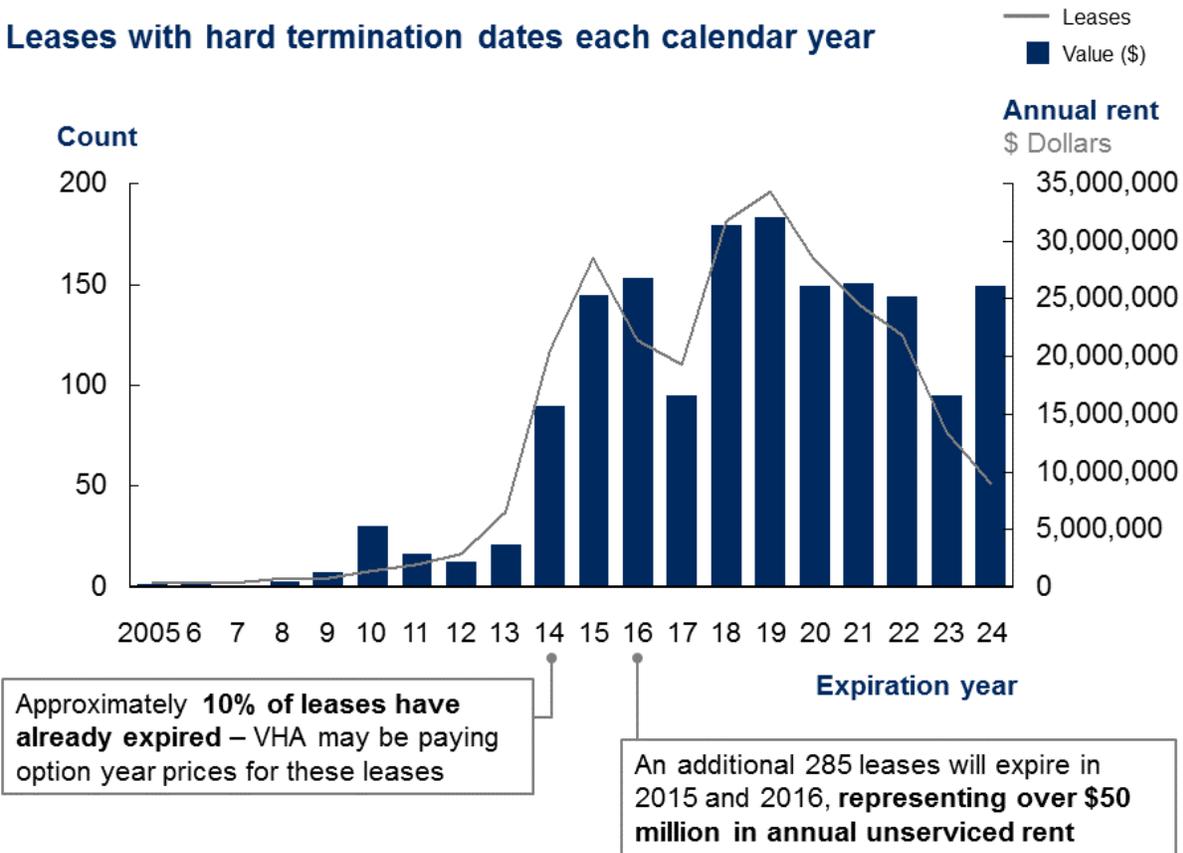
Source: Capital Asset Inventory database   82

8.2.3   People

8.2.3.1   There Is a Lack of Single-Point Accountability for Specific Leases and Leasing Programs

Figure 8-12 shows a number of entities involved in the leasing process. While most entities are generally clear about their role, there is no end-to-end accountability for a given lease, and it is often unclear who is ultimately accountable for a lease at any point in time. For example, no one individual or entity is held accountable for the performance of a lessor throughout the lifetime of a lease. As described above, we have observed multiple instances of lessors underperforming on important tasks such as maintenance without any recourse. This is in part due to a gap in accountability between the local station's obligation to ensure a well-maintained facility and the CO's exclusive ability to enforce the contract with the lessor.

Confusion in accountability also exists throughout the procurement process. For example, from the perspective of VAMC staff, it is often unclear during lease procurement which entity or individual should be actively seeking updates and moving the approval process along. Some VISNs have adopted effective processes, such as weekly review meetings with mandatory attendance for all critical staff from the VISN, VAMC, and NCO, or identifying a single point

person at the VISN responsible for all VAMC leases who is the clear point person for the NCO Contracting Officer. When adopted, these efforts result in increased accountability and visibility into the process.

Figure 8-12. Organizational Entities Responsible for Leasing
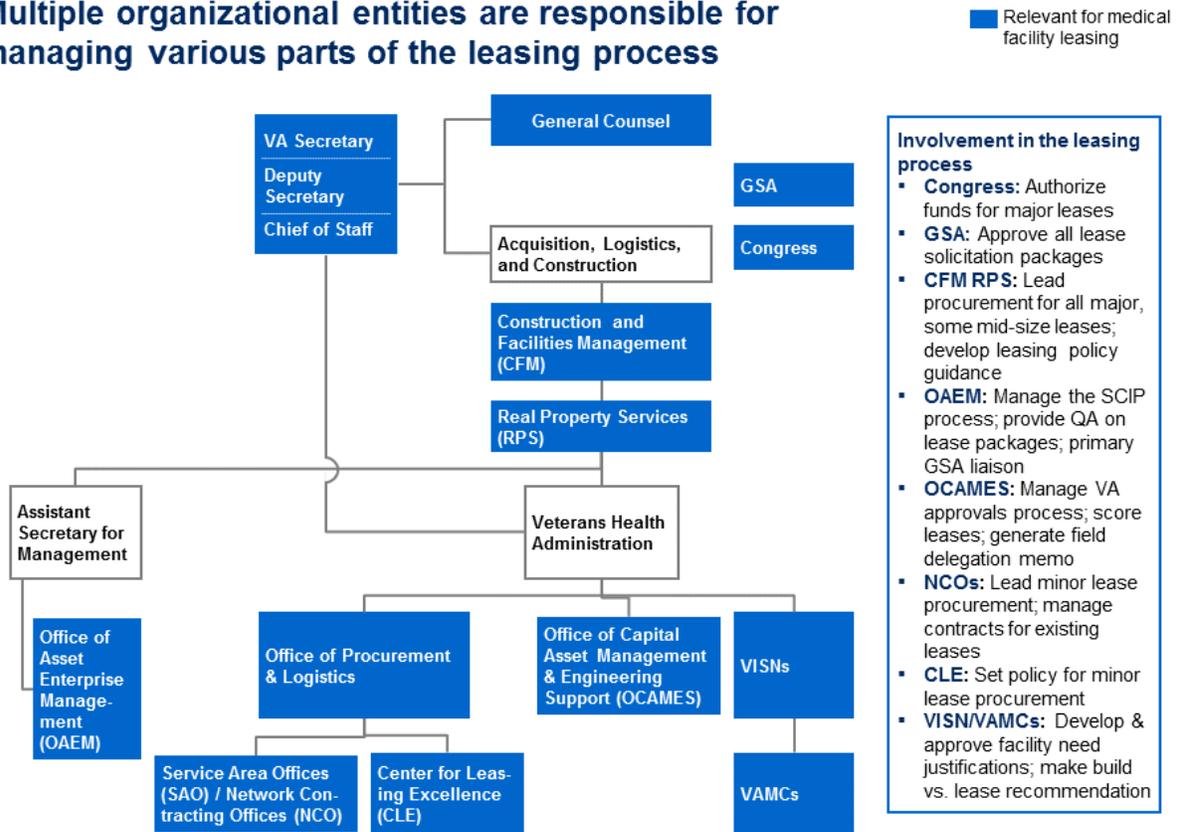
SOURCE: Staff Interviews; VA information

8.2.3.2 In Some Parts of the Organization Responsible for Procuring and Managing Leases, There Are Insufficient Specialized Leasing Capabilities

Lease procurement and contracting processes are more complicated than many other forms of procurement, require a specialized skill set, and require ongoing contract management and interactions with the lessor, even after the contract is awarded. However, most COs handling leases do not have a specific background in leases and receive minimal specialized training, nor do they consistently avail themselves of support via the use of specialized real estate brokers. In addition, they reportedly have a very high workload given the burden to actively procure new and renew leases while fulfilling a property management role for existing leases. This, combined with the fact that they are typically allocated a number of other general procurement tasks in addition to their leasing portfolio, has led multiple contracting officers we interviewed to describe conditions of low morale and a desire amongst many contracting officers to focus

on non-leasing related contracting. This lack of deep leasing capabilities likely results in unfavorable negotiations, contract terms, and contract enforcement.

8.2.3.3 Capacity of Contracting Staff Is Inconsistent and Unplanned

VHA has limited central visibility into the demand and capacity balance across Service Area Offices. While some NCOs report adequate staffing to meet leasing procurement and contracting needs, others report extreme constraints (VACO/NCO Interviews, 2015). Many interviewees with contracting experience from other agencies reported that VHA COs responsible for leasing (LCO) had multiple times the workload of their counterparts. While VA did provide data about LCO workloads (for example, the number of lease contracts being actively procured and actively managed) to the best of their ability, the data are difficult to interpret because there is variance in how network contracting offices manage leases. For example, in one NCO all leases in the system may technically be assigned to one supervisor but multiple contract specialists are doing the work to procure and manage each lease. In another NCO, leases may be assigned in the system only to the contract officer actually doing the day-to-day work. These discrepancies are reflected in the data – some lease contract officers only have one lease assigned to their name, while others have as many as 64 leases. Setting aside these data constraints, the average number of leases was just over 14 per contract officer. While it is difficult to benchmark the optimal number of leases each LCO should manage, and that target would naturally vary given the size and complexity of a given lease, interviews with experts from the GSA and with experience in other contracting organizations suggested that more than approximately 10 leases per LCO would be challenging to effectively manage.

8.2.3.4 Performance Management Processes Are Insufficiently Transparent and Rigorous

Best practice approaches to performance management create clear transparency into performance (for example, time to complete leases); engage in regular and rigorous performance dialogues; provide rewards and consequences for performance; and create opportunities for improvement. VHA's leasing program does not meet these standards (VACO/NCO Interviews, 2015). For example, COs are not measured rigorously on their delivery of advantageous lease terms and contracts within specified timelines. There is little regular review of whether the leasing program is effectively achieving objectives, and virtually no regular rhythm of conversations between supervisors and staff about staff performance. These themes are explored more broadly in Assessment L (VHA OHI, 2015; CFM OHI, 2015).

8.2.4 Systems

8.2.4.1 Fragmented Systems Cause Rework and Lead to Delays

VHA has no integrated system to manage the entire leasing process. The fragmentation of systems (Figure 8-13) creates significant rework for staff and does not provide comprehensive tracking or measurement of the leasing program and its outcomes (VACO/VISN/VAMC Interviews, 2015). For example, station staff must submit information about proposed leases as part of the SCIP system, then COs resubmit this information in slightly different formats as part

The views, opinions, and/or findings contained in this report are those of the assessment team and should not be construed as an official government position, policy, or decision.

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of the GREX system, then again to eCMS for contract management, all while updating the OAEM lease tracker on SharePoint to enable oversight into where each lease is in the procurement process. While each of these systems serves an important need, the lack of cross-system integration causes significant additional work at each stage of the leasing process. The resulting lack of availability of integrated data also prevents sophisticated lease management in areas such as balancing workload, enforcing contracts, and enabling continuous improvement in rates and lease terms.

Figure 8-13. Systems Pertaining to Leasing

8.3 Recommendations for Consideration

Given the extensive timelines involved, VHA's leasing program is failing to deliver on its core objective of providing VHA the flexibility to rapidly adjust its facility footprint to meet Veteran needs.

8.3.1   Recommendations to Accelerate Timelines

8.3.1.1   Dramatically Reduce Approvals and Associated Timelines for Leases

- **Remove SCIP from critical path for lease approvals.** VHA could remove the requirement to wait for SCIP to proceed with a lease, reducing the time required to secure a new leased facility. Leases should still be entered into SCIP to align with other space change measures and record progress towards closing identified gaps, but the lease process should not be delayed by the SCIP process. We believe this would maintain adequate oversight while accelerating lease approvals.

- **Attempt to rationalize all approvals to the minimum possible.** The leasing program is generally receiving market rates for smaller and mid-sized facilities, but is significantly slowed down by the required approvals. Congress and VHA should reconsider the required approvals (for example, GSA, Secretary), particularly for smaller and mid-sized leases.

- **Create clear performance management and tracking around approval timelines.** For those approvals that remain, there should be consistent and transparent tracking of the approval times for each lease. This tracking should include the time from when lease was first submitted to an entity for approval to the time when that approval was given, while noting any requirements to return a proposal to its submitter because of incompleteness of the submitted package. Where delays consistently occur, remedial action should be taken.

- **Ensure clear upfront design requirements, and standardize these requirements where possible to reduce pre-solicitation delays for major leases.** Initial steps to create standard major clinic designs are commendable, and VHA should continue to work to reduce delays in the pre-solicitation phase due to having to redesign clinics, and extensive customization of designs for each new clinic. To the extent possible, these templates should be used with only minimal and modular customization. VHA should also pursue steps similar to those indicated in the design and construction section of this report to ensure final designs are agreed early, and changes to these designs follow a strict and transparent stage gate process.

8.3.1.2   Manage Stakeholder Involvement in Leasing Decisions

Interviews suggest external influences affect the time it takes to execute a lease, given the often public debates around site selection. When interviewees with knowledge of major lease timelines were asked a general question about the factors influencing delays in leases, 100 percent indicated that external involvement had contributed to these delays. They described the nature of these delays as typically due to pressure to consider additional sites to locate a new leased facility, expanding the time taken in the initial market research and related early stages of the leasing process. Documents shared with the assessors during the course of this assessment indicated higher levels of approvals required for leases that were relocated from one Congressional district to another.

8.3.2 Recommendations to Address Lease Cost Outcomes and Overall Efficiency of the Leasing Process

8.3.2.1 Rigorously Review Design Requirements for Major Leases to Reduce Lifetime Costs

Major leases are likely above market benchmark prices largely due to the unique design requirements of VHA and the federal government more broadly. We recommend including leased facility design requirements as part of the review of VHA design requirements to evaluate opportunities for streamlining or standardizing, as recommended in the design and construction section.

Rationalize existing leasing policy and guidance, establishing clear processes and decision-rights for each category of leases. Existing policy guidance about leasing is confusing, if not contradictory, and all stakeholders involved in the leasing process would benefit from clearly delineated processes, roles, and responsibilities. VA should update guidance to reflect the GSA's current involvement and authority, with a clear description of the end-to-end process that would be followed to take the idea of a leased facility through to building activation. This should cover all steps (for example, budget authorization) and actors (for example, the multiple departments and offices within VHA, VA and GSA), and clearly explain where VISNs and VAMCs retain discretion over how to pursue lease procurement. Lease categories should be simplified, with clear rules for what qualifies as a major or minor lease and resolution around who handles complex minor leases – Real Property Services or the Network Contracting Offices.

8.3.2.2 Improve the Capabilities of Leasing Contract Officers

Leasing should be established as a separate service line within the NCOs, to reflect the degree of specialization required to complete the task. VHA should make a concerted effort to recruit experienced leasing contract specialists, while continuing efforts to develop and roll-out a robust training program to ensure COs who lack experience or expertise can develop a sufficient skillset to complete their responsibilities. LCOs should have access to a centralized support team available to provide assistance with difficult or complicated lease procurement. Furthermore, NCOs should be enabled to procure external brokers to help with more challenging procurements.

8.3.2.3 Consolidate Responsibility for Reviewing Lease Packages and Liaising With all Approvers Into a Single Office

Currently OAEM, OCAMES, and the CLE are all involved in various stages of the review and approvals process. This expertise should be consolidated into a single office, which would be made responsible for active oversight and management of the leased facility portfolio, proactively identifying leases that are soon to expire, identifying any issues with the leasing program, and ensuring continuous improvement.

8.3.2.4 Explore Options to Integrate Systems to Provide an End-to-End View of the Leasing Process and Associated Times

The recently launched OAEM lease tracker attempts to create an integrated view of leases, which may help to increase visibility and enhance lease management. Further system integration should be considered to reduce the additional workload caused by fragmentation, and facilitate improved reporting, performance management, and oversight by a central body.

8.3.2.5 Ensure Contracting and Functions at the Station Work Together From the Outset to Procure New or Renew Existing Leases

It is critical that stations and contracting staff work closely together throughout the lifecycle of a lease. These teams should include all relevant stakeholders within the facility, contracting, VISN, and central support at VACO. This integrated project team should be involved from the beginning of a lease request through to facility activation and operation.

Identify a single point of contact at the VISN and VAMC levels that would be ultimately responsible for all leasing activities associated with that station. Stations that most effectively handled their leasing program had a clear point of accountability that oversaw leases. This individual should be able to coordinate across end users (for example, Primary Care), finance, station staff, and other functions to ensure successful leases. A single point of accountability also enables the accumulation of expertise and allows that individual to share the benefit of experience across multiple leases.

8.3.2.6 Actively Monitor Upcoming Lease Expirations

This is critical to ensure that dollars are being spent in the most cost-effective manner (by avoiding escalating rents or hastily renegotiated short-term lease extensions) and to avoid the urgent review processes that can often not be accommodated by the existing process. Stations should use existing systems to actively track and monitor leases, and ensure that proposals for renewals or new leases are submitted in sufficient time to prevent gaps in facility availability or increased costs as leases expire.

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9 Facility Management Assessment

9.1 Preface

Section 201 calls for a review of the Department's process for identifying and designing maintenance projects at facilities. While Non-Recurring Maintenance (NRM) activities are prioritized and funded through the SCIP process with VACO and VISN-level input and oversight, day-to-day facility management work is conducted by station-level Engineering and Facilities Management Services (FMS) staff. Given that an effective facility management program is essential to preserving the value of VHA's infrastructure and providing quality facilities for Veterans, we have broadened the scope of our assessment to include an assessment of the VHA medical center facility management effort. Specifically, we have explored the following questions vis-à-vis VA's facility management:

- **Outcomes:** Does VHA optimize facility management costs to ensure each dollar is spent in the most high-impact way possible? Are facilities management activities ensuring patients and staff are experiencing high-quality facilities?

- **Process:** Is there substantial variation in how different stations conduct their facilities management activities? Is there an opportunity to improve the process to complete, or prioritization of, facility management activities?

- **People:** Do facilities have the right capabilities to fulfill the necessary duties? Does VHA rely appropriately on external vendors to conduct facility management?

- **Systems:** What systems are in place to support the delivery of a strong facilities management program? Are they used consistently and effectively across VHA medical centers?

9.1.1 Overview of VHA's Facility Management Activities

In FY 2014, VA's medical facilities budget was approximately $4.9 billion. These funds are used to address a wide range of facility needs, including recurring maintenance and repair, non-recurring maintenance, plant operation, engineering and environmental management services, and service contracts for activities that are contracted out to external providers. While the design and construction section of this assessment addresses non-recurring maintenance, this section provides a high-level assessment of the remainder of these facility management activities. Responsibility for facility management is primarily with local station leadership, with minimal control at the VISN level.

Figure 9-1. Medical Facilities Obligations
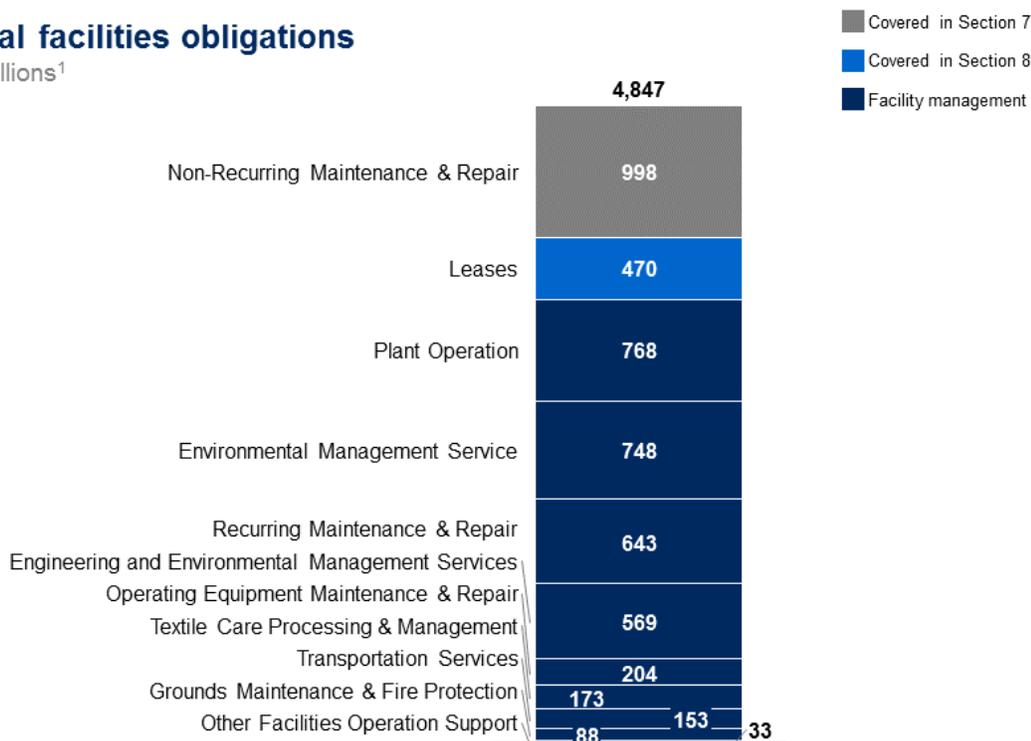
9.2 Findings

9.2.1 Outcomes

9.2.1.1 While Station Staff Are Attentive and Committed to Maintaining Facilities at Sufficient Quality Levels, They Are Often Challenged by Underlying Facility Issues

There are two standardized reports that assess the condition of VHA medical centers:

Facilities Condition Assessment reports are conducted by an independent entity for each medical facility every three years. These evaluate the condition of core infrastructure and primarily focus on issues that could be addressed by non-recurring maintenance activities, as opposed to reporting on the quality of the ongoing routine operation of a facility.

These reports – along with an array of other ad hoc and regular assessments of facility cleanliness and condition – provide an independent assessment of the condition of VHA facilities, which we did not attempt to replicate. Through our visits to facilities and interviews with multiple staff across clinical areas and a number of medical centers, we found, with very

few exceptions, VA medical center staff who were very committed and attentive, and endeavored to maintain facilities to high standards. We observed staff who responded in a timely manner to specific incidents (for example, spills in the hallway or elevator) and who were committed to maintaining excellent facilities for Veterans. Only rarely did interviewees (administrative and medical staff from various departments) indicate a lack of satisfaction with facility management staff.

However, we observed significant barriers that facility management staff faced in achieving their objectives of maintaining facilities to high quality. While some of these barriers involved immediate resource constraints (for example, budgets for staffing and conducting maintenance and janitorial tasks), the root cause of many of these issues is the general age and underlying condition of VHA facilities, described in depth in Sections 5.2.1.3 and 5.2.1.4. In cases where concerns about facility conditions arose, these were typically related to underlying structural issues with the facility that could not effectively be addressed by local facility management staff within allocated budgets and responsibilities. For example, one facility experienced difficulties maintaining its floors and hallways to their own standards. This was largely due to the facility being spread out across numerous buildings over a large campus, some of which were almost a hundred years old. Environmental services staff at this facility struggled to maintain cleanliness given the number of independent entryways coming out of parking lots and outside paths that were often covered with gravel and salt during the winter months. Another facility struggled to maintain a supply of hot water due to the age of the mechanical and plumbing systems. These underlying conditions and constraints in capital investments are a driving factor in day-to-day condition of facilities.

9.2.1.2 Most Stations Adhere to Routine Equipment Maintenance Schedules, but Are Constrained in Conducting More Resource-Intensive Preventative Maintenance

Most stations adhere to manufacturer or VHA-determined standards of routine equipment maintenance (for example, regular cleaning of air filters, maintenance of boiler systems), consistent with standard practice. In addition, recent VHA efforts to systematize facility reviews through a technology-supported, weekly Environment of Care (EOC) walk-around are an excellent effort to proactively address otherwise unnoticed preventative maintenance needs and maintain high-quality facilities. These EOC walk-arounds surface more superficial conditions of the facility that may not be systematically covered by either the high-level condition assessments or routine maintenance and environmental services work. While some VAMCs indicated challenges with the technology-enabled EOC system (for example, the tablet computers used for EOCs sometimes didn't work), this program is a positive step and should be continued.

However, interviewees reported having insufficient resources to stay ahead of non-critical preventive maintenance schedules. For example, the majority of stations visited indicated that it was difficult to secure resources to invest in improvements to pipes, utility plants, or other physical infrastructure and that is was challenging to allocate staff time to complete this type of work. This insufficient investment in preventative maintenance can lead to much more

expensive corrective maintenance issues that pose a risk of affecting facility quality and Veteran access. The Capital Planning section of this report addresses some of the funding constraints that limit preventative maintenance capital investments, and discusses how these investments should be reviewed and prioritized.

9.2.1.3 There Is Little Incentive for Stations to Reduce Facility Management Costs

We have examined facility management costs aggregated at the national level, as well as across specific facilities. These costs include plant operation, environmental management, recurring maintenance and repair, engineering, operating equipment maintenance and repair, grounds maintenance, and fire protection. For the purpose of these analyses, we have excluded non-recurring maintenance (addressed in the design and construction section) and leases (addressed in the leasing section).

Facility management spending decisions are largely made at the VAMC level. The VISN allocates operating budgets to each medical center and station leadership determines what amount will be made available to facility management staff to conduct necessary activities. While stations were typically very aware of budgetary limitations and attempted to operate as effectively as possible within cost constraints, we observed opportunities to improve cost management. Because operating budgets are allocated on an annual basis with the general expectation they will increase three to five percent year-over-year, there is little incentive to pursue innovative methods of reducing costs. This is especially true because the current funding mechanisms for NRM and minor projects require all significant repair projects (larger than $25,000) be centrally reviewed and funded through either the VACO (for minor projects) or VISN (for NRM) level. If stations achieve significant maintenance savings, those savings could not be easily redirected to facility projects.

9.2.1.4 Space-Adjusted Facility Management Costs Vary Widely Across VHA

To better understand how facility management spend varies across VHA, we have analyzed each station's average annual spending on a few key cost categories. Figure 9-2 plots facilities' annual facility maintenance obligations per owned square footage at the facility. As seen in the chart, while most facilities cluster around the average of just under $30 per owned square foot, a number of facilities have both much higher and much lower costs than average. In some of these cases this additional spend may be reasonable given particular demands of a facility. For example, plant operations costs may be higher for facilities with in-house water treatment needs. However we believe there are opportunities to learn from those facilities that achieve below average spend and improve the facilities with above average spend.

Figure 9-2. VHA Stations Have a High Level of Facility Maintenance Obligations Per Square Foot of Space
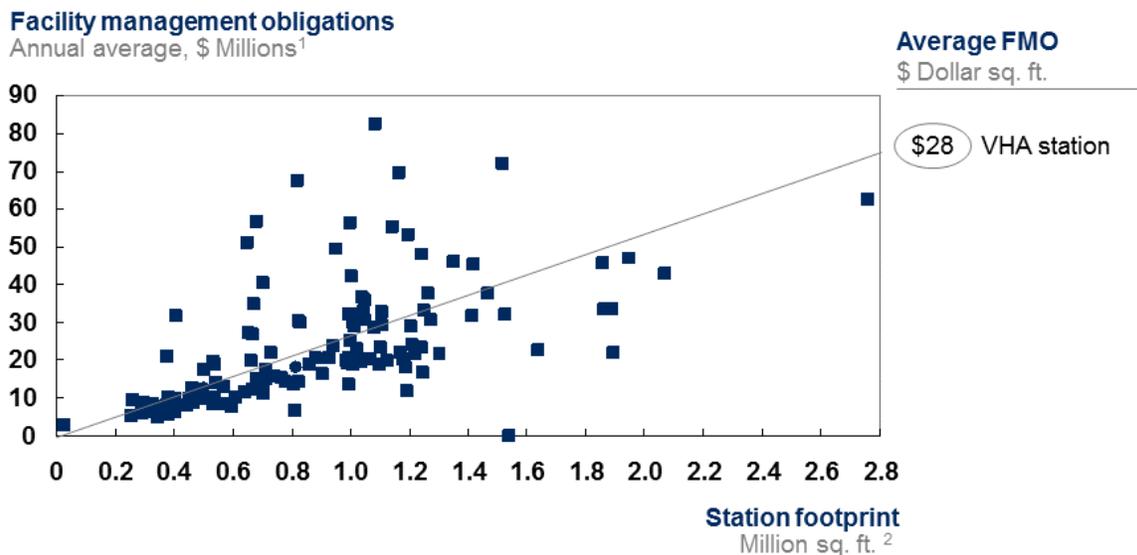
1 3 year average of annual Facility Management obligations (FY12 - FY14), including the following categories of Facility Management spending: Plant Operation, Environmental Management Services, Recurring Maintenance and Repair, Engineering and Environmental Management, Operating Equipment Maintenance and Repair, and Grounds Maintenance and Fire Protection; excludes Non-Recurring Maintenance, Leases, Textile Care Processing and Management, Transportation Services, and Other Facilities Operation Support. Data was provided by VA Resource Management Office and was available for 128 out of 193 stations
2 Includes only owned square feet

SOURCE: Data from VA Resource Management Office; 2014 FRPP Submission; 2013 BOMA survey

9.2.1.5 High-Level Benchmarking Indicates That VHA Pays Significantly More for Repair and Maintenance Than Other Medical Facilities

To further evaluate a specific component of facility maintenance spend, Figure 9-3 benchmarks stations' recurring maintenance and repair (RM&R) obligations (as defined by VA Resource Management Office, averaging annual spending from FY 2012-14 and considering facility square footage) to identify variance in costs across stations and relative to benchmarks. Across the 128 VHA stations with RM&R spend data available, the average annual spend on RM&R was $4.03 per square foot. This contrasts to benchmarks from the 2013 Building Owners and Managers Association survey, which reports that in hospitals and medical buildings, the average level of spending on routine maintenance was approximately $1.50 per square foot. Given the uniqueness and age of VHA facilities and operations, we caution against assuming that VHA should target the $1.50 per square foot without reflecting additional costs for these factors. These increased costs above benchmark are likely due to a combination of factors, including the facility condition due to age or lack of renewal capital investment (the link between facility condition and operating costs is described above in the section on total cost of ownership). However there are also operational inefficiencies that increase costs of VHA facilities management. These are described throughout the subsequent sections on processes, people, and systems challenges.

Figure 9-3. Benchmarking Results Suggest VHA Medical Centers Can Significantly Reduce Spending on Recurring Maintenance and Repair

Recurring maintenance and repair obligations
$ Millions[1]

Average RM&R
$ Dollar sq. ft.

$4 VHA station

$1.5 Hospital-owned medical facilities[2]

Station footprint
Million sq. ft.[3]
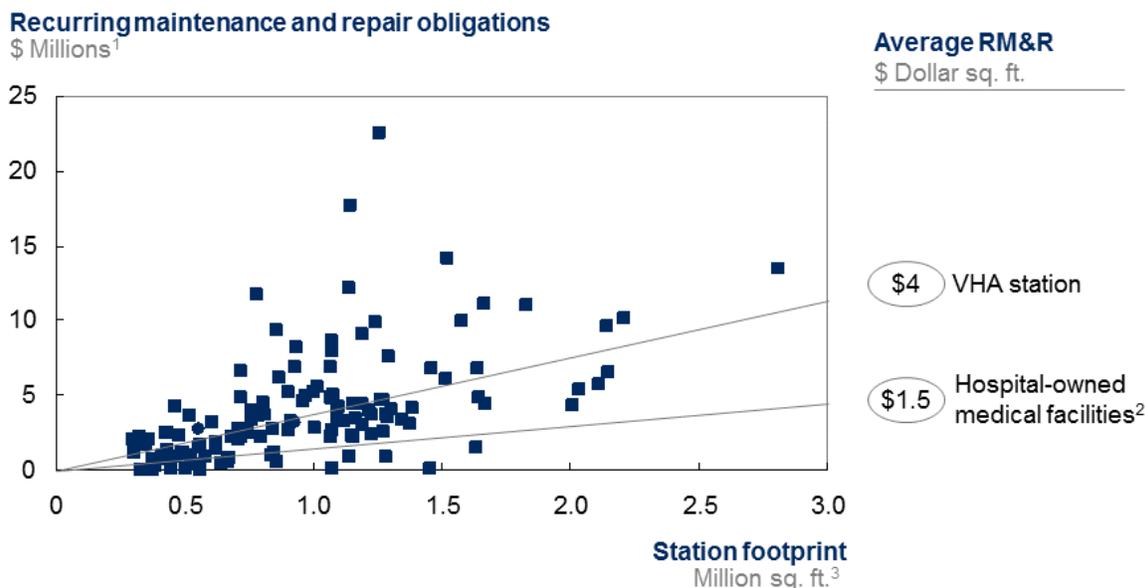
1 3 year average of annual recurring maintenance and repair (RM&R) spend (FY12 - FY14), using VHA's definition of RM&R as reported in the President's Budget Request. Data was provided by VA Resource Management Office and was available for 128 out of 193 stations
2 Benchmark from 2013 Building Owners and Managers Association survey, measuring average repair and maintenance costs per square foot. Two samples were analyzed - medical facilities with at least 75% of space dedicated to utilization by doctors (N = 810, with average spend of $1.53 / sq. ft.) and hospital-owned facilities (N = 98, average spend $1.39 / sq. ft.)
3 Includes both leased and owned square feet

SOURCE: Data from VA Resource Management Office; 2014 FRPP Submission; 2013 BOMA Survey

9.2.1.6 VHA Fails to Fully Realize the Benefit of Energy Efficiency Investments and Practices That Have Positive Returns

Many stations have pursued innovative approaches to increase energy efficiency and thus reduce costs. For example, one station sold the scrap materials generated by a building closure to generate funds to purchase a fleet of electric vehicles, substantially reducing transportation costs on their large medical campus. The same station identified an alternate on-site generator technology, avoiding a large upcoming repair cost and generating significant annual savings. A different station used energy savings performance contracts (ESPCs) to fund energy efficiency installations, while a VISN was able to capture a 30-35 percent reduction in energy costs by renegotiating its energy supply contracts. Yet another station used NRM funds to install a fiber optic network that enabled advanced monitoring of energy utilization across the medical campus, resulting in significant energy savings. Each of these examples demonstrates how innovative thinking can generate substantial savings in station operating budgets (VAMC/VISN interviews, 2015).

Such innovative approaches, however, are not applied to their full potential. Demand reduction methods (for example, encouraging users to turn off lights and unplug computers) are not applied systematically; efficiency opportunities are largely not identified or pursued; and regulations often obstruct facilities' efforts. The first station described above spent months attempting to change station and procurement standards for generators before they were

allowed to pursue this successful cost-reduction effort. Alternatively, high profile and high cost projects such as solar panels have been incorporated on aging structures which may not justify that level of investment. Because of the ways in which funds are allocated, projects are often not evaluated based on their long-term savings potential, but based on upfront costs, compromising VHA's ability to reduce costs over the long term. Best practices are also not effectively shared across facilities, reducing the adoption of innovative approaches to cost reduction. Finally, facility management departments are only indirectly incentivized to pursue these solutions because the savings in operating costs accrue to the general operating budget rather than to their specific departments, and future appropriations may not give credit for proactively achieving these savings.

9.2.2 Process

Delivering an effective facilities management program requires having well-functioning processes in place to achieve the following:

- Ensure needs for corrective maintenance are quickly identified, reported, prioritized, and resolved
- Proactively complete preventive maintenance work
- Procure necessary materials and service contracts in a timely and cost-effective manner
- Correctly anticipate budgetary requirements to complete facilities management tasks
- Focus investments in ways that take into account long-term costs and benefits
- Delivery on clearly defined service level agreements between the facility management department and end customers (for example, medical departments)

Given the autonomy granted to individual facilities, we observed a wide range of approaches facility management teams have employed to fulfill these functions, with varying degrees of success. While each observation will not apply to all facilities within VHA, we believe they represent systematic patterns within VHA's facilities management program.

9.2.2.1 Total Cost of Ownership Is not Calculated or Integrated Into Capital Planning Decisions

There is a tradeoff between investing in improving the condition and technology of facilities and the maintenance costs of those facilities (Figure 9-4). Best practice organizations integrate a total cost of ownership view into their planning. This means understanding not just the initial costs of constructing or installing a particular facility or piece of equipment, but the lifetime costs of operation, maintenance, and disposal or replacement. They then dynamically adjust operating models and costs as facility conditions change. However there are a number of areas in which VA does not effectively manage total cost of ownership:

- VA does not effectively calculate the total cost of ownership implications of planning decisions – either when adding new facility space that increases operating costs, or when upgrading equipment or existing space that may reduce operational costs (SCIP Criteria, 2015; VACO/VISN Interviews, 2015). As such, it cannot make decisions that minimize total

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cost of ownership of facilities. Figure 9-4 shows the results of a regression analysis, demonstrating a clear positive effect of a larger facility condition gap (representative of facilities in need of significant repair) on the operating costs of the facility. VA does not take into account this effect when making capital allocations.

• Designs of new facilities or modifications to existing facilities only rarely take into account the implications on the long-term operating costs of these facilities. Small design choices that are neutral vis-à-vis upfront costs or quality of care can make a substantial difference in how expensive a facility is to operate. For example, small changes to exterior surfaces can reduce long-term cleaning costs; minor modifications to elevators can have a dramatic impact on the future costs to maintain them; and materials choices can affect the lifetime costs associated with cleaning and recurring maintenance. During the current design process, there is a lack of involvement of the staff that have the most detailed understanding of the implications of facility design on operating costs. Even when such staff are involved in the design, the design process often does not systematically consider lifetime operating costs.

• Finally, even when facility conditions or designs are improved, VA often does not reduce operating costs accordingly. For example, if a facility receives a large investment in its utilities equipment, it should likely be able to increase efficiency of utilities staff. Without more active management of operating costs based on facility conditions, the benefits of facility upgrades are not being realized.

Figure 9-4. Trade-offs in Facility Investments

VHA does not effectively manage the total cost of ownership of its facilities

Best practice organizations effectively manage total cost of ownership …

Investment vs. operating costs
$ Dollar / sq. ft.   ILLUSTRATIVE
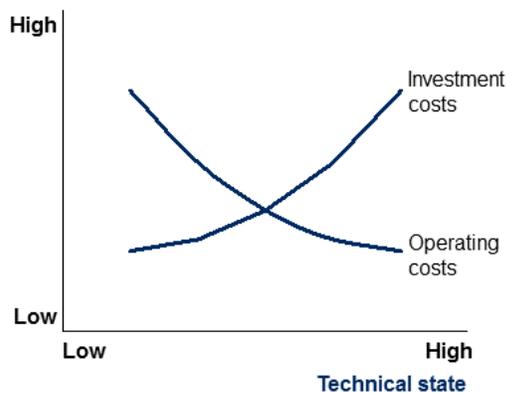
Best practice organizations
- Minimize the total cost of ownership by finding the optimal balance of investment and operating costs
- Allocate capital and adjust designs accordingly
- Ensure flexibility in operating costs so benefits are realized

… while VHA does not sufficiently integrate a TCO perspective

VHA recurring maintenance costs
$ Dollar / sq. ft.

Facility condition gap
$ Dollar / sq. ft.
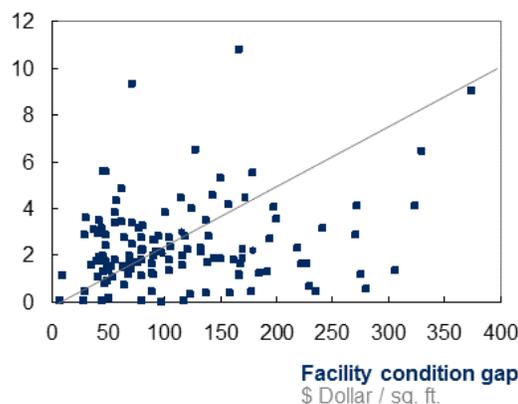
VHA
- Evaluate investments on basis of long-term total cost of ownership
- Sufficiently involve operating staff in facility design decisions
- Dynamically adjust operating costs (e.g., staffing levels) as facility conditions change

9.2.2.2 There Is Significant Inconsistency in Stations' Approaches to Resolving Corrective Maintenance Needs

Several stations interviewed consistently used an online system to report and assign corrective maintenance needs. In other stations, staff used more informal approaches to monitor submitted requests (for example, a request clipboard hanging in different units) and had no pre-agreed system to triage and prioritize requests, no standards for completion time, and no ability to systematically review and address outstanding requests (AIMS/MERS, 2015). In such facilities, interviewees reported that medical staff would often approach station management to report corrective maintenance needs in an informal capacity (VAMC Interviews, 2015). While they reported that their issues were typically resolved, this approach makes it much more difficult to deploy staff resources efficiently based on central prioritization of work, and then monitor completion of tasks.

9.2.2.3 There Is Wide Variation in the Processes Medical Centers Use to Track and Respond to Corrective Maintenance Needs, With a Lack of Defined Service Levels

Among the medical centers we observed, top performing stations utilized systems that allowed VAMC staff to report corrective maintenance needs, allocated tasks to individual shops to complete, and institutionalized performance management systems to ensure tasks were completed in a timely manner. This was typically done through a combination of a work-order submission system (VISTA – Veterans Health Information Systems and Technology Architecture) and a work order processing desk that medical staff could call with urgent requests. Each service had a designated staff member to enter requests (for example, reporting a burned out light bulb) into VISTA. Facility management clerks monitored these requests and deployed staff according to a pre-defined schema to prioritize needs, instituting guidelines for time to complete each task and using daily meetings to review and address outstanding needs. In such high-performing facilities, non-facility management staff typically knew how to submit a request and had confidence that submitted issues would be addressed.

In other facilities, processes were inconsistently adhered to and there were no processes in place to monitor progress against outstanding needs or assess time to completion. In addition, few facilities had clearly communicated service levels for particular types of requests, making it difficult for FMS staff to prioritize requests or for other staff in the medical center to have clear expectations as to how quickly problems would be remedied. Figure 9-5 illustrates the typical process for handling a corrective maintenance request at these facilities, with quotes from interviewees that illustrate challenges associated with the process.

Figure 9-5. Corrective Maintenance Process
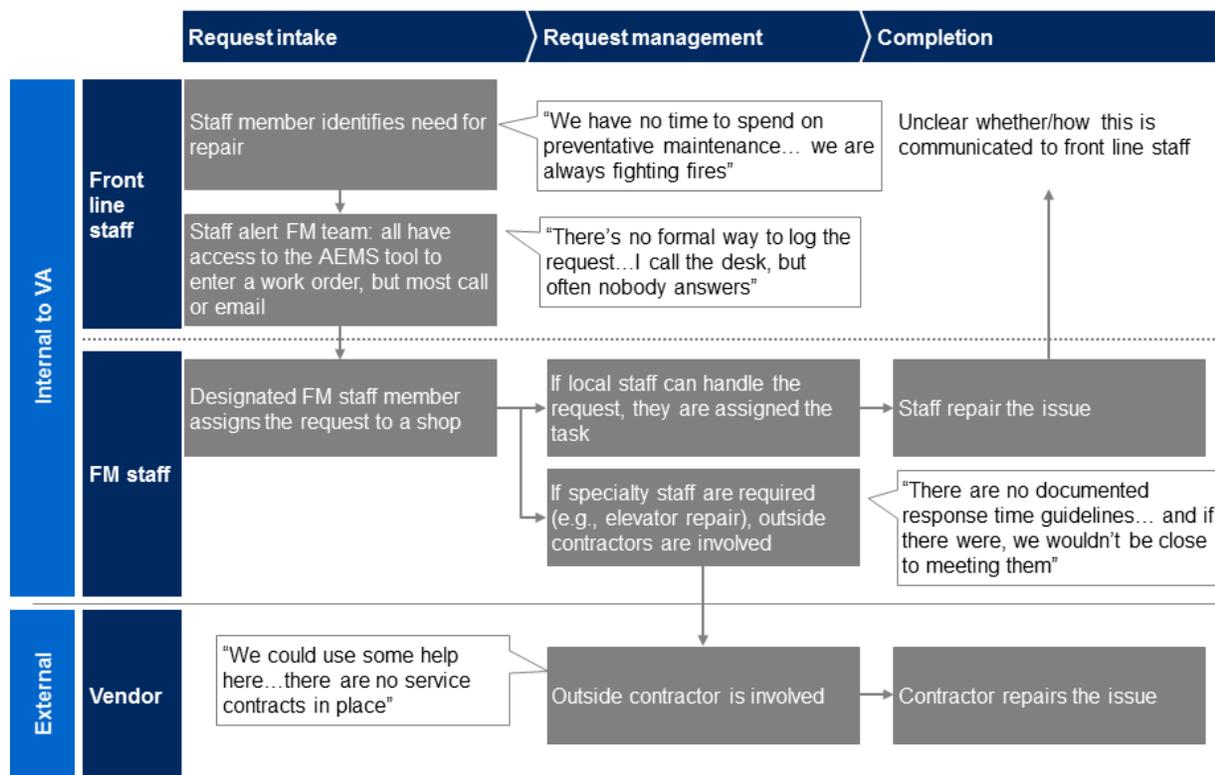
1 This process reflects owned building operations. For leased facilities, facility management staff typically rely on the lessor for a large number of minor maintenance issues, and directly handle more significant maintenance issues that are not covered by the contract with the lessor

9.2.2.4 Interactions Between the Stations and Contracting Are Viewed as a Source of Delays

While facility staff with appropriate authorizations can use a government purchase card for micro-purchases below given thresholds ($3,000 for supplies, $2,500 for services), this practice is discouraged, and they are required to work with the contracting organization to procure any items exceeding that limit in an effort to increase cost efficiency in purchasing. While the contracting function was historically embedded in the medical center organizational structure, it has been centralized under the Office of Procurement and Logistics. In interviews with staff at the facilities and in the contracting organizations, it became apparent that while these organizations are working together well in some regions, there are significant challenges in the interactions between facilities and the contracting organization. We elaborate on the following observations to illustrate the types of frustrations voiced by each organization.

Station staff expressed many concerns regarding their interactions with COs in the Procurement and Logistics organization. They cited significant delays in processing contracts; lack of transparency of contracts (for example, many stations noted they had a hard time accessing actual copies of lease or service contracts); an unwillingness of COs to enforce contract remedies (for example, terminating a contract for default, pursuing compensation for poor

maintenance of a leased facility); conflicts between the interests of the contracting organization and those of the facility (for example, reducing contracting workload by consolidating providers versus preserving flexibility in leasing or facility management); lack of deadlines and penalties for late completion in contracts; repeated selection of under qualified contractors or contractors with a history of underperformance or non-completion because they offer the lowest price (for example, a contractor who had three projects in default at one facility was selected to do a fourth); lack of framework agreements allowing rapid processing of orders; and restrictions on who to contract with (for example, service disabled Veteran-owned small businesses (SDVOSBs) as per VAR and FAR).

Contract Officers also expressed a number of concerns. These included chronic understaffing; an inability to retain staff; lack of effective training for COs, particularly in more specialized fields such as leasing; delays and unreliable completion of materials required for the contracting process; and burdensome review processes that do not add to contract quality or value. They also point out that often CORs at the facilities do not consider this a core part of their job description, and are not evaluated on the basis of their performance as a COR.

Staff explained that these challenges had material implications on the effectiveness of facility-related tasks. These included substantial delays in time to complete lease procurement or construction projects; increased costs; loss of appropriated funds; poor quality facilities; difficulties in finding qualified contractors in future; and disruptions or risks to Veteran care. Often, staff feel forced to use the purchase card beyond its intended use (for example, by splitting a large purchase into multiple small purchases to fit within the purchase card threshold), simply to ensure that critical facility needs (for example, a door used to secure a mental health area of a hospital, a repair to an exposed piece of sharp, rusty metal) are met without the significant delays caused by the contracting process.

While the interactions between contracting and the local facility were often considered challenging, there were notable exceptions. These exceptions – where interviewees felt the interaction between the station and contracting was effective – often were in situations where there was early involvement of COs and facility management staff. Some medical centers have created a special Contracting Liaison role specifically designed to improve the quality of purchase order packages and improve communication between facility management staff and the contracting office. Individuals credited the creation of that role with a dramatic improvement in the contracting process. Other medical centers have regular meetings with all key stakeholders at the table, with the intent to check in on all priority and/or outstanding contracts and ensure progress is made toward timely procurement. In all cases, effective communication and a clear sense of ownership by all involved parties appears to drive increased satisfaction with the procurement outcomes.

9.2.3   People

All 25 medical centers visited as a part of this assessment maintain in-house facility management staff, typically ranging from as few as 50 people at smaller facilities up to 200 for larger medical centers. Based on interviews with facility management staff and other facility

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staff at the 25 stations selected for site visits, and supplemented with available data, we have a number of observations:

9.2.3.1 Medical Centers Conduct the Vast Majority of Facilities Management Work In-House, Increasing the Costs of Facility Management Work

Most health care organizations today outsource the majority of their facility management work. While many of the VHA facility management staff interviewed believed that it is significantly less expensive to complete facility management tasks in-house, these evaluations often did not factor in the potential to reduce total in-house staffing over time as workloads decreased (VAMC Interviews, 2015). Assessing savings from a long-term shift to outsourcing without considering labor costs generates an inappropriate assessment of the potential long-term value of outsourcing certain facility management tasks.

Facility outsourcing initiatives typically generate savings on the order of 15 percent of operating costs. These savings are enabled by the economies of scale and demand smoothing capabilities of external facility management service providers. In the below analysis (see Figure 9-6), we have calculated the value of 15 percent savings applied to those facility management categories where VHA currently deviates from the best practice approach. After applying that savings rate to the FY 2014 facility management costs, we estimate that VA could capture as much as $250-320 million per year by relying more strategically on outsourcing. However, capturing this value will require substantial changes to labor management practices, may compromise the flexibility and responsiveness sometimes afforded by in-house providers, and may be difficult to implement.

Figure 9-6. Facility Management Best Practices
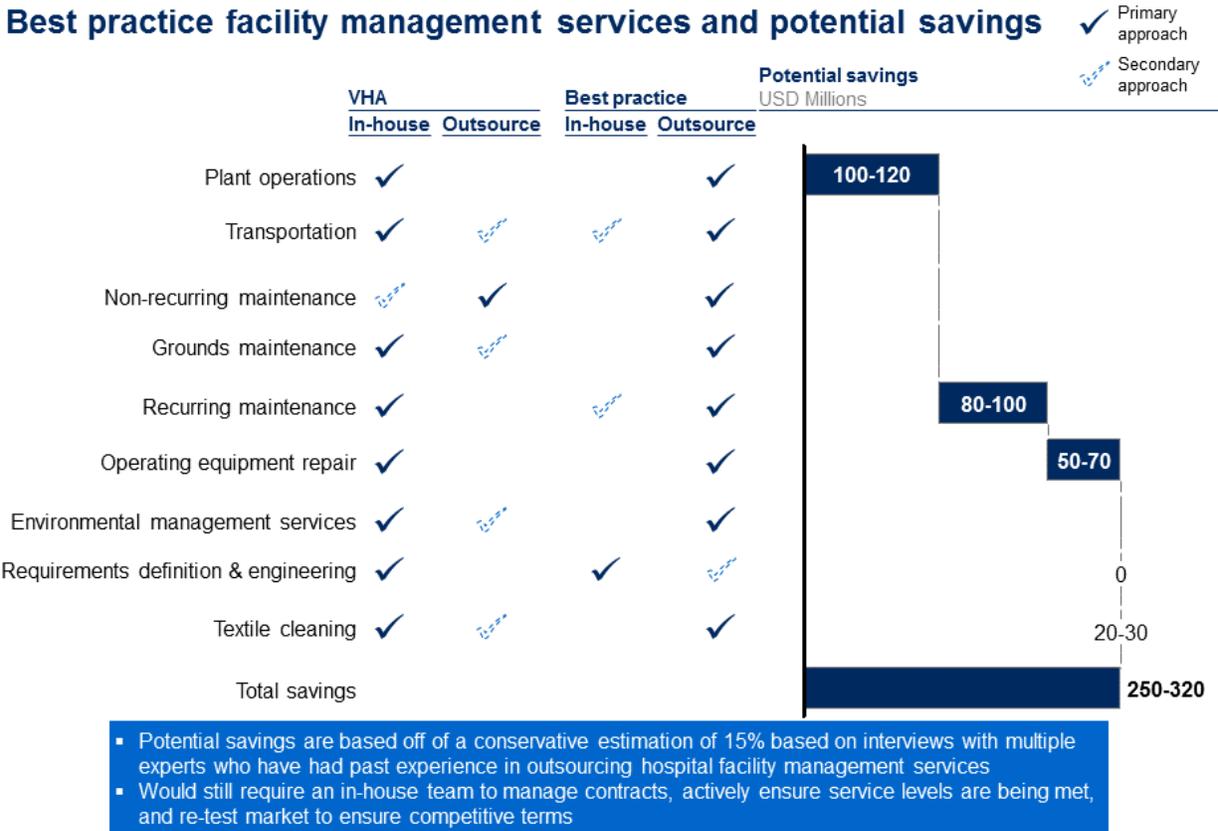
SOURCE: VHA Finance; Savings estimates based on interviews with real estate and hospital operators with past experience outsourcing and consolidating facility management operations; review of documented savings

9.2.3.2 Chief Engineer Recruitment and Retention Has Been a Significant Challenge in Recent Years

At the majority of facilities and VISNs, facility management staff indicated high turnover of senior engineering staff, and described the challenges of replacing those individuals with qualified staff. One interviewee described multiple examples of private sector offers to Chief Engineers, which involved substantial increases in compensation. While this continues VHA's tradition of being a training ground for both medical and non-medical staff, it poses significant challenges to VHA's ability to maintain high quality facilities. This is especially true given the high amount of responsibility assigned to the facility level with little oversight from the VISN or VACO. Assessment L describes some of the challenges with leadership retention in more detail in section 5.2.1.

9.2.3.3 There Is a Lengthy Process to Fill Open Positions, Causing Staff Vacancies in Critical Roles

It often takes significant time to fill open positions. The large majority of facilities noted challenges filling positions that were open, and for which budget had been allocated (VAMC Interviews, 2015). For example, one facility had been waiting six months to fill two critical

electrician roles, and had not yet been notified as to any progress by human resources. Interviewees attributed these delays to poor communication between human resources and facility management leadership, insufficiently attractive roles, and a focus on hiring Veterans which narrowed the candidate pool. Such delays exacerbate capacity constraints of facility management staff.

9.2.4 Systems

9.2.4.1 The VISTA / AEMS MERS Work Order Tracking System Is Rarely Used to Monitor and Improve Performance, and Many Facilities Lack Specific Performance Targets for Corrective Maintenance

While there are exceptions, many facilities do not regularly monitor the time it takes to complete different types of tasks, nor do they conduct robust analysis to evaluate their performance and reassess staffing levels. Interviewees with facility management staff indicated a lack of uniformity in the use of the existing AEMS / MERS work order tracking system to manage maintenance tasks. This wide variance in practices is reflected in analysis of ticket volumes across facilities selected for site visits (see Figure 9-7 below). If the system were used consistently across facilities, one would expect a high correlation between the size of a facility and the volume of work orders. However, while there is some correlation there are many facilities that clearly do not regularly use the system to track work orders. For example, there are a number of large facilities that have fewer than ten tracked work orders per day.

Figure 9-7. Work Order Volume Against Facility Size
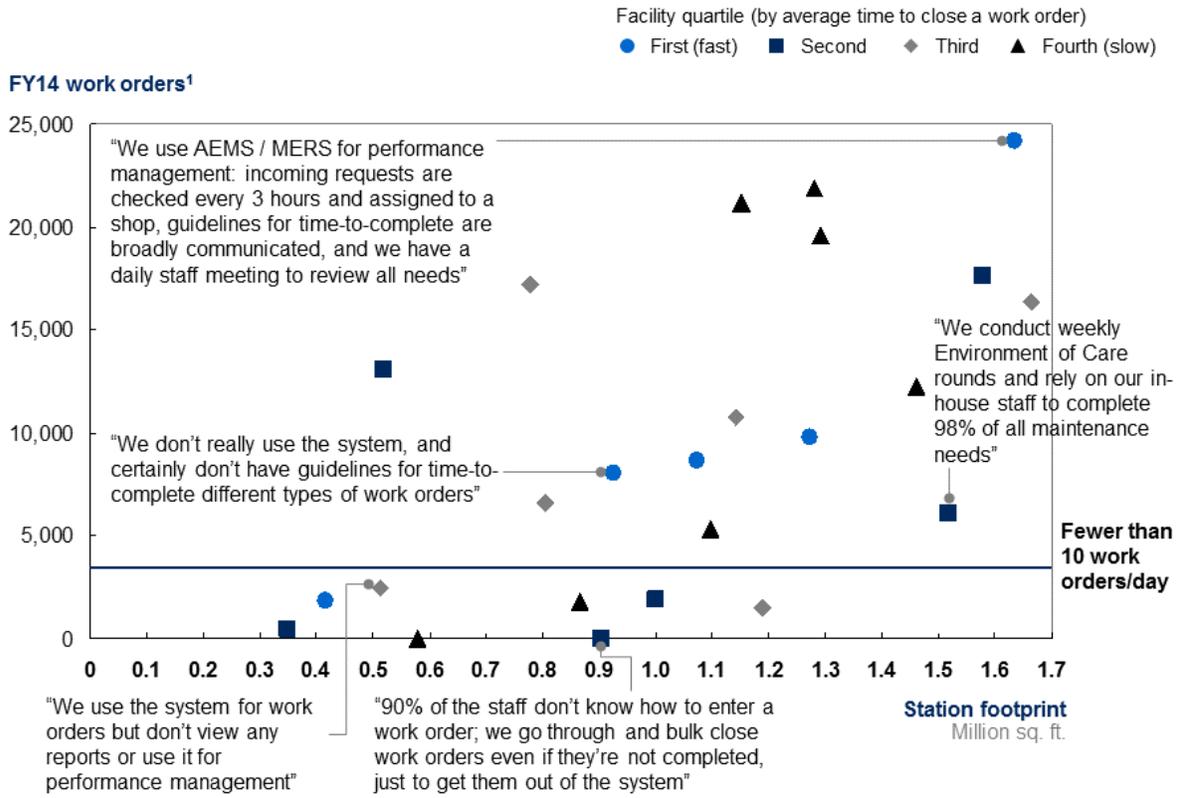
1 Includes FY2014 work orders for Building Service Equipment (that which is associated with Facility Management Services), from OP&L

Source: Office of Procurement & Logistics; 2014 FRPP Submission

Similarly, when analyzing the amount of time it takes the engineering department to close work orders there is significant variance across facilities. In the following analysis, we have classified facilities into quartiles according to the average time required to complete a work order, and then analyzed the response times to close tickets assigned to different shops. As expected there is a wide range in outcomes, from same-day turnarounds in some shops, to work order closure times of up to 113 days on tasks requiring a locksmith – yet it is not possible to determine what variance results from real differences in facility management quality and what is a result of poorly maintained electronic systems. These analytical challenges demonstrate the challenges VHA itself faces when trying to perform oversight on the facility management function across the network of facilities.

Figure 9-8. Work Order Completion Times

Engineering/FMS work order turnaround time
Days

	Top quartile	Second quartile	Third quartile	Bottom quartile
Air condition	2	15	10	30
Biomedical	16	18	23	14
Boiler	5	6	54	25
Carpenter	11	20	18	76
Electric	7	13	14	38
Elevators			17	17
EMS	11	9		
Fire	3			
Grounds		23	11	25
HVAC	7	16	6	
Locksmith	7	15	2	113
Maintenance	7	23	27	13
Mechanical	3		15	40
Other	7	6	10	12
Paint	25			
Plumber	2	16	27	37
Refrigeration	6	13	10	32
Security	3			
Water	12			
Average, all shops	**5**	**13**	**17**	**28**
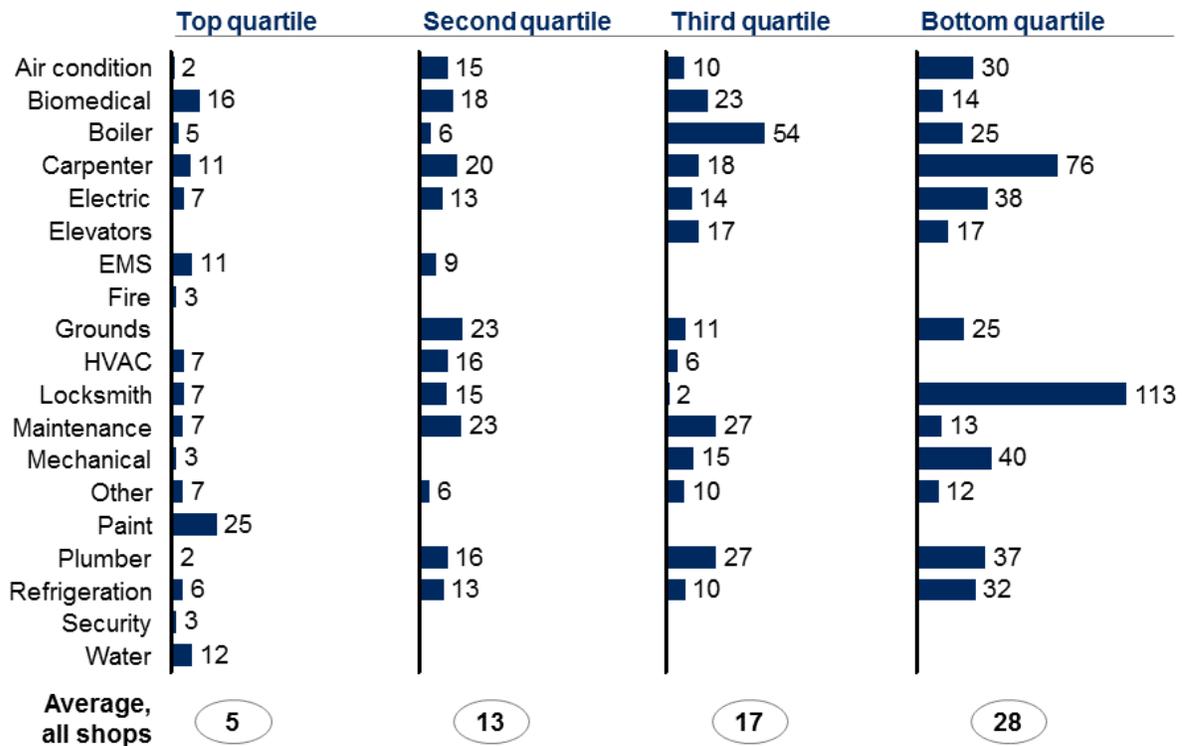
SOURCE: Office of Procurement & Logistics; AEMS/MERS data for 25 stations randomly selected for site visits

9.3   Recommendations for Consideration

9.3.1   Allow Facilities to Redirect Facility Management Savings to Discretionary Facilities Investments in Subsequent Years

Currently, individual facilities have little incentive to implement efforts to reduce facility operations costs, given the allocations to VISNs based on the VERA model, and typical allocations of operating funds to facilities based on past costs. If a facility reduces its costs, it may receive less funds the subsequent year. VHA could consider instituting a funding system that allows individual facilities to keep the majority of the cost savings achieved for investments in projects that could improve care or reduce costs over the long-term. There are a variety of ways to allocate funds while retaining this incentive, including allocating based on an annually moving average of the past 5 years, by square footage of the facility as a share of VISN level VERA funding, or through directly verifying savings numbers and ensuring the facility retains some share of these savings.

9.3.2 Incorporate a Total Cost of Ownership View Into Design, Capital Planning, and Facility Management

There are a number of opportunities to reduce total cost of ownership. By integrating a total cost of ownership perspective into capital planning, capital investment can be prioritized not only on upfront costs, but also based on the implications on long-term costs. By evaluating the operational cost implications of design choices, VA can make cost and quality-neutral upfront design decisions that should reduce long-term operating costs. And by ensuring flexibility in facility management resourcing, these savings can be more effectively captured in reduced operating costs.

9.3.3 Consider Outsourcing More Facility Management Functions

VHA should consider relying more extensively on outsourced facility management functions, particularly in the areas of environmental services, landscaping, and transportation. While local availability of service providers, quality of service providers, and the relative costs of such providers versus an in-house approach should determine whether to outsource, VHA may be able to obtain significant value by consolidating service contracts across facilities – ideally at a national level to unlock the greatest savings, but the regional level offers potential for savings as well. When evaluating the attractiveness of outsourcing versus continuing to provide services in-house, it is important that VHA considers the total cost of both models. For example, all VHA labor costs, as well as support costs, should be considered when evaluating in-house provision, and the reallocation of tasks considered secondary by outsourced services (for example, cleaning staff performing minor corrective maintenance) should be considered when evaluating outsourced options. Because the value of outsourcing would accrue in part through labor spend reductions, either through attrition or layoffs, this may pose an implementation challenge given VHA priorities and employment agreements.

9.3.4 Upgrade Facility Management Systems and Ensure Broader Adoption

Given the lack of effective use of AEMS / MERS, VA should consider either adopting a more effective, integrated facility management solution, or enable broader adoption of existing systems. This would enable more effective tracking, management, resource-allocation, and quality control.

9.3.5 Create Opportunities to Share Best Practices Across Facilities

Facility management is an inherently decentralized effort across VHA. As such, while there are trends in terms of both challenges and opportunities, there are also numerous instances of local innovation. Efforts in energy efficiency, cost-reduction, improved corrective maintenance response times, and a number of other areas have all showed promise at some facilities without being applied nationally, but recent restrictions and increased approval requirements make it even more challenging to spread these ideas. VHA should endeavor to enable best practice sharing through both formal and informal means. Different methods, such as regular calls, email groups, newsletter mentions, and in-person sharing could be piloted to test the impact of different models.

9.3.6 Increase the Transparency and Performance Management of key Human Resource Processes

As described above, interviewees often had little transparency into the causes of hiring delays, and facility management staff often did not maintain close working relationships with the Human Resources function. Increased transparency (for example, availability of current status on any current hiring process, metrics regarding time to fill positions) of human resources processes would make causes for delays evident. Based on this transparency, station and human resources staff can work together to overcome obstacles and improve the process on an ongoing basis. Such collaboration would require cross-functional support from senior management. This and other issues are discussed in more detail in Assessment L, Section 11.

9.3.7 Implement Energy Savings Opportunities That Have Positive net Present Value

Utility costs are some of the largest ongoing facility operation expenses. A number of facilities have shown that these costs can be reduced through a combination of demand reduction, efficiency, and innovative contracting methods. However often economically positive investments in efficiency (for example, LED lights, or a new cooling system) are reportedly overlooked in favor of more high-profile or symbolic energy efficiency investments. VHA should remove obstacles to investing in economically positive efforts and enable extensive sharing of innovative approaches to reducing energy costs.

9.3.8 Explore Interim Steps to Reduce Reliance on Purchase Cards

The FAR micro-purchase threshold which governs local purchase cards is expected to be increased on October 2015 to $3,500 as a result of the most recent review.[55] Any necessary internal policies should be adjusted to correspond with this anticipated increase. Overall, the process should be optimized to streamline procurement, rather than encouraging additional workarounds or relying on micro-purchases. These changes should be made in keeping with the recommendations of Assessment J, Section 5.2.1. As an interim step while optimizing the overall system, VHA might explore empowering trained and trusted individuals at facilities to make purchases larger than the purchase card limit but below an additional threshold without requiring a contracting-led competitive tender process (to the extent this is permitted under current regulations). With appropriate controls, this moderate increase in local authority could assist in alleviating the impact of long contracting timelines on Veteran care.

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[55] Federal Register proposed rule change 11/25/2014: Inflation Adjustment of Acquisition-Related Thresholds (FAR Case 2014-022).

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Appendix A   Detailed Methodology

To ensure a broad range of sources, our assessment draws upon national data sets, national surveys, expert interviews, and visits to selected VAMCs across the country, at which we conducted interviews, focus groups, and observations.

A.1   VAMC Site Selection

To increase consistency and generalizability of findings, McKinsey teams have coordinated our sampling methods to the extent possible while ensuring sampling the methodology reflected assessment-specific considerations. We have selected a core set of VAMCs to visit, which are representative of the VAMC system as a whole across critical facility demographic and performance outcome metrics.

The VAMC site selection process followed the following steps:

- **Stratification of facilities:** Stratified random sampling, with VISN as strata, was used to select an initial long-list of facilities. To reduce sample size, a subset of VISNs was randomly selected, from which one of the two initially selected sites was randomly de-selected.
- **Review of distribution:** Chi-square testing was used on each of the key facility profile and performance variables to ensure the distribution of scores in the sample is representative of the population. Variables were chosen to reflect anticipated drivers of facility performance, and included: VISN, rurality, adjusted admissions, complexity level (on VHA rating scale), adjusted LOS, patient satisfaction, cumulative access score, and facility age
- **Refinement of facility selection:** Initial facility list was vetted with internal and external SMEs and augmented as needed, to include facilities that are considered critical for inclusion (for example, a Polytrauma Center, facilities with innovative tools/practice) and ensure that all selected facilities had the range of services being assessed.

This method resulted in a sample of 25 facilities is representative across each of the criteria used in selection.

A.1.1   VAMC Site Selection Variables

Variables were selected based on criteria relevant to each assessment area and assumed impact on facility performance. Variable definitions are given below:

- VISN: used VHA Support Center (VSSC) classification of VAMCs by VISN
- Rurality: used VSSC 2014 categorization of facilities as rural or urban
- Adjusted admissions: relied upon American Hospital Association (AHA) 2014 data. Adjusted admissions = Total admissions *(Admissions*(OP revenues/Total revenues)). VHA reports revenue data (gross billed revenue) to AHA to calculate this metric. Adjusted admissions scores were divided into quartiles, with the middle quartiles grouped, to produce low (<2881.75), medium (2881.75-6081.00), and high (>6081.00) adjusted admissions categories

- Complexity level: used VSSC 2014 categorization of facility complexity. Level 1 facilities were grouped, to produce selection criteria of high complexity (levels 1a, 1b, and 1c), medium complexity (level 2), and low complexity (level 3).

- Adjusted LOS: used VA SAIL data. As only Q3 FY2014 was available to us at the time of selection, we were only able to use that quarter's results. LOS data were divided into quartiles, with the middle quartiles grouped, producing three variables: low LOS (<4.19), medium LOS (4.19-5.14), and high LOS (>5.14)

- Patient satisfaction: used VA SAIL data. As noted above, as only Q3 FY2014 was available to us at the time of selection, we were only able to use that quarter's results. Patient satisfaction data were divided into quartiles, with the middle quartiles grouped, resulting in low (<249.83), medium (249.83- 264.02), and high (>264.02) satisfaction categories

- Cumulative access score: used VA SAIL data. As noted above, as only Q3 FY2014 was available to us at the time of selection, we were only able to use that quarter's results. The eight access scores included in the VA Q3 FY2014 SAIL report were assigned quartiles and added together to produce a single cumulative access score, which was then divided into quartiles. This process resulted in cumulative score quartile categories of low (<17), medium-low (17-20), medium-high (20-23), and high (>23) access

- Facility age: relied upon VSSC 2014 operational date data for each VAMC. Operational dates were divided into quartiles, with the middle two quartiles grouped, producing categories of early (prior to June 4, 1929), medium (June 4, 1929 – April 7, 1952), and recent (after April 7, 1952) establishment

In several instances, variable data were not available for each VAMC. To ensure that these cases were not excluded from the sample, we scored absences with -1 and included the -1 score as a category for each selection criterion where there were absences.

Assessment K visited a total of 25 VAMCs and 13 VISNs, listed below:

VAMC Site Visits:

1. Southeast Louisiana VAMC, New Orleans, LA

2. Togus, ME VAMC

3. Lexington, KY VAMC

4. G V Sonny Montgomery VAMC, Jackson, MS

5. Central Alabama VAMC, Tuskegee, AL

6. Malcom Randall VAMC, Gainesville, FL

7. Olin E Teague VAMC, Temple, TX

8. Cincinnati, OH VAMC

9. Long Beach, CA VAMC

10. San Juan, PR VAMC

11. North Texas VAMC, Dallas, TX

12. Durham, NC VAMC

13. Raymond G Murphy VAMC, Albuquerque, NM

14. Canandaigua, NY VAMC

15. Jefferson Barracks VAMC, St Louis, MO

16. Boston, MA VAMC

17. Coatesville, PA VAMC

18. Baltimore, MD VAMC

19. John D Dingell VAMC, Detroit, MI

20. Portland, OR VAMC

21. Fort Harrison, MT VAMC

22. Fargo, ND VAMC

23. Oscar G Johnson VAMC, Iron Mountain, MI

24. Gulf Coast VAMC, Biloxi, MS

25. Palo Alto, CA VAMC

VISN Site Visits:

1. VISN 1 HQ, Bedford, MA

2. VISN 3 HQ, Bronx, NY

3. VISN 4 HQ, Pittsburgh, PA

4. VISN 5 HQ, Linthicum, MD

5. VISN 6 HQ, Durham, NC

6. VISN 10 HQ, Cincinnati, OH

7. VISN 11 HQ, Ann Arbor, MI

8. VISN 16 HQ, Ridgeland, MS

9. VISN 17 HQ, Arlington, TX

10. VISN 18 HQ, Gilbert, AZ

11. VISN 19 HQ, Denver, CO

12. VISN 20 HQ, Vancouver WA

13. VISN 22 HQ, Long Beach, CA

At the site visits, our team typically interviewed a standard set of roles. At VAMCs, these roles included: VAMC Director; VAMC Associate Director; Chief of Finance; Chief Engineer; Chief, Facility Management Service; Chief, Environmental Management; Director, Procurement; Project Engineer, and Facility or Strategic Planner. Interviewees were accompanied by their staff as they felt appropriate. At VISNs, these roles included: Network Director, Network Deputy Director; Director, Facilities Planning; Director, Facility Operations; Director, Contracting; Network Contracting Officer; Capital Asset Manager; and Director, Fiscal. Specific titles and responsibilities varied by location.

A.1.2 VAMC Core Site Selection Representativeness

Results for Fisher's exact test demonstrate that the sample is not significantly different from the population of VAMCs:

Table A-1. Core Site Selection Representativeness

numerical_complexity_level_variable (p-value for Fisher's Exact Test: 0.80)					
	Population	percent pop	Selected	percent Selected	Difference
-1	2	1 percent	0	0 percent	-1 percent
1	88	59 percent	16	70 percent	11 percent
2	32	21 percent	4	17 percent	-4 percent
3	28	19 percent	3	13 percent	-6 percent
Total	150	100 percent	23	100 percent	
rurality_numerical_variable (p-value for Fisher's Exact Test: 1.0)					
	Population	percent pop	Selected	percent Selected	Difference
0	28	19 percent	4	17 percent	-1 percent
1	122	81 percent	19	83 percent	1 percent
Total	150	100 percent	23	100 percent	
adjusted_admissions_quartile (p-value for Fisher's Exact Test: 0.74)					
	Population	percent pop	Selected	percent Selected	Difference
-1	22	15 percent	2	9 percent	-6 percent
1	32	21 percent	5	22 percent	0 percent
2	64	43 percent	9	39 percent	-4 percent
3	32	21 percent	7	30 percent	9 percent
Total	150	100 percent	23	100 percent	
adjusted_los_quartile (p-value for Fisher's Exact Test: 0.68)					
	Population	percent pop	Selected	percent Selected	Difference
-1	39	26 percent	4	17 percent	-9 percent
1	28	19 percent	3	13 percent	-6 percent
2	55	37 percent	11	48 percent	11 percent

3	28	19 percent	5	22 percent	3 percent
Total	150	100 percent	23	100 percent	

adjusted_patient_satisfaction_quartile (p-value for Fisher's Exact Test: 0.83)					
	Population	percent pop	Selected	percent Selected	Difference
-1	39	26 percent	4	17 percent	-9 percent
1	28	19 percent	5	22 percent	3 percent
2	55	37 percent	9	39 percent	2 percent
3	28	19 percent	5	22 percent	3 percent
Total	150	100 percent	23	100 percent	

cumulative_access_score_quartile (p-value for Fisher's Exact Test: 0.78)					
	Population	percent pop	Selected	percent Selected	Difference
-1	32	21 percent	3	13 percent	-8 percent
1	33	22 percent	7	30 percent	8 percent
2	27	18 percent	4	17 percent	-1 percent
3	33	22 percent	4	17 percent	-5 percent
4	25	17 percent	5	22 percent	5 percent
Total	150	100 percent	23	100 percent	

operational_date_quartile (p-value for Fisher's Exact Test: 0.87)					
	Population	percent pop	Selected	percent Selected	Difference
1	38	25 percent	5	22 percent	-4 percent
2	74	49 percent	11	48 percent	-2 percent
3	38	25 percent	7	30 percent	5 percent
Total	150	100 percent	23	100 percent	

A.2   Construction Site Selection

A.2.1   Construction Site Visit Methodology

To ensure a comprehensive and consistent assessment across all active construction sites by the team, we utilized a project assessment tool that allows rating for the relevant dimensions of executing a major project. For each of the ten dimensions below, we assessed qualitative and quantitative metrics with detail descriptions for ratings of 1 to 5 (Figure A-1). Project assessments were completed on projects at different stages of project execution from mobilization to punch list. Hence, the ratings for each project that we visited were only provided for the dimensions observed.

Dimensions for project assessment:

- **Design and engineering:** This criteria measures engineering performance management including the review process. It also addresses the improvement ideas, knowledge sharing, and incentives to apply knowledge.

- **Mobilization:** Mobilization criteria assess the initial project kick-offs and team formations, clear rules and procedures for the project, and resource plans for the course of the project.

- **Purchasing:** Purchasing criteria measure procurement processes for the project. For many active projects visited, the procurement phase was not easily assessed in the field.

- **Integrated planning:** Integrated planning criteria measure the quality and depth of coordination planning conducted on a project (for example, from critical path management across multiple contractors).

- **Productivity:** Productivity addresses the work site logistics and layout that impact the productivity of the site.

- **Performance management:** Performance management reviews the current systems in place for measuring the current and expected performance of the project.

- **Risk management:** Risk criteria measure the risks considered and the contingency plans in place should those risks materialize.

- **Contract management:** Contract management evaluates the claims management, payments, and interactions with the contractors.

- **Organization, competencies, and safety:** This criteria considers multiple aspects including team organization, capabilities, and safety.

- **Budgeting:** Budgeting evaluates the forecasting and cost estimating processes including efforts to minimize costs via value engineering.

Figure A-1. Assessment Tool for Active Construction Site Visits

The tool utilized considers the relevant dimensions exhaustively

- Transition process between budgeting and project execution
- Organizational management structure of the project
- Execution support tools
- Accident prevention practices
- Critical capacity to assess projects and improvement solutions proposal
- Integration and engagement of project teams, with definition of objectives and aspirations
- Monitoring of contract milestones
- Customer relationship management
- Management of supply chain and materials contracts
- Mechanisms for identifying and mitigating project risks
- Performance KPIs of project
- Agenda of project performance follow-up meetings
- Productivity monitoring and control of different activities
- Project planning management
- Preparation of operational timeline
- Dimensioning of required resources

(Wheel: Projects — 1 Design / engineering, 2 Mobilization, 3 Purchasing, 4 Integrated planning, 5 Productivity, 6 Performance management, 7 Risk management, 8 Contract management, 9 Organization, competencies and safety, 10 Budgeting)

SOURCE: Field observations; team analysis

The findings above are reflective of challenges faced across major projects in general. The Aurora case study is an example where many of the findings above have manifested in cost overruns and schedule delays. Several factors contribute to execution challenges for CFM including, but not limited to, impact of appropriation cycle, continuously changing scope of the project, and an evolving organization structure. The sections – process, people, and systems – will explore the execution challenges for the Major Construction Program in detail.

A.2.2 Observed Performance on Active Construction Sites

To assess performance and processes implementation for major construction projects, the team selected a sample of active construction project sites. The design principles for site selection criteria were the following:

- Sites include projects covered by all three CFM regions (West, Central and East)
- Included a range of project sizes within the major construction program (such as, to include projects of all different sizes)
- Observable/active construction in the field (where possible)

Based on the criteria above, the following major construction projects were selected for construction site visits within the timeframe of the assessment:[56]

Figure A-2. Selection Construction Site Visits

Table for construction site visits

City	State	Project detail	Total estimated cost[1] $ Millions	Percent of funding before 2011[2]	Sq. ft.	Region
Palo Alto	CA	Ambulatory Care / Polytrauma Rehab	717	31	681,000 (New); 13,500 (Alt)	Western
Long Beach	CA	Seismic Corrections – Bldgs 7 and 126	130	100	191,000	Western
Denver	CO	New Medical Facility	1,730	Unknown	1,035,000	Western
Dallas	TX	Spinal Cord Injury	142	5	164,000	Central
New Orleans	LA	New Medical Facility	995	90	1,600,000	Central
Biloxi	MS	Restoration of Hospital / Consolidation of Gulfport	286	100	417,000	Central
Bay Pines	FL	Improve Inpatient / Outpatient	158	72	135,000 (New); 186,000 (Alt)	Eastern

1 TEC from Budget Request 2016 used during the planning of construction site visits
2 Percent complete approximated from percent of funding approved before 2011 during planning phase and public research

SOURCE: 2016 VA budget request and public websites

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56 TEC from Budget Request 2016 used during the planning of construction site visits. Percent complete approximated from percent of funding approved before 2011 based on 2016 VA Budget Submission and public research.

Note: Dallas, TX project was funded 26% by FY 2013.

Figure A-3. Map of Selected Construction Site Visits

Construction site visits

Palo Alto, CA
$716M

Denver, CO
$1.73B

Long Beach, CA
$130M

Dallas, TX
$166M

Biloxi, MS
$286M

New Orleans, LA
$1B

Bay Pines, FL
$158M

Hawaii

Puerto Rico
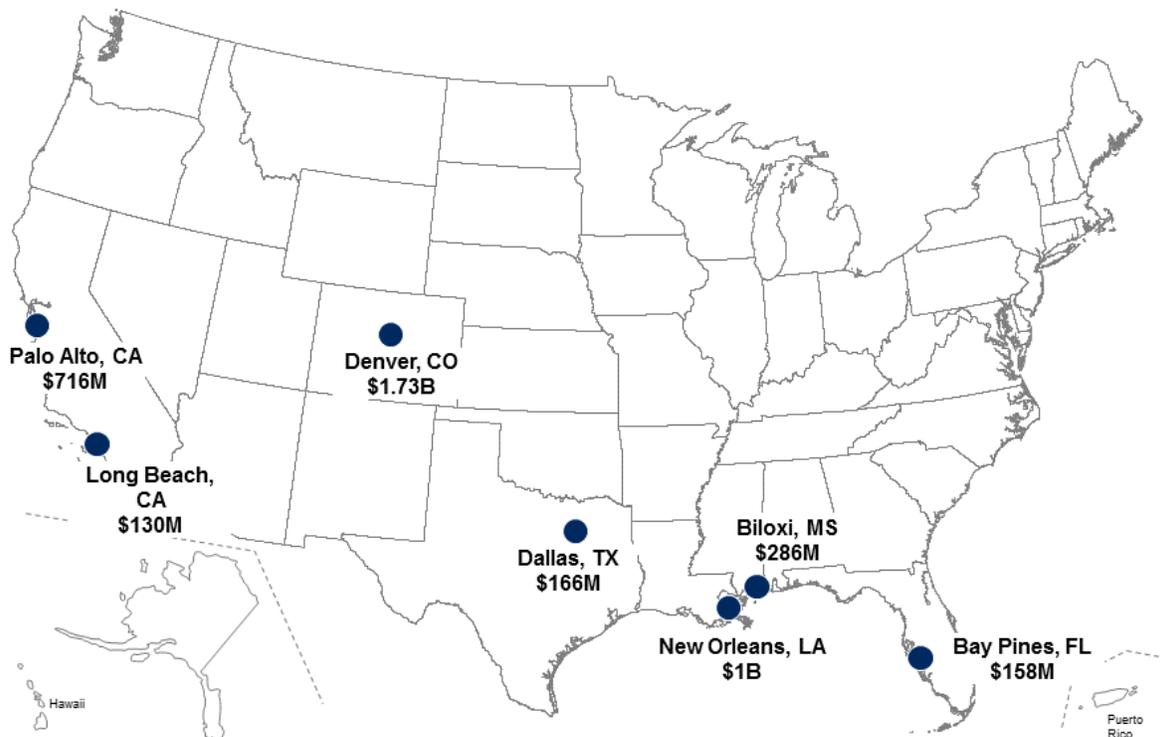
A.2.3 At Active Construction Sites, We Observed Variability in Project Delivery Processes

Site visits to active major construction sites during the assessment revealed that the lack of a defined process has led to multiple challenges – each unique to the site – in project execution. Figure A-4 summarizes key assessment areas for the projects visited.

From the construction site visits, the following key themes emerged:

- The lack of a defined process for major projects leads to significant variation in roles, responsibilities, and interactions among stakeholders for the project.
- The length, variability, and opaqueness of the existing undocumented processes leads to considerable delays on the projects
- Coordination – specifically between the VAMCs and CFM – is challenging in absence of a defined process.
- Certain pockets of excellence, such as a safe and secure site, exist at multiple sites

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Figure A-4. Select Active Major Construction Projects Assessment

Active construction site assessment

5 = Best practices
- Site 1
- Site 2
- Site 3
- Site 4
- Site 5
- Site 6
- E&C standard

Key issue at each construction site
- Site 1: risk management of contract
- Site 2: contractor selection
- Site 3: design and engineering review
- Site 4: scope changes and coordination
- Site 5: site coordination with multiple contractors
- Site 6: contract management
- Site 7: site between active phases

SOURCE: Field observations; team analysis

A.3 Benchmarking Methodology

A.3.1 To Accurately Assess the Cost and Time to Completion of Major Projects, We Conducted a Benchmarking Exercise to Understand Key Drivers of Variability Between Projects

Variation in construction costs and time to completion across and within private and public sector required a benchmarking to understand key drivers of variability. Our benchmarking effort and have extensively reviewed completed hospital construction data from multiple public and proprietary databases, cost benchmarking studies, and internal experience. We created a database of recently completed projects for medical facilities construction to assess cost and schedule implications for VHA construction projects.

Using the database, we conducted quantitative analyses to identify key drivers of variability in dollar per square foot costs and schedule in medical facilities construction. To understand the differences in construction costs, we defined which costs should be included in the benchmarking analyses for a construction project (see Figure A-5). Our effort focused on total

construction costs to leverage all available projects data most of which is reported only at total construction costs. Because the projects in the database are largely greenfield projects for new facilities as opposed to renovations, such costs are also more beneficial in understanding the total construction costs of a campus. Based on the projects for which the detailed cost breakdown was provided, the site work and indirect costs accounted for 10-25 percent of the total construction costs.

The construction costs for projects in the database were adjusted to U.S. national average and 2015 dollars using Engineering News Record indices and R.S. Means City Cost Indices to minimize variation due to location and time of project delivery (see Figure A-6). However, the total construction costs are expected to vary due to a multitude of factors including, but not limited to: design specifications, type of facility (for example, mental health versus OR), geography (for example, seismic areas), contracting method (fixed price versus cost reimbursable), project delivery method (design-build versus design-bid-build), construction market dynamics, size and complexity, and execution finesse. Though the above factors can drive large variations in costs, it is valuable to document the range of construction costs so we understand the project specific drivers and the delivery specific drivers – which are explored in process, people, and systems.

A.3.2   Key Definitions

Building construction costs: Building construction costs for the benchmarking are defined as all costs to erect structures with the perimeter of the buildings. These costs include all electrical, plumbing, and mechanical systems, but exclude specialty health care equipment costs.

Total construction costs: Total construction costs include all costs of the project except planning and design related costs. These costs included – in addition to building construction costs – all site development costs, financing costs, general conditions, and insurance and bonding costs.

Figure A-5. Breakdown of Total Project Costs
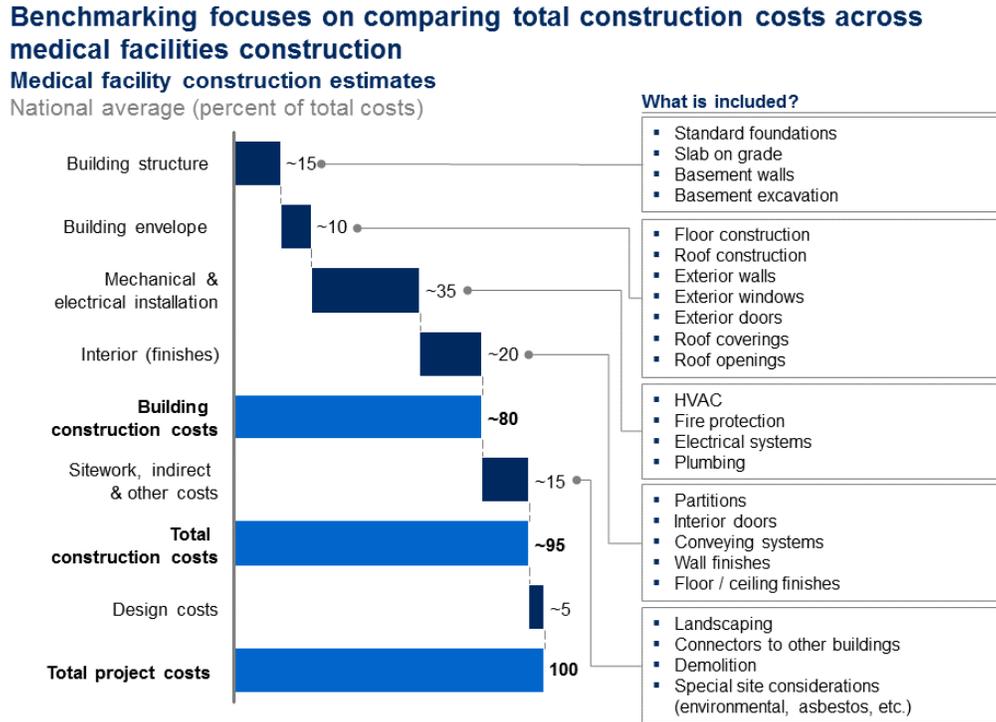
Figure A-6. Adjustment Methodology for Time and Location of Costs

The views, opinions, and/or findings contained in this report are those of the assessment team and should not be construed as an official government position, policy, or decision.

Appendix B   Detailed Analysis

B.1   Organizational Health Index

B.1.1   Overview of Results

The Organizational Health Index (OHI)™ survey was a key input for this assessment. Our team conducted and analyzed OHI surveys that were issued to CFM specifically and also to VHA as part of Assessment L (see Assessment L for more information). The survey results from VHA were segmented to include only facilities staff in our assessment. The CFM's response rate to the OHI survey was approximately 20 percent. The OHI survey is designed to measure the health of an organization, reflect what is working well, and offer actionable information on areas needing improvement. The survey examines current organizational strengths and weaknesses, with a special emphasis on leadership. This tool has been used across leading health care institutions and other government agencies.

Most employee surveys focus on satisfaction and engagement. The OHI survey does not try to do this. Instead, it evaluates nine elements of organizational health (outcomes) and their associated practices to create a thorough picture of how 'healthy' an organization is and allows results to be benchmarked against similar institutions. The OHI provides quantitative benchmarks against a database of more than 1,300 surveys of other organizations and more than 1.3 million employees. The usefulness of OHI also comes from the research behind it - it is statistically proven that 'healthy' organizations are more likely to outperform their industry peers.

This analysis highlighted several areas of concern for the ability of VA's construction program, both at CFM and VA, to respond to the challenges they face in moving towards a best practice organization. When compared to peers, CFM lags in every outcome, and each organizational health outcome apart from motivation lies in the bottom quartile of all survey respondents.

The motivation outcome, scoring in the third quartile, reflects a strong commitment to the purpose of caring for Veterans, a sentiment echoed resoundingly in interviews as well. This care for the Veteran and commitment to work on their behalf is powerful, but it alone is insufficient to fuel the organization's performance.

We have compared CFM and VHA to the OHI global benchmark, as well as a public sector benchmark and a construction and engineering benchmark. The public sector benchmark is comprised of 27 surveys (n=47,159), and the Healthcare Systems and Services benchmark is comprised of 18 surveys (n=24,005). CFM scores lag both benchmarks. Again, outcomes are slightly better in motivation. However, their peers in construction and engineering score nearly twice as well in outcomes such as leadership, culture and climate, accountability, and innovation. CFM scores particularly poorly against benchmark organizations in coordination and control, where their outcome score was 19. This is half that of the public sector and less than a third of scores in construction and engineering (Figure B-1).

Figure B-1. CFM Outcomes Against OHI Benchmark

When compared to public and private sector peers, CFM lags across outcomes

Percentage agreement on outcome effectiveness,
Difference between organization and benchmark median, %

Comparison to Benchmark
- Stronger (> +5)
- Comparable
- Weaker (< -5)

	CFM	Construction & Engineering	Public Sector
Direction	41	-30	-12
Leadership	39	-34	-19
Culture & Climate	37	-33	-9
Accountability	36	-33	-19
Coordination & Control	19	-44	-20
Capabilities	58	-22	-7
Motivation	42	-12	1
Innovation & Learning	23	-37	-21
External Orientation	27	-37	-24

Source: VA-CFM (Veterans Affairs) - 2015 (n=79); Public sector benchmark (n=47,159, no. surveys=27); Construction & engineering benchmark (n=24,005, no. surveys=18)

The 37 individual practices which make up the OHI illustrate a similarly consistent set of low scores. Every practice scored by CFM ranked in the bottom quartile against the global benchmark. In seven practices (capturing external ideas, challenging leadership, consultative leadership, financial incentives, open and trusting, rewards and recognition, and supportive leadership), CFM scored above VHA's results. In all other practices, CFM scored on par or below VHA.

B.1.2 Climate and Values

One aspect of the OHI Survey addresses organizational values. This "value mapping section" gives respondents the opportunity to identify those values or characteristics that most represented the current state of CFM as well as those desired values or characteristics they would like to see VHA move towards in the future. Six values, including two of the I-CARE values, were identified as both current and desired: Veteran focus, being of service to others, commitment, caring, making a difference, and fulfilling work (Figure B-2).

However, among the values most commonly seen in the current state, employees also mentioned "bureaucracy," "internal politics," "slow-moving," and "siloed." Of particular note, "fear" and "conflict" were both listed by CFM as values most commonly seen. Neither of these

were represented on VHA's value mapping, and both speak to a particularly difficult climate at VA's construction arm. In our experience with OHI, it is unusual to see this concentration of value detractors in the value mapping exercise. In interviews across CFM, our team consistently heard employees express tremendous discouragement and concern regarding the climate of CFM given recent issues with sizeable project overruns and discussions around the organization's future. The more favorable motivation outcome is even more notable in the light of these concerns.

There is reason for encouragement when looking towards the desired values. CFM employees clearly state they hope to move toward an efficient and accountable culture, with an emphasis on continuous improvement, integrity, trust, and respect.

Figure B-2. CFM Value Mapping

Source: VA-CFM (Veterans Affairs) - 2015 (n=79)

Within the culture and climate outcomes, CFM lags behind VHA in several key questions measured by OHI. Only 23 percent of CFM respondents reported that day-to-day work is consistently performed according to clear standards, and only 29 percent reported the organization reported standards clearly and leadership emphasized efficiency and productivity frequently (Figured B-3). For the operationally discipline practice as whole, CFM scored 29 and VHA 44.

Figure B-3. Frequency of Operational Discipline Metrics
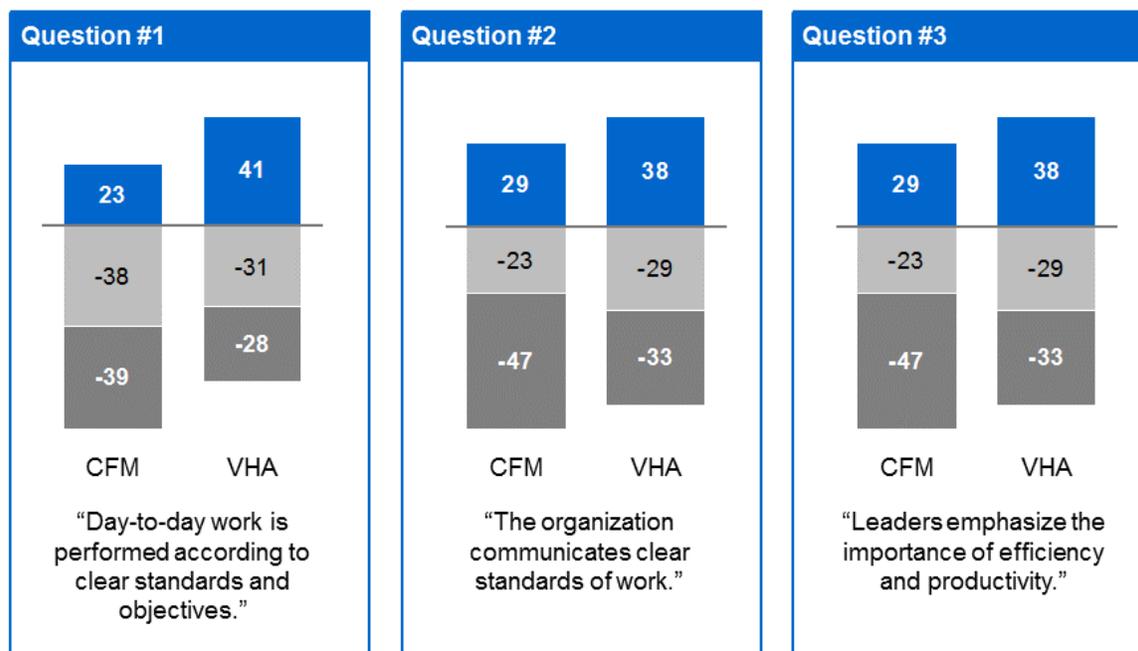
B.1.3 OHI Results by Tenure

Across the global database, it is common to see very early tenure employees express more positive views on the organizational health than more tenured employees. For CFM employees, there is a 34 percent difference in the average score of employees with less than one year of tenure compared to those with between one and three years of tenure (Figure 10-4).

This difference is particularly large in select practices. Under culture and climate, agreement on the CFM's operational discipline differs from 72 to 20 and agreement on creativity and entrepreneurship differs from 46 to 13. Under accountability, agreement on role clarity differs from 53 to 18, personal ownership differs from 53 to 18, and consequence management differs from 25 to 11.

 On average, these scores continue to differ when looking at even later tenure employees. There are some slight upticks, particularly in accountability, for employees with the longest tenure. The results, particularly regarding role clarity and consequence management, were borne out by interviews, the implications of which are discussed further within the people findings in each of the core assessment areas, Sections 5.2.3, 6.2.6, 7.2.4, 8.2.3, and 9.2.3.

Figure B-4. CFM Outcomes by Tenure

Agreement on frequency of practices and outcomes drops significantly after one year with CFM
Percentage agreement on practice frequency

Legend:
- Less than 1 year
- 1 to 3 years
- 4 to 5 years
- 6 to 10 years
- 11 and more years

X-axis categories: Direction, Leadership, Culture & Climate, Accountability, Coordination & Control, Capabilities, Motivation, Innovation & Learning, External Orientation

Annotations:
- Overall score of 47 at <1 year tenure
- -34% drop
- Overall score drops to 31 after 1 yr

Source: VA-CFM (Veterans Affairs) - 2015 (n=79)

A deeper look at the VHA OHI results can be found through Assessment L, with particular detail in Sections 3.3 and 7.2.6.

B.2   Overview of Aurora Replacement VAMC

The Aurora project will provide a new inpatient medical center including a Spinal Cord Injury (SCI) Center, an Outpatient Clinic, a Community Living Center (CLC), a research building, a central utility plant, and parking facilities. The project includes the remodeling of the recently purchased University of Physicians, including building and the disposal of the current medical center. The original public cost estimate was $328 million and the project was expected to be completed by February 2014. At the conclusion of our assessment, the public cost estimate for the project was $1.73 billion with an uncertain completion date.

Prior to our on-site visit to the Aurora project, Assessment K reviewed relevant public reports such as Congressional testimonies, United States Civilian Board of Contract Appeals documents (Kiewit-Turner, a joint venture, v. Department of Veterans Affairs, 2014), GAO reports (GAO-06-472, 2006; GAO-13-302, 2013). In the reports, critical aspects were identified as driving cost and schedule growth (Figure B-5) such as scope changes and the project delivery method selected:

1. **Scope changes:** Based on information from VA Budget Requests, Congressional testimonies, findings of the United States Board of Contract Appeals, and GAO reports, the original project cost estimated at $328 million represented a Joint Federal Facility with 1,060,000 square feet of space on leased land from University of Colorado Health (UCH).

   VA's estimate based on its space requirements led to two design options for 20 acres and 38 acre campuses – both of which would require more space than available adjacent to UCH. The estimated space available at UCH was 18 acres of land based on UCH reports in August 2004 or 12 acres accounting for easement and setbacks as mentioned in GAO-06-472 report.

   VA decided to pursue the design option for 38 acres and ended discussions for a joint facility. Over the years, the scope of the project changed multiple times growing up to 1,400,000 square feet (including new construction and alterations) before scaling back to 1,030,000 square feet. In 2004, the project was expected to include 188 inpatient beds with 30 spinal cord injury beds and a 60 bed nursing home care unit. Today, the project is expected to include 114 inpatient beds with 52 bed spinal cord injury and community living center. Though some of these changes scale the facility back in terms of scope, the timing of the changes has had a significant impact on the overall cost.

2. **Project delivery method:** Based on expert interviews, the selection of the project delivery method is driven primarily by the risk and complexity of a mega project along the time horizon for completion. Generally, there are three primary project delivery methods used at VA for major projects:

   a. Design/bid/build: Owner contracts separately with contractor and the architect / engineer (A/E) and most frequent delivery method at VA based on conducted interviews.

   b. Design/build: Owner procures engineering and construction services under a single contract.

   c. Integrated Design Construction (IDC): Owner contracts with A/E to initiate design and simultaneously contracts with a contractor before design is complete. The contractor provides input into the design through completion. At completion, the contractor provides a Guaranteed Maximum Price for the construction of the facility. In the industry, similar delivery methods may also be known as CM at risk or Early Contractor Involvement.

      Based on the GAO report and the United States Civilian Board of Contract Appeals decision research, VA chose IDC as a project delivery method for the Aurora project to benefit from contractor input on a complex project. VA had previous experience in administering this delivery model through smaller projects such the Polytrauma center in San Antonio, TX with a cost of $66 million but had no experience leveraging this model on such a large project.

To benefit most from IDC projects, the owner ensures contractor input is being solicited and implemented in the design phase. In Aurora, the design phase lasted 6 years, from 2005 to 2010 as mentioned in USCBCA decision and VA Budget requests. However, the contractor was not brought into the project until 2010 well after the design was underway. As a result, VA did not benefit from early contractor input, a key benefit of IDC. Additionally, VA faced challenges in accepting and enforcing cost-reduction suggestions by the contractor in the design, limiting a potential benefit from IDC.

The interviews conducted on our visit to the Aurora project reinforced the observations throughout Assessment K and also highlighted the process and personnel challenges impacting execution on a project of this scale and complexity.

3. **Execution challenges:** The light initial staffing from CFM plus a lack of well documented process, roles and responsibilities and sub-optimal systems posed significant challenges in the project early stages.

   To adequately manage the project workload and manage the different stakeholders involved (a joint venture of 4 A/E firms, external construction managers, and the general contractor joint venture), the CFM team had to expand almost five times the original size to better accommodate the workload and address the complexity of the project.

The elements presented in the case example are highlights of the challenges identified during our assessment and the insights obtained informed and influenced the overall assessment recommendations for consideration.

Figure B-5. Aurora Replacement VAMC Timelines

Budget fiscal year timeline: Aurora
Project costs
In $ USD millions

TEC
☐ Unfunded
▨ Future Request
▨ Requested
▨ Funded

	2004	2007	08	09	10	11	12	13	14	15	2016
ECD	Feb 2014			Jun 2013	Not reported	Sep 2013	Sep 2014	Not reported	Not reported	Not reported	
Size Million sq. ft.	1.06	1.4	1.4	1.5	1.03	1.03	1.03	Not reported	Not reported	Not reported	Not reported
Status	SD	SD/DD	SD/DD	SD/DD	SD/DD	SD/DD	SD/DD	CO	CO	CO	CO
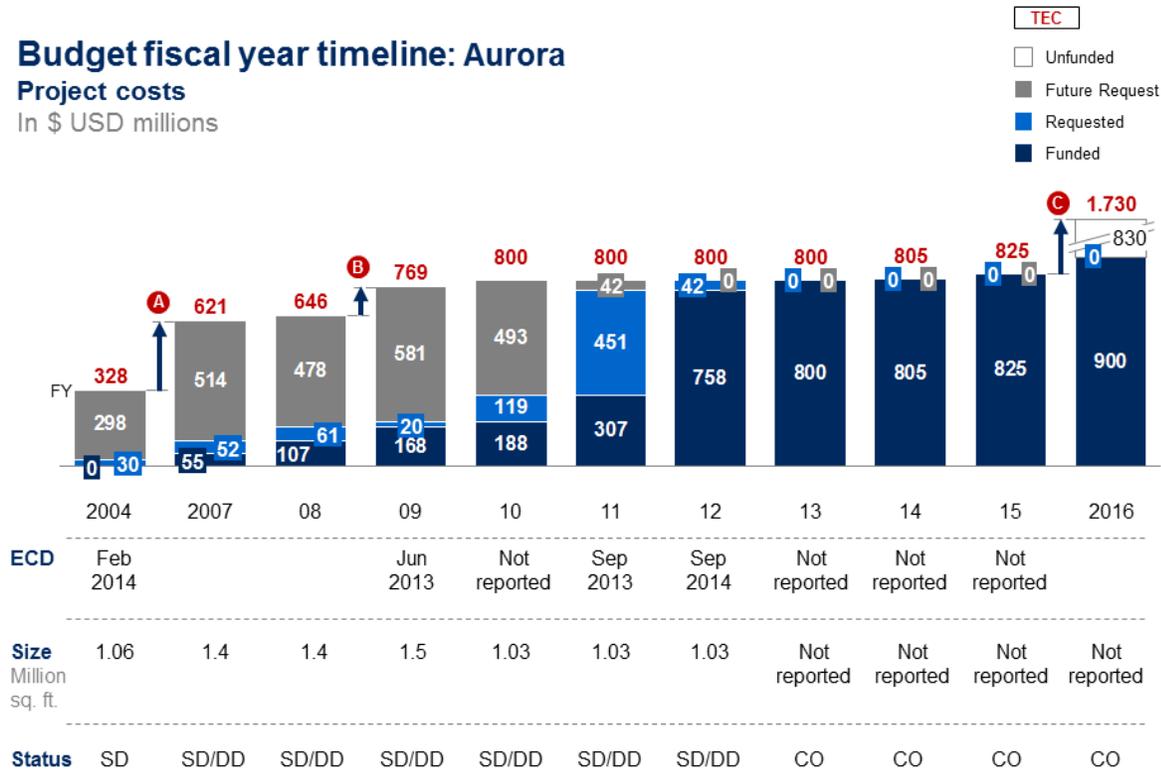
Note TEC: Total Estimated Cost; ECCA: Estimated Cost at Construction Award; ECD: Estimated Completion Date; UCH: University of Colorado Hospital; FTP: Firm Target Price; SD/DD: Schematic Design, Design Development; CO: Construction; FFP: Firm Fixed Price; KT: Kiewit Turner

SOURCE: VA budget requests 2004, 2007-2016; GAO-13-302; GAO-06-472; CBCA 3450

Calendar year timeline: Aurora
Project costs
In $ USD millions
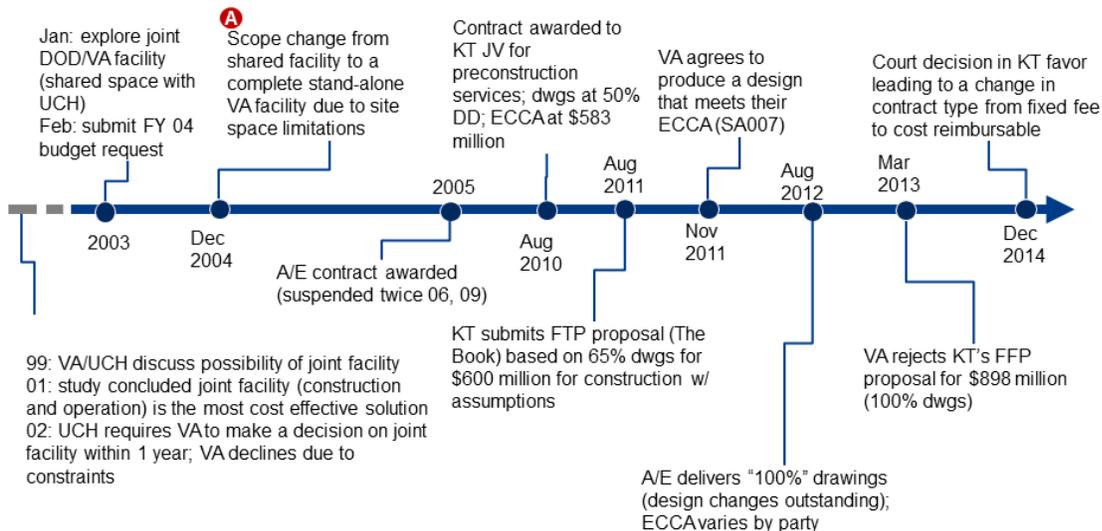
B.3 Detailed Approach to Capital Reduction Sizing

VA has identified more than $51 billion in total capital needs over the next 10 years through its capital planning methodology.[57] This combines $46 billion in projects submitted through the Strategic Capital Investment Plan (SCIP) and approximately $5 billion in anticipated outstanding funding needs for on-going major projects projected in the FY2016 VA Budget Submission:

- **SCIP Submission ($46 billion):** The $46 billion SCIP submission is made up of more than 8,000 capital requests. While our team did not independently verify the cost estimates for these capital requests, we did review the process by which these requests are identified and developed. During the data validation exercise, reviewers highlighted that approximately $2.5 billion of projects in the $46 billion in the SCIP were 'not-approved' or de-prioritized by VISNs. However, the lack of a formal scrubbing process for project selection or a formal feedback mechanism to link completed projects with addressed gaps suggests that projects that are incorporated in SCIP but not approved may still be prioritized in subsequent years.

- **On-going major construction projects ($5 billion)**: The VA has identified approximately $5 billion in capital requirements for on-going major construction projects based on our assessment of the FY2016 VA Budget Submission Appendix F: History of VHA Projects Update. Our analysis of this request include four distinct elements:

  o Active major projects: The FY2016 Budget Submission identifies 15 VHA major construction projects that have satisfied the criteria to be in the CFM 'active development list'. These projects represent approximately $4.3 billion in funding requirements for FY16 and beyond.

  o Other on-going major projects: The FY2016 Budget Submission identifies 7 VHA major construction projects which have received funding in prior years and are expected to receive future funding. However, these projects have not satisfied one of the criteria to be considered an 'active development project'. The total estimated value of these projects is approximately $1.5 billion.

  o Additional funding needs for the Aurora Medical Center: The future construction cost of the Aurora Medical Center is listed in the FY2016 Budget Submission as TBD. Based on the most recent internal VA updates and Congressional testimony, the total cost of this project is expected to be $1.73 billion. Of this total cost, $825 million is accounted for prior to FY16 which leaves approximately $905 million in future funding requirements.

  o While assessing the total capital requirement in the SCIP and the value of on-going active construction projects in the FY2016 Budget Submission, we identified 7

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[57] This combines $46 billion in projects submitted through the Strategic Capital Investment Plan (SCIP) and $5 billion in anticipated outstanding funding needs for on-going major projects projected in the FY2016 VA Budget Submission. SCIP funding levels are taken from data provided by VA for the FY16 planning cycle, the most recent data available as of the writing of this report. See Section 3.1 for additional detail.

projects which are include in both the SCIP and the FY2016 Budget Submission. These duplicated projects represent approximately $1.7 billion in future expected project costs. To avoid double counting these projects in the total capital required by the VA, we have excluded these projects from the on-going major construction projects total and included them in the total value of the SCIP submission.

These requests cover current ten-year projections; however, new projects may be added as needs change and could change the total capital requirement. Given the gap between this capital requirement and anticipated funding levels, our team worked to develop a preliminary estimate of how much this $51 billion capital requirement could be reduced by implementing best practice capital management processes.

For VA, we have estimated an approximately 25-35 percent reduction potential in the estimated need if capital efficiency best practices are successfully applied. This section illustrates the methodology used to calculate the potential reduction in capital requirement. This was done by (1) consulting established research to develop a broadly applicable estimate based on best practices in capital management and (2) developing high level estimates based on VA capital requests and applying levers identified throughout the recommendations in this assessment.

B.3.1   Aspiration Setting: Best Practice Capital Optimization Research

To define the optimization aspiration, we identified best practices and potential efficiency levers based on comprehensive reports assessing best practices from different capital management organizations worldwide, utilized more than 80 case examples and lessons learned from health care facilities delivered in the United States over the past 5 years, and interviewed industry experts, including health care industry networks and leading agencies with large capital programs.

Research identified best practices from capital management organizations around the world that could be deployed to improve the total performance of capital programs for organization of a similar scale and complexity to VA (McKinsey, 2013). The cumulative improvement value of deploying all of these best practices in a single organization could result in savings up to 40 percent. The main areas of opportunity are:

- **Improving project selection and optimize infrastructure portfolio.** Experience with other facility portfolios has shown opportunity for 10-15 percent reducing in costs through improving the portfolio of facility assets. Specifically, portfolio levers would enable the flexibility to rationalize the portfolio to ensure facilities of the right kind are in the right place.

- **Streamlining project delivery.** A 15-20 percent opportunity exists in improving the delivery of facilities. Steps such as improving upfront design, enhancing accountability for projects, and increasing project controls can both reduce costs and increase the speed of project delivery.

- **Making the most of existing infrastructure.** Experience shows another 10-20 percent opportunity through maximizing the use of existing facilities. Effectively managing the use of space can reduce the overall facility need.

To understand and assess potential impact of different efficiency levers and its impact on cost and schedule, we studied 87 projects delivered in the United States over the past five years. The projects assessed included public and private owned projects, different delivery and contracting methods (design-bid-build, design-build and early contractor involvement) and geographies. Some of these projects were delivered in geographic proximity to VA projects in similar timeframes to serve as a reference benchmark.

To validate the different potential efficiency estimates we also extensively relied on industry benchmarks such as RS Means, Medical Construction Data, Design Build Association of America, Design Cost Data, 2013 Building Owners and Managers Association survey. As part of validating these numbers, our team conducted interviews with two leading health care systems in the United States (covering more than 450 hospitals and medical centers) and leading federal agencies with large capital programs (US Army Corps of Engineers, Naval Facilities Engineering Command, and then General Services Administration).

B.3.2 Impact Sizing for VA: Applicable Levers

Using this information on best practices and information obtained from VA on the $51 billion requirement, our team carefully assessed what could be the overall potential capital reduction in VA depending on different levers applied.

Capital management and delivery is a challenging task. Even the best capital management organizations do not succeed in deploying all best practices consistently across their organizations. For VA, even the most ambitious transformation effort may not achieve the total potential outlined in capital management best practices. As a result, our high level estimate for VA's potential capital reduction is approximately 25 to 35 percent reduction over the next ten years, a decrease from the 40 percent reduction potential identified in best practice research. For VA, this could reduce the overall $51 billion capital need to between $33 and $38 billion.

To quantify for the impact for capital efficiency levers, we aggregated potential savings from representative case studies and extrapolated potential to the overall baseline. We first calculated the average and range of impact for the relevant case data expressed as a percentage of potential savings, and then use expert input to validate impact sizing. We then scaled up the savings potential based on the overall baseline. They are provided in the following subsections:

B.3.2.1 Improving Project Selection and Optimizing Portfolio

This could reduce capital need by $7 to $8.5 billion. To size potential impact in VA, we focused on three main optimization levers (a) Refine project prioritization (b) increase scrutiny and scrubbing of projects, and (c) optimize space planning criteria:

- **Refine project prioritization:** By focusing the criteria and approval processes for capital projects, VA could concentrate capital spending on strategic priorities in order

to invest first in critical repairs and high risk facilities. To evaluate the potential impact of portfolio optimization , the team conducted hypothetical prioritization of the facility condition assessment project needs based on identified case example best practices, where projects are classified as mandatory (needed to comply with current regulation, safety and security and health care functionality) and discretionary (which includes meeting with current and projected needs). This could result in a reduced capital need of $5.5 to $6.5 billion.

- **Increase scrutiny and scrubbing of projects:** We assumed that the top priority projects in the access, energy or functional need can be optimized by extensive review and refining processes to achieve improved project design and scoping, leading to a 10 to 15 percent reduction in total capital. This would result in a reduced capital need of $0.5 to $0.7 billion.

- **Space planning criteria:** By optimizing design standards to current industry design standards for medical rooms and improving the architectural design at the department level, square footage requirements could be reduced by approximately 10 to 15 percent from current VA standards. This could result in a reduced capital need of $1 to $1.3 billion.

B.3.2.2 Streamlining Project Delivery

This lever could reduce capital need by $5.5 to 9 billion and lead to cost avoidance of an additional $5.5 to $9 billion in potential overruns.[58] By addressing comprehensively the root causes leading to consistent overruns in cost and schedule for construction projects, VA could both reduce overall cost to build and limit potential future overruns.

After accounting for optimization derived from portfolio optimization and calculating a post-optimization baseline of reduced capital need, we have assumed the following efficiencies from the different capital programs if all the levers above are adequately applied:

- **Major construction program:** We assessed the average current budget requests of latest major projects for VA, excluding future overruns. Public and private sector case studies and expert interviews suggested an improvement potential from up to 50%. We assumed a range of approximately 25-30% improved cost performance for VA, which would bring their performance in line with their current internal cost objectives. This reduces per square foot construction estimates of $650 (the level of the most recent project requests) to VA target of $450. This performance improvement would achieve a range of capital need reduction of $3.5 to $5 billion over a ten year timeframe.

  Additionally, we assessed historical overruns in major projects over the last five years, which added up to 87% over initial project requests. Based on existing best practices and case examples we assumed that the improved processes and recommendations will also contribute to reduce the 87% average overrun to a range of maximum of 25-

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[58] Overruns calculated based on historic performance of major construction program, where projects average a total of 187 percent of initial total estimated cost.

50%. This performance improvement will generate an overall cost avoidance of approximately $5.5 to 9 billion preventing additional requests over the $51 billion of capital need estimates.

- **Minor Construction program:** Data collected by our team indicated that minor projects experience an average increase of 18 to 22 percent over initially contracted costs, as discussed in Section 7.2.1.3. We assumed a conservative reduction of 10 to 15 percent of the final project cost, which would partially address the observed cost increases. This estimate relies on existing research, our optimization track record in small and medium capital expenditures optimization, and expert interviews. This performance improvement would contribute to $1 to $ 1.5 billion in overall capital need reduction.

- **Non-Recurring Maintenance:** Similar to minor projects, we assume a partial reduction in the observed average increases of 25 percent for NRM projects between $100 thousand and $1 million and the average increases of 7 percent in NRM projects above $1 million, which would achieve an overall optimization of 5 to 10 percent in the overall portfolio over the next 10 years. This performance improvement would contribute to $1 to $2.5 billion in overall capital need reduction.

B.3.2.3   Making the Most of Existing Infrastructure

VHA could improve the utilization of its infrastructure ensuring that space planning programs regularly evaluate underutilized and vacant space to identify opportunities for increased utilization or to actively divest unusable properties. While most of these potential levers would fall outside the scope of Assessment K, experience shows that 10-20% opportunity capital reduction may exist from associated levers. We have not included this reduction in our sizing.

In summary, our analysis estimate that out of the $51 billion capital need for VA capital $12 to $17 billion, or approximately 25 to 35 percent of total need, could potentially be reduced through improving project selection, refining the project portfolio, and streamlining project delivery. In addition to the above, the successful implementation of the recommendations could prevent additional funding requests of $5.5 to $9 billion derived from potential overruns.

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Appendix D   Acronym List

A/E   Architect/ Engineer

AEP   Access Expansion Plan

BDOC   Bed Days of Care

BRAC   Base Relocation and Closure

CAGR   Compound Annual Growth Rate

CAI   Capital Asset Inventory

CAM   Capital Asset Manager

CAMH   CMS Alliance to Modernize Healthcare

CBOC   Community Based Outpatient Clinic

CCI   City Cost Index

CEA   Cost Effective Analysis

CFM   VA's Office of Construction and Facilities Management

CFMIS   CFM Information System

CLC   Community Living Center

CMS   Centers for Medicare & Medicaid Services

CO   CFM Contracting Officer

COR   Contract Officer Representatives

COTR   Contracting Officer Technical Representative

CPRMP   Capital Program Requirements Management Process

CSI   Clinical Specific Initiatives

DoD   Department of Defense

eCMS   Electronic Construction Management System

EHCPM   Enrollee Health Care Planning Model

EOC   Environment of Care

ESPCs   Energy Savings Performance Contracts

FAR   Federal Acquisition Regulation

FCA   VHA Facilities Condition Assessment

FFRDC   Federally Funded Research and Development Center

FGI   Facilities Guidelines Institute

FMS   Financial Management System

FPDS   Federal Procurement Database System

FRPP   Federal Real Property Profile

GAO   Government Accountability Office

GSA   General Services Administration

GSF	Gross Square Feet
HCC	Health Care Center
HCPM	Health Care Planning Model
HHS	Department of Health and Human Services
HVAC	Heating, Ventilation and Air Conditioning
IDC	Integrated Design Construction
KPIs	Key Performance Indicators
LCO	Leasing Contracting Officer
LOS	Level of Significance
LSU	Louisiana State University
NAVFAC	Naval Facilities Engineering Command
NCA	National Cemetery Administration
NCO	VHA Network Contracting Office
NPV	Net Present Value
NRM	Non-Recurring maintenance
NRM-GM	NRM Green Management
NRM-II	NRM Infrastructure Improvement
NRM-Sus	NRM Sustainment
NUSF	Net Usable Square Feet
OAEM	Office of Asset Enterprise Management
OALC	Office of Acquisition, Logistics and Construction
OCAMES	Office of Capital Asset Management and Engineering
OGC	Office of General Council
OHI	Organizational Health Index
OIG	Office of the Inspector General
OMB	Office of Management and Budget
PACT	Patient Aligned Care Team
PALT	Procurement Administrative Lead Time
PDT	Project Delivery Team
PE	Project Executive
PM	Project Manager
PMP	Project Management Plan
PRB	Project Review Boards
PTR	Project Tracking Report
RE	Resident Engineer
RIF	Request for Information

RM&R   Recurring Maintenance and Repair

RPS   Real Property Services

RSF   Rentable Square Feet

SAIL   Strategic Analytics for Improvements and Learning Value Model

SCIP   Strategic Capital Investment Plan

SDVOSBs   Service Disabled Veteran-Owned Small Businesses

SEPS   Space and Equipment Planning System

SMEs   Subject Matter Experts

SPC   Strategic Planning Category

SRE   Senior Resident Engineer

TCO   Total Cost of Ownership

TEC   Total Estimated Cost

TIL   Technical Information Library

UCH   University of Colorado Hospital

USACE   US Army Corps of Engineers

VA   Department of Veterans Affairs

VACO   VA Central Offices

VAMC   Veterans Affairs Medical Center

VAR   VA Acquisition Regulation

VBA   Veterans Benefit Administration

VERA   Veterans Equitable Resource Allocation

VHA   Veterans Health Administration

VISNs   Veterans Integrated Service Networks

VISTA   Veterans Health Information Systems and Technology Architecture

VSSC   VHA Support Service Center

Prepared by:

McKinsey & Company, Inc.

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Veterans Access, Choice, and Accountability Act of 2014
Section 201: Independent Assessment of the Health Care Delivery
Systems and Management Processes of the Department of Veterans
Affairs

Assessment L (Leadership)

September 1, 2015

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Preface

Congress enacted and President Obama signed into law the Veterans Access, Choice, and Accountability Act of 2014 (Public Law 113-146) ("Veterans Choice Act"), as amended by the Department of Veterans Affairs (VA) Expiring Authorities Act of 2014 (Public Law 113-175), to improve access to timely, high-quality health care for Veterans. Under "Title II – Health Care Administrative Matters," Section 201 calls for an Independent Assessment of 12 areas of VA's health care delivery systems and management processes.

VA engaged the Institute of Medicine of the National Academies to prepare an assessment of access standards and engaged the Centers for Medicare & Medicaid Services (CMS) Alliance to Modernize Healthcare (CAMH)[1] to serve as the program integrator and as primary developer of the remaining 11 Veterans Choice Act independent assessments. CAMH subcontracted with Grant Thornton, McKinsey & Company, and the RAND Corporation to conduct 10 independent assessments as specified in Section 201, with MITRE conducting the 11th assessment. Drawing on the results of the 12 assessments, CAMH also produced the Integrated Report in this volume, which contains key findings and recommendations. CAMH is furnishing the complete set of reports to the Secretary of Veterans Affairs, the Committee on Veterans' Affairs of the Senate, the Committee on Veterans' Affairs of the House of Representatives, and the Commission on Care.

The research addressed in this report was conducted by McKinsey & Company, Inc., under a subcontract with The MITRE Corporation.

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[1] The CMS Alliance to Modernize Healthcare (CAMH), sponsored by the Centers for Medicare & Medicaid Services (CMS), is a federally funded research and development center (FFRDC) operated by The MITRE Corporation, a not-for-profit company chartered to work in the public interest. For additional information, see the CMS Alliance to Modernize Healthcare (CAMH) website (http://www.mitre.org/centers/cms-alliances-to-modernize-healthcare/who-we-are/the-camh-difference).

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Executive Summary

Scope

Part L ("Assessment L"), Section 201 of the Veterans Access, Choice, and Accountability Act of 2014 ("The Veterans Choice Act") required an independent assessment of how leadership influences the Veterans Health Administration's (VHA's) ability to accomplish its mission. The law required an assessment of:

> "(L) The competency of leadership with respect to culture, accountability, reform readiness, leadership development, physician alignment, employee engagement, succession planning, and performance management."

Congress has thus directed that VHA leadership be viewed in the context of the eight separate but related elements of leadership, each of which is addressed in detail in the assessment, as summarized below.

The broad scope of the law's mandate represented an important opportunity to understand leadership at VHA, including its executive organization, Medical Center facility leaders, and regional network administrators. The scope of this assessment focuses on the senior leadership of VHA at each VA Medical Center (VAMC), Veterans Integrated Service Network (VISN), VA Central Office (VACO), and VHA Central Office (VHACO). The senior leadership at the VAMC and VISN are defined as the "Quadrad" or "Pentad" leaders: Director, Associate Director, Chief of Staff, Associate Director for Patient Care Services, and Assistant Director for Operations, if applicable.[2]

The assessment utilizes a three-step methodology entailing:

(i)   Data collection and analysis, including 39 site visits and more than 300 interviews with VHA leaders across the country, a survey of VHA employees about VHA leadership beliefs and practices, and analysis of existing VHA and other federal data;

(ii)   Synthesis of analyses, findings, and recommendations across the eight elements to identify patterns, points of interaction, and interdependencies. Through this process we identified overall findings and overarching recommendations; and

(iii)   Validation and testing to ensure a comprehensive mapping of findings and recommendations, as well as review by a Blue Ribbon Panel of outside experts and by subject matter experts (SMEs) from MITRE and McKinsey who did not participate in conducting the assessment.

Findings

Reviewing all eight elements described in Section 201, Assessment L provides an opportunity to create an integrated perspective of leadership at VHA. The scale of VHA is vast, and it is difficult to fully capture all the nuances and variability that exist throughout the system. Areas of

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[2] The terms Quadrad and Pentad are used interchangeably throughout this report as they are at VHA.

excellence exist across the system, including some inspiring and resilient leaders, front-line systems redesign teams, and homegrown innovation. We touch on these throughout the full report. However, most areas of the organization show a highly risk-averse culture; lack of role clarity; fragmentation and organizational silos; and breakdowns in communication, accountability, and key processes that impair the organization's ability to deliver the mission.

Our efforts have yielded a complex portrait of leadership practices reflecting leaders at VHA who are diverse in their approach, experience, skill, and effectiveness. They are operating in a system without common agreed upon leadership goals, methods and processes. Examining each of the eight elements, we identified the following seven themes about leadership today at VHA:

1. **An expanding scope of VHA activities has led to confusion around leadership priorities and the strategic direction of VHA.** The organization's focus has expanded and shifted over time, and it is unclear what the priorities are, and unclear when they will shift again. Over time, VHA has expanded into the delivery of a wide range of clinical services, as well as various social pursuits. The organization is not configured or resourced to deliver this expanding scope of activities, and it is unclear where the boundaries of the mission lie. VHA is also treated by oversight entities and external stakeholders as both a hospital system and a traditional government agency. This unique complexity of VHA is not supported by equally unique performance expectations, operational flexibility, and supporting tools.

2. **From the point of view of leaders and employees, the VHA organization is intensely, unnecessarily complex due to lack of a clear operating model, limited role clarity, fragmentation of authority, and overlapping responsibilities.** This lack of clarity around operating model, roles and responsibilities extends across VAMCs, the VISNs, and Central Office. The issue is exacerbated by a cultural context that is often unable to work effectively across chains of command, except where all parties concur. Fragmentation and silos exist across the system and within each tier of the organization. Many key support functions, such as human resources or contracting, suffer from this, resulting in service too slow to meet the needs of the mission. Meanwhile, the sheer number of operational performance measures in many cases overwhelms and makes it difficult to know and focus on what is most important.

3. **The broader VHA culture is characterized by risk-aversion and distrust, resulting in an inability to improve performance consistently and fully across the system.** At almost every facility visited, at least one leader interviewed mentioned that risk-aversion and a reluctance to "speak up" were significant issues. Three out of every four leaders interviewed at VISNs in which site visits were conducted echoed this concern (VHA interviews, 2015). A general aversion to speak up or take risks originates from: a) trying to perform in a heavily siloed organization; b) fear that raising issues will result in punitive actions toward the individual or addition of significant workload with no additional support; and c) insufficient reward for those trying to make improvements. This culture permeates across all levels of the organization – from the front-lines, to Medical Center leaders, to people at Central Office. This culture of risk aversion also

hinders great ideas from spreading. A lack of enterprise-wide incentives and mechanisms for knowledge-sharing within or across the system yields pockets of innovation but not broader system-wide adoption (VHA interviews, 2015; VHA OHI survey, 2015).

4. **VHA leadership faces a workforce that appears to be steadily losing its motivation. Caring for Veterans is a value that powerfully motivates VHA leaders and employees alike – however, this commitment alone is insufficient to fuel the organization's motivation and performance.** Other sources of motivation such as a great work environment, job satisfaction, or working with an inspiring team have eroded in recent years (VHA interviews, 2015). Physicians are only partially aligned with the various demands put on them. In a changing environment in which VHA competes with other health care organizations for top talent, a value proposition that relies primarily on the intrinsic reward of caring for Veterans cannot make up for the erosion of other sources of employee motivation to meet the VHA mission.

5. **The performance of a particular VAMC hinges to a large degree on the capability of its Director and the executive leadership team; yet these leaders are "on their own" in many ways.** VAMC Directors often lack competent and timely assistance from support functions (including HR for disciplining, hiring employees, planning for succession; construction; IT; and contracting). Support from VISN and VHACO is variable and often limited. Directors are left to navigate their own career progression and development (VHA interviews, 2015).

6. **VHA leadership attention is consumed by addressing crises that have occurred in the past, at the expense of preparing for tomorrow's opportunities.** The number of directives for which leaders are accountable, coupled with heightened scrutiny from internal and external sources, compels leaders to spend much of their time reacting to crises and completing action items from above. Bottom-up innovation and consultative leadership are not well-developed, and there is a heavy reliance on top-down directives, exacerbated by the growth of Central Office Program Offices (VHA OHI survey, 2015; VHA interviews, 2015).

7. **The leadership pipeline is not robust enough to meet VHA's current and future needs, a function both of inadequate succession planning and unfocused leadership development efforts.** As of March 2015, 16 percent of VAMC Quadrad and VISN Network Director positions are vacant or have acting leaders. Twenty-three VA Medical Centers (16 percent) do not have a permanent Director. Nine VISN Network Directors (43 percent) are Acting (VHA Office of Workforce Services, 2015). Leadership positions are increasingly unattractive to the next generation of VHA leaders, which contributes to the difficulty in filling leadership openings (VHA interviews, 2015). VHA is currently experiencing a large and widespread number of current vacancies and upcoming retirements in key leadership roles, and open positions remain unfilled due to a lack of qualified candidates. Meanwhile, VHA's lack of a comprehensive approach to leadership development – experiential, relational, and training – has resulted in leaders with uneven preparation for their future roles. Multiple competency models and frameworks

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are in use, and VHA's formal programs are not linked to career paths, not well-coordinated, and thus do not effectively bolster VHA's talent pipelines (VHA Office of Workforce Services, 2015; VHA interviews, 2015).

This report's findings indicate that immediate action is required. The challenges of the current culture and operating environment, the deteriorating atmosphere for leaders, and the intense public scrutiny suggest that sustaining an effective operation and an engaged employee and leadership base to serve six million Veteran enrollees each year will require a fundamental shift achieved through a bold, integrated, multi-year transformation.

Recommendations

The scale of the transformation needed to address the findings above has few precedents in the private or public sector. VHA employs one in nine federal civilian employees (OPM, Historical Federal Workforce Tables and FedScope, 2015). It is both the largest hospital system and the largest training ground for health care providers in the country, training tens of thousands of clinicians each year (VA, Office of Academic Affiliations, 2015). And the nature of the current system – with hundreds of unique locations, partnerships, and performance measures – only increases the complexity of the opportunity.

Given this challenge, the recommendations summarized below should not be approached like a checklist of individual and incremental performance improvements. Most transformations treated in this manner fail (Keller and Price, 2011). Instead, VHA should systematically implement these recommendations in a comprehensive, multi-year transformation program. The transformation program needs to clearly define its aspiration state, determine what is needed to meet this state, be housed in a formal change program, protect or build on best practices and high performing pockets, and ensure timely implementation faithful to the original aspiration.

Detailed recommendations are found in Section 4. These recommendations fall into six main opportunities:

1. **Galvanize VHA leaders around a clear strategic direction.**

   Decide and communicate the strategic direction of VHA going forward. The strategy could take a variety of forms, but there needs to be clarity within VHA of where the organization is headed, and this needs to be communicated throughout the organization and understood by all leaders and employees. We do not seek to define the strategic direction here, but clear strategic direction will be critical as the organization moves forward and works to implement the recommendations laid out herein.

2. **Stabilize, grow, and empower leaders.**

   VHA should strengthen its leadership foundation, both today's and tomorrow's. VHA should focus in the near term on increasing leadership stability and readiness by filling vacancies with high-quality leaders, improving the attractiveness of the role to prospective leaders, and ensuring leaders are ready to assume their roles. In the medium term they should build a coordinated people development strategy that connects top performers with the right opportunities and generates a robust pipeline of

leaders through a formal succession planning program and a coordinated set of development opportunities. Efforts should be made to build sustained leadership continuity across the system, including considering longer tenures for key leaders, such as Medical Center Directors and select roles at VHACO. This is necessary to have the authority, accountability, ownership and time needed to stabilize the organization, strengthen its health and performance, and shepherd the transformation.

3. **Redesign VHA's operating model to create clarity for decision-making authority, prioritization, and long-term support.**

    VHA should immediately lead an effort to clearly define roles and decision rights at each level and increase coordination within Central Office, refocusing the role of Central Office to managing outcomes and providing "corporate center"-like support to the field. The Central Office should prioritize, integrate, and actively provide support to the various initiatives and policies being implemented by the field. The net effect of the redesign should be a Central Office that is highly valued by the field for the expertise, services, and strategic direction it provides.

4. **Focus and simplify performance management to clarify accountability and actively support the mission.**

    Within six months, VHA should complete an effort to develop an integrated and balanced performance scorecard for VAMCs focusing on a smaller number of core metrics that roll up to support the broader enterprise view. These metrics should be designed to focus more on the mission and encourage cross-functional collaboration and should be carefully cascaded. This requires moving from hundreds today (over 382 alone in the National Performance Measures Report) to no more than 20 that cover quality, safety, patient experience, operational efficiency, finance, and human resources. The resulting data should be made readily available and accessible agency-wide with proper procedures in place to ensure quality.

5. **Rebuild a high-performing, healthy culture by cultivating greater employee collaboration, ownership, and accountability to accomplish the mission.**

    Culture is often described simply as "how things are done around here," and changing the VHA culture will need to happen at all levels of VHA: VHACO, VISN, and the VAMC level, as well as within the context of VA broadly. VHACO should consider how to integrate their efforts so the workforce is involved and experiences a coherent set of messages, policies, and support from VHACO. The VISNs should lead the VAMC leaders by sharing best practices, demanding steady improvement, and encouraging innovation. VAMC leaders will need to role model the change, describe why the culture must change, reinforce desired behaviors (and discourage unhelpful ones), and provide leaders and employees alike with the coaching, training and tools they will need to succeed. In our experience this is feasible, but there is no simple or fast way, and it will require a dedicated performance transformation effort.

6. **Redesign the human resources function as a more responsive customer service-focused entity.**

VHA, with the full support and backing of VA, should begin an effort in the next 12 months to transform the human resources (HR) function to be more responsive to meeting the needs of VAMC leadership, more efficient, and more customer service-focused. Although a comprehensive examination of HR was not within scope of Assessment L, systematic HR challenges were identified that need to be addressed through a transformation of the HR function. Such a transformation will likely require redesigning key processes (e.g., hiring), shifting the mindsets of HR cadre from compliance to effectiveness, training HR and its customers on key roles and responsibilities, and rationalizing its technology systems.

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1 Introduction

1.1 Background

Title II Section 201 of the Veterans Choice Act requires an independent assessment of how VHA leadership impacts VHA's ability to accomplish its mission. Specifically, the section requires an assessment of the competency of leadership with respect to eight elements: culture, accountability, reform readiness, leadership development, physician alignment, employee engagement, succession planning, and performance management.

Table 1-1. Veterans Choice Act, Section L

Veterans Choice Act Section 201 (L)	Assessment L Section
Assess "the competency of leadership with respect to culture, accountability, reform readiness, leadership development, physician alignment, employee engagement, succession planning, and performance management."	The report explores each element articulated in the legislation in a separate section of this report, as follows: ▪ Section 5: Succession Planning ▪ Section 6: Leadership Development ▪ Section 7: Culture ▪ Section 8: Employee Engagement ▪ Section 9: Physician Alignment ▪ Section 10: Accountability ▪ Section 11: Performance Management ▪ Section 12: Reform Readiness The topics are grouped according to three broad categories: ▪ Leaders (Sections 5-6) ▪ Culture (Sections 7-9) ▪ Systems (Sections 10-12)

1.2 Scope

The scope of this assessment focuses on the senior leadership of VHA at each VA Medical Center (VAMC), network (VISN), and Central Offices (VACO, VHACO). The senior leadership at the VAMC and VISN are defined as the "Quadrad" or "Pentad" leaders and include the following (titles vary):

- Medical Center Director, Network Director
- Associate Director, Deputy Director
- Chief of Staff, Chief Medical Officer
- Associate Director for Patient Care Services, Chief Nursing Officer, Quality Management Officer

- Assistant Director for Operations (if applicable)

The terms Quadrad and Pentad are used interchangeably throughout this report as they are at VHA. This assessment looked only at leaders, not at the entire workforce.

1.3   Report Structure

This report is structured into three major sections: Assessment overview, Sub-assessment areas, and Enablers. The Assessment Overview (Sections 2-4) describes the methodology, the overall findings, and a holistic set of recommendations and implementation considerations. The next major section provides supporting evidence to the Assessment overview. This major section contains each of the sub-assessment areas or elements (Sections 5-12) with specific findings for each of the areas required by the Veterans Choice Act. Lastly, the Enabler section contains findings that are not in the sub-assessments required by the Act, but are nonetheless crucial to understanding leadership at VHA. Like the sub-assessment areas, the Enabler section provides supporting evidence for the overall Findings and Recommendations. Figure 1-1 provides a visual depiction of this structure.

Figure 1-1. Assessment Structure

Assessment structure

	Topic	Section
Assessment overview	Methodology	2
	Overall findings	3
	Recommendations and implementation considerations	4
Sub-assessment areas	Succession planning	5
	Leadership development	6
	Culture	7
	Employee engagement	8
	Physician alignment	9
	Accountability	10
	Performance management	11
	Reform readiness	12
Enabler	Supporting infrastructure	13

2 Methodology

2.1 Introduction

This independent assessment used a three-step methodology.

Step 1 – Data collection and analysis. The team drew on four primary data sources: site visit interviews (across 26 VAMCs, 13 VISNs, and selected VHACO and VACO leadership, for a total of 39 site visits and more than 300 interviews); surveys including a leadership survey across the entire VHA called the Organizational Health Index (OHI)™ survey, the VA All Employee Survey (AES), and the Federal Employee Viewpoint Survey (FEVS); collection of primary source data where needed; and a review of past assessments and reports on VHA leadership.

Concurrently, the team defined each of the eight elements, reviewed and analyzed the data for each analysis, and validated the outcomes where possible with multiple sources (e.g., site interviews, OHI survey results, and primary data). We also developed a set of key questions around each element that formed the backbone of our Assessment L interviews. The key questions for each element are laid out **Appendix Table A-1.** The distribution of interviews conducted is presented in **Appendix Table A-2.**

Step 2 – Synthesis. In this step, we used the specific analyses to identify common findings and recurring themes. Using the analyses as the foundation, we identified the major findings within each of the eight leadership elements that most impact VHA's ability to achieve its mission, and developed a set of detailed recommendations to address the findings. We then looked holistically at the findings and recommendations to identify patterns, points of interaction, and interdependencies. Through this process we identified seven overall findings and six overall recommendations.

Step 3 – Validation and testing. In this step, we mapped our overall findings and overall recommendations to ensure comprehensive coverage (see Appendix A for additional detail). We also asked multiple experts to review the analysis and findings in order to identify any bias, errors, or omissions. The primary review was conducted by the Blue Ribbon Panel (described in the Integrated Report). Additional reviews were conducted by subject-matter experts from both McKinsey and MITRE. Due to the required independence of the Veterans Choice Act, Section 201 assessments, findings and recommendations were developed independently. We therefore expect these recommendations will need to be refined by VHA leadership and the Commission on Care.

2.2 VAMC Site Selection

Stratified random sampling was used to select a core set of VAMCs for on-site assessment. This set of 23 VAMCs was representative of the VAMC system as a whole across critical facility demographic and performance outcome metrics (see Appendix A for further detail). In addition, the Assessment L team visited three additional VAMCs that had had major incidents to ensure a comprehensive view. The Assessment L team also visited 13 of the 21 VISN headquarters, as the

VISN leadership is seen as an important part of the chain of command that significantly impacts VAMC leadership.

2.3 Data Sources and Analysis

Data used in this report comes from four major sources: interviews, survey data, primary source data, and past assessments and reports.

Interviews. The team conducted over 300 interviews. These include approximately 224 interviews at VAMCs, 46 interviews at VISNs, 30 interviews with Central Office, and approximately 10 interviews of other federal agencies and former VHA leaders who are now in the private sector. At each VAMC site, we sought to interview the Director, Deputy Director, Chief of Staff, Associate Director for Patient Care Services/Chief Nurse Executive, Assistant Director for Operations, Union representative, as well as additional personnel, time allowing (e.g., Nurse Manager, Service Chief, HR Administrator). We conducted interviews at 13 of the VISNs, focusing on interviewing the Director, Deputy Director, and others as available (e.g., Chief Medical Officer).

Throughout this report, we draw heavily from these interviews. In selecting quotations to share, we worked to find quotations that are representative and illustrative of the themes and patterns that we heard throughout the interviews.

Survey data. This assessment used the VA All Employee Survey (AES), the Federal Employee Viewpoint Survey (FEVS), and the Organizational Health Index (OHI)™ survey. The AES and FEVS are government-conducted surveys focused on employee satisfaction, and we used the results from 2014 surveys. The FEVS is administered annually by Office of Personnel Management (OPM) and is a sample survey across federal agencies. The AES is administered annually by VA and is a census survey of VA employees.

The OHI survey examines current organizational strengths and weaknesses, with a special emphasis on leadership practices. This tool has been used across leading health care institutions and other government agencies. The OHI survey was used to assess the leadership practices at VHA in order to show how they contribute to the organization's health and performance. The OHI does not measure employee satisfaction (which is covered in other survey instruments such as FEVS and AES).

The OHI survey was selected as one of the key inputs for this assessment, because of its large data set (used for benchmarking) and statistical reliability and validity. Beginning collection in 2003, the OHI data set currently has over 700 organizations and 1.3 million respondents, and includes both 27 public sector and 33 health provider organizations. Using the global set of organizations across multiple industries a strong correlation exists between organizational health and organizational performance (De Smet, Palmer, & Schaninger, 2007). At its essence organizational health enables organizations to maintain the highest levels of financial and operating results (Keller and Price, 2011). For example, public companies with "top quartile" organizational health had a 68 percent chance of achieving above-average EBITDA margins, compared to the 31 percent likelihood of companies in the bottom quartile of health. Similar

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relationships between performance and health also exist at business-unit levels within organizations (Leslie, Loch & Schaninger, 2006).

Within VHA, the participation was n=13,712, with a response rate of roughly five percent. For this response rate, the OHI standard calculates margin of error at the 95 percent confidence level, which means that there is a 95 percent probability that the results of the complete population are within the margins of error of the results obtained. It is a standard used across the industry. The average margin of error was VHA: +/- 0.82 percent.

From a statistical basis, the OHI has tested as both reliable and valid.

- Reliability refers to the consistency of a survey measurement. An evaluation instrument is reliable when it produces consistent, although not necessarily identical, results. A widely accepted measure of reliability is Cronbach's coefficient alpha – an intercorrelation coefficient of survey items to evaluate its internal consistency. All the OHI alpha scores are within the ideal range (0.76 at the lowest for the talent practice and 0.91 at the highest for the Coordination and Control outcome).

- The validity of a survey refers to whether the survey can really measure what it intends to measure. Factor analysis is one of the most common methods to test the validity of a survey (Tabachnick & Fidell, 2001). The factor loadings for all the outcome items are close to or higher than the +0.50 desired range (0.53 at the lowest for Reward and Recognition practice and 0.87 at the highest for Meaningful Value practice).

Throughout the report, VHA is compared to the OHI global benchmark, as well as a public sector benchmark and a health care benchmark. The public sector benchmark comprises 27 surveys (n=47,159), and the Health Care Systems and Services benchmark comprises 33 surveys (n=40,437). The global benchmark includes all organizations in the OHI database. Additional detail on the OHI and its results are located in Appendix A.

Primary source data. In order to complete several of the analyses, we used primary source data from VHA and other sources. The specific source for each analysis is listed with the specific analysis. Example data used include: VA AES results; FEVS; leadership vacancy rates; employee performance ratings; performance reports including Strategic Analytics for Improvement and Learning (SAIL); and employment and separation data from both VHA and the Office of Personnel Management. It should be noted that we did not conduct an audit to validate the accuracy of data were provided, although, where applicable, we did note potential data integrity issues highlighted during site visit interviews.

Most data requested were received within three months of request. In some cases, requested data could not be provided because VHA personnel reported that the data did not exist, or did not exist in an internal consolidated data tracking system. Examples of this included leadership development budgets for all programs and performance ratings for non-executive employees. This limited our ability to make detailed data-driven observations on some elements of leadership development and performance management; where possible, desired analyses were replaced by interviews and other sources of data.

Past assessments and reports. The Assessment L team conducted a thorough review of eight recent VHA assessments and reports. These reports were conducted by the Office of Inspector

General (OIG), Government Accountability Office (GAO), and other third-parties that investigated leadership topics, either directly or indirectly. These reports were used to provide context for Assessment L; however, all analyses in this report are based on primary source data. See Appendix A for the complete list of reports reviewed.

We also reviewed documents that govern or inform current activities taking place at VHA, such as the VA Strategic Plan, the VHA Strategic Plan, and the Blueprint for Excellence (VA, FY2014-2020 Strategic Plan, 2014; VHA, 2014 Interim Workforce and Succession Strategic Plan 2014; VHA, Blueprint for Excellence, 2014). Recognizing that many of the efforts described in these documents are currently underway, it is too early to comment in detail on them, but the recommendations contained herein in some cases are well-aligned with the efforts currently in progress.

3   Overall Findings

3.1   Overall Findings

Reviewing all eight elements described in Section 201, Assessment L provides an opportunity to create an integrated perspective of leadership at VHA. The scale of VHA is vast, and it is difficult to fully capture all the nuances and variability that exist throughout the system. Areas of excellence exist across the system, including some inspiring and resilient leaders, front-line systems redesign teams, and homegrown innovation. We touch on these throughout the full report. However, most areas of the organization show a highly risk-averse culture; lack of role clarity; fragmentation and organizational silos; and breakdowns in communication, accountability, and key processes that impair the organization's ability to deliver the mission.

Our efforts have yielded a complex portrait of leadership practices reflecting leaders at VHA who are diverse in their approach, experience, skill, and effectiveness. They are operating in a system without common agreed upon leadership goals, methods and processes. Examining each of the eight elements, we identified the following seven themes about leadership today at VHA:

1. **An expanding scope of VHA activities has led to confusion around leadership priorities and the strategic direction of VHA.** The organization's focus has expanded and shifted over time, and it is unclear what the priorities are, and unclear when they will shift again. Over time, VHA has expanded into the delivery of a wide range of clinical services, as well as various social pursuits. The organization is not configured or resourced to deliver this expanding scope of activities, and it is unclear where the boundaries of the mission lie. VHA is also treated by oversight entities and external stakeholders as both a hospital system and a traditional government agency. This unique complexity of VHA is not supported by equally unique performance expectations, operational flexibility, and supporting tools.

2. **From the point of view of leaders and employees, the VHA organization is intensely, unnecessarily complex due to lack of a clear operating model, limited role clarity, fragmentation of authority, and overlapping responsibilities.** This lack of clarity around operating model, roles and responsibilities extends across VAMCs, the VISNs, and Central Office. The issue is exacerbated by a cultural context that is often unable to work effectively across chains of command, except where all parties concur. Fragmentation and silos exist across the system and within each tier of the organization. Many key support functions, such as human resources or contracting, suffer from this, resulting in service too slow to meet the needs of the mission. Meanwhile, the sheer number of operational performance measures in many cases overwhelms and makes it difficult to know and focus on what is most important.

3. **The broader VHA culture is characterized by risk-aversion and distrust, resulting in an inability to improve performance consistently and fully across the system.** At almost every facility visited, at least one leader interviewed mentioned that risk-aversion and a reluctance to "speak up" were significant issues. Three out of every four leaders

interviewed at VISNs in which site visits were conducted echoed this concern (VHA interviews, 2015). A general aversion to speak up or take risks originates from: a) trying to perform in a heavily siloed organization; b) fear that raising issues will result in punitive actions toward the individual or addition of significant workload with no additional support; and c) insufficient reward for those trying to make improvements. This culture permeates across all levels of the organization – from the front-lines, to Medical Center leaders, to people at VHACO. This culture of risk aversion also hinders great ideas from spreading. A lack of enterprise-wide incentives and mechanisms for knowledge-sharing within or across the system yields pockets of innovation but not broader system-wide adoption (VHA interviews, 2015; VHA OHI survey, 2015).

4. **VHA leadership faces a workforce that appears to be steadily losing its motivation. Caring for Veterans is a value that powerfully motivates VHA leaders and employees alike – however, this commitment alone is insufficient to fuel the organization's motivation and performance.** Other sources of motivation such as a great work environment, job satisfaction, or working with an inspiring team have eroded in recent years (VHA interviews, 2015). Physicians are only partially aligned with the various demands put on them. In a changing environment in which VHA competes with other health care organizations for top talent, a value proposition that relies primarily on the intrinsic reward of caring for Veterans cannot make up for the erosion of other sources of employee motivation to meet the VHA mission.

5. **The performance of a particular VAMC hinges to a large degree on the capability of its Director and the executive leadership team; yet these leaders are "on their own" in many ways.** VAMC Directors often lack competent and timely assistance from support functions (including HR for disciplining, hiring employees, planning for succession; construction; IT; and contracting). Support from VISN and VHACO is variable and often limited. Directors are left to navigate their own career progression and development (VHA interviews, 2015).

6. **VHA leadership attention is consumed by addressing crises that have occurred in the past, at the expense of preparing for tomorrow's opportunities.** The number of directives for which leaders are accountable, coupled with heightened scrutiny from internal and external sources, compels leaders to spend much of their time reacting to crises and completing action items from above. Bottom-up innovation and consultative leadership are not well-developed, and there is a heavy reliance on top-down directives, exacerbated by the growth of Central Office Program Offices (VHA OHI survey, 2015; VHA interviews, 2015).

7. **The leadership pipeline is not robust enough to meet VHA's current and future needs, a function both of inadequate succession planning and unfocused leadership development efforts.** As of March 2015, 16 percent of VAMC Quadrad and VISN Network Director positions are vacant or have acting leaders. Twenty-three VA Medical Centers (16 percent) do not have a permanent Director. Nine VISN Network Directors (43 percent) are Acting (VHA Office of Workforce Services, 2015). Leadership positions are increasingly unattractive to the next generation of VHA leaders, which contributes

to the difficulty in filling leadership openings (VHA interviews, 2015). VHA is currently experiencing a large and widespread number of current vacancies and upcoming retirements in key leadership roles, and open positions remain unfilled due to a lack of qualified candidates. Meanwhile, VHA's lack of a comprehensive approach to leadership development – experiential, relational, and training – has resulted in leaders with uneven preparation for their future roles. Multiple competency models and frameworks are in use, and VHA's formal programs are not linked to career paths, not well-coordinated, and thus do not effectively bolster VHA's talent pipelines (VHA Office of Workforce Services, 2015, VHA interviews, 2015).

3.2   Prioritizing the Eight Elements

Over the course of the site visits, leaders were presented a list of the eight leadership elements (culture, accountability, reform readiness, leadership development, physician alignment, employee engagement, succession planning, and performance management). They were then asked which three of the eight leadership elements, if improved, would most benefit the VHA mission. VHA leaders most frequently identified culture, leadership development, and accountability as elements that, if improved, would have the greatest opportunity to help advance VHA. Succession planning and employee engagement followed closely in priority. Physician alignment, reform readiness, and performance management were viewed as the lowest on the list of priorities. **Figure 3-1** shows this prioritization.

Figure 3-1. Top Three Leadership Priorities
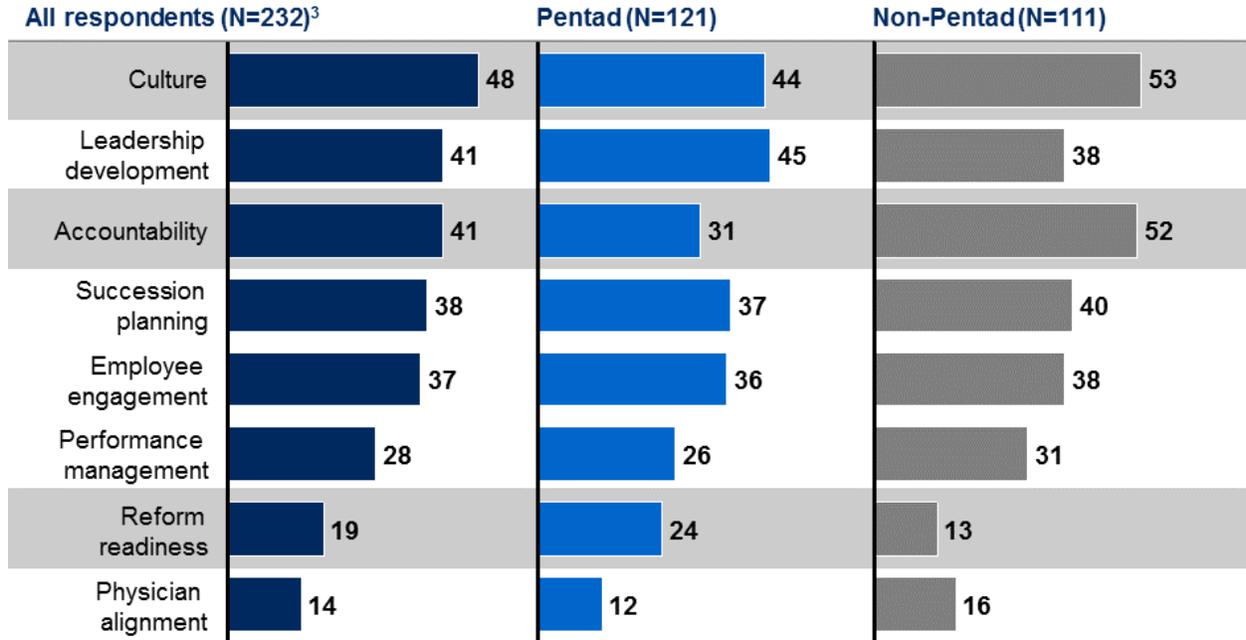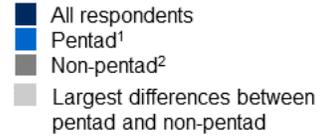
These preferences were consistent across Pentad and non-Pentad leadership with three exceptions: culture, accountability, and reform readiness. Non-Pentad leaders mentioned culture and accountability each more than 50 percent of the time, while Pentad leaders mentioned them 44 percent and 31 percent, respectively. And reform readiness, though lower on the priority list, is much more top-of-mind for Pentad leaders (24 percent) than non-Pentad leaders (13 percent).

4 Recommendations and Implementation Considerations

4.1 Introduction

This report's findings indicate that immediate action is required. The challenges of the current culture and operating environment, the deteriorating atmosphere for leaders, and the intense public scrutiny suggest that sustaining an effective operation and an engaged employee and leadership base to serve six million Veterans each year will require a fundamental shift achieved through a bold, integrated, multi-year transformation.

These detailed recommendations were developed to address the findings presented in this report. As explained in the methodology section, we looked holistically at the findings and recommendations to identify patterns, points of interaction, and interdependencies, and through this process we identified six overarching recommendations that encompass the detailed recommendations:

1. Galvanize VHA leaders around a clear strategic direction.

2. Stabilize, grow, and empower leaders.

3. Redesign VHA's operating model to create clarity for decision-making authority, prioritization, and long-term support.

4. Focus and simplify performance management to clarify accountability, actively support the mission, and promote continuous improvement.

5. Rebuild a high-performing, healthy culture by cultivating greater employee collaboration, ownership, and accountability to accomplish the mission.

6. Redesign the human resources function as a more responsive customer service-focused entity.

The impact to the Veteran of such changes will be immediate, significant, and long lasting. Immediately, the recommendations focus on improving the care given to Veterans by providing stable, empowered, and prepared leaders. Significantly, the recommendations put the Veteran forefront in the behaviors and mindsets of VHA employees by changing from individual or functional performance to focusing on the delivery of care. Lastly, the recommendations create a long-term, sustainable culture focused on ownership of the mission, innovation, and clear accountability.

The scale of the transformation needed to address the findings above has few precedents in the private or public sector. VHA employs one in nine federal civilian employees (OPM, Historical Federal Workforce Tables and FedScope, 2015). It is both the largest hospital system and the largest training ground for health care providers in the country, training tens of thousands of clinicians each year (VA, Office of Academic Affiliations, 2015). And the nature of the current system – with hundreds of unique locations, partnerships, and performance measures – only increases the complexity of the opportunity.

Given this challenge, the recommendations summarized below should not be approached like a checklist of individual and incremental performance improvements. Most transformations treated in this manner fail (Keller and Price, 2011). Instead, VHA should systematically implement these recommendations in a comprehensive, multi-year transformation program. The transformation program needs to clearly define its aspiration state, determine what is needed to meet this state, be housed in a formal change program, protect or build on best practices and high performing pockets, and ensure timely implementation faithful to the original aspiration.

This requires capable leaders, dedicated resources in a central transformation management office, relaxation of constraints to accelerate the effort (e.g., reducing non-statutory constraints), careful monitoring and management, and consistent senior management attention and focus over the life of the effort. Success will require VHA leaders to role model the change needed, describe why the transformation is needed, reinforce desired behavior, and provide leaders and employees alike with the coaching, training and tools they need. This will require a sequenced approach, designed to stabilize leadership, strengthen the organizational foundation, and sustain performance.

Details on the approach to recommendation development may be found in Appendix A.

4.2 Recommendations

4.2.1 Galvanize VHA Leaders Around a Clear Strategic Direction

As a backdrop to this transformation, VHA should clearly define its strategic direction, articulating what VHA is working toward. This can set a well-defined foundation for the changes that will be implemented. Specifically:

- Decide and communicate the strategic direction of VHA going forward. The strategy could take a variety of forms, but there needs to be clarity within VHA of where the organization is headed, and this needs to be communicated throughout the organization and understood by all leaders and employees. We do not seek to define strategic direction here, but clear strategic direction will be critical as the organization moves forward and works to implement the recommendations laid out herein.

- Determine activities and priorities based on clarified strategic direction through a full review of existing activities and decisions to stop, start, modify, or continue as appropriate. The outcome of this should be complete alignment and integration of activities and priorities against this strategic direction, across all levels of the organization (VAMC, VISN, VHACO, VACO). Congressional approval may be required to change some of the VHA priorities, in particular stopping or starting some of the VHA activities.

4.2.2 Stabilize, Grow, and Empower Leaders

VHA should strengthen its leadership foundation, both today's and tomorrow's. VHA should focus in the near term on increasing leadership stability and readiness by filling vacancies with high-quality leaders, improving the attractiveness of the role to prospective leaders, and

ensuring leaders are ready to assume their roles. In the medium term they should build a coordinated people development strategy that connects top performers with the right opportunities and generates a robust pipeline of leaders through a formal succession planning program and a coordinated set of leadership development opportunities.

4.2.2.1 Jumpstart the Transformation and Increase Leadership Stability and Readiness in the Next Six to Twelve Months

The three steps below are intended to immediately address the vacancy issue that impacts nearly four in 10 Medical Centers and ensure every location in VHA has an established local leadership team in place to lead the transformation (VHA Office of Workforce Services, 2015). This will help to stabilize the system while a broader and more robust leadership pipeline is developed and implemented.

- Fill current and planned leadership vacancies at Medical Centers and VISNs quickly, through internal promotions for those who are prepared and ready for the positions, retention, signing or relocation incentives, and external hires with extensive health system management experience. The intent here is to get the "right" people, with the "right" preparation, into these positions swiftly. This will require aggressive and expedited recruitment, hiring, and on-boarding processes, for both internal and external hires. For internal hires, this may mean offering a qualified Acting leader a 2-year Interim position, or expediting candidates that are already in the process. High-caliber external candidates should be considered for remaining vacancies. As one VHACO leader explained, "while it's not a long-term answer, we need to look at exploiting other mechanisms to address our hiring needs – for example, other agencies get around this with 2-year appointments." To fill these positions swiftly and help stabilize the system, VA should designate a lead senior executive to drive the Senior Executive Service (SES)[3] hiring process on behalf of the VISNs/VAMCs and gain OPM approvals, place more authority with the VISN to expedite non-SES hiring, and consider using external recruiters for this initial surge of hiring. VHA should focus on the VISN Network Director and Medical Center Director positions immediately, who can then take leadership in filling other pivotal Pentad roles. This recruiting effort should be led by the VISNs to streamline approvals and expedite the process. VHA should consider relaxing the hiring freeze for other select VISN positions (the hiring freeze does not impact Medical Centers). While recruiting and development are listed as a key transformational action in the Blueprint for Excellence, as of May 2015 VHA does not show any actions related to recruiting, and assesses their efforts at "potential risk (yellow)" (VHA, Blueprint for Excellence, 2014).
- Strengthen the appeal of the role for senior leaders by pursuing regulatory or legislative changes that expand or create a new federal classification for VHA Pentad leaders and other critically needed/vacant positions, combining the flexibility that exists in other federal positions (e.g., Title 38[4], SES, Excepted Service) to address compensation and

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[3] Senior Executive Service (SES) employees constitute the senior executives throughout federal government.

[4] Title 38 is a federal classification for health care professionals and covers a range of clinical professions at VHA.

benefits, hiring decisions, promotion process, and performance management. This will create a balance that enhances the system's ability to reward senior leaders for the risk they assume in this increasingly politicized environment, while also making it easier to usher poor performers out of the system. It should be noted that VA is pursuing a legislative remedy in its most recent federal budget request to expand Title 38 salary flexibility to non-clinical leadership positions, although Congress has yet to act on this request (VA, 2016 Congressional Submission, 2015).

- Prepare VHA leaders through an executive development program that would use formal (e.g., training) and informal (e.g., mentorship) methods when they begin new roles. The focus should be two-fold: what leaders need to know within the first six months of taking on a senior leadership role (e.g., Congressional process, budgeting, and labor management), and introduction to a network of colleagues outside of their facility. Responsibility for successful execution of these programs should be placed with VISN directors. Some VISNs and the national New Executive Training Program (NExT)[5] have strong on-boarding programs, though they often happen irregularly, meaning leaders may not get to them until a year or more after they have been in their new role. Codifying the best of these and making them available across the system would help leaders be better prepared for the additional responsibilities accompanying their new role (e.g., hiring, budgeting, interaction with labor, significant public duties). On-boarding sessions should be held as needed, likely at least monthly, and new senior leaders should attend, either in their VISN or a neighboring VISN, within the first month of assuming a senior leadership role. Ongoing mentoring and support should also occur. An SES coaching program currently exists, with 75% of new SES appointees matching with a coach in 2014, and 96% matched in 2013, though usage and effectiveness of the coaching program is unclear and highly irregular (VHA Healthcare Talent Management Office, 2015; VHA interviews, 2015).

4.2.2.2 Establish a People Development Strategy That Creates a Pipeline of Future Leaders and Greater Leadership Continuity

- Create a succession management process across VHA that connects individuals with the leadership pipeline. VHA should replace the current system of unwritten rules and ad hoc decisions with a formal candidate identification, preparation, and placement program that is regularly reviewed by VHA leadership (VHA interviews, 2015). This should be done in a way that is consistent with the Merit System Principles (5 USC, Section 2301), or policy changes should be sought to change or grant temporary exceptions to these principles. Fundamentally, VHA should establish a way to track individual candidates over time across the system, ensure they are provided the right leadership development opportunities at the right times, and match them to the right career opportunities throughout the system.

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[5] VHA Office of Workforce Services, "Healthcare Talent Management Workforce Development Programs within the Veterans Health Administration," 2014.

- Rationalize leadership development offerings. Focusing on critical leadership needs, maintain or reintroduce successful programs from the past (as has begun with the relaunch of Health Care Leadership Development Program, or HCLDP), and build new programs as needed. Eliminate existing programs that are duplicative, or have not demonstrated an ability to create a pipeline of future leaders (e.g., program graduates do not ascend to positions for which the program is designed to deliver). Move to a career path model that connects leadership candidates to a suite of appropriate opportunities (learning, networking, mentoring, coaching, apprenticeship, and career experience) at the right time in their development, with ownership of the career path elements housed in a centralized office. Ensure that those with potential and interest are applying to programs. Establish leadership development program selection criteria that are determined by succession need and employee performance and potential.

- Construct a single, comprehensive VHA competency model for leaders throughout the system that reflects the latest needs of health care executives and forms the foundation for future development, preferably leveraging the existing competing frameworks.

- Build sustained leadership continuity, including considering longer tenures for key leaders, to have the authority, accountability, ownership and time needed to stabilize the organization, strengthen its health and performance, and shepherd the transformation. As part of this, VHA could consider:

  o Declaring the intent for Medical Center Directors to have a four-year minimum tenure with the objective to remain in place for six to eight years and with the understanding that exceptions are necessary but should not be the norm. The purpose of this recommendation is to increase organizational stability and continuity at the facility level by ensuring each leader is present long enough to build a rapport with the facility and its leadership team, and see significant efforts through to completion or sustainable implementation. Additionally, it reduces the frequency of geographic displacement, a dynamic that is becoming increasingly unattractive to many facility leaders (VHA interviews, 2015). As VHA develops leadership career paths, it could consider adapting this recommendation by Medical Center complexity level, recognizing the importance of the "feeder system" offered by smaller facilities.

  o Increasing leadership stability and resilience in political headwinds by lengthening tenure of key political appointees, to enhance continuity and span administrations. Key leaders would therefore be considered for a term akin to the IRS[6] commissioner given the apolitical nature of their role and the challenging circumstances of this transformation. With the IRS, for example, Congress authorized the U.S. Internal Revenue Service Reform and Restructuring Act of 1998 (RRA 98). The RRA 98 allowed Charles Rossotti a five-year term that crossed the Clinton and G.W. Bush administrations, and provided Rossotti the opportunity to fully implement the IRS transformation (Rainey and Thompson, 2006).

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[6] Internal Revenue Service

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- Remove or reduce non-statutory constraints (e.g., travel restrictions, inadequate assessment of candidates, tying training to relocation) that limit effective delivery of career development opportunities.

4.2.3 Redesign VHA's Operating Model to Create Clarity for Decision-Making Authority, Prioritization, and Long-Term Support

VHA should immediately lead an effort to clearly define roles and decision rights at each level and increase coordination within Central Office, refocusing the role of Central Office to manage outcomes and provide "corporate center"-like support to the field. The Central Office should prioritize, integrate, and actively provide support to the various initiatives and policies being implemented by the field. The net effect of the redesign should be a Central Office that is highly valued by the field for the expertise, services, and strategic direction it provides. To attain that goal, VHA should consider the following specific recommendations:

- Clarify the roles and responsibilities of each major operating unit – VHACO, the VISNs, VAMCs, CBOCs[7], and other organizational units. Clarify decision rights of the VISN and Medical Center.
  - o Articulate decision rights clearly by level, organization, and role, standardizing where appropriate while also allowing for regional flexibility based on local needs.
  - o Clearly define the role of the VISN (or any other regional structures being considered), including defining key roles and responsibilities, the balance between empowerment and support of medical facilities, and their role in coordinating, translating, communicating, and innovating across the system. Such an approach would be consistent with the simplicity of purpose of the VISNs when they were created in the mid-1990s. The role of the VISN should focus on the following:
    - – Promoting continuous improvement across the VISNs and within their respective networks
    - – Ensuring effective coordination and collaboration across sites (between and across VAMCs and CBOCs, as well as non-VA care). Examples include:
      - Creating local forums for best practice sharing across sites
      - Creating work groups around service lines that require regional coordination (such as stroke, cardiovascular) – where reaching certain volumes is correlated with higher quality, or where only certain centers will offer a given service such as with coronary artery bypass surgery (CABG), transplant, etc. These should be aligned against and collaborate closely with VHACO's "lines of business" (discussed in further detail below).
      - Coordinating contracting, network management and other elements of non-VA care within region

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[7] Community-based outpatient clinic.

- Setting performance improvement agenda for each VAMC in partnership with VAMC Director and creating transparency across the VISN on performance
- Prioritizing capital investments across the VISN
- Succession planning and participation in hiring/firing decisions on VAMC Directors and potentially other top team staff
- Acting as a communication channel to and from VACO, translating field needs and concerns up, and VACO direction, requests, and decisions down. It is critical for the VISN/region to have some discretion and help orchestrate or prioritize among what is coming "down from corporate," especially while there is not good coordination centrally. This role would become more minor as Central Office requests and directives become streamlined.

- Formally define thresholds for Medical Center Pentad decision-making approval (e.g., amount of budget, hiring, policy latitude before approval is required).

- Reorganize VHACO around an enterprise view designed to support the field, increasing collaboration, supporting prioritization, ensuring alignment with strategic direction. The intent of this is to move from a series of "stove-piped" program offices issuing independent directives and action items, with few mechanisms to encourage coordination, to a much smaller number of coordinated primary strategic priorities. These could be organized similarly to how a private sector health system might organize its corporate center in "lines of business," around which supporting program offices would be organized and through which supporting program office work would be conducted. Such "lines of business" would coordinate and support regional work groups (as described above). This would create a system that can flex and be more agile as new priorities are identified by Congress or VA.
  - In service of this, VHA should rationalize current program office activity through a comprehensive review that is designed to reshape program offices to meet the following set of criteria:
    - Designed to develop and champion key clinical priorities, processes, and best practices that are directly supporting the mission and strategic direction of VHA
    - Collaborative and holistic, focusing on critical processes and outcomes rather than individual directives
    - Aggregated into a small number of well-coordinated offices and initiatives to minimize contradictory guidance and directives
    - Coordinated centrally, with the requisite resources available to the field
    - Proactive and strategic, with "lines of business" that stand the test of time and are not primarily reactive
    - Reviewed periodically with a broader enterprise view (i.e., not in isolation), with a clear mechanism to sunset offices that are no longer needed
  - Establish a regular, periodic time (e.g., quarterly, semi-annually) when process guidance is released to Medical Centers for acceptance or modification, and finalized. This will help create a forum for greater coordination between program offices and

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enable greater continuity in the field due to less frequent interruptions by new directives.

- o Create policy communication standards that require any new policy to include a clear rationale, a recommended approach, an expectation of a local implementation plan, and sufficient time to implement a local plan. This would be one of the responsibilities of the new lines of business.

- o Require alignment between and coordination across policy (10P) and operations (10N), by actively eliminating the "artificial distinction between policy and ops" that exists today (VHA interviews, 2015). This could include, for example, ensuring that all guidance issued to the field is thoroughly reviewed, approved, and prioritized by operations before being released by VHACO. The reviews should ensure the policies are feasible to implement, have the necessary resources to execute, and a proper feedback mechanism to indicate whether the field is able to successfully act on guidance.

- • Return to more flexible funding:

  As discussed in the findings (see Section 13.2), we believe the size and fragmentation of earmarked funds (e.g., 450 separate specific line items) has eroded the ability to manage toward an outcome for Medical Centers. Congressional action will likely be required to change the designated (earmarked) funds. While we are suggesting greater flexibility, that does not imply less oversight, as managing to the overall budget will remain a critical leadership responsibility.

  - o Evaluate current funding model and reduce number of special programs, or bundle specific purpose funding, to ensure Medical Centers have local flexibility to shift resources appropriately. Request the necessary Congressional authorization approval.

  - o Ensure VISNs have adequate authority to shift resources appropriately as needed. Ensure the Veterans Equitable Resource Allocation (VERA) model sufficiently accounts for anticipated demographic and geographic shifts. The new model should be revised to function effectively while still complying with Congressional restrictions.

  - o Conduct review of full set of financial management systems and streamline where appropriate to improve system interoperability. A better planning and resource management system is required. For example, one clear opportunity is to replace financial management, inventory, and procurement systems with a modern ERP system that allows full integration of supply chain processes with financial accounting (see Assessment J for additional detail).

  - o Bolster decision support and analytics. Improve the process to develop and approve staffing requests, including providing and supporting scalable, evidence-based staffing methodologies and interdisciplinary resource management processes for key employee populations. Ensure feedback loops are built into contracting and facilities processes.

4.2.4 Focus and Simplify Performance Management to Clarify Accountability, Actively Support the Mission, and Promote Continuous Improvement

Within six months, VHA should complete an effort to develop an integrated and balanced performance scorecard for VAMCs focusing on a smaller number of core metrics that roll up to support the broader enterprise view. These metrics should be designed to focus more on the mission and encourage cross-functional collaboration and should be carefully cascaded. This requires moving from hundreds today (over 382 alone in the National Performance Measures Report) to no more than 20 that cover quality, safety, patient experience, operational efficiency, finance, and human resources. The resulting data should be made readily available and accessible agency-wide with proper procedures in place to ensure quality. Specific recommendations include:

- Create an integrated and balanced performance scorecard for VAMCs. Specifically:
  - o Reduce the total number of required key performance metrics from several hundred to no more than 20, covering domains including quality and safety, patient experience, operational efficiency, finance, and human resources. This should cascade from the Director's performance plan throughout the organization, resulting in not more than 10 to 20 metrics per position, rolling up to not more than 20 key metrics for the overall Medical Center. At each level, metrics should be precise and actionable.
  - o Ensure core metrics remain consistent across facilities year-over-year to underpin operational excellence and continuous improvement around VHA's strategic priorities.
  - o Reserve space for locally-determined priorities in addition to the core metrics across facilities, both to manage against local needs and to encourage ownership.
  - o Communicate expectations before the start of a performance year, eliminating the frequent lengthy delays in communicating expectations to the facilities. Having a core set of metrics year-over-year would help mitigate any remaining delays, as facilities would already be familiar with the majority of the expectations.
  - o Motivate employees through financial and non-financial incentives, including bonuses, potential for advancement, and other non-financial incentives. Examples include: 1) expanding individual recognition by Pentad leaders, with select use of spot awards; 2) communicating clear promotion paths; and 3) providing high-performing employees with access to training and exposure to regional and national leadership, for example, opportunities to present initiatives to senior leaders at their VISN or at VHACO.
- Design effective and motivating performance management through cascaded metrics linked to the enterprise goals, such as celebrating successes and linking metrics to incentives.
  - o Assign ownership of key metrics across the organization such that employees clearly understand how their work contributes to performance against mission and strategic direction **[Figure 4-1].**

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o Develop performance measures that have a stronger emphasis on mission contribution and team outcomes. Base performance measurement on mission contribution for all employees (e.g., fewer individual functional metrics and more team- or facility-based metrics). This will incent collaborative behavior as teams have to work together to achieve outcomes. By encouraging more cross-functional cooperation, this could also decrease siloed thinking and fragmentation.

o Tie financial incentives for leaders, such as bonuses, to mission contribution in a significant way (e.g., mission contribution and individual performance are weighted equally in determining bonus amounts).

Figure 4-1. Cascading Metrics

Targets should cascade down, and should be precise and actionable at each level

ILLUSTRATIVE

Level	Target
Network director	Reduce Average Length of Stay (ALOS) across network to a specific target across facilities
Director	Reduce ALOS across facility
Clinical leadership (e.g., chief of staff, nurse executive)	Reduce ALOS across facility
Clinicians (e.g., physicians, nurse managers, staff nurses, etc.)	• Reduce ALOS on unit • Percent discharges before noon on unit • Percent of patients with care plan in place

Everyone understands and takes part

- Increase facilities' ability to capture, access, and work with more real-time data to enhance transparency and help leaders manage for performance. This capability will support process improvement efforts by providing rapid feedback on the impact of changes so that facility leaders can identify, share, and build on their results. More real-time data can also improve transparency and the personal accountability by allowing individuals to see how they compare to their peers.

- Use performance management to promote continuous improvement.

o VHACO leaders should establish a limited number of forward-looking goals and targets to drive significant changes system-wide. These goals should focus on changes that can advance a critical few priority health outcomes and should be included as part of the balanced scorecard. These goals and targets should not be compliance-focused or overly prescriptive and should energize local innovation and improvement efforts throughout VHA. For these specific clinical conditions where data show there is a significant quality improvement opportunity, VHACO leaders should set bold but achievable targets for the system. An example of VHA's past success in advancing a critical health outcome is the reduction of hospital-acquired Methicillin-resistant Staphylococcus aureus (MRSA) infections throughout by 68 percent from 2007-2012, compared to the reduction in non-VHA hospitals of only 38 percent during that same period. VHA has shown that bold efforts on key goals can result in impressive health outcomes across the system (Evans et al., 2012).

o Facility leaders should champion the use of improvement techniques (for example, Business Process Redesign, Lean Six Sigma, visual management systems like huddleboards, etc.) to spur data-driven progress. These techniques increase ownership at the local level and engage the front-line employees, who are closest to the work, in developing solutions. Medical Center leaders must prioritize, support, and be actively engaged in these improvement efforts in order to create a sustained culture of collaborative problem-solving and improvement.

o VHA leaders should clarify decision-making processes, roles, and thresholds related to performance measures and emphasize their use to facilitate learning. When early indicators suggest an issue, offer coaching and consultation before punitive action. This requires a commitment of leaders at each level to initiate collaborative problem-solving and to use measures as a tool for progress rather than a management stick. All leaders will need to support and reinforce this message to create psychological safety for people to raise issues rather than obscure them.

4.2.5 Rebuild a High-Performing, Healthy Culture by Cultivating Greater Employee Collaboration, Ownership, and Accountability to Accomplish the Mission

Culture is often described simply as "how things are done around here," and changing the VHA culture will need to happen at all levels of VHA: VHACO, VISN, and the VAMC level, as well as within the context of VA broadly. VHACO should consider how to integrate their efforts so the workforce is involved and experiences a coherent set of messages, policies, and support from VHACO. The VISNs should lead the VAMC leaders by sharing best practices, demanding steady improvement, and encouraging innovation. VAMC leaders will need to role model the change, describe why the culture must change, reinforce desired behaviors (and discourage unhelpful ones), and provide leaders and employees alike with the coaching, training and tools they will need to succeed. In our experience this is feasible, but there is no simple or fast way, and it will require a dedicated performance transformation effort. Specific recommendations include:

- Spur collaboration

- o Introduce a more collaborative approach to cross-functional activities, replacing functional silos with employees working together across functions or services to advance the mission. Select specific functions or services that require multiple stakeholders, similar to the Patient Aligned Care Team (PACT) model to focus on. This is already occurring in some facilities and is ripe for scaling to other facilities and functions (e.g., hiring, contracting, specialty clinics). An open mindset on the part of leaders and employees alike would support this exploration of new ways of working together. More cross-functional dialogue, system redesign, and joint performance metrics would also help underpin this collaborative approach.

- • Encourage innovation, both within and across facilities, and beyond the system

  - o Celebrate risk-taking. Publically celebrate efforts to advance the mission and innovate – both successes and smart failures – through recognition events, staff communications, and informal interactions. This will at once engender a culture of appreciation and a psychologically-safe environment where appropriate risk-taking is not only accepted, but invited and celebrated. This may take some time, and there is an opportunity to signal commitment to this through some early actions and role-modeling.

  - o Build processes, roles, and systems to scale best practices. Strengthen mechanisms to identify and scale best practices; this will likely need to be an individual's primary responsibility in each Medical Center. Pentad leaders should view this as a key responsibility of theirs as well. Other mechanisms could include knowledge-sharing forums or conferences (internal and external), systems designed to capture and disseminate ideas (for example, an "idea bank" around systems redesign), and incentives. This should also include more deliberate pursuit of opportunities for partnership beyond the system, such as relationships with academic medical centers or other government agencies.

- • Foster a culture of continuous improvement, learning, and ownership

  - o Harness the local knowledge, experience, and enthusiasm of front-line employees to drive lean process redesign. This is happening in many places today, in a variety of ways (Gemba, MESS Boards, SIM, and other visual management systems). This has to be driven, sponsored, and reinforced from VISN and VAMC leadership and cascade throughout the management chain. A spirit of learning and improvement must be encouraged (such as, "yes, let's try this"), and employees need to feel like they can take calculated risks and are "safe to fail" to readjust attitudes and behaviors. This should be reinforced with performance management.

  - o Shift to a culture of ownership, supported by clarified decision rights and open communication. Introduce new communication strategies with employees that will help them both understand *why* measures are taken and influence *how* such measures are taken. For example, clinical directives should begin with a clearly articulated rationale explaining the purpose and the impact. Likewise, administrative directives or requests for data should explain their purpose and their intended outcome.

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o Shift from an expectation that the front-line will simply implement policies, to an expectation that the front-line will be involved in pragmatic discussions of how to achieve intended outcomes. This increased communication and dialogue will increase employee engagement and meaningfully inform policy and directives. As local leadership draws employees into key decisions in a more deliberate and transparent way, in effect trusting them to become leaders of their system, this will engender more trust, and ultimately enhance ownership and psychological safety.

o Invite employees to the dialogue. Draw on the expertise of the workforce to improve local leadership decisions. Specifically: 1) create a rotating position where supervisors and front-line employees join select executive leadership meetings; 2) establish weekly executive office hours; and 3) increase the consistency of formal and informal dialogue with employees through labor-management partnerships, town halls, and daily rounds. This is being done in some facilities already, and there is an opportunity to spread this further.

- Connect to the strategic direction. Directly connect all employees' tasks with VHA's strategic direction to clearly identify their contributions. Specifically: 1) include how the activities performed by employees support the mission and strategic direction in all communications; 2) craft performance plans and position descriptions that increase emphasis on mission-related activities and decrease emphasis on compliance-related activities, with the intent of increasing role clarity; and 3) provide non-clinical employees with more opportunities to interact with Veterans.

It should be noted that getting people to listen, and motivated to act, is getting harder and harder. VHA may need an innovative leading-edge communication campaign, combined with substantially increased face-to-face interactions, to make messages "stick" in this environment. This input comes with responsibility, and needs to be underpinned by rigorous performance management and transparent data systems that ensure accountability.

4.2.6 Redesign the Human Resources Function as a More Responsive Customer Service-Focused Entity

VHA should begin an effort in the next 12 months to transform the human resources (HR) function to be more responsive to meeting the needs of VAMC leadership, more efficient, and more customer service-focused. Although a comprehensive examination of HR was not within scope of Assessment L, systematic HR challenges were identified that need to be addressed through a transformation of the HR function. Such a transformation will likely require redesigning key processes (e.g., hiring), shifting the mindsets of HR cadre from compliance to effectiveness, training HR and its customers on key roles and responsibilities, and rationalizing its technology systems. This will require detailed understanding of the regulatory environment and close collaboration with stakeholders including but not limited to unions and OPM.

Specific recommendations pertaining to HR include:

- Streamline or redesign processes so they include clear roles, responsibilities, service-level agreements, and performance metrics, all designed to help HR actively support VHA

leaders in a timely way and to help address compliance requirements (e.g., discipline process expectations, hiring process turnaround times, troubleshooting of federal regulations). For example, in many facilities, HR is urged to fill 80 percent of positions within 60 days. Several HR groups spoke of self-imposed constraints that lengthened hiring time for their internal customer: "to make sure we meet speed-of-hire, we'd turn back certs [hiring certificates] instead of extending them, if the services didn't give us exactly what we needed. Now, we're trying to encourage the team, rather than turn the cert back, to keep pushing to fill the role" (VHA interviews, 2015). By simplifying and redesigning the hiring process, VHA can design a more collaborative process that is at once more efficient and responsive to customers' needs. Picking a few key processes, redesigning them locally, piloting them in a few sites, and then rolling out nationally is one way to advance this.

- Provide training and tools to all hiring managers on federal regulations related to key processes, for example, hiring or progressive discipline, so that all stakeholders understand the regulatory nuances to be able to keep the process moving as swiftly as possible. For example, ensure system leaders understand their role in driving the hiring process, and HR employees understand what is (and is not) required to keep processes moving effectively and efficiently. Though processes can sometimes be quite labor-intensive, they are clearly documented. Better knowledge of, training around, and adherence to process guidance – by HR and its customers alike – would enhance execution. Ensure process adherence is a focus of leaders as well.

- Remove functions from human resources that are more appropriately controlled elsewhere in the organization (for example, centralize responsibility for local physician recruiting with physician leadership at VISN, similar to private sector hospital systems).

- Rationalize human resources technology systems to decrease complexity and increase coordination among functions. One VAMC reported having more than 30 different HR systems and tools. Another HR leader explained, "Someone can call us for something as simple as written counseling, and before we can even give them any advice, we have to go into two or three systems to even know who they are" (VHA interviews, 2015). Rationalizing systems and increasing interoperability would enhance HR's ability to serve its customers.

4.3   Implementation Considerations

As previously noted and in alignment with Section 201 of the Choice Act, Section 201 assessments, findings and recommendations were developed independently. We therefore expect these recommendations would be refined by VHA leadership and the Commission on Care.

Below, we have listed the changes that we believe are fundamental preconditions for successfully implementing the recommendations described in Section 4.2, as well as suggested immediate actions to be taken at the national level.

4.3.1 Pre-Conditions for Implementation

The transformation described in this assessment must take place within a system and culture that is currently in flux. As VHA seeks to stabilize itself, it must do so using some of the very tools, systems, and processes that are not working well today, in an environment where there may not yet be clarity of strategic direction, role clarity, and local empowerment. This dynamic should be kept in mind, especially regarding critical success factors around implementation.

Recognizing the interdependencies of this transformation effort, there are several pre-conditions for success:

- Clear definition of where the organization is headed, grounded in VHA's mission and strategic direction, and a careful articulation and communication of the path to meet this aspiration
- Support and commitment from senior leadership in the field and in Central Office, bolstered by strong field involvement (including the front-line)
- Congressional support
- Capacity, perhaps created by scaling back or stopping select initiatives that are less important to strategic direction
- A formal change program housed in a central transformation office, with authority and resources designed to be able to support the transformation throughout the organization. This needs to include staff that can be deployed in the field to support facilities in design, implementation, and scaling of best practices
- A clear action plan, with milestones and timelines, to ensure timely implementation of the vision
- Demonstrated progress, early wins, and ongoing monitoring
- Sustained and consistent leadership

Throughout, VHA leaders will need to role model the change needed, describe why the transformation is needed, reinforce desired behaviors, and provide leaders and employees alike with the coaching, training, and tools they will need to succeed.

4.3.2 Immediate Actions for Consideration

Some efforts should be considered to begin right away, while others will likely require more advanced planning and resourcing before meaningful design or implementation can begin. Recommended immediate actions are laid out in **Table 4-1** and should include:

Table 4-1. Immediate Actions

Overall recommendation	Potential immediate actions
Galvanize VHA leaders around a clear strategic direction	▪ Clarify strategic direction ▪ Directly communicate strategic direction to all employees throughout the organization

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Overall recommendation	Potential immediate actions
Stabilize, grow, and empower leaders	▪ Fill vacancies with the "right" leaders through internal and external hires
Redesign VHA's operating model to create clarity for decision-making authority, prioritization, and long-term support	▪ Align operating model with overall strategic direction ▪ Consolidate VHACO into fewer and coordinated "lines of business"
Focus and simplify performance management	▪ Develop an integrated and balanced scorecard for VAMCs, focusing on a small number of core metrics
Rebuild a high-performing, healthy culture by cultivating greater employee collaboration, ownership, and accountability to accomplish the mission	▪ Connect employees' tasks with overall strategic direction ▪ Open lines of communication
Redesign the human resources function as a more responsive customer service-focused entity	▪ Focus on advancing the mission versus compliance only

5   Succession Planning

5.1   Summary

This report defines succession planning as "the process of identifying long-range needs and cultivating a supply of internal talent to meet those future needs" (Society for Human Resource Management).

A well-functioning succession management process begins with identifying specific needs for critical positions and includes:

- Proactively identifying needs for key leadership positions
- Specifically identifying individual candidates
- Developing leaders
- Connecting candidates with the right openings at the right time.

In determining how well VHA's succession planning approach meets its leadership pipeline needs, study findings are as follows:

- VHA is currently experiencing a large and widespread number of current vacancies and upcoming retirements in key leadership roles, and open positions remain unfilled due in part to a lack of qualified candidates.
- Leadership positions are increasingly unattractive to the next generation of VHA leaders, which contributes to the difficulty in filling leadership openings.
- The existing succession planning effort does not meet the needs of VHA.

Throughout this section, we draw on insights shared during interviews with VHA leaders as well as data from the OHI survey (VHA interviews, 2015; VHA OHI Survey, 2015). Unless otherwise cited, direct quotations are from VHA interviews and survey data are from the OHI survey. We also draw on various other primary source data and cite them as appropriate throughout the section.

5.2   Findings

5.2.1   VHA Is Currently Experiencing a Large and Widespread Number of Vacancies and Upcoming Retirements in Key Leadership Roles, and Open Positions Remain Unfilled Due in Part to a Lack of Qualified Candidates

In discussing succession planning at VHA, a Medical Center employee described a consistent theme: "We have been talking about the coming leadership crisis for 10 years, but we never did anything about it. Now we're seeing it become a reality."

Figure 5-1 describes this reality. As of March 2015, 16 percent of VAMC Quadrad and VISN Network Director positions are vacant or have acting leaders (VHA Office of Workforce Services,

2015). Twenty-three VA Medical Centers (16 percent) do not have a permanent Director. Nine VISN Network Directors (43 percent) are Acting. In addition, this trend extends to the top of the organization as three of the top five officials at VHACO are Acting at the time of this assessment.[8]

Figure 5-1. Current Leadership Vacancies and Actings
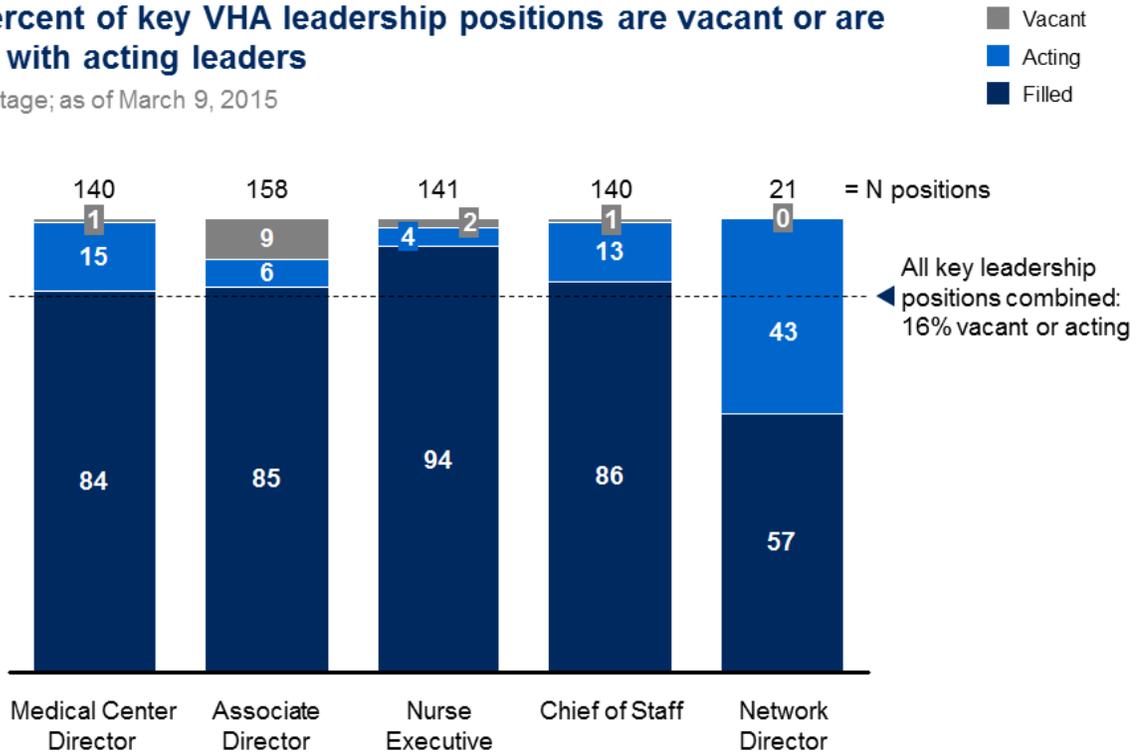
SOURCE: VHA Office of Workforce Services, as of March 2015

This reality is also widespread across key leadership positions in Medical Centers: 39 percent of VAMC Quadrads have at least one current vacancy; three Medical Centers operate with only one permanent Quadrad member. Our interviews acknowledged that the vacancies were due in part to the VHACO and VISN hiring freeze, approvals of the VAMC and VISN positions at the VACO level, and anticipation of the VISN realignment. However, all leadership vacancies have downstream consequences throughout the chain of command. For example, where there are VISN Network Director vacancies, potential Medical Center Director applicants report a hesitancy to pursue positions where their direct supervisor is an unknown entity. As one Acting Director said, "This position has been open nearly a year and one of the main reasons people

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[8] The three Acting positions include: Acting Principal Deputy Under Secretary for Health, Acting Deputy Under Secretary for Health for Operations and Management (DUSHOM), and Acting Chief of Staff. The two permanent positions mentioned above are Under Secretary for Health and Deputy Under Secretary for Policy and Service.

won't take it is that they haven't filled the Network Director yet – who would ever take a job without knowing whom you are working for?" Similar reluctance was expressed at other levels (e.g., Service Chief reporting to an Acting Chief of Staff). High retirement eligibility – 57 percent for key leadership positions, detailed in the next section – worsens this picture (VHA Office of Workforce Services, 2015).

Faced with significant key leadership vacancies and the potential for even larger ones in the months and years ahead, VHA has been unable to fill leadership gaps quickly. The length of time current key openings have been unfilled stretches for greater than seven months on average, with over half of all key openings currently open for greater than six months (VHA Office of Workforce Services, 2015) **[Figure 5-2].**

Figure 5-2. Length of Vacancies

Currently vacant key VHA leadership positions have been open for a median of 198 days

Days vacant, median

	Days vacant (median)	Days vacant Mean
Overall (N=83)	198	220
Medical Center Director (N=23)	136	175
Associate Director (N=24)	100	124
Nurse Executive (N=8)	321	321
Chief of Staff (N=19)	323	336
Network Director (N=9)	188	251
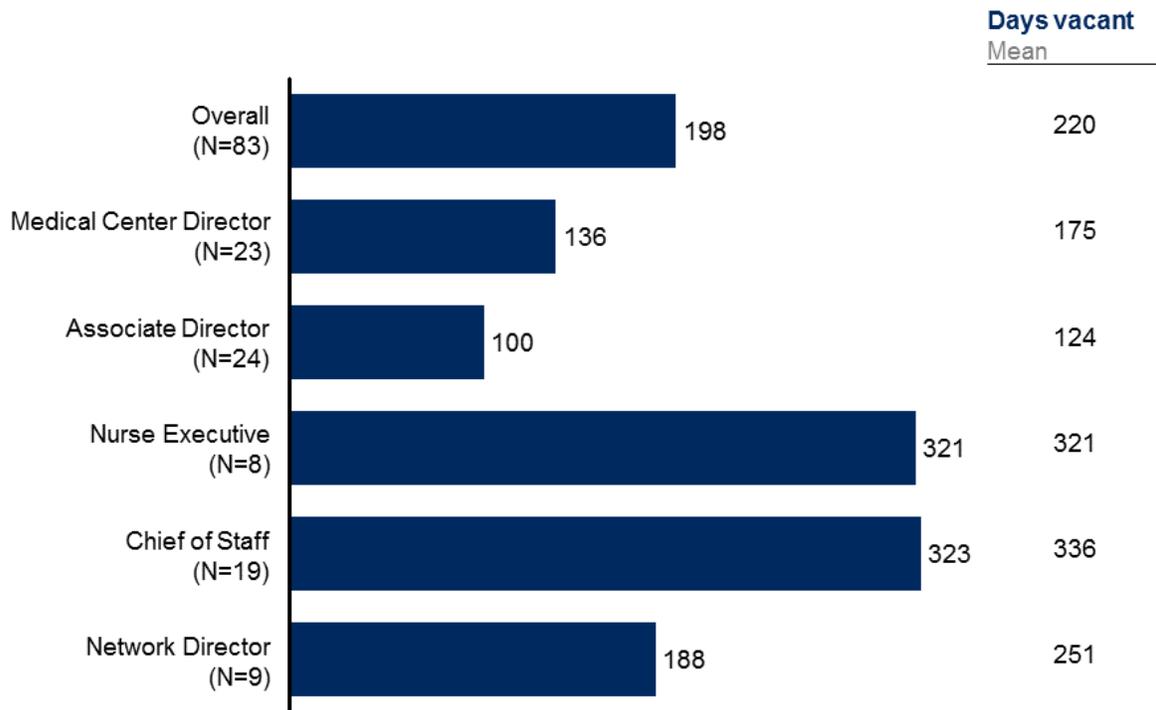
SOURCE: VHA Office of Workforce Services, as of March 2015

The current length of vacancy days is likely attributable to a lack of available candidates as well as the hiring process itself. This is validated by discussions at the VAMC and VISN levels, where interviewees report, "I'm starting the hiring process with just three viable resumes for a Medical Center Director position," and "We are probably hiring people too early on in their VA careers for these positions, but we don't have a choice. We're setting them up for failure."

A large retirement-eligible population among its current leaders threatens to deepen the leadership vacancy challenge faced by VHA. **Figure 5-3** shows that 57 percent of leaders in key positions are retirement-eligible.[9] Over two-thirds of Network Directors, Nurse Executives, and Chiefs of Staff are retirement-eligible, as well as 47 percent of Medical Center Directors (VHA Office of Workforce Services, 2015). There are indications that this retirement threat is beginning to be realized; in FY 2014, retirements by VHA employees GS-13 and higher increased by 37 percent over the previous 5-year average (OPM, FedScope, accessed 2015).

Figure 5-3. Retirement Eligibility

57 percent of key filled VHA leadership positions are held by retirement-eligible leaders

Percentage; as of March 9, 2015
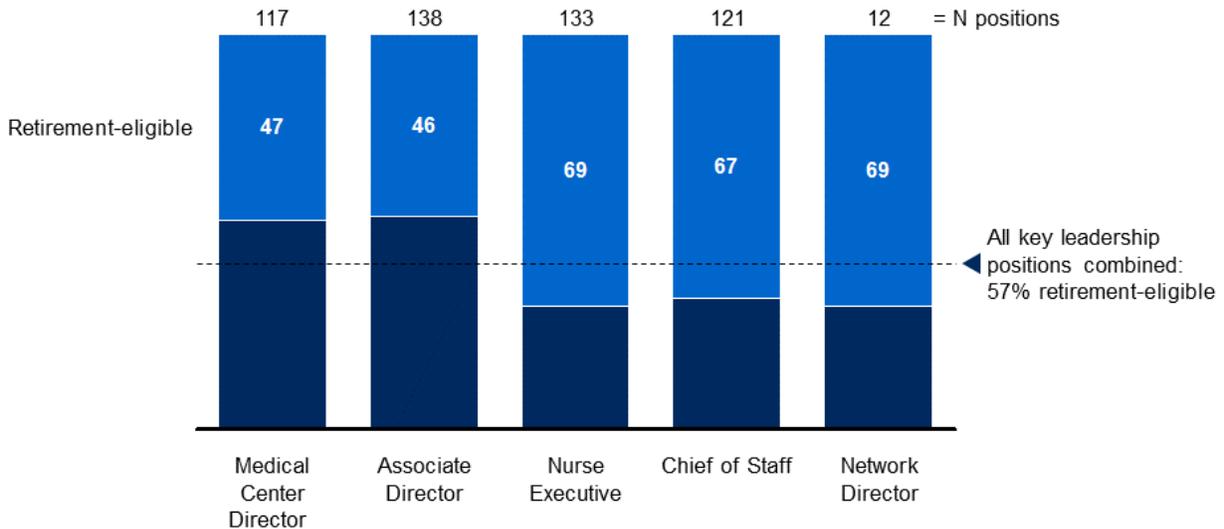
SOURCE: VHA Office of Workforce Services, 2015

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[9] "Key positions" are defined as VISN Network Director and Medical Center Quadrad leaders (Medical Center Director, Associate Director, Associate Director for Patient Care Services/Chief Nurse Executive, and Chief of Staff).

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5.2.2 Leadership Positions Are Increasingly Unattractive to the Next Generation of VHA Leaders, Which Contributes to the Difficulty in Filling Leadership Openings

According to Office of Personnel Management (OPM) officials interviewed, applications to Senior Executive Service (SES) positions across the federal government have been stable in recent years (Office of Personnel Management interview, 2015). This suggests that VHA's struggles with filling senior positions are somewhat unique.

The VHA leadership value proposition for all leaders in VHA does not balance the intense pressure, scrutiny, and life changes required by the position. The value proposition is decreasing for the next generation – today's managers, supervisors, and team leaders. As **Figure 5-4** displays, just one in four managers and supervisors respond positively when asked about the attractiveness of career opportunities, as compared to one in three executives today. This is most pronounced when speaking with Pentad and VISN staff who could be considered candidates for Medical Center Director positions but are not pursuing advancement. This was also reflected in interviews: one in three Pentad leaders suggested there was little incentive to take a promotion as it substantially increased risk with little increase in potential reward. Risk in this context was defined as the potential consequences of increased exposure to the media, Congress, and VHACO in the current environment.

Figure 5-4. Career Opportunities

Next generation of VHA leaders considers career opportunities less attractive than current generation

Career Opportunities: Percent of respondents who frequently observe the following[1]:
"The organization offers top performers the most attractive career opportunities within the organization"
"Promotions in the organization are based on merit"

Current generation	Executive (N=252)	36
Next generation	Manager (N=1,076)	25
	Supervisor (N=1,117)	25
	Team leader (N=1,338)	17
	Non-supervisor (N=9,929)	16
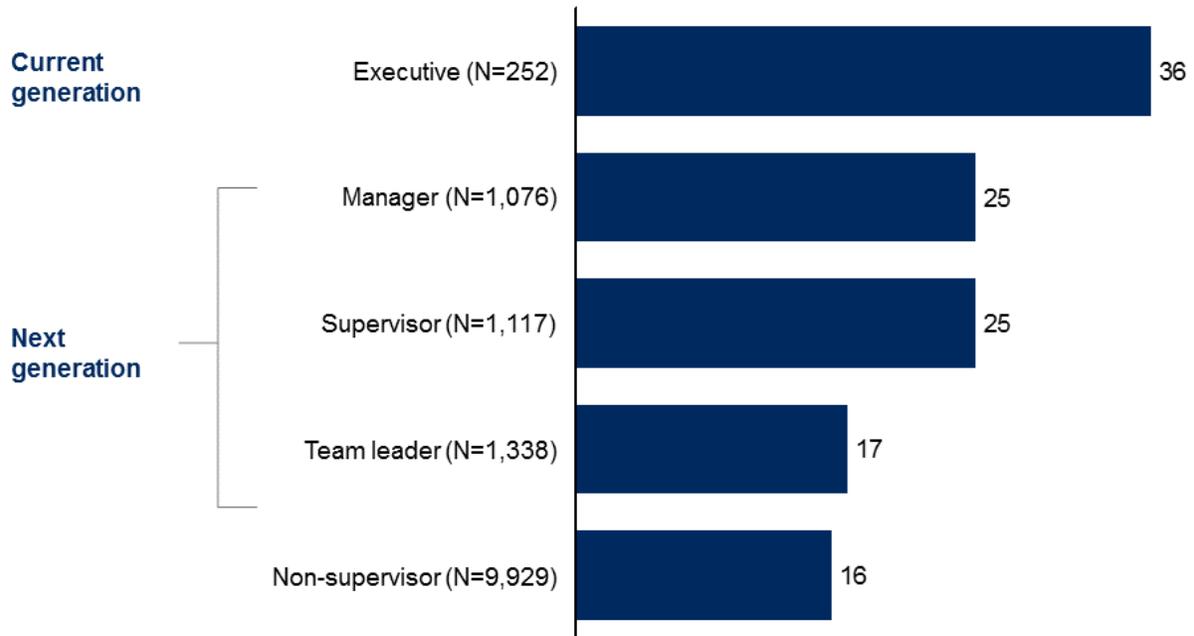
1 Score is generated based on average of responses to the two questions
SOURCE: VHA OHI Survey 2015 (N=13,712)

The unpredictable short-tenure assignments contribute to making these positions less attractive for the next generation of leaders. In many cases, this unpredictable nature is caused by frequent movement between positions due to reassignment or application for new positions. The resulting shorter tenures have a material impact on the leader's ability to make change happen quickly – often the organization will "wait them out." Employees appear more resistant to a career path that requires frequent geographic mobility. According to data provided by VHA, current SES employees have worked at four to five locations in their VHA career, with a 3- to 4-year average length of stay at each location (VHA Office of Workforce Services, 2015). As one Director said, "My team today isn't willing to put their families through all the upheaval that I did to mine." In addition, many Directors assume their roles toward the end of their careers, which requires the patience of navigating a gradual career progression with a single employer. Interviewees reported that this nature of progression was less accepted by the next generation of leaders.

5.2.3   The Existing Succession Planning Effort Does Not Meet the Needs of VHA

No key succession planning elements are fully practiced by VHA. Federal statute clearly lays out the succession planning responsibilities of agencies, which include:

- Development of a "comprehensive management succession program, based on the agency's workforce succession plans, to fill agency supervisory and managerial positions"

- Succession efforts supported by agency training and mentoring: the focus "should be to develop managers as well as strengthen organizational capability"

- "Ensure an adequate number of well-prepared and qualified candidates for leadership" are available in the agency (U.S. Code Title 5 CFR Section 412).

What follows is a set of best practice elements of succession planning and management (Day, 2007; Society for Human Resource Management, "Successful Practices in Succession Planning"). **Figure 5-5** assesses VHA's current practices rated against these best practice elements.

- **Proactively identifying needs for key leadership positions.** This involves senior leadership regularly meeting to review major leadership positions and the status of potential successors for each position. Today, VHA's workforce planning process is an aggregation of bottom-up needs and is limited to detailing broad categories of priority occupations. For VHA, this proactive identification could happen at the VISN level, with input from VHACO as well.

- **Specifically identifying individual candidates.** Once specific needs are identified, successor candidates should be recommended by managers who are trained to evaluate for potential as well as performance. Today, VHA lacks both the tools (position management system, a candidate assessment center for specific development tracks) and processes (a potential component of the performance management process) to identify individual candidates.

- **Developing leaders.** Cultivation of leaders is addressed elsewhere in this report (see Section 6), but important to note here is that leadership development plans and programs should specifically grow succession-identified pipelines. Access to programs in VHA occurs "without a lot of rhyme or reason" according to one VHA official, and development plans, according to interviews with HR officials, are completed by employees on their own, without a formal mechanism for dialogue with their managers or other mentors. They may choose to consult with their managers in the process, but it is at their discretion.

- **Connecting candidates with the right openings at the right time.** Career paths to positions for those participating in development programs and activities should be predictable with clear expectations. At VHA, leadership development programs prepare candidates for positions that, for example, require mobility when that may not be of interest to the employee being trained. Additionally, a series of "unwritten rules" complicates the leadership path, with potential leaders perceiving that VHA favors, for example, facility complexity progression (gaining experience leading a Level 2 facility before leading a Level 1 facility) and certain experience needs (assignment details or VISN exposure) before approving a promotion to senior leadership (VHA interviews, 2015).

Figure 5-5. VHA Succession Planning Performance
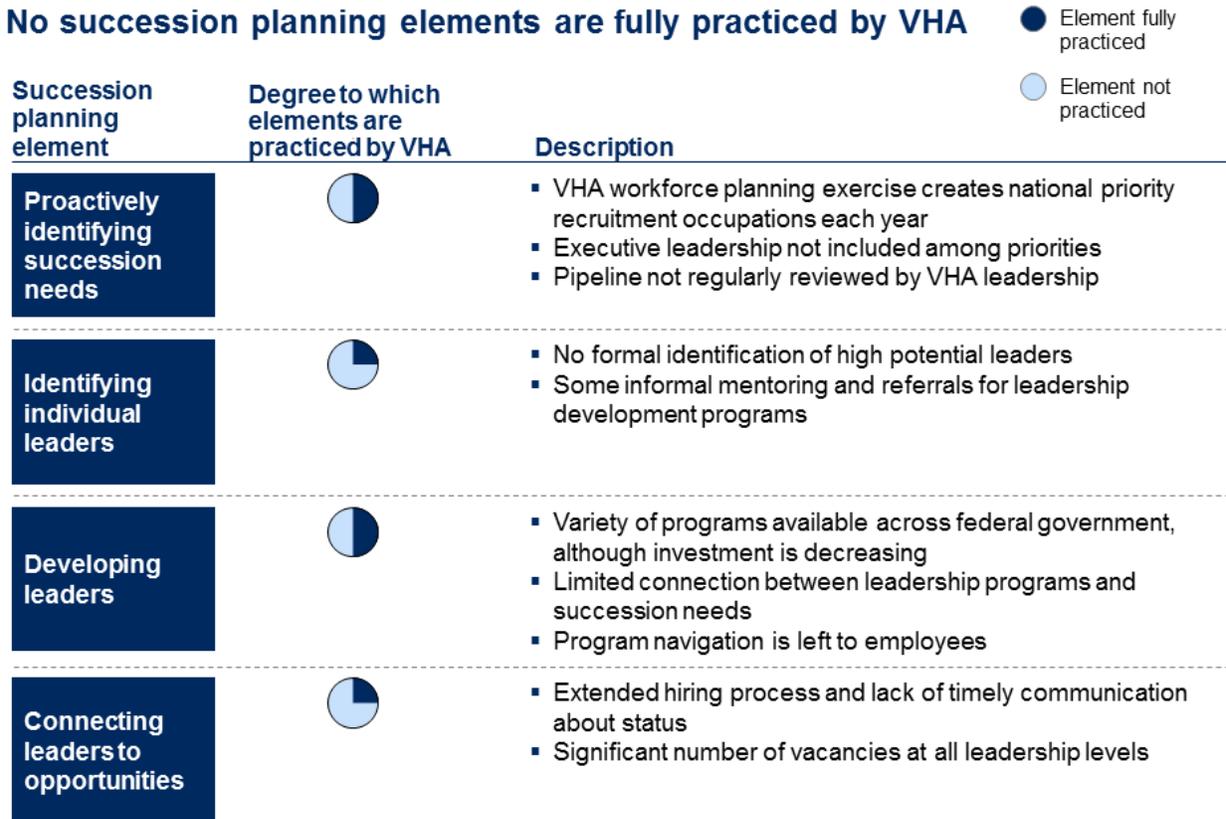
SOURCE: Society for Human Resource Management; VHA interviews, 2015

These elements work together in many private sector settings to create a robust leadership pipeline. In interviews, multiple VHA employees, particularly HR administrators, expressed discomfort with applying these succession planning elements in the public sector due to possible conflict with Merit System Principles (5 USC, Section 2301) and pre-selection prohibitions, the threat of increased Equal Employment Opportunity (EEO) or Merit System Principle Board (MSPB) complaints, and bargaining restrictions. Therefore, HR administrators requested greater guidance from VHA before accepting that this approach would be possible.

Conversations with VHA leaders at VAMCs, VISNs, and VHACO revealed the impact of the lack of effective succession planning. Leaders expressed widespread concern over the lack of a systematic "enterprise" approach to succession planning, and "day-to-day" focus obscuring long-term thinking. More than half of the leaders interviewed shared this concern. Typical sentiments heard were:

- "Every time we turn around we have vacancies and no one to fill them. We are very thin."
- "[When we talk about] Workforce Succession Planning, we really just give lip service to succession planning. We really do just truly workforce planning."
- "We've not had an enterprise view [to succession planning]. I don't have anyone or any system who can tell me where the opportunities are. I have an amazing obstetrician


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telling me she wants to join VA, and she's willing to move, and I don't know what to tell her."

- "I am retiring next month and there is no replacement for me – the top three leadership positions are vacant with no plan."
- "Succession planning? It doesn't happen here."

The evidence above indicates that VHA's current succession planning approach does not meet the needs of VHA. Instead, it results in a workforce planning exercise that only helps define priority occupations that will require hiring today and in the future. In interviews, the annual workforce planning process received mixed reactions, with a high level of awareness of the exercise but also a high level of skepticism that the workforce planning exercise has real influence on the ground. Further, the current process does not specifically address Quadrad-level leadership workforce planning issues, which VA has organized centrally in the Corporate Senior Executive Management Office (CSEMO).

With focused policies and improved communication to employees, succession planning is possible while complying with federal statutes. Within the Merit System Principles of fair and open competition, fair and equitable treatment, and protection against personal favoritism, there are opportunities to plan for merit-based leadership succession (5 USC, Section 2301). Leaders should encourage all qualified employees to apply for the formal leadership development programs to prepare them for positions and ensure eligibility. Candid and constructive feedback provided to those not selected for these programs will improve their preparation and application to such programs in the future. In addition, risk assessments conducted for critical leadership positions will identify near-term vacancies (for example, next six to nine months). In some cases, there could be opportunities to prepare vulnerable positions for these anticipated vacancies through double-encumbering key leadership positions. The interviews elicited a variety of these tactics, but there is no consistency or standardization across VHA leadership, and there is significant opportunity to develop a systematic approach to individual succession management, in the service of developing and deploying the next generation of VHA leaders.

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6 Leadership Development

6.1 Summary

In this report, leadership development is defined as "formal and informal training and professional programs designed for all management and executive-level employees to assist them in developing the leadership skills and styles required to deal with a variety of situations" (Society for Human Resource Management).

Leadership development extends beyond formal programs to also include mentoring, apprenticeship, and career experience. This is the lens through which we approached leadership development at VHA.

In determining how well VHA is developing the capabilities of current and future leaders through leadership development activities, we found:

- VHA's lack of a comprehensive approach to leadership development has resulted in leaders unable to fully prepare for future roles.
- VHA's formal programs are not linked to career paths, not well-coordinated, and thus do not result in a robust leadership pipeline.
- Multiple competency models in use at VHA result in inconsistent and incomplete leadership development programs.

As of early 2015, renewed efforts are underway, led by VHA's Office of Workforce Services, to centrally address many of the topics described below.

Throughout this section, we draw on insights shared during interviews with VHA leaders as well as data from the OHI survey (VHA interviews, 2015; VHA OHI Survey, 2015). Unless otherwise cited, direct quotations are from VHA interviews and survey data are from the OHI survey. We also draw on various other primary source data and cite them as appropriate throughout the section.

6.2 Findings

6.2.1 VHA's Lack of a Comprehensive Approach to Leadership Development Has Resulted in Leaders Unable to Fully Prepare for Future Roles

A comprehensive approach to leadership development is a combination of four activities:

- **Formal programs.** Structured opportunities for networking, reflection, goal-setting, and learning
- **Mentoring.** Access to role models who help define career paths and troubleshoot difficulties
- **Apprenticeship.** Opportunities to gain on-the-job experience for the next step in a career progression

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- **Career experience.** Combined understanding of functions and expertise gained by climbing a career ladder over time.

VHA provides each of these activities, but focuses overwhelmingly on a system of formal programs that has, as one leader said, "faded away over the past few years" due to travel restrictions and reductions in training budgets. However, there is evidence of a recent renewed commitment to leadership development and reintroducing national training and mentoring programs (e.g. NExT and HCLDP; coach matching program). Aside from these formal leadership development programs, over 6,000 certified mentors are available for employees. Details and short-term assignments are sometimes available (in some cases a byproduct of high leadership vacancy rates) to build experience for potential positions. (VHA Office of Workforce Services, 2015). Even so, these programs and similar efforts are insufficient to address the current leadership gaps and needs.

With declining formal programs and no unified approach to tie together the other elements of leadership development, employees are left to piece together these activities on their own. This has led to concerns expressed in interviews that "we are setting up some of our leaders to fail." More than 40 percent of Pentad leaders and 30 percent of non-Pentad leaders interviewed echoed the sentiment that VA's investment in leadership development has been insufficient in recent years. The result is leaders who are not able to bring the full capability and resources of VHA to bear on the needs of the Veteran.

6.2.2   VHA's Formal Programs Are Not Linked to Career Paths, Not Well-Coordinated, and Thus Do Not Result in a Robust Leadership Pipeline

In its 2014 Interim Workforce and Succession Strategic Plan, VHA candidly describes the state of its leadership development approach and acknowledges three current challenges, all of which have been observed throughout this assessment:

Career. "The lack of clear career ladders or logical paths of progression from entry through upper levels of leadership makes the system confusing to navigate and negotiate."

Program coordination. "Because the overall system of leadership development is not synchronized or aligned, there are overlaps and gaps between the programs."

Investment decisions. "Student capacity is driven by budgetary and other constraints, not by actual need for graduates" (2014 VHA Interim Workforce and Succession Strategic Plan, 2014).

Interviews and analyses from this assessment support the previous findings noted above. Regarding career paths, interviews reveal that leadership progression at VHA is predominantly self-directed, with motivated employees applying for programs and responsible for piecing together a career path through these programs. Planning support is not offered in many VAMCs, which can lead to missed opportunities or enrollment in trainings that are not the best fit for an employee's career path and potential. In addition, the timing is such that many leadership programs are for individuals already occupying positions for which training is being provided. As one interviewee told us, "I wish I had this before I started the job – that's when I could have used it the most."

Regarding program coordination, no single entity coordinates leadership development in VHA – there are least 19 entities within VHA, VA, and the federal government that offer at least 30 leadership development programs in aggregate (VHA Office of Workforce Services, 2015). The mentality as described by a VHA leadership development leader is that "everyone wants to hang on to their own piece," which has led to "no consistent ownership and a lack of coordination."

Regarding investment decisions, investment and enrollment in leadership development programs have decreased in recent years, resulting in limited access for leaders in need of these programs. In data provided by VHA, the number of graduates across seven key programs decreased 24 percent between 2011 and 2014 to 1,800 graduates across all levels of VHA, while overall investment decreased 14 percent between 2013 and 2014 (VHA Healthcare Talent Management Office, 2015). Interviewees report that access to programs has been limited because of travel restrictions and VHACO approval delays. In addition, interviews with federal officials involved with Senior Executive Service (SES) programs revealed that VHA has not offered a Career Development Program for senior positions in recent years, a program that is a standard across federal agencies. Efforts to restart this program are underway (Office of Personnel Management, 2015).

In an environment with decreasing resources, VHA has limited insight into which programs are the best use of limited funds. VHA officials involved with leadership development programs told us, "We don't have good measurement of our programs." Outside of satisfaction surveys, interviews did not reveal any evaluation of leadership development programs (such as whether trainees were connected to the jobs for which they were trained) or of employee performance in new roles after completion of training or coaching programs.

6.2.3 Multiple Competency Models and Frameworks in Use at VHA Result in Inconsistent and Incomplete Leadership Development Programs

One education expert at VHA told us, "We don't have a consistent competency model that has been blessed and sent to the field." At least four models or frameworks exist currently. The VHA High Performance Development Model is a health care-centered competency model favored within VHA and used to inform some trainings, but it is distinct from VA competencies endorsed by the VA Learning University (VALU) that are predominantly used in performance management settings. These are both separate from qualifications required by OPM for senior executives. All are detailed in **Figure 6-1.**

Figure 6-1. Competency Models in Use

Four competency models and frameworks compete to prepare and evaluate VHA leaders

VHA High Performance Development Model	VA Leadership Competencies	VA All Employee Competencies	OPM ECQs (Executive Core Qualifications)
▪ Personal mastery	▪ Leading people	▪ Communication	▪ Leading change
▪ Technical skills	▪ Partnering (building coalitions)	▪ Interpersonal effectiveness	▪ Leading people
▪ Interpersonal effectiveness	▪ Leading change	▪ Critical thinking	▪ Results driven
▪ Customer service	▪ Results driven	▪ Organizational stewardship	▪ Business acumen
▪ Flexibility/adaptability	▪ Global perspective	▪ Veteran and customer focus	▪ Building coalition
▪ Creative thinking	▪ Business acumen	▪ Personal mastery	
▪ Systems thinking			
▪ Organizational stewardship			

SOURCE: VHA Office of Workforce Services, 2015

While there is no competency consensus at VHA, a review of private sector health care leadership standards reveals six capabilities that are commonly expected of high-performing leaders. These include:

- **Stakeholder management,** including external affairs and bureaucracy navigation
- **Financial acumen,** including resource management and fiscal stewardship
- **Operational excellence focus,** including relentless attention to clinical outcomes and a continuous improvement orientation
- **Strategic thinking,** including establishing mission and direction and leading change
- **People leader,** including coaching, developing, and influencing others
- **Technical mastery,** including high competence in native discipline and continuing contribution to that discipline (Interviews with leading systems).

As **Figure 6-2** shows, each of these is found, at least in part, in VHA's existing models and frameworks, but they are neither found in every model, nor for every type of leader (VHA Healthcare Talent Management Office, 2015). For example, leaders who attend trainings based in VHA's High Performance Development Model may not specifically receive in-depth business or financial skills unless they also attend a training that is influenced by the VA Leadership

competencies, the latter of which more consistently addresses these skills. A standardized, comprehensive view would guard against both inconsistent preparation and expectations across VHA and also possible gaps in competencies.

Figure 6-2. Leadership Capabilities

Capabilities required of health care leaders are not universally found in existing VHA competency models and frameworks

Benchmark capability	VHA High Performance Development Model	VA Leadership Competencies	VA All Employee Competencies	OPM ECQ
Stakeholder management		✓		✓
Financial acumen		✓		✓
Operational excellence focus		✓		✓
Strategic thinking	✓	✓	✓	✓
People leadership	✓	✓		✓
Technical mastery	✓		✓	✓

SOURCE: VHA Workforce Management and Consulting, 2015

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7   Culture

7.1   Summary

This report defines the culture of an organization as the "collection of overt and covert rules, values, and principles that are enduring and guide organizational behavior" (Burke and Litwin, 1992) or more simply "the way things are done around here" (*McKinsey Quarterly*, 2003). Other common definitions often talk about the mindsets and behaviors of an organization. Despite these relatively simple definitions, the culture of any organization is a complex and interconnected construct.

To understand and evaluate the culture at VHA, this report used in-depth analyses of data obtained from surveys including the Organizational Health Index (OHI), the Federal Employee Viewpoint Survey (FEVS), the VA All Employee Survey (AES), and interviews.

Examination of the culture found in VHA reveals a few practices that are powerful enablers of the mission and several cultural practices that are making the mission much more difficult to achieve. Study findings are as follows:

- Throughout all levels of the organization, employees and leaders share in their dedication to the mission of caring for Veterans.
- VHA employees want to move from a bureaucratic, political, and siloed organization to one defined by accountability, trust, and efficiency.
- Risk-aversion permeates all levels of VHA.
- There exists a pervasive lack of trust throughout VHA.
- The OHI Survey reflects poor organizational health across all nine outcomes.
- VHA does not currently align with any of the OHI archetypes for high-performing organizations.

In addition, while out of scope of this report, it also became clear throughout interviews that the broader VA culture has an impact on VHA culture.

Throughout this section, we draw on insights gathered during interviews with VHA leaders as well as data from the OHI survey (VHA interviews, 2015; VHA OHI Survey, 2015). Unless otherwise cited, direct quotations are from VHA interviews and survey data are from the OHI survey. We also draw on various other primary source data and cite them as appropriate throughout the section.

7.2   Findings

7.2.1   Throughout All Levels of the Organization, Employees and Leaders Share in Their Dedication to the Mission of Caring for Veterans

Within all ranks of VHA, there is an almost universal embrace of the mission of caring for Veterans. In interviews with employees ranging from front-line nurses to leadership, this mission is frequently cited as the most important reason why people come to work. At every

VAMC where we conducted site visits, at least one leader interviewed at each facility endorsed the value that the workforce placed on "commitment to the mission" (VHA interviews, 2015). Roughly half of the interviewees mentioned commitment to the Veteran. Representative quotes include:

- "Our mission is the glue. It binds people together to get the work done."
- "Taking care of Veterans is not just a phrase, but it is an action."
- "It's an honor to serve Veterans."
- "[Our] canteen sells out of VA Employee jackets. People are proud to wear them, proud of where they work."
- "You won't find a more dedicated staff who do whatever and however is necessary to work."

This dedication to the mission of caring for Veterans is also reflected in the FEVS. One of the trends in it is Employee Skills-Mission Match, which "assesses the level to which employees get satisfaction from their work and understand how their jobs are relevant to the organizational mission" (Partnership for Public Service and Deloitte, *The Best Places to Work in the Federal Government*, 2014; FEVS, 2014). This is the only category in which VA consistently leads the Large Agency median **[Figure 7-1]**.

Figure 7-1. Employee Skills-Mission Match
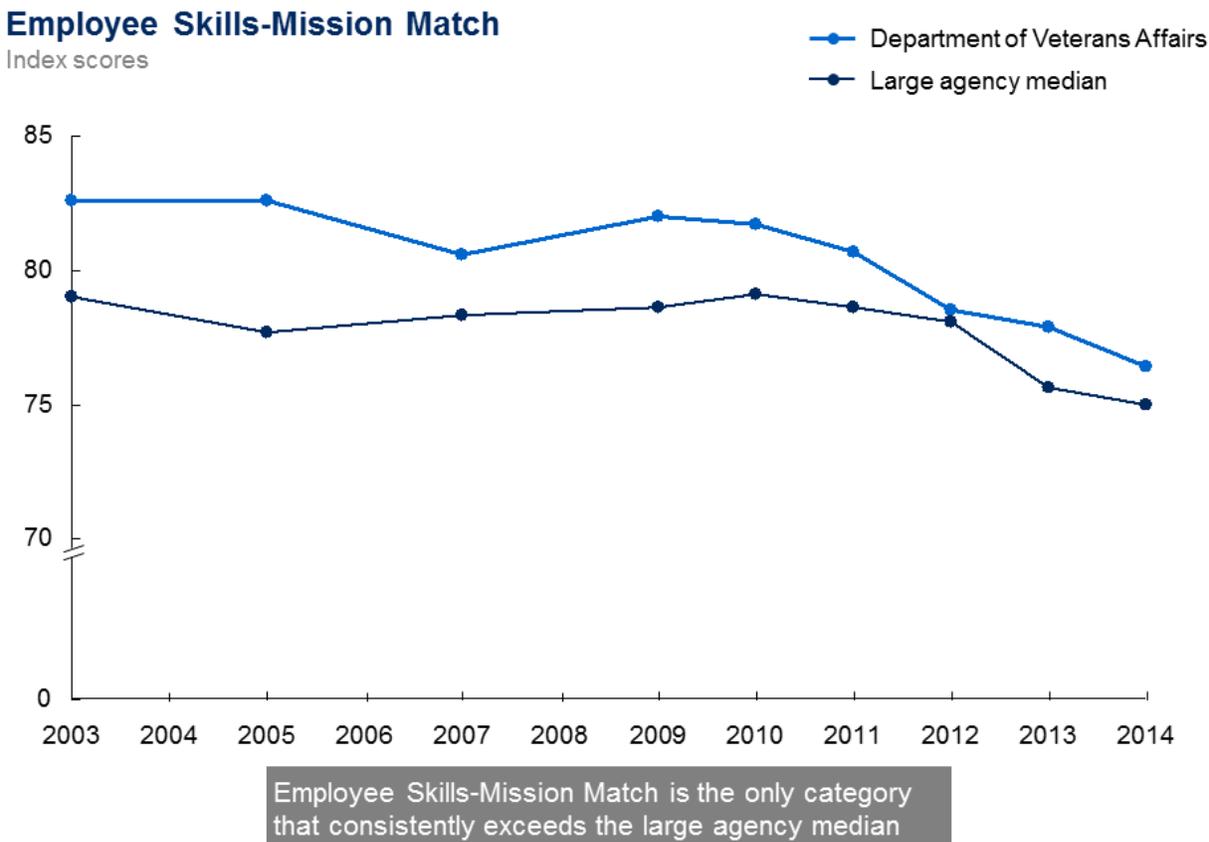
Employee Skills-Mission Match
Index scores

Legend: Department of Veterans Affairs; Large agency median

Employee Skills-Mission Match is the only category that consistently exceeds the large agency median

SOURCE: Partnership for Public Service and Deloitte, The Best Places to Work in the Federal Government, 2014

7.2.2 VHA Employees Want to Move From a Bureaucratic, Political, and Siloed Organization to One Defined by Accountability, Trust, and Efficiency

One aspect of the OHI Survey addresses organizational values. This "value mapping section" gives respondents the opportunity to identify those values or characteristics that most represented the current state of VHA as well as those desired values or characteristics they would like to see VHA move toward in the future. Five values, including two of the ICARE values[10], were identified as both current and desired: Veteran focus, being of service to others, caring, commitment, and advocacy **[Figure 7-2].**

However, among the values most commonly seen in the current state, employees also mentioned "bureaucracy," "internal politics," "hierarchical," and "siloed." The other three ICARE values – "integrity," "respect," and "excellence," were included in desired values but not current. In addition, VHA employees want to see the organization move from a siloed, slow-moving, and bureaucratic organization to a collaborative, efficient organization with a focus on excellence – and an organization focused on the Veteran and on the employee. The slow-

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[10] The ICARE values are VA's core values and include integrity, commitment, advocacy, respect, and excellence.

moving, siloed bureaucracy acts as a significant barrier to helping provide each Veteran the unique care he or she needs.

Figure 7-2. Current and Desired Values

Difference between current and desired values

Top 15 current and desired values

CURRENT VALUES Where we are today ...	CURRENT & DESIRED VALUES What we'd like to continue ...	DESIRED VALUES Where we'd like to be ...
Bureaucracy		Accountability
Internal politics	Veteran focus	Continuous improvement
Having a noble purpose	Being of service to others	Being Collaborative
Slow-moving	Caring	Excellence[1]
Hierarchical	Commitment[1]	Efficiency
Inconsistent	Advocacy[1]	Integrity[1]
Silos		Well organized
Making a difference		Respect[1]
Contributing to the greater good		Employee focus
Conflict		Professional growth

1 ICARE value

SOURCE: VHA OHI Survey 2015 (N=13,712)   17

7.2.3   Risk-Aversion Permeates All Levels of VHA

Employees at VHA, ranging from front-line nursing staff up to VISN Directors, are notably risk-averse. The current culture found in VHA is one in which employees are "afraid to raise their hand to call something out." Interviews throughout the organization support this finding. At almost every facility visited, at least one leader interviewed mentioned that risk-aversion and a reluctance to "speak up" were a significant issue. Three out of every four leaders interviewed at VISNs in which site visits were conducted echoed this concern. Additionally, VHA employees cited a lack of psychological safety as one of their main concerns (VHA interviews, 2015). One leader explained, "Risk-aversion permeates the VHA." The effect on the Veteran is a staff conditioned towards compliance with rules versus focused on effective delivery of care.

The OHI provides additional evidence **[Figure 7-3].** Specifically, the OHI looks at the following management practices when considering risk-aversion: "Consequence management," "risk management," "open and trusting," and "supportive leadership." When compared against the public sector and health care benchmarks, VHA scores demonstrably lower on each practice –

and even public and healthcare sector benchmarks, it should be noted, are in the bottom quartile of all respondents.

Figure 7-3. Risk-Aversion

Risk aversion permeates the organization

OHI VHA vs. benchmark
Percent of respondents who frequently observe behaviors related to each of the practices below
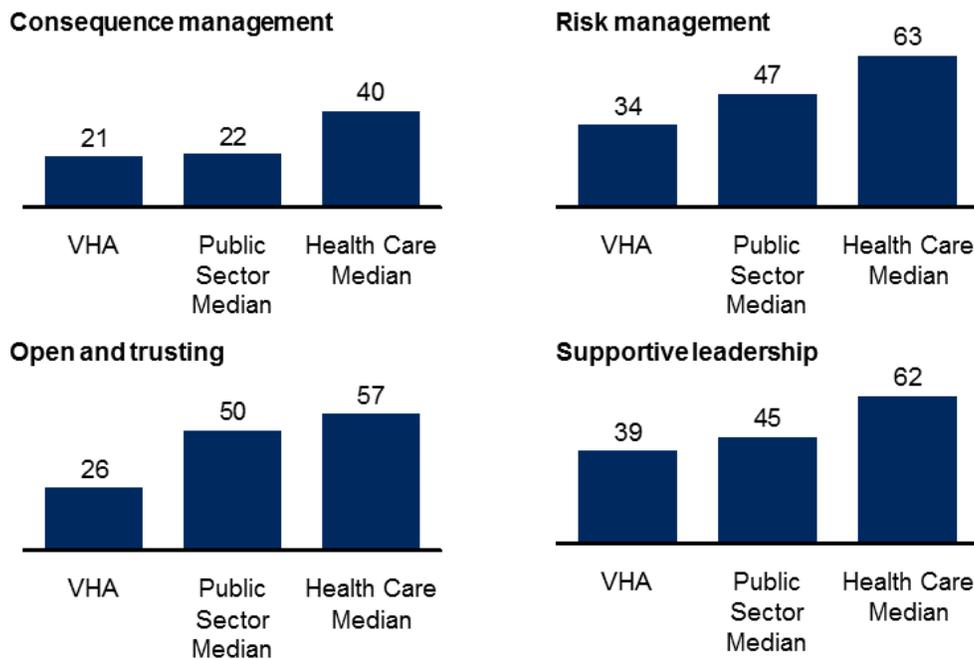
SOURCE: VHA OHI Survey 2015 (N=13,712); Global Benchmark (N=1,259,322, no. surveys=737); Public Sector Benchmark (N=47,159, no. surveys=27); Health Care Systems and Services Benchmark (N=40,437, no. surveys=33)

7.2.4 There Exists a Pervasive Lack of Trust Throughout VHA

Within VHA, there appears to be a significant lack of trust among employees across levels. Some Medical Center Directors spoke of not trusting VHACO, and some VHACO officials spoke similarly of Medical Center leaders. Front-line supervisors stated they did not trust the leadership within the facility. Representative quotations from interviews include:

- "There is an opportunity for improvement, an opportunity for trust."
- "Trust? Not a lot. People do trust the Director, but have mixed trust of the Quad, and less trust in lower leadership."
- "Lack of trust leads to micromanagement."
- "Everyone is so worried about getting into trouble or losing their job. Trust is lacking through the organization."
- "We need to encourage innovation and empower front-line to make decisions. This may be a trust issue. I'm seeing hesitation because they don't want to do something wrong."

The views, opinions, and/or findings contained in this report are those of the assessment team and should not be construed as an official government position, policy, or decision.

- "We've developed hopelessness and helplessness: helpless to fix things, and hopeless that anyone else would help."

Analyses of the OHI data centered around the open and trusting nature of the work environment corroborate this **[Figure 7-4].** Across levels of employment, this practice is in the lowest quartile. SES rank the practice significantly higher than other segments, 47 compared to 21 to 31**.** This may be due to senior leaders having greater visibility into the full set of reasons for VHA's major actions, increasing their level of trust in the organization.

Figure 7-4. Open and Trusting
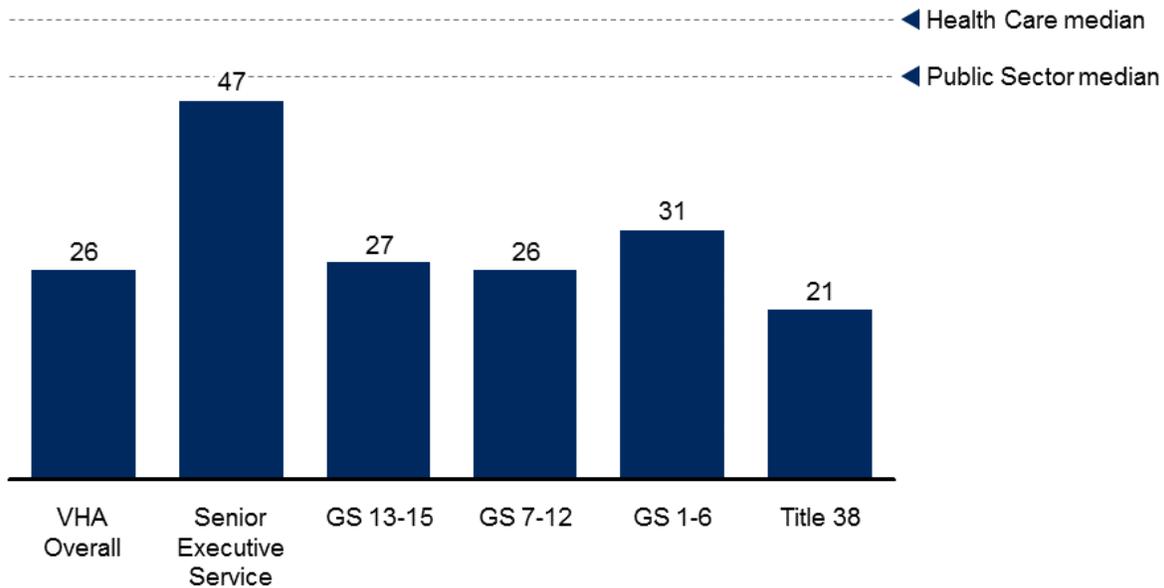
SOURCE: VHA OHI Survey 2015 (N=13,712); Global Benchmark (N=1,259,322, no. surveys=737); Public Sector Benchmark (N=47,159, no. surveys=27); Health Care Systems and Services Benchmark (N=40,437, no. surveys=33)

7.2.5 The OHI Survey Reflects Poor Organizational Health Across All Nine Outcomes

The OHI survey affords the opportunity to benchmark VHA's organizational health against other similar organizations. When compared to peers, VHA lags in every outcome (the current state of an organization), and each organizational health outcome lies in the bottom quartile of all survey respondents **[Figure 7-5].**

Figure 7-5. VHA Outcomes Compared to Benchmarks
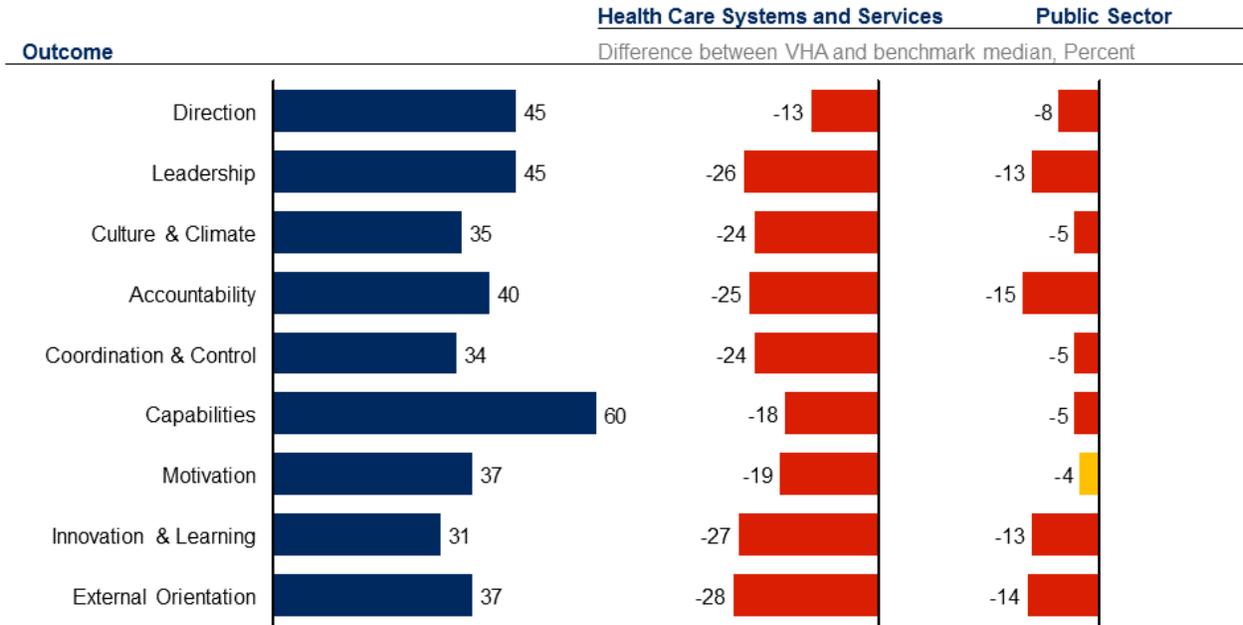
SOURCE: VHA OHI Survey 2015 (N=13,712); Health Care Systems and Services (N=40,437, no. surveys=33), Public Sector (N=47,159, no. surveys=27)

This performance is also reflected in the practices (the actions an organization takes to achieve results). Examining the 37 management practices, VHA scores in the bottom quartile of 35 of 37 of them. Only two practices, shared vision and Veteran focus, scored in the third quartile, reflecting a strong commitment to the purpose of caring for Veterans, a sentiment echoed resoundingly in interviews as well.

The OHI also included several open text questions. An assessment of open text responses requesting three words that describe VHA reveals a number of recurring themes. Language around Veterans, care, and bureaucracy was most common. **Figure 7-6** shows a visual analysis of the frequency of words, with the size of the word reflective of the relative frequency with which the word showed up in the open text responses. This is consistent with the themes we heard in our interviews.

Figure 7-6. Three Words Describing VHA

A visual analysis of open text responses reveals a number of themes, including bureaucracy and Veteran-centered care

NOTE: Size of word reflects frequency of response when asked for 3 words that define VHA

SOURCE: VHA OHI Survey 2015 (N=13,712); analysis of open text responses

7.2.6 VHA Does Not Currently Align With Any of the OHI Archetypes for High-Performing Organizations

Within high-performing organizations, McKinsey has identified four distinct archetypes of healthy organizations, based on the signature mixes of practices that organizations deploy to create a coherent and effective management system.

The first, "leadership-driven," is manifested by inspirational leaders who are the performance catalyst, setting high expectations and helping the organization achieve those expectations. The second, "market-focused," is characterized by an organization with strong customer focus, competitive insights, and valuable business partners. The third archetype, "execution edge," is represented by organizations that leverage the knowledge of employees at all levels and outperform the competition through superior execution, and continuous improvement. The final archetype is characterized by the "collective talent and knowledge" of the organization and success depends on developing it effectively.

There is not a one-size-fits-all, or single "best practice" way to achieve sustainable performance and health – all four of these archetypes are different proven paths to success. Moreover, no organization can manage all 37 organizational health practices equally – focusing on the

winning recipes of select practices with known synergies is likely to be most successful in the long run. These archetypes can provide areas of focus.

Importantly, organizations that align very strongly to any of the four archetypes have a five times greater chance of being healthy than peers with weak alignment. Organizations that align very strongly to an archetype tend to have top quartile OHI scores, while those with no alignment have bottom quartile OHI scores.

Today, VHA does not align strongly with any of these specific archetypes, but aligns weakly with the "execution edge" and "market focus" archetypes **[Figure 7-7].** Most high performing public sector organizations align with the "execution edge" archetype – and most high-performing health care organizations align with either the "market focus" or "execution edge" archetypes: 50 percent of top quartile provider organizations align to "market focus," and 33 percent align to "execution edge." VHA should make a deliberate push to more strongly align with a chosen archetype.

Figure 7-7. Archetypes

VHA aligns weakly with Market Focus and Execution Edge
Archetype similarity based on current relative practice ranking

A **Leadership-driven:** Inspirational **leaders act as a performance catalyst**. They set high expectations and help the organization achieve them

B **Market Focus: Shaping market trends** and building a portfolio of solid, innovative brands keeps us ahead of the competition

C **Execution Edge:** We leverage our people and **know-how at all levels of the organization** to outperform the competition through **superior execution and continuous improvement**

D **Collective talent and knowledge:** Our collective **talent and knowledge** is our most important asset – our success depends on us developing this effectively

A: 0
B: 1.41
C: 2.79
D: 0.41

The 4 archetypes reflect different core beliefs on value creation and success. Organizations with Very Strong alignment to one of the 4 proven archetypes have a 5 times greater chance of organizational health than those with Weak alignment

SOURCE: VHA OHI Survey 2015 (N=13,712)

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8   Employee Engagement

8.1   Summary

For this assessment, employee engagement is defined as "the employee's sense of purpose that is evident in their display of dedication, persistence, and effort in their work and overall attachment to their organization and its mission" (Executive Office of the President and OPM, 2014). We focused on the current state of employee engagement, as well as the extent to which leaders influence employee engagement through role modeling, fostering understanding and conviction, and rewards and recognition.

Findings include:

- At VHA, in general, employees feel a strong sense of commitment to caring for Veterans, but they do not feel as much commitment from the organization.
- Employees experience a challenging work environment and "burnout."
- Many VHA employees do not feel well informed or listened to by leadership.
- Reinforcing engagement and behavior with formal mechanisms happens in limited pockets, but faces several constraints, including limited access to positive reinforcement mechanisms, a weak culture of appreciation, and heavily burdensome processes for progressive discipline.

Throughout this section, we draw on insights shared during interviews with VHA leaders as well as data from the OHI survey (VHA interviews, 2015; VHA OHI Survey, 2015). Unless otherwise cited, direct quotations are from VHA interviews and survey data are from the OHI survey. We also draw on various other primary source data and cite them as appropriate throughout the section.

8.2   Findings

8.2.1   At VHA, in General, Employees Feel a Strong Sense of Commitment to Caring for Veterans, but They Do Not Feel as Much Commitment From the Organization

The annual AES shows a current measure of employee satisfaction across VA. While many of the questions touch elements of employee engagement, two are most salient as a starting point for this discussion of employee engagement. "Engagement – Employee" is the highest of all 2014 AES measures (4.23, the only measure above 4 on the 5-point scale), and reflects the personal connection employees feel to the mission of VA. Meanwhile, "Engagement – Organization" is one of the weakest scores in 2014 (3.10), and reflects the general sentiment that employees do not perceive VA to care about their general satisfaction at work (VA, All Employee Survey, 2014) **[Figure 8-1].**

Figure 8-1. Select Measures from AES

Overview of select 2014 VHA All Employee Survey measures
Mean response; 1 = Strongly Disagree, 3 = Neutral, 5 = Strongly Agree

Legend: 2014, 2013, 2012

Engagement – Employee: I feel a strong personal connection with the mission of VA
- 4.23 (2014)
- 4.19 (2013)
- 4.13 (2012)

Engagement – Organization: VA cares about my general satisfaction at work
- 3.10 (2014)
- 3.20 (2013)
- 3.28 (2012)

Advocate: My supervisor stands up for his / her people
- 3.69 (2014)
- 3.70 (2013)

Job Control: My ideas and opinions count at work
- 3.34 (2014)
- 3.44 (2013)

Psychological safety (Bring up problem): Members in my work group are able to bring up problems and tough issues
- 3.60 (2014)
- 3.61 (2013)
- 3.56 (2012)

Fairness: My supervisor is fair in recognizing accomplishments
- 3.67 (2014)
- 3.70 (2013)

SOURCE: VA, All Employee Survey, 2014

Furthermore, the Employee Engagement Index in the Federal Employee Viewpoint Survey (FEVS) is a measure of the engagement potential of an agency's work environment (i.e., the conditions that lead to engagement). In support of the President's Management Agenda Cross-Agency Priority (PMA CAP) goal on people and culture, the Obama administration set a goal to raise this government-wide engagement score to 67 percent by the 2016 FEVS. However, VA followed the government-wide trend with the index of both groups decreasing in 2014 (61 percent and 64 percent, respectively) (Partnership for Public Service and Deloitte, *The Best Places to Work in the Federal Government*, 2014; FEVS, 2014).

VA ranks in the bottom quartile of the category Large Agencies for the total index, as well as the Leaders Lead and Supervisors sub-factors. Conversely, VA is higher than the government-wide average for the Intrinsic Work Experience sub-factor and ranks in the third quartile for Large Agencies. This is consistent with the overall finding of the employees' commitment to the mission of caring for Veterans **[Figure 8-2].**

Figure 8-2. FEVS Employee Engagement Index
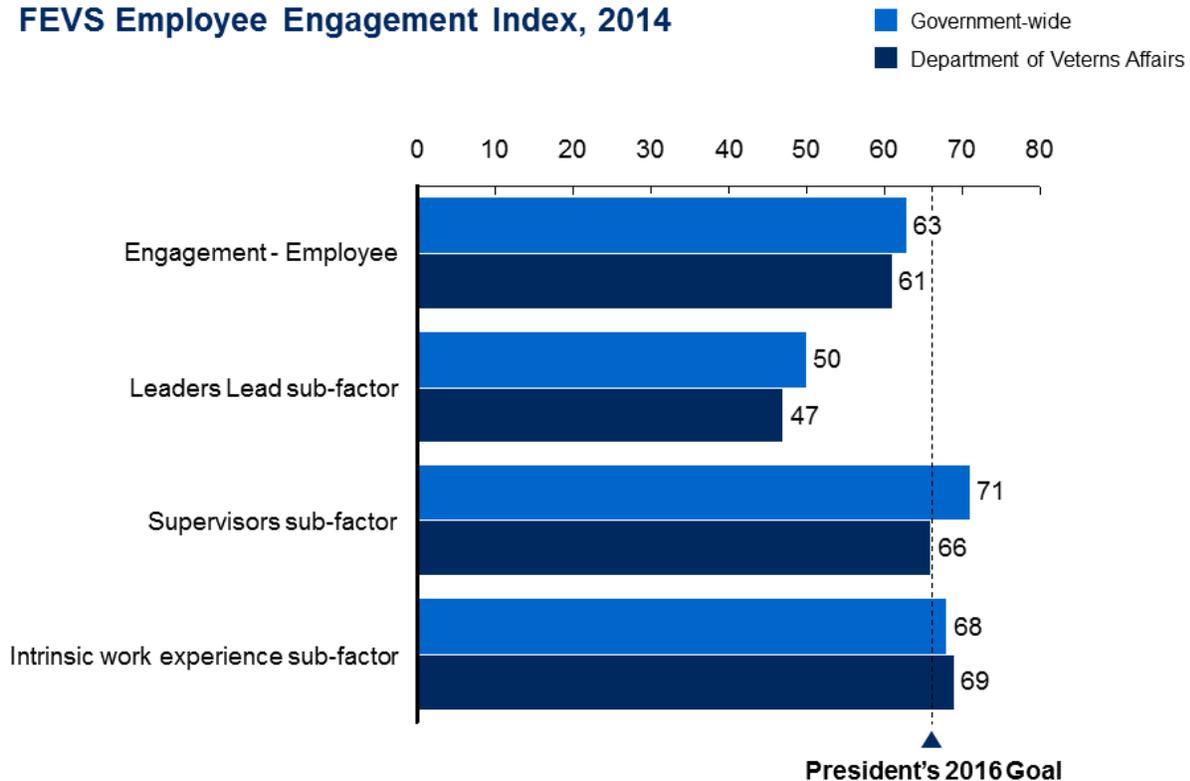
SOURCE: OPM, Federal Employee Viewpoint Survey 2014

However, efforts are underway to improve employee engagement. The Office of Management and Budget (OMB), OPM, and the Presidential Personnel Office sent a memo to agency leaders in November 2014 with suggested strategies to raise this Employee Engagement Index score. The memo recommends identifying appropriate FEVS metrics to incorporate into SES and manager performance plans, cascading through to supervisors (Executive Office of the President and OPM, "Strengthening Employee Engagement and Organizational Performance, 2014). Guidance was sent from Secretary McDonald to include a "measurable component related to action planning and/or results to improve employee engagement or based on employee feedback" (VA, Senior Executive Performance for Fiscal Years [FY] 2014 and 2015, 2015).

Our interviews echo these themes. Recurring themes around commitment to the Veteran were:

- "I'm from a family of Veterans – this mission is personal to me."
- "We are committed to the Veterans, but we also have a great lifestyle."
- "I'm here for our Veterans."
- "People are committed and have a strong sense of the mission."

- "Clinicians are dedicated to patients, and there is a special meaning that these people serve our country."

Themes around lack of organizational support from leadership include:

- "It needs to be a two-way street. They [leaders] need to seek to understand not just speak."

- "Our staff's morale is impacted negatively by the fact that they're always asked to do more with no additional resources – nothing is ever taken off the to-do list."

- "Burnout is real."

- "We need to make employees feel like what they think matters. Huddleboards have been really good for this."

This is also reflected in the OHI data, which, as shown previously in **Figure 7-2,** demonstrate that while Veteran focus is highlighted as both a current and desired value, both employee focus and professional growth were identified as desired values but not as current (see Section 7).

8.2.2 Employees Experience a Challenging Work Environment and "Burnout"

Interviewees have shared that employees experience a complex operating environment, including silos, inadequate and often one-way communications, limited access to resources, Congressional inquiries, and ongoing "thrashings" from the press. Many employees feel a lack of empowerment in resolving issues.

VHA ranks near the bottom in the federal government's "Best Places to Work Survey," where VA finished above only the Department of Homeland Security in rank among large federal agencies (Partnership for Public Service and Deloitte, *The Best Places to Work in the Federal Government*, 2014) **[Figure 8-3].**

Figure 8-3. Federal Best Places to Work

VHA ranks near the bottom of the Federal Best Places to Work
Percent of positive responses[1]

Legend:
- Large government agencies
- VHA
- VA, VBA, NCA, and CO

Agency	Score
NASA	75
Commerce	69
State	68
Intelligence Community	68
NCA (VA)	65
Justice	64
Social Security	63
HHS	62
Transportation	60
Treasury	60
Labor	59
Navy	58
Interior	58
Agriculture	57
Defense	57
Air Force	57
EPA	57
Army	57
VHA (VA)	55
VA	55
VBA (VA)	51
VACO (VA)	49
Homeland Security	44
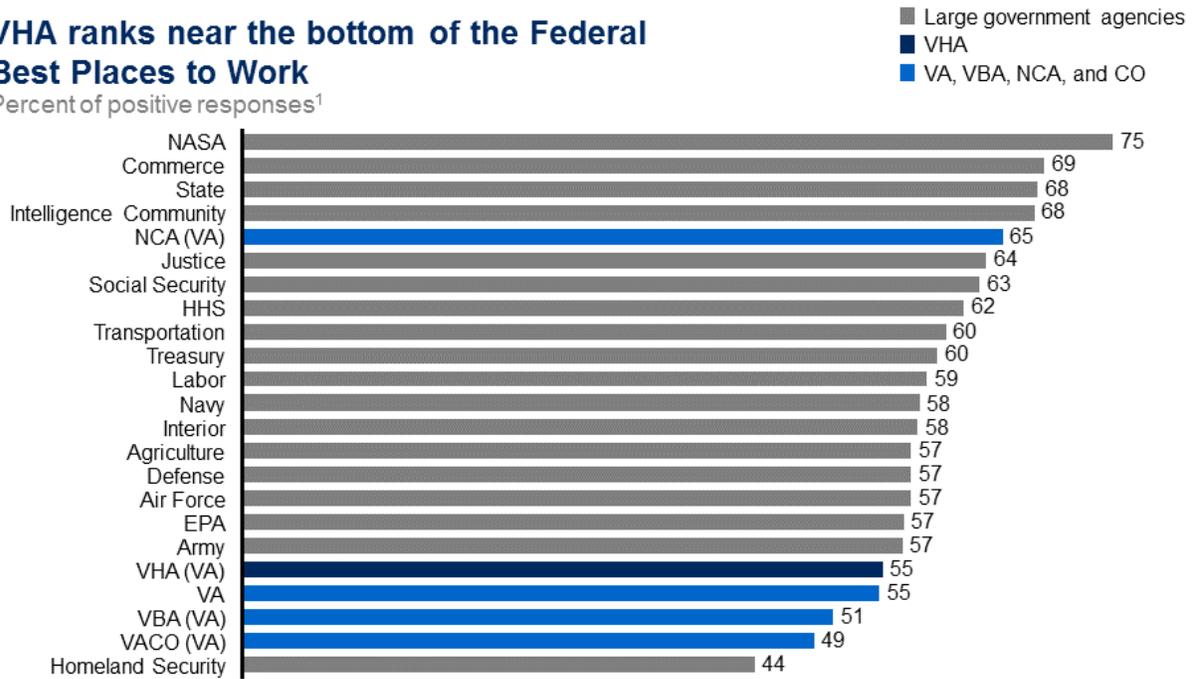
1 The Best Places to Work index score is calculated based on 3 different questions in the Office of Personnel Management's Federal Employee Viewpoint Survey (FEVS)

1. I recommend my organization as a good place to work (Q. 40)
2. Considering everything, how satisfied are you with your job? (Q. 69)
3. Considering everything, how satisfied are you with your organization? (Q. 71)

The overall index score measures the performance of agencies and agency subcomponents related to employee satisfaction and commitment. The index is weighted according to the extent to which each question predicts "intent to remain"

SOURCE: Partnership for Public Service and Deloitte, The Best Places to Work in the Federal Government, 2014

Looking at VA's and VHA's trends over time, they have generally mirrored the large agency median since 2010, as all three have gone downward. All hit an all-time low in 2014 (Partnership for Public Service and Deloitte, *The Best Places to Work in the Federal Government*, 2014) **[Figure 8-4]**. It should also be noted that the window of responses was between May 6 – June 13, 2014, at the height of the scheduling crisis, which is a likely driver of VA's and VHA's low scores in 2014.

Figure 8-4. FEVS: VA and VHA Compared to Large Agency Median

VA and VHA have been lower than the large agency median since 2010
Best Places to Work, 2003-14
Index scores

- - ● - - Department of Veterans Affairs
—●— Veterans Health Administration
—●— Large agency median

- VA, VHA, and large agency median have been trending downward since 2010
- All 3 hit an all-time low in 2014

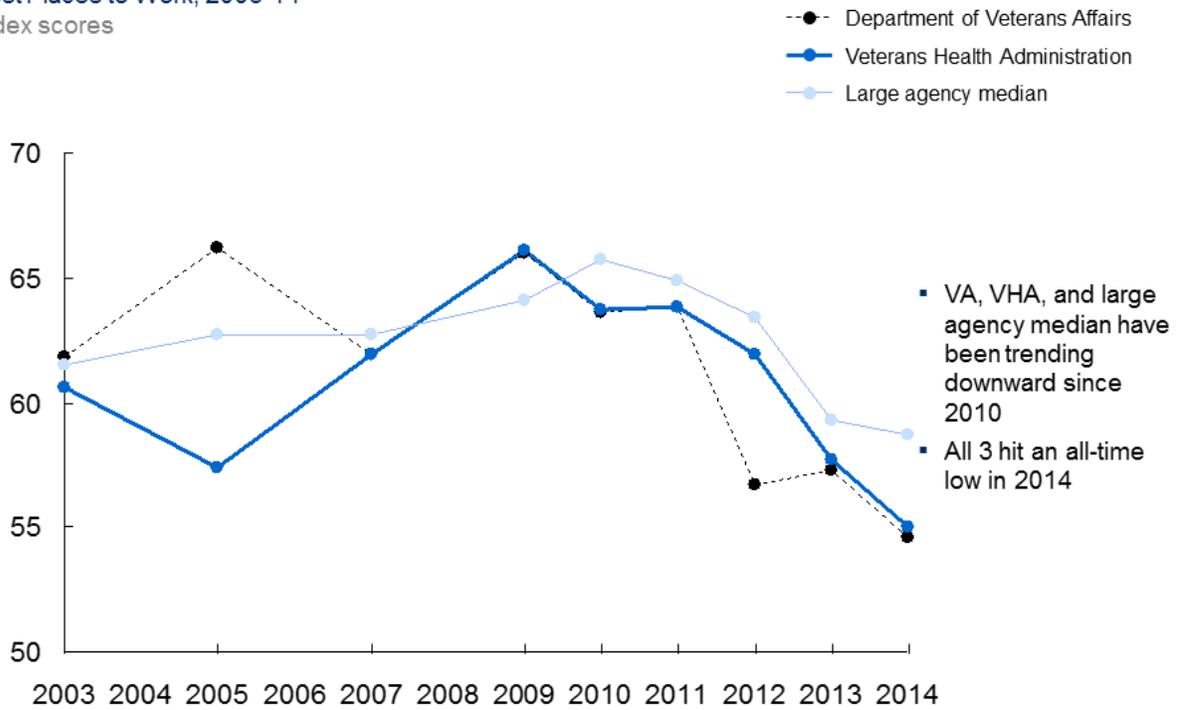SOURCE: Partnership for Public Service and Deloitte, The Best Places to Work in the Federal Government, 2014

Burnout is also a concern. The 2014 AES evaluated the level of burnout experienced by employees within VHA as somewhat higher than in 2013 (2.17 compared to 2.05, with lower numbers being more favorable). The specific burnout measures evaluated by the AES asked employees to share how often they "feel burned out from work," "worry that this job is hardening" them, and whether or not they feel they have "accomplished many worthwhile things in this job." While the AES does not compare its survey against external benchmarks for these measures, the answers indicate that burnout is a major concern for VHA employees. Employees "feel burned out from work" a few times a month. They "worry the job is hardening" them and feel they "have accomplished many worthwhile things in this job" once a month or less (VA, All Employee Survey, 2014).

This can have negative effects on the Veteran as he or she moves through the system. Burnout, as a measure of employee enthusiasm and excitement to come to work each day, is especially worrisome in a health care setting, where direct patient care is central to outcomes and the Veteran experience, and in a system where there is already strain on workforce planning and succession planning. Burnout may exacerbate the challenges of keeping VHA staffed to meet the needs of the patient population.

The views, opinions, and/or findings contained in this report are those of the assessment team and should not be construed as an official government position, policy, or decision.

In recent years, RN "quits," defined as voluntary departures, exclusive of retirements, terms, and reductions in force (RIFs), have grown four times as fast as the nursing population itself: between 2011-2014, nurse employment grew by an average of four percent per year, while nurse quits grew by an average of 17 percent per year (OPM, FedScope, accessed 2015). As the system works hard to keep its nurses and recruit new ones, keeping an engaged and committed employee base will be essential, and managing burnout will be part of that.[11]

A low level of employee engagement across VHA is reflected in the OHI as well. Across nine management practices that drive employee engagement, ranging from "personal ownership," to "inspirational leadership," to "shared vision" and "meaningful values," to "how ideas spread through the organization," VHA is lagging far behind the public sector, health care, and global benchmark. "Shared vision" is in the third quartile; all others are in the bottom quartile **[Figure 8-5].**

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[11] The team looked at RNs (OPM classification 0610) for two reasons. First, it is the largest population of VHA employees and second on the list of Mission Critical Occupations according to VHA's 2014 Interim Workforce and Succession Strategic Plan. Second, this group was chosen because of its size and its relative similarity to the overall population with respect to burnout: in the most recent AES, 8.2 percent of RNs fit VA's burnout profile, compared to 8.8 percent of the overall VA population.

Figure 8-5. Employee Engagement
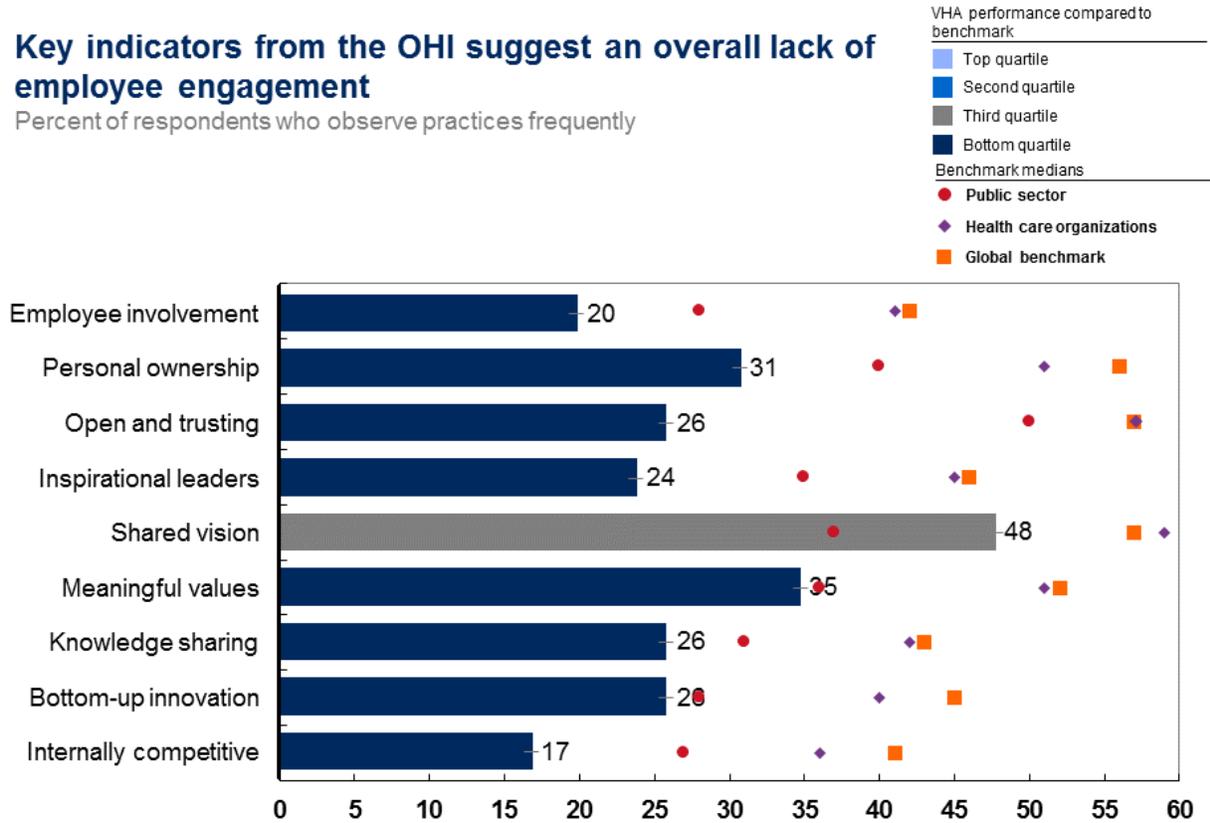
SOURCE: VHA OHI Survey 2015 (N=13,712); Global Benchmark (N=1,259,322, no. surveys=737); Public Sector Benchmark (N=47,159, no. surveys=27); Health Care Systems and Services Benchmark (N=40,437, no. surveys=33)

8.2.3 No Consensus Exists About VHA Employees Being Well Informed or Listened to by Leadership

Communication is a critical component of employee engagement and an integral way to foster understanding and commitment. The team observed wide variability in strength of communication across the facilities we visited. This was often highly dependent upon the strength of the Pentad leaders and employees' direct supervisors. On the whole, the AES indicates that many employees recognize their supervisors communicating information to them – VHA's average score for information-sharing was 3.65 in 2014 (VA, All Employee Survey, 2014). In spite of this relatively strong score, however, much of what we heard in interviews suggests that communication breakdowns can occur at every level in the organization, from Central Office to the front-line. Byproducts of this include some employees' perception that leadership does not care about them, limited clarity around performance expectations, and employee hesitation to speak up.

Representative quotes include:

- "VA works in silos, which leads to communication gaps."

- "There are some supervisors who do not communicate well. When they don't communicate it makes it harder on the employees and you see it in the morale."

- "The biggest problem is that employees don't always know or understand what needs to be done in order to get an Excellent or Outstanding on their review, because supervisors don't communicate well."

- "Open communication and awareness remains a challenge across all levels."

- "We see a lot of 'I'm gonna do what my supervisor tells me and keep my opinions to myself.'"

The OHI shows a gap between SES and other groups on consultative leadership, bottom-up innovation, and employee involvement, three practices that reflect both how much leaders consult with their employees, and the extent to which new ideas and innovations stem from front-line employees **[Figure 8-6].** This suggests a disconnect between what senior leaders are trying to communicate about encouraging innovation, and what employees are hearing.

Figure 8-6. Listening
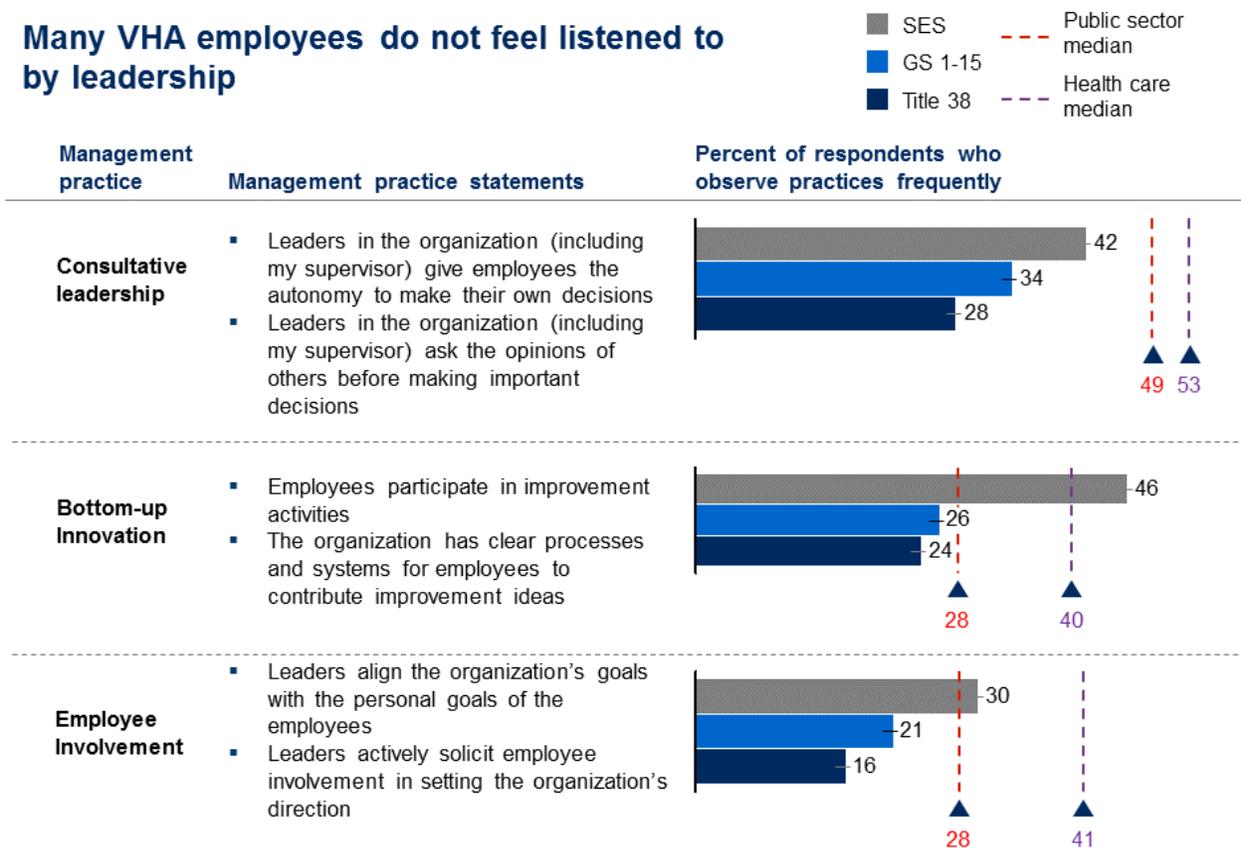
There are some bright spots around communication that should be noted, including several facilities where employees speak of an "open door culture" (e.g., Durham, NC and Pittsburgh,

PA). Meanwhile, the leadership at the St. Louis, MO, VAMC offer a "10-M" program, where employees can sign up to speak with the Director for 10 minutes about anything on their mind.

8.2.4 Reinforcing Engagement and Behavior With Formal Mechanisms Happens in Limited Pockets, But Faces Several Constraints, Including Limited Access to Positive Reinforcement Mechanisms, a Weak Culture of Appreciation, and Heavily Burdensome Processes for Progressive Discipline

Reinforcing employee engagement and behavior with formal reward and recognition mechanisms happens in a limited way but faces several constraints. There is some use of reward and recognition – including facilities that use an array of recognitions, such as, Employee of the Month awards, Daisy awards, and High Fives. But VHA leaders express frustration at their inability to effectively reward positive engagement and performance. For example, retention bonuses for specialists require VISN approval in some cases: "Our Director manages nearly a half-billion-dollar budget, yet can't approve a $20,000 retention bonus" for a hard-to-replace specialist.

When poor conduct occurs, the disciplinary process is perceived as lengthy and intensely difficult: responding to a conduct issue can take up to one to two years, with multiple steps requiring careful documentation, multiple parties, and time. This has a direct impact on the Veteran as poorly performing individuals will remain on the front lines or be involved in their care for a long time. This process is further explored in Section 10.

9 Physician Alignment

9.1 Summary

This report defines physician alignment as the degree to which physicians in an organization are aligned with the goals of their organization (Betbeze, 2014).

To understand this alignment, or lack thereof, it is necessary to look at the mindsets and behaviors of the physicians as they relate to the overall goals and objectives of the organization. Findings of the study are:

- Physicians are represented on key committees, but communication often breaks down, resulting in disenfranchisement of the provider base.
- While financial rewards are not key motivators for physicians at VHA, access to research funding and work/life balance are available at VHA and are often more compelling.
- Several current structures and processes in place within VHA do not allow for effective physician alignment.

Throughout this section, we draw on insights shared during interviews with VHA leaders as well as data from the OHI survey (VHA interviews, 2015; VHA OHI Survey, 2015). Unless otherwise cited, direct quotations are from VHA interviews and survey data are from the OHI survey. We also draw on various other primary source data and cite them as appropriate throughout the section.

9.2 Findings

9.2.1 Physicians Are Represented on Key Committees, But Communication Often Breaks Down, Resulting in Disenfranchisement of the Provider Base

Leaders throughout the different levels of VHA routinely seek the input of physicians and other providers when setting organizational goals and policies. There are physicians on many of the major policy-setting committees at the VAMC, VISN, and VHACO levels. For example, at the VHACO level, there is a Chief of Staff Advisory Committee to the VA Principal Deputy Under Secretary for Health, which is a direct conduit for VAMC Chief Medical Officers to VHACO leadership (VA, VA Functional Organizational Manual, 2014). There is physician representation on VISN-level committees, including the Research Service Line Committee, the VISN Compliance Committee, and VISN-level Pharmacy and Therapeutics (P&T) Committees, to name a few. At the VAMC level, there are physicians on the Research and Development (R&D) Committee and VAMC Pharmacy & Therapeutics (P&T) Committees (VA website). In the interviews we conducted, Chiefs of Staff at the Medical Centers routinely made comments such as:

- "We have physician representation on all of the committees."
- "Leadership definitely seeks physician input."

- "Front-line MDs have a 2-year rotation on the Strategic Planning Board, and quarterly-rotating non-voting positions on the Resource Board."

While there is physician representation on key committees, the OHI indicates that physicians not in leadership roles feel their input is less sought after than that of physician leaders and non-physician leaders. This is reflected by lower scores on consultative leadership and employee involvement **[Figure 9-1].** Consultative leadership and employee involvement practices lag both public sector and health care benchmarks.

Figure 9-1. Physician Input
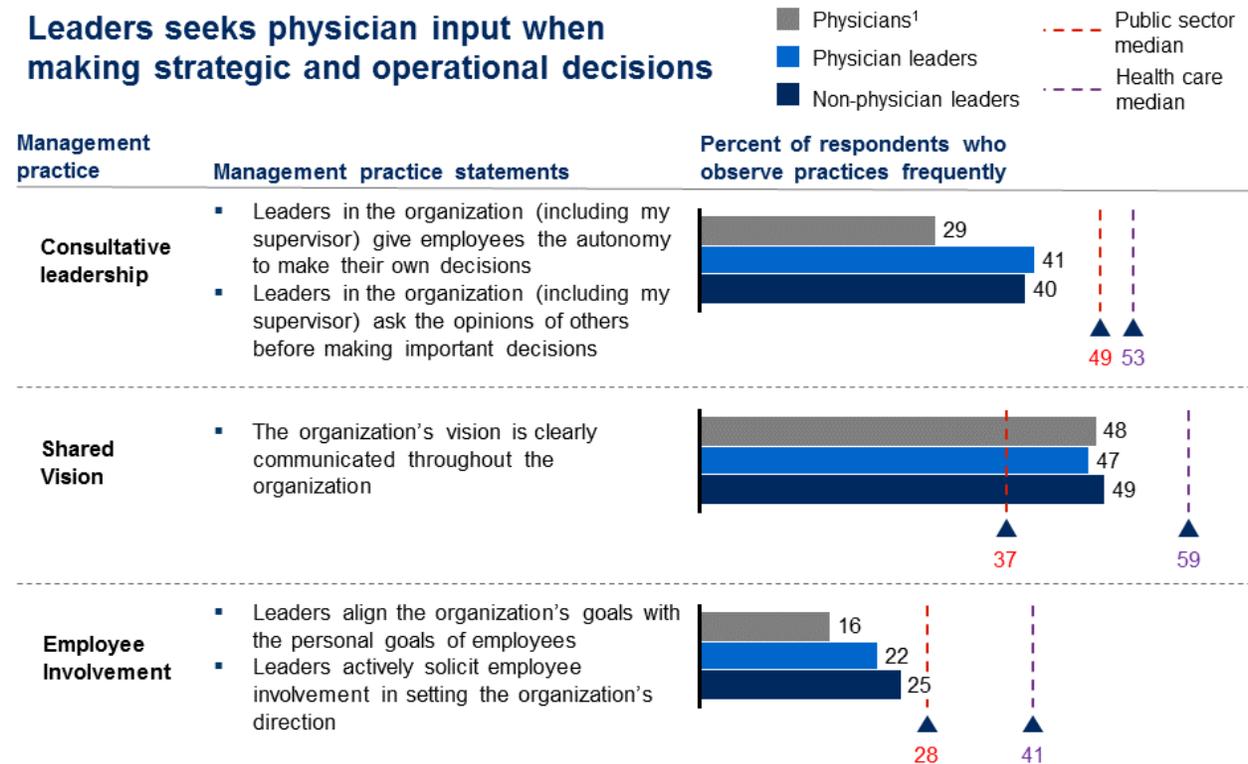
1 Demographics are split as follows: Physicians: Physicians not in executive or manager role (N=878); Physician leaders: Physicians in an executive or manager role (N=125); Non-physician leaders: Non-physicians in an executive or manager role (N=1,328)

SOURCE: VHA OHI Survey 2015; Public Sector Benchmark (N=47,159, no. surveys=27); Health Care Systems and Services Benchmark (N=40,437, no. surveys=33)

A close look at the outcomes related to communication measures found in the OHI shows a disparity between the way leaders perceive they are communicating and the way physicians feel leaders are communicating back with them **[Figure 9-2].** Notably, physicians not in a leadership role report low scores on "open and trusting" and "knowledge-sharing." This disconnect suggests that leadership does an inconsistent job of subsequently articulating the organizational goals back to physicians. Neither leadership nor physician representation on these committees communicates effectively back to the physician base. The communication begins but may stop short of a rich, two-way dialogue. Even though physicians may be represented on key committees, "there are silos between clinicians and leadership," and these

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communication breakdowns can lead to a sense of disenfranchisement and a lack of engagement of the broader physician and provider base.

Figure 9-2. Clear Articulation and Communication to Physicians

OHI indicates leadership does not always clearly articulate organizational goals to physicians

Legend:
- Physicians[1] (gray)
- Physician leaders (blue)
- Non-physician leaders (dark blue)
- Public sector median (red dashed)
- Health care median (purple dashed)

Percent of respondents who observe practices frequently

Management practice	Management practice statements	Physicians	Physician leaders	Non-physician leaders	Public sector median	Health care median
Strategic clarity	The organization translates its vision into specific strategic goals and milestones	33	35	43	41	58
Open and trusting	Leaders encourage honesty, transparency, and candid, open dialogue / Leaders consult with employees on issues that affect them	23	33	35	50	57
Knowledge sharing	The organization encourages different parts of the organization to work together to make improvements / The organization holds events to share knowledge and ideas across the organization	24	32	32	31	42
Shared vision	The organization's vision is clearly communicated throughout the organization	48	47	49	37	59

1 Demographics are split as follows: Physicians: Physicians not in executive or manager role (N=878); Physician leaders: Physicians in an executive or manager role (N=125); Non-physician leaders: Non-physicians in an executive or manager role (N=1,328)

SOURCE : VHA OHI Survey 2015; Public Sector Benchmark (N=47,159, no. surveys=27); Health Care Systems and Services Benchmark (N=40,437, no. surveys=33)

9.2.2 While Financial Rewards Are Not Key Motivators for Physicians at VHA, Access to Research Funding and Work/Life Balance Are Available At VHA and Are Often More Compelling

Within health care systems, frequently used levers to drive physician alignment include financial incentives (salary, bonus, productivity pay), work/life balance incentives, access to research and funding, and academic affiliations and their accompanying prestige and clinical teaching opportunities. Though VHA is not able to offer competitive financial incentives, the other levers are being used more successfully.

In terms of financial rewards, the current salary structure for physicians does not provide tremendous incentive. Salaries for VHA physicians are not commensurate with those outside

VHA. As **Figure 9-3** shows, VHA mean pay, even with recent Title 38[12] restructuring allowing more competitive compensation for physicians, is still significantly below benchmark.

Figure 9-3. VHA and Private Sector Physician Salaries

While VHA is not able to provide commensurate salaries, there are other reinforcing mechanisms that VHA has at its disposal to both recruit and retain physicians. Numerous interviews with Chief Medical Officers at both the VISN and VAMC levels revealed that "VHA is the place to come for work/life balance." In addition to the better lifestyle, there is "less paperwork" because "physicians don't have to deal with various insurance companies and the headaches that come with all that paperwork." Others have cited the trend toward physician practice acquisition by provider systems as a reason they favor employment at VHA. Leadership at 75 percent of VAMCs at which site visits were conducted said the prospect of a better work/life balance was a top reason why physicians chose employment at VHA. This incentive, however, is in danger of being lost, some interviewees explained, as more and more metrics being pushed down from VHACO are forcing physicians to "treat the metric and not the patient." The increase in the number of "boxes physicians are being forced to check," including

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[12] Title 38 is a federal classification for health care professionals and covers a range of clinical professions at VHA.

through clinical reminders on CPRS,[13] is proving to be onerous and a disincentive and is perceived by physicians to be getting in the way of providing patient care (VHA interviews, 2015; see Assessment B for additional detail).

VHA is also able to attract and retain physicians because of its academic affiliations. A number of physician leaders explained their interest in both teaching and direct patient care: "Physicians come here because they want to teach and see patients." Most VAMCs are actively involved in the teaching of medical students and residents, and physicians enjoy the privileges that come with academic appointments at their affiliated medical universities. According to VA's Office of Academic Affiliations, "in 2013, 40,420 medical residents, 21,540 medical students, 253 Advanced Fellows, and 1,397 dental residents and dental students received some or all of their clinical training in VA. Of its 152 VA Medical Centers and six independent outpatient clinics (IOCs), 124 hospitals and three IOCs have affiliation agreements with 130 of 141 allopathic Accredited Medical Schools and 22 of 29 osteopathic medical schools for physician education" (VA Office of Academic Affiliations). With these affiliations, VA is the nation's largest integrated provider of health care education and training for physician residents.

The opportunity to conduct both clinical and bench research is another motivator for physicians, and here again VHA is well-positioned. Physicians "seek out VHA because it is often easier to get research projects funded." Additionally, the research arm of VHA is set up in a way that allows "principal investigators to reapply for funding less frequently than they would need to at a university hospital." VHA's research budget is entirely intramural, affording only VHA physicians the opportunity to apply for grants. Notably, VHA investigators have won three Nobel prizes and seven Lasker awards (VA Office of Research and Development).

Other nonfinancial rewards routinely seen in high-performing organizations include formal rotational programs for aspiring leaders and leadership development programs. Currently, there are no formal rotational programs for physicians found within VHA. While there are formal leadership development programs, budgetary and travel restrictions placed on VHA have greatly reduced the availability of in-person programs.

9.2.3 Several Current Structures and Processes in Place Within VHA Do Not Allow for Effective Physician Alignment

In a 2011 study of over 1,400 physicians, training and resources ranked second only to compensation as a factor that would influence them to change their behavior (Kumar et al., 2011). As such, when assessing the alignment of physicians and hospital leadership and what is needed to influence change, resources available to physicians need to be considered. Physicians within VHA routinely commented "we don't have enough space" and "in the private sector, I would have at least two exam rooms." Other challenges cited include inefficient scheduling practices and clinical support staff, as well as challenges around IT and buying supplies. This

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[13] Computer Patient Record System

perceived lack of resources leads to frustration for providers (see Assessment B for additional detail).

10 Accountability

10.1 Summary

In this report, accountability is defined as "when one individual is answerable to another individual or organization for work (a goal-oriented behavior), resources, results and/or services" (Dive, 2008).

Accountability encompasses two elements: responsibilities for which one is held accountable, and authority and decision rights to fulfill these responsibilities.

It should be noted that while Assessment L uses a broad definition of accountability, interviews reflect that the term "accountability" is often interpreted within VHA more narrowly to mean firing or disciplinary action.

In determining to what degree VHA leaders are held accountable and whether VHA leaders have the authority to fulfill their accountabilities, study findings are as follows:

- VAMC leaders understand that they are accountable for every aspect of a Medical Center as experienced by patients, employees, oversight entities, and external stakeholders.
- For each area for which VAMC leaders are held accountable, an increase in hierarchical control intended to mitigate risk has constrained leaders' requisite authority.
- While VHA employees believe they are individually held accountable, the perceived difficulty of the termination process decreases the practice of holding VHA employees accountable.
- VHA senior leaders are held less accountable through termination than other federal agency senior leaders.

10.2 Findings

10.2.1 VAMC Leaders Understand That They Are Accountable for Every Aspect of a Medical Center as Experienced by Patients, Employees, Oversight Entities, and External Stakeholders

In reviewing position descriptions, and supported by interviews, VHA leaders view themselves accountable for nine distinct areas within a Medical Center: employee experience, culture, operational excellence, fiscal stewardship, Veteran experience, facility matters, compliance with directives, physical safety, and external affairs (USAJobs, 2015). And while this list is expansive, it is well understood by leaders and employees throughout VHA. One Medical Center Director described a feeling held by many of those interviewed: "In a role like ours, you are, in essence, accountable for everything and to anyone." A senior VHA official added, "There's no going back now. With all the attention in the past year, the Directors are the public face of VA in their community." The implication is that the local VAMC Director is the single point of contact for the Veteran and the local community.

10.2.2 For Each Area for Which VAMC Leaders Are Held Accountable, an Increase in Hierarchical Control Intended to Mitigate Risk Has Constrained Leaders' Requisite Authority

A VA Medical Center Director position description includes the provision that a Director "has full delegated line authority to accomplish all of the medical center's missions" (USAJobs, 2015). In both perception and practice, however, this written expectation of delegated authority does not match reality; instead, it is replaced by a fragmented environment with numerous internal and external entities possessing or competing for control. While this arrangement may have served VHA in years past, expanded control to mitigate perceived political risk has exacerbated the situation to the point where it directly conflicts with the challenges of today's environment – including changing demographics, priorities, and pressures. The new and changing needs of today's Veteran call for flexibility and clear decision rights in support of the mission that VHA leaders do not currently possess.

This is represented in **Figure 10-1,** as just 33 percent of VHA executives believe that employees in the organization have sufficient authority to make decisions. In less senior roles, this decreases further.

Figure 10-1. Decision-Making Authority

SOURCE: VHA OHI Survey 2015 (N=13,712)

The views, opinions, and/or findings contained in this report are those of the assessment team and should not be construed as an official government position, policy, or decision.
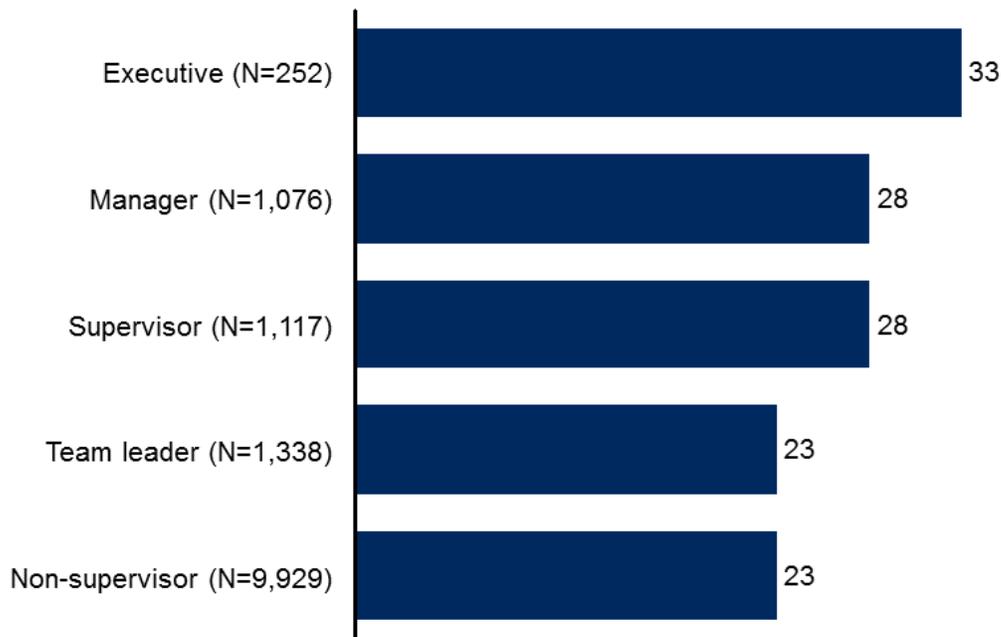
Meanwhile, ownership and accountability are heavily fragmented across entities within the system, which helps to explain VAMC leaders' belief about lack of full authority. This is illustrated in **Figure 10-2.**

Figure 10-2. VAMC Accountabilities

Entities with authority for VAMC accountabilities

Area for which VAMC is accountable	VAMC	VISN	VHACO	VACO	Union	Congress	Other
Employee experience	✓				✓		
Culture	✓	✓	✓	✓	✓	✓	✓
Operational excellence	✓	✓	✓				
Fiscal stewardship	✓	✓	✓			✓	
Veteran experience	✓	✓	✓				
Facility	✓	✓	✓	✓	✓	✓	
Compliance with directives		✓	✓	✓	✓	✓	
Physical safety	✓	✓					
External affairs		✓	✓			✓	✓

SOURCE: VHA interviews, 2015; USAjobs VAMC job descriptions

There are at least three areas where authority is fragmented to such a degree in practice that the ability of VAMC leaders to meet expectations is compromised: operational excellence; fiscal stewardship; and compliance with directives. In each of these areas, the flexibility required of today's operating environment also requires more decision-making authority at the VAMC level than VHA's current approach permits.

- **Operational excellence.** Performance targets are set by VHACO and filtered through each VISN, generally four to six months into a program year. As of spring 2015, in the middle of Q2 of the fiscal year, many VAMCs visited had yet to receive them. And yet, at the end of each fiscal year, facilities are accountable for meeting these targets, having had far less than the full year to achieve them. While VAMC leaders are accountable for operational excellence, their ability to customize performance measures or prepare for implementation is limited by their lack of authority, while the time available to achieve this target is compressed by delayed communication of targets. As one Director explained,

"There are new measures every year and they become the center of attention, until the next measures are set."

- **Fiscal stewardship.** After appropriations are made by Congress, a VAMC budget is generally determined by VHACO through a funding formula (Veterans Equitable Resource Allocation, or VERA) that flows General Purpose funding through VISNs, and Specific Purpose funding often directly to Medical Centers. Though definitions of General Purpose and Specific Purpose funding have changed significantly, the funding coming through Specific Purpose has grown and become more fragmented, which limits local flexibility to direct resources where most locally relevant. This topic is explored further in Section 13.

- **Compliance with directives.** Communications from Congress, VHACO, and VISNs extend beyond advisory frameworks to step-by-step directives and govern many aspects of operating a Medical Center. Compliance with these directives – and welcoming accompanying audits and site visits by all stakeholders – are a core accountability of Medical Center leadership. This absorbs management attention and restricts the flexibility needed in operating environments of differing complexity. Of the "operate-by-directive" environment, one clinician leader told us: "It is very much a rule by 'You shall' edicts – I am told the exact number of people I will hire and the jobs that they will do – even if I don't have a need for the policy or the people." There is often more focus on the rule than the intended outcome.

10.2.3 While VHA Employees Believe They Are Individually Held Accountable, the Perceived Difficulty of the Termination Process Decreases the Practice of Holding VHA Employees Accountable

While accountabilities are clear, the ability to hold employees responsible for meeting their accountabilities is perceived as a challenge in VHA. The Organizational Health Index Survey reveals that fewer than half of employees believe employees are held accountable for results.

There are many ways in which people can be held accountable, ranging from well-defined performance expectations for each role, to clear links between performance, incentives, and consequences, to periodic progress check-ins, to progressive discipline around adverse events. Discussions with employees throughout VHA revealed that the discipline process – up to and including removal from the agency when appropriate – is a primary contributor to the perceived difficulty of holding employees accountable. Through a "progressive discipline" process, steps mandated by federal law and OPM regulations, further detailed through VA policy, and negotiated with unions, in practice require a minimum of eight months to terminate an employee for poor performance or misconduct, and often much longer (VHA interviews, 2015; VA Handbook). As one clinician told us, "We are asked to do so much. The discipline paperwork is where I cut corners – the process is just too much. That means that I'm unable to let go of employees. I just give up after a while." Other employees felt alone in the process: "It's so complicated. I wish HR would help us more rather than fight us." This perception contributes to lower accountability for performance and misconduct – both believed and, as detailed below, practiced in VHA **[Figure 10-3].**

Figure 10-3. Progressive Discipline

VHA progressive discipline process requires at least eight months and often extends well beyond a year

Sample progressive discipline ladder, Title 5 employees

	Verbal counseling	Written notice	Admonish-ment	Reprimand	< 14 day suspension	> 14 day suspension	Reduction in grade and/or pay	Role removal[1]
Parties involved	• Supervisor	• Supervisor • HR	• Supervisor • HR • Union	• Supervisor • HR • Union	• Decision official • Supervisor • HR • Union	• Decision official • Supervisor • HR • Union	• Decision official • Supervisor • HR • Union	• Decision official • Supervisor • HR • Union
Time to process	Varies	Varies	1 month	1 month	1 - 2 months	3 - 4 months	Varies	Varies
Presence on employee record			Can be removed after 2 years	Can be removed after 3 years	Permanent	Permanent		

Grievance / appeals process

1 Could include reassignment or removal from federal service
SOURCE: VHA interviews, 2015; VA Handbook

As an illustration, the standard progressive discipline ladder for Title 5 misconduct issues includes verbal counseling, written notice, admonishment, reprimand, short suspension (under 14 days), long suspension (longer than 14 days), reduction in grade and/or pay, and role removal. Many of these steps require union notification periods and documentation submitted by the supervisor and approved by the supervisor's manager as well as the Decision Official (e.g., VAMC Director) in the more advanced stages of the process. Some steps, by multiple interviewees' accounts, can take two to three months. This process, developed in partnership with unions, is carefully designed and clearly documented. However, following this process in reality has proven immensely difficult for two major reasons. First, supervisors feel very much at risk of retaliation and the various counter accusations that can be started. Second, given the high workload, unlikely chance of timely resolution, urgent needs of patients, and perceived variable support from HR, supervisors often choose to spend the incremental hour with patients or doing work rather than addressing personnel issues. In effect, the return on time spent regarding personnel issues does not appear to be worth the investment of time and associated risk.

One result of this is that low-performing employees may stay in the system far longer than ideal, which puts an extra burden on and hurts the morale of high-performing employees. In

some cases, leaders have resigned themselves and chosen to not even begin the disciplinary process, instead deciding to carry on as-is, despite sub-optimal conduct or performance:

- "The slow termination process is a morale killer for high performers."
- "OK, I give up, I work shorthanded."

The progressive discipline process, often cited as labor-intensive and ineffective, leads to very limited accountability for low-performing employees and lowers employee morale overall. As described previously, this has a direct impact to the Veteran as poorly performing individuals will remain on the front lines or be involved in their care for a long time. The real or perceived lack of HR support in the termination process forces management to navigate complex employee discipline requirements alone, which leads to many giving up.

Business leaders explain:

- "We don't make it welcoming from the very start. Time delays. Meaningless paperwork."
- "To discipline someone, you have to leave a paper trail, and document. You have to work through labor. You have to be really careful. A lot of people won't even bother."

And HR personnel concur: "If you don't document perfectly, you're back to square one."

In spite of these challenges, some persist through the lengthy and sometimes seemingly arduous process. We heard at least three such examples during our interviews, from leaders who had pursued the progressive discipline process through to conclusion and explained they would do it again if the need were to arise again (VHA interviews, 2015).

10.2.4 VHA Senior Leaders Are Terminated for Performance Less Than Other Federal Agency Senior Leaders

While accountability for performance takes many forms, from requiring a simple response to spurring large changes, termination is one form rarely used by VHA. Federal personnel data show that VHA senior leaders – specifically, VAMC Directors, VISN Network Directors, and some VHACO staff who are all members of the Senior Executive Service (SES) – are held accountable through termination for discipline or performance less frequently than are their peers in federal agencies. VA ranks last among all Cabinet-level agencies in SES termination, with just one termination in the five years between FFY2010 and FFY2014[14] **[Figure 10-4].** It is unknown how many SES were effectively terminated by being directed to retire, demoted, or reassigned.[15] As a point of reference, in this same time period, other agencies on average terminated SES employees for discipline or performance at a rate 10 times that of VA. Three SES terminations in Arizona, Alabama, and Pennsylvania in 2014 (Washington Post, 2015) indicate a potential change in this pattern and are not included in presently available data.

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[14] Federal Fiscal Year (FFY) runs from October through September.

[15] Anecdotally, early retirement, removal from SES ranks, and reassignments do occur for performance reasons; however, quantitative data are not available.

Figure 10-4. SES Termination

Federal agency SES terminations for discipline / performance

Percent of all SES in agency; FFY2010 – FFY14
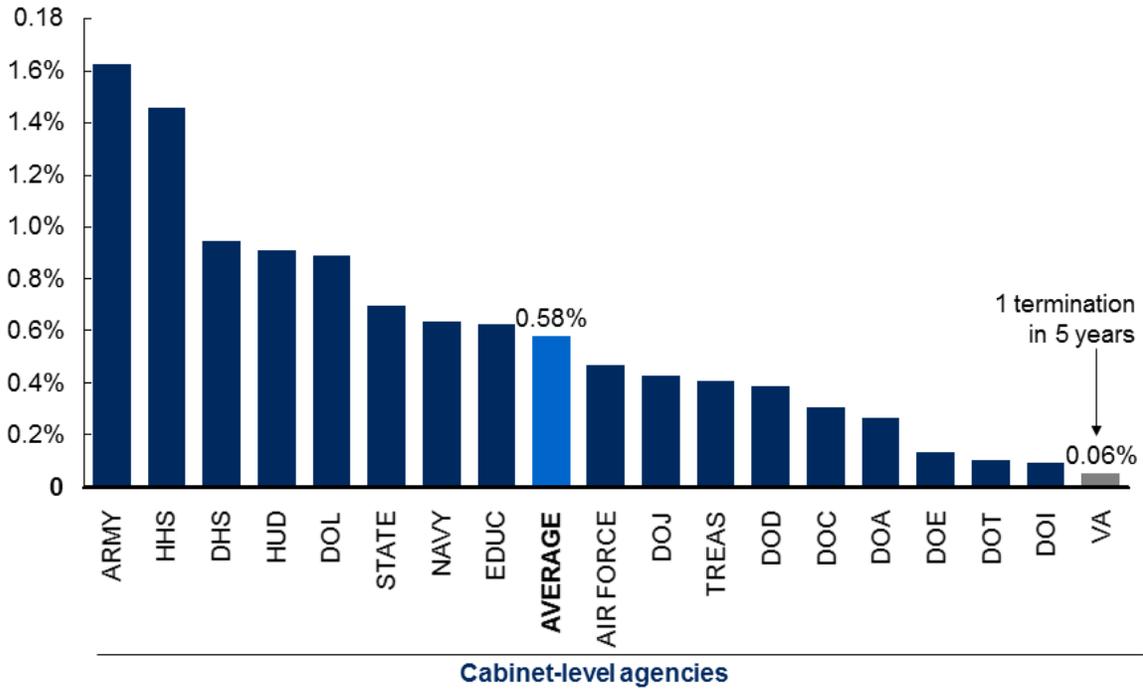
SOURCE: OPM FedScope – Separations and Employment Trends reports (FFY2010 – FFY14)

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11 Performance Management

11.1 Summary

This report defines performance management as the formal use of clearly defined qualitative and/or quantitative metrics or assessments used to track the performance of an activity, organization, or individual, and the comparison of performance for different activities, organizations, or individuals (adapted from Camm and Stetcher, 2010).

The performance management cycle, a continuous loop of target-setting, performance-tracking dialogues and rewards, provides a useful reference for evaluating performance management processes at both the operational and individual levels.

In determining how well its performance management processes help VHA leadership achieve its mission, the study findings are as follows:

- Hundreds of operational performance measures overwhelm leaders and this, combined with limited transparency and inconsistent data availability, makes it difficult to focus on what is most important.
- Individual performance management processes are hindered by targets inconsistent with the VHA mission, delayed implementation, lack of meaningful dialogue, and limited rewards.

Throughout this section, we draw on insights shared during interviews with VHA leaders as well as data from the OHI survey (VHA interviews, 2015; VHA OHI Survey, 2015). Unless otherwise cited, direct quotations are from VHA interviews and survey data are from the OHI survey. We also draw on various other primary source data and cite them as appropriate throughout the section.

11.2 Findings

11.2.1 Hundreds of Operational Performance Measures Overwhelm Leaders and This, Combined With Limited Transparency and Inconsistent Data Availability, Makes it Difficult to Focus on What is Most Important

Operational performance management can be analyzed through the lens of the performance management cycle: targets, tracking, reviews, and rewards **[Figure 11-1].** In doing so, each segment reveals opportunities for improvement.

Figure 11-1. Performance Management Process

The Performance Management Process

Clear direction for organization, actively communicated

1 Clear targets that advance mission

2 Performance tracking

3 Effective review meetings

4 Reward and recognition

Clear targets that advance mission

VHA tracks several hundred performance measures at the facility level. A common response repeated consistently by interviewees when asked about operational performance metrics was: "There are too many." One Director described his perception of VHA's approach to setting performance measures as: "If 50 metrics are good, 100 must be better." There is widespread recognition of this overabundance of metrics and the need to simplify: as one leader articulated, "Performance goes down when there are more measures. We need to get away from the spreadsheet and closer to the action. Facilities need coaches – not just shaking a finger and saying, 'Can't miss this.'"

With 382 measures today in its 10-N National Performance Measures Report provided by interviewees, VHA is not setting clear, actionable targets (10N NPRM, 2015). Instead, leaders are left to figure out for themselves the most critical metrics against which to measure their part of the organization. As one Director told us, "We choose the most important ones to focus on and leave the rest alone." In attempting to increase control over outcomes through measurement, VHA has inadvertently created an environment in which leaders are selecting which measures are most rational instead of which measures – either those existing or those not yet adopted by VHA – help advance the mission.

This was not always the case. As former Under Secretary for Health Dr. Ken Kizer described in a 2014 article in the *New England Journal of Medicine*:

> *The performance-measurement program – a management tool for improving quality and increasing accountability that was introduced in the reforms of the late 1990s – has become bloated and unfocused. Originally, approximately two dozen quality measures were used, all of which had substantial clinical credibility. Now there are hundreds of measures with varying degrees of clinical salience. The use of hundreds of measures for judging performance not only encourages gaming but also precludes focusing on, or even knowing, what's truly important.* (Kizer and Jha, 2014)

In addition to numerous clinical process and performance measures, each VHA program office has specialized targets that are built into performance plans. These have contributed to the even greater number of performance metrics. At present, these include measures for homelessness reduction, diversity hiring, and contracting, among many others. This mission-expanding metric proliferation, in particular, has the dual effect of fragmenting focus for leaders and reducing control over their local activities.

At many high-performing private sector hospitals, targets are balanced in support of the mission, with a limited number of key metrics focused in the following areas that collectively contribute to organizational performance: quality, patient satisfaction, operational excellence, finance, and human resources. Metrics cascade logically across levels of the organization, and roll up into an overarching scorecard **[Figure 11-2].**

Figure 11-2. Metrics
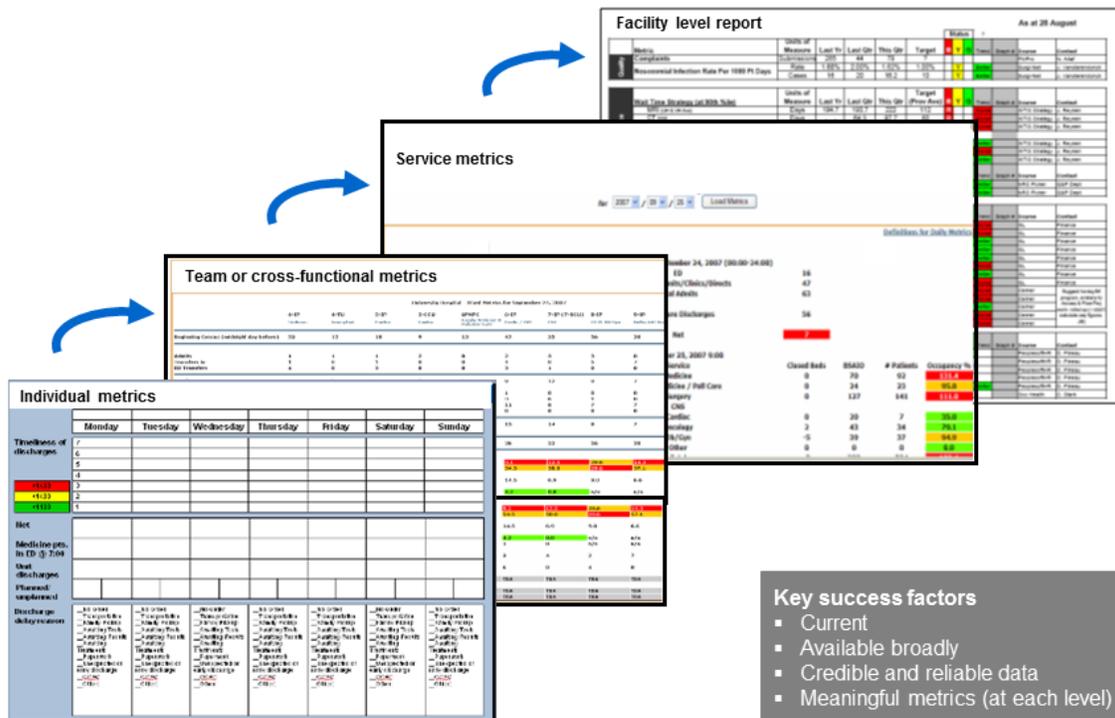
In contrast, VHA's catch-all approach extends well beyond these focused areas. In addition, VHA does not cascade targets consistently, and in many cases they are not precise and actionable.

In addition to having too many metrics, there are also places where VHA is noticeably silent. For example, VHA does not place sufficient emphasis on finance and human resources, with measures in the 10-N performance measures report related to finance and HR limited to contracting and hiring goals. This inconsistency hampers transparency.

In recent years, VHA has promoted a new, more focused set of measures – Strategic Analytics for Improvement and Learning (SAIL). Issued quarterly, SAIL measures 36 areas over 10 categories including: access; inpatient/outpatient performance; mortality; adjusted length-of-stay; customer satisfaction; readmission; adverse events; efficiency; ambulatory care/sensitive conditions hospitalizations; and mental health. While it has not replaced the existing hundreds of performance measures, SAIL is more consistently aligned to the VHA mission in that its quality measures focus on core operations. While not comprehensive enough to be the sole set of metrics used by VHA leaders (for example, financial and human resources measures are not included, and the number of measures is likely still too high to be actively managed by leadership), SAIL represents a foundation upon which improved target-setting could be built.

Performance tracking

The large number of performance measures makes it difficult to effectively track performance. Performance management approaches commonly used in private sector settings are not feasible given the number of measures currently used today at VHA. The proliferation of measures leads to the perception that, as one Director told us, "If everything is a priority, then nothing is a priority."

There are bright spots, however. Use of visual reports during daily performance meetings by senior leaders is increasing, for example in Jackson, MS. This serves to increase transparency and helps leaders and employees focus on key metrics. The SAIL report is another good example of clear visual reporting, communicating results in a visual that quickly informs leaders how they are performing against their peers. Other facilities, such as the Lexington, KY VAMC, use a systems redesign approach to focus their employees on critical improvement initiatives. Lexington has also folded the introduction of standardized huddleboards – visual management systems – into Service Chiefs' performance standards. Meanwhile, VISN 3 (Bronx, NY) leaders spoke of bringing a productivity ethos to the physicians there through the introduction of relative value units (RVUs). Initially, RVUs were heavily resisted by physicians, and it took three years of consistent effort to overcome that resistance. Explained one leader: "We started with no one believing anyone had the right to look at them [doctors]. Got a few willing people to sign up. We then made it very visual and simple. Next we spent a lot of time talking and changing the 'you don't understand' mindset. As each learned to make a little improvement, the program began to get buy-in. We presented results to leadership periodically and celebrated successes. Over the past year Brooklyn really stepped up. The Director was a champion and helped drive the effort. Transparency was key. The impact was that the cost/RVU went down 24 percent. Wow." Building more transparency along these lines could be very helpful to leaders on the front line.

Effective review meetings

One of the primary practical roles of the VISN is to ensure performance targets are negotiated with VHACO and are being met at the VAMC level. This leads to regularly scheduled meetings with VAMC leadership to review binders of performance reports and frequent requests for detailed corrective action plans when a measure is "in the red." Because target-setting is often delayed and new initiatives are introduced regularly, a consistent theme of these meetings was described by one VAMC leader as "explaining why we would not make the measure this year but hoping that making progress toward it would be good enough."

In practice, progress reviews generally focus primarily on the weakest performance measures and are not used as problem-solving sessions. Rather, the expectation is that the VAMC will create an improvement plan and present it to the VISN for approval. Coaching and best practice-sharing as a way to bridge performance gaps does occur, but not with regularity. This contributes to a commonly held perception that metrics are used to identify weak performers, rather than to help drive performance excellence.

Reward and recognition

As facility funding is formula-based, there are not direct relationships between facility performance and financial reward (that is, greater access to resources) at the operational level.

Indirect rewards such as continued affiliations with academic hospitals, reputational enhancement (especially for those looking to advance their career), and increased freedom to focus on improvement instead of corrective action do exist. One reward, a publically available quintile status from the SAIL report, was frequently mentioned as an important source of pride. There is opportunity to simplify performance management to focus more on the mission, drive performance excellence, and promote continuous improvement.

11.2.2 Individual Performance Management Processes Are Hindered by Targets Inconsistent With the VHA Mission, Delayed Implementation, Lack of Meaningful Dialogue, and Limited Rewards

Analyzing individual performance management through the same lens of the performance management cycle – targets, tracking, reviews, and rewards – reveals significant gaps.

Targets

VHA leaders' individual performance targets are linked to operational targets. This linkage, in principle, should promote clarity. In practice, however, three characteristics of the VHA process limit the setting of clear, actionable targets.

First, delays in setting operational targets at the national and VISN levels result in downstream delays for VAMC individual leaders and their direct reports. Targets and new initiatives are late by as much as five months into the program year. VAMC interviewees report: "We cannot expect our staff to achieve performance expectations by the end of the year when there is ramp-up and learning associated with new metrics." These delays contribute to a belief held by many employees that VHA does not set explicit targets for operating performance **[Figure 11-3].**

Figure 11-3. Operational Target-Setting

Nearly half of VHA employees do not believe that explicit targets exist for operating performance

Percent of respondents who frequently observe the following behavior:
"Each unit of the organization has explicit targets for its operating performance"

Legend:
- VAMC
- VISN
- VHACO

GS 13-15 and SES: VAMC 54, VISN 49, VHACO 44
GS 7-12: VAMC 54, VISN 58, VHACO 53
GS 1-6: VAMC 56, VISN 69, VHACO 61
Title 38: VAMC 53, VISN 54, VHACO 59
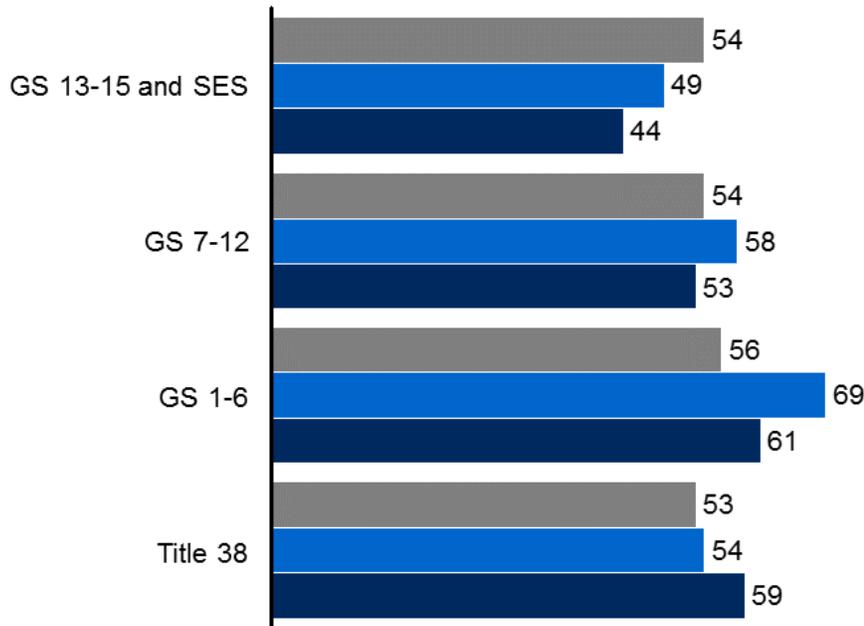
SOURCE: : VHA OHI Survey 2015 : VAMC (N=10,134); VHACO (N=1,207); VISN (N=603)

Second, the proliferation of special programs has created more confusion for leaders. For example, a Hepatitis C initiative was the only measure listed under "leading change" for one senior leader; and for another leader, breast and cervical cancer screening was the first priority categorized under "business acumen." Leaders are careful to note that these care priorities are important, but that measurements are implemented in ways that can confuse priorities.

Third, metrics are presented as individual in nature, both to a facility or across facilities, and then to the individuals who work in a facility. Instead of acknowledging that, in many cases, an entire facility contributes to successful achievement of the mission, metrics are assigned to functional owners and split along clinical/non-clinical roles. The volume of metrics described above contributes to this lack of team-based measurement.

VHA's Blueprint for Excellence indicates that VHA is currently working to align individual performance plans to the organization's overall goals.

Performance-tracking

Despite the volume of metrics, and the general lack of standardization, performance-tracking is a relative strength of VHA. A mix of centralized and homegrown reports, dashboards, and other tools is used to monitor performance and drive excellence on a daily basis. When standardized

tools either do not exist or do not fully meet a need, Medical Centers create solutions that work best for their teams. For example, one physician leader in the Durham, NC VAMC provides flashcards with metric methodology and current performance to front-line staff to help employees understand how their actions influence a performance measure and to let them know where they stand. There is an opportunity to share these approaches more broadly throughout the system.

Progress reviews

Individual performance reviews follow a rigid structure mandated by federal statute, VA directive, and labor bargaining agreements. Formal reviews typically occur once a year, with ratings between 1 to 5 provided to employees. Some HR officials report that midyear reviews are becoming more normal in their facilities as well.

Having this structure in place provides a solid foundation, but as Figure 11-4 shows, employees do not believe that performance feedback and review processes are effective. Performance dialogues between management and employees that are timely and actionable, and help identify and advance developmental needs, are not a norm at VHA. "I haven't had a performance review in years," said one senior leader. In recent months, this has impacted many senior leaders in VHA: as of June 2015, 20 percent of SES positions have their 2014 ratings deferred, pending the results of investigations or other actions, and, for some cases, without explanation for the deferral (VA, Accountability Fact Sheet, 2015; VHA interviews, 2015).

Figure 11-4. Progress Reviews

Most VHA employees at all levels believe progress reviews do not collect accurate information

Percent of respondents who frequently observe the following behavior:
"The organization's performance feedback and review processes collect accurate information about employees' strengths, weaknesses, and potential"

Legend: VAMC, VISN, VHACO

GS 13-15 and SES: VAMC 25, VISN 19, VHACO 19
GS 7-12: VAMC 24, VISN 24, VHACO 30
GS 1-6: VAMC 29, VISN 45, VHACO 44
Title 38: VAMC 20, VISN 32, VHACO 20
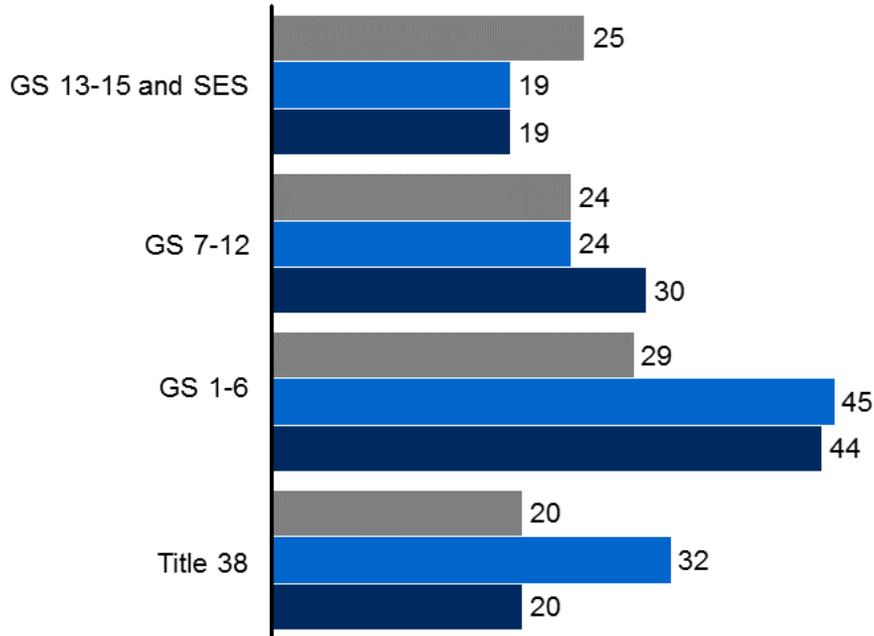
SOURCE: : VHA OHI Survey 2015 : VAMC (N=10,134); VHACO (N=1,207); VISN (N=603)

For senior executives at VHA, performance ratings, the primary feature of the review process, suffer from a common shortcoming: imperfect distribution biased toward high performance **[Figure 11-5].** Every VHA senior executive received a "Fully Successful" or higher rating from FY2010-2013 (VHA Workforce Management and Consulting Office). Increased scrutiny and a decision to award no "Outstanding" ratings in FY2014 has done little to change this pattern, as 94 percent of VHA senior executives were provided a "Fully Successful" or higher rating. The incongruity of this situation grows when reviewing Office of Personal Management criteria for "Minimally Satisfactory," one level below "Fully Successful." "Minimally Satisfactory" performance for executives is defined as follows: "Contributions to the organization are acceptable in the short term…the executive generally meets established performance expectations, timelines and targets…" While not praiseworthy, this standard – a 2 out of 5 on the rating scale – appears relevant for more than a few executives in any organization. This rating inflation diminishes the credibility of a key tool of VHA's review process and suggests ratings reform is needed, or another way of evaluating performance is needed, or both.

Figure 11-5. Performance Rating Distribution

Despite a policy decision to award no outstanding rating, 94% of senior leaders were rated fully successful or exceeds fully successful in FFY 2014

Distribution of SES and SES-equivalent FFY 2014 performance evaluations[1]
Individual senior leader ratings, 1-5 performance scale

Legend: ■ Central Office ■ VISN/VAMC

Performance rating	Central Office	VISN/VAMC
1 Unsatisfactory	1	4
2 Minimally satisfactory	2	5
3 Fully successful	39	51
4 Exceeds fully successful	52	34
5 Outstanding	N/A[2]	
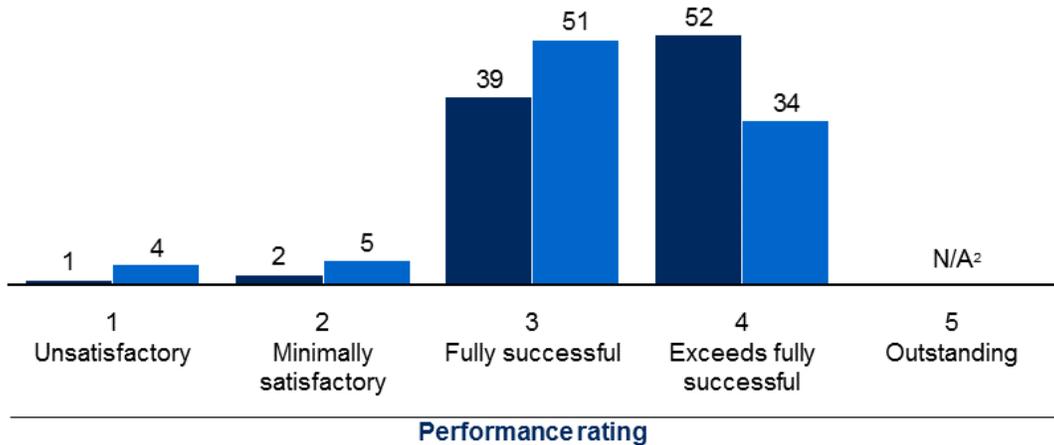
1 Among all employees who have received a rating as of March 2015 (70% of all SES and SES-equivalent)
2 No 5 (Outstanding) ratings were given in FFY2014

SOURCE: VHA Workforce Management and Consulting, 2015

Rewards and recognition

The clearest weakness for VHA revealed in the OHI was financial incentives. Nearly all employees at each level of the organization, and particularly senior leaders, believe that financial incentives are not attractive enough to motivate employees **[Figure 11-6].** Only one in 10 senior leaders believes VHA provides attractive financial incentives. At the most senior level at VHA, for example, SES salaries are capped at $183,300 (OPM, 2015). In practice, the average non-Title 38 VAMC Director salary is $166,900, ranging from an average of $176,800 at the most complex VAMCs, to $157,400 at complexity level 2 facilities and $162,300 at complexity level 3 facilities (VHA Healthcare Talent Management Office, 2015).[16] In comparison, private sector hospital CEOs often enjoy high six-figure or seven-figure compensation packages.
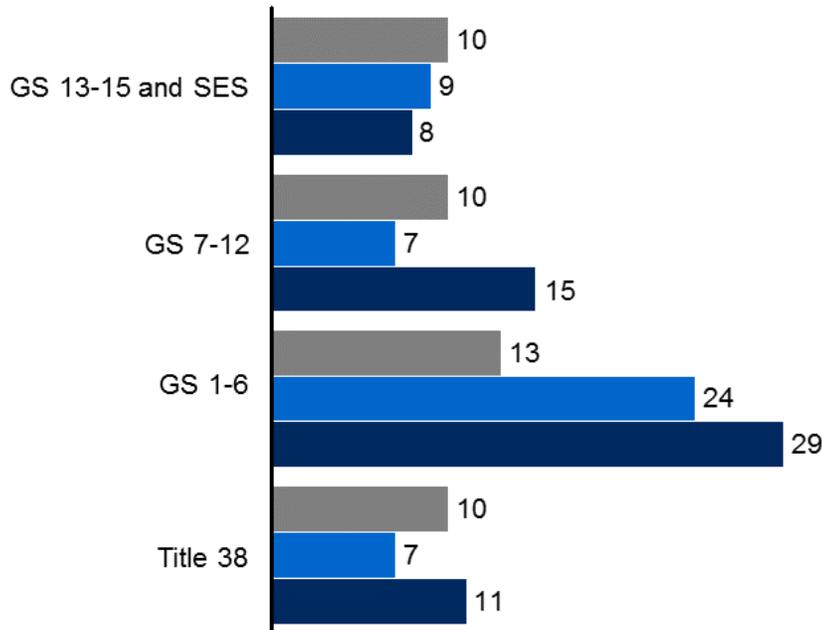
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[16] Title 38 employees, including seven Title 38 VAMC Directors, are not included in SES salary cap and VAMC Director salary averages.

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Figure 11-6. Financial Incentives and Motivation

Nearly all employees at each level of the organization believe that financial incentives are not attractive

Percent of respondents who frequently observe the following:
"The organization provides attractive financial incentives to motivate employees"

Legend: VAMC, VISN, VHACO

- GS 13-15 and SES: VAMC 10, VISN 9, VHACO 8
- GS 7-12: VAMC 10, VISN 7, VHACO 15
- GS 1-6: VAMC 13, VISN 24, VHACO 29
- Title 38: VAMC 10, VISN 7, VHACO 11

SOURCE: : VHA OHI Survey 2015 – VAMC (N=10,134); VHACO (N=1,207); VISN (N=603)

VHA faces challenges in offering rewards that are more motivating to employees. A consistent theme in speaking with HR chiefs reveals that limited rewards encourage front-line employees to switch jobs frequently to transition to higher-grade opportunities: "Employees are constantly striving toward the next grade, without much regard to the position. It is the only way in their eyes to be properly rewarded, even if they are not fully aware of the increased responsibility a higher-grade position brings with it."

Bargaining agreements steer managers toward standardized treatment of employees, and, as has been established elsewhere in this report, compensation policies are less flexible compared to private sector counterparts, although this is less pronounced in some Title 38[17]-eligible occupations where locally competitive salary flexibility is allowed (see Assessment F for additional detail). It should be noted that VA is pursuing a legislative remedy in its most recent federal budget request to expand Title 38 salary flexibility to non-clinical leadership positions, although Congress has yet to act on this request (VA, 2016 Congressional Submission, 2015).

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[17] Title 38 is a federal classification for health care professionals and covers a range of clinical professions at VHA.

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12 Reform Readiness

12.1 Summary

This report defines reform readiness as the ability and willingness of an organization to embrace and drive change.

Successful change in an organization requires clarity around the need for change, clear signaling by leadership that change is important, and resulting employee buy-in and support from leadership to help implement and sustain the change.

In determining the degree of reform readiness found within VHA, study findings are as follows:

- Employees believe that VHA leaders do not effectively encourage or embrace new ideas.
- Change at VHA happens, but only rarely, takes a very long time to permeate the organization, and often stalls.
- Many change efforts come from Central Office and do not fully engage employees in the change process.
- Change efforts are rarely given the necessary time or support to ensure success.
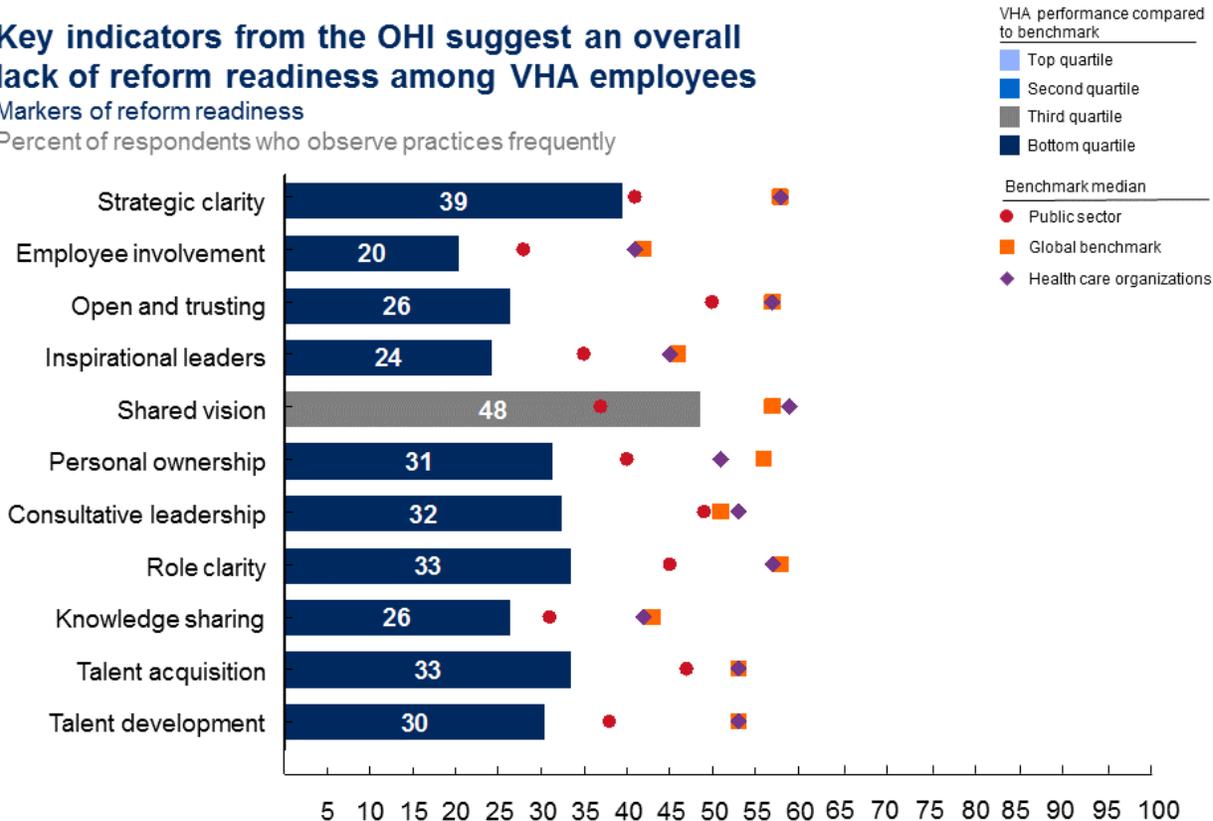
The OHI measures of reform readiness **[Figure 12-1]** show the VHA system is demonstrably less ready for change than either comparable public sector organizations or other health care systems.

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Figure 12-1. Reform Readiness

Key indicators from the OHI suggest an overall lack of reform readiness among VHA employees
Markers of reform readiness
Percent of respondents who observe practices frequently

Indicator	Value
Strategic clarity	39
Employee involvement	20
Open and trusting	26
Inspirational leaders	24
Shared vision	48
Personal ownership	31
Consultative leadership	32
Role clarity	33
Knowledge sharing	26
Talent acquisition	33
Talent development	30

VHA performance compared to benchmark
- Top quartile
- Second quartile
- Third quartile
- Bottom quartile

Benchmark median
- Public sector
- Global benchmark
- Health care organizations

SOURCE: VHA OHI Survey 2015 (N=13,712); Global Benchmark (N=1,259,322, no. surveys=737); Public Sector Benchmark (N=47,159, no.surveys=27); Health Care Systems and Services Benchmark (N=40,437, no. surveys=33)

Throughout this section, we draw on insights shared during interviews with VHA leaders as well as data from the OHI survey (VHA interviews, 2015; VHA OHI Survey, 2015). Unless otherwise cited, direct quotations are from VHA interviews and survey data are from the OHI survey. We also draw on various other primary source data and cite them as appropriate throughout the section.

12.2 Findings

12.2.1 Employees Believe That VHA Leaders Do Not Effectively Encourage or Embrace New Ideas

Analyses of OHI data indicate that current VHA leadership is not readily receptive to either external or internal suggestions for change. Measures of internal reform readiness and external reform readiness at VHA are bottom quartile, lower than both public sector and health care median performance **[Figure 12-2].**

Figure 12-2. Receptiveness to New Ideas
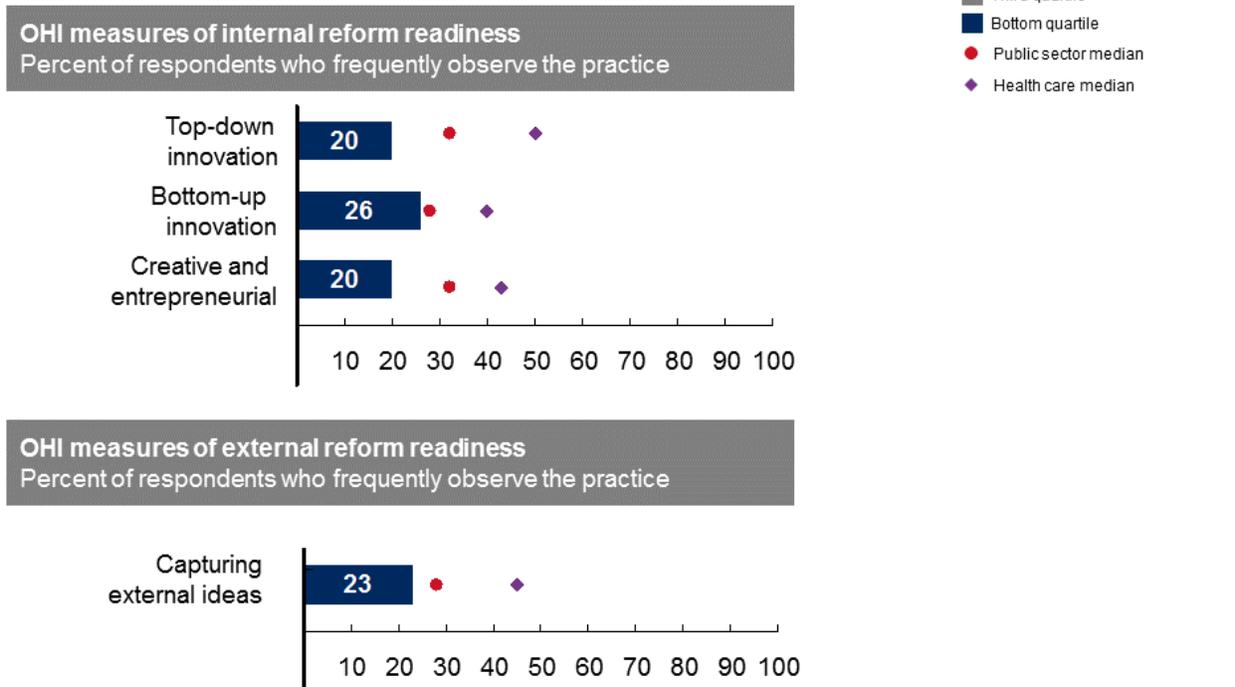
SOURCE: VHA OHI Survey 2015 (N=13,712); Public Sector Benchmark (N=47,159, no.surveys=27); Health Care Systems and Services Benchmark (N=40,437, no. surveys=33)

Data from the recent VA All Employee Survey (AES) convey a similar lack of readiness for change **[Figure 12-3].** Over the last four years, there has been decreasing agreement with the AES question: "New practices and ways of doing business are encouraged in my work group." Scores have gone from a high of 3.54 in 2011 to 3.38 in 2014. Though a small decrease in absolute terms, it represents one of the five largest declines in recent years (VA, All Employee Survey, 2014).

Figure 12-3. Innovation

VHA employees have felt decreasing encouragement to innovate
AES measure of innovation[1]
3-Neutral 4-Agree
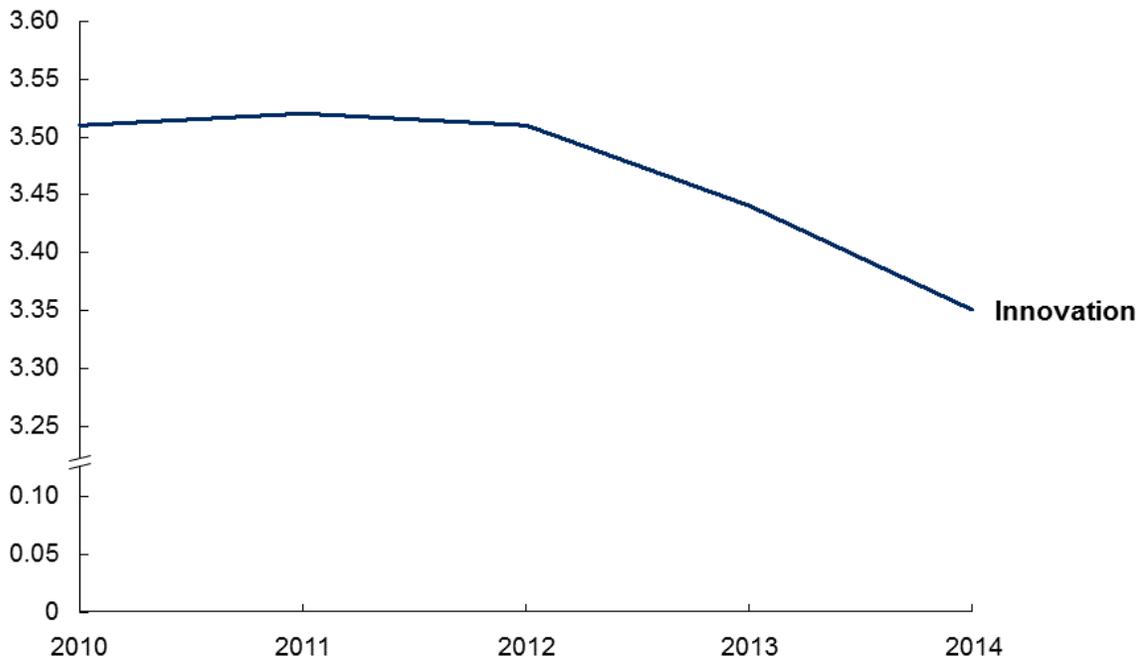
1 AES Question: "New practices and ways of doing business are encouraged in my work group"

SOURCE: VA, All Employee Survey, 2014

Interviewees describe an organization where employees are not encouraged to bring up new ideas. Sometimes this comes from system fatigue, other times from being told not to raise one's hand, and still other times employees may be hesitant to speak up for fear of retaliation, or a burden of added work. This environment dampens the internal generation of new ideas. The impact on the Veteran is significant, as this directly impacts the improvement of their care through reduced spread of best practices or new ideas. VHA's Blueprint for Excellence lists "Provide a Psychologically Safe Environment for Employees" as a key transformational action. It is unknown what the impact of VHA's actions will be on improving psychological safety.

12.2.2 Change At VHA Happens, but Only Rarely, Takes a Very Long Time to Permeate the Organization, and Often Stalls

As a large federal agency, VHA is slow to change. The sheer size of the organization makes change difficult, and several leaders spoke of a "stasis" that keeps people from really exploring the "evolution of the status quo." Change efforts often take years, not months, and can be limited by rules and competing priorities:

- "So many obstacles and rules that it's really hard to change."

- "It takes five to seven years to get a program up and running. We are not a nimble organization."

- "Institutional resistance in getting change to happen – no coordinated approach to combat this."

- "One of the problems when you look at VHA: there is an effort to start [something] and then six months later another initiative. Some groups lapse because they are taken over by others… VA is pretty poor on implementation. Some energy, then another theme overtakes it."

The short tenures of many VAMC directors also add to the challenge. Over the last five years, the VAMC director turnover rate has been around 10 percent, but this figure excludes leaders who leave one Director position to assume another Director position at another facility, which would increase the rate above the 10 percent figure (VHA Healthcare Talent Management Office, 2015). In several instances we heard leaders explain that their staff "needed stable leadership, needed people who cared about this organization, who were going to stay for a while." Another leader explained, "We've had no consistency at the top. We've had acting directors for the last two years. There is no permanent body. We need that consistency. The directors come in with new ideas, but they don't have the time to implement anything."

12.2.3 Many Change Efforts Come From Central Office and Do Not Fully Engage Employees in the Change Process

There are many sources of potential change for an organization, but when bottom-up innovation and external orientation are less developed (as referenced in **Figure 8-5**) there is an over-reliance on top-down directives for change. At VHA, one of the most common source for change is Central Office (VHACO or VACO) requiring the organization to do something, with or without essential resources, time to react, and support. The growth of Central Office Program Offices, explored in greater detail in Section 13, has exacerbated this.

This "command-and-control" approach to change is difficult to embrace and hard to implement: "When change comes, getting that implemented effectively is a challenge." It is also difficult to react to requests before additional requests arrive: "New policies or expectations come down, and before there is time to learn them and get comfortable, there's something else." This emphasis on command and control misses the opportunity to truly engage employees and field leaders in driving, absorbing, and embracing change. As one VHACO leader explained, "VHA needs to take a field-up process to make change happen… The greatest strength we have is our workforce, and we are blowing it."

There are, however, areas where innovation is thriving on a facility-level scale. For example, the Portland, OR VAMC encourages innovation by creating a culture that values innovation "at the top," creates space and time for smart people to get together and collaborate, and has clear communication, all of which supports what some employees explained as a "culture of yes." Against a backdrop of resistance to change and fear of retaliation, these pockets of excellence are proof that innovation can still thrive in some areas of VHA.

12.2.4 Change Efforts Are Rarely Given the Necessary Time or Support to Ensure Success

The current VHA operating environment is not conducive to change because change efforts are often not given the necessary time or support to ensure success. External stakeholders – such as Congress, VSOs, and the media – are expecting quick-reaction timing and want to see fast results. This near-term pressure does not engender support of broader transformation efforts that take time to unfold and take root, which in turn does not set up a longer-term platform for sustained transformation. Meanwhile, it can be difficult for VHA leaders to focus on driving the change, as they are often distracted by "putting out fires." This is also exacerbated by a lack of stable leadership at the very top due to the frequent rotation of political appointees. Across government agencies, short tenures of political appointees can limit their effectiveness, as "people in the agency can simply wait them out if they want to resist the change". As described earlier Congress authorized the U.S. Internal Revenue Service Reform and Restructuring Act of 1998 (RRA 98), which granted Charles Rossotti a five-year term that provided Rossotti the opportunity to fully implement the IRS transformation (Rainey and Thompson, 2006). Meanwhile, in the high performing health systems the team visited, we also generally saw longer tenures for top executives – an average of 10 years across four system CEOs.[18] Though a small sample size, this suggests that leaders at these high performing organizations have a long enough runway and a stable foundation from which to lead their organizations effectively.

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[18] Analysis of senior leadership tenure of chief executives at Cleveland Clinic, Geisinger, Kaiser Permanente, and Virginia Mason (n=4).

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13 Supporting Infrastructure

As we undertook this assessment focused on the eight elements identified in the Veterans Choice Act, three other critical issues emerged: overall operating model, budgeting and resource management, and human resources – recruiting in particular. Although these were outside the scope of Assessment L, these elements are critical underpinnings of how the system works and how leaders operate within VHA, and we felt it important to acknowledge them. We did not do a full assessment of each of these areas; these are initial findings that we hope can help address the supporting infrastructure challenges identified during our work on Assessment L.

Throughout this section, we draw on insights shared during interviews with VHA leaders (VHA interviews, 2015). Unless otherwise cited, direct quotations are from VHA interviews. We also draw on various other primary source data and cite them as appropriate throughout the section.

13.1 Overall Operating Model

From the point of view of leaders and employees, the VHA organization is intensely, unnecessarily complex – it is becoming harder and harder to "get things done" as the number of new policies and oversight continues to grow. This difficulty results from a fragmentation of authority and overlapping responsibilities. There is a lack of clarity around roles and responsibilities across VAMCs, the VISNs, and VHACO. The fragmentation and silos exist across the system and within each tier of the organization (e.g., VACO, VHACO, VISN, VAMC). Authorities, leadership development, contracting, and financial and budgeting controls lack clarity and coordination across entities and levels, resulting in duplication, communication breakdowns, and responses too slow to meet the needs of the mission. It is also important to recognize that VA exists in a context influenced by a number of stakeholders, including for example Congress, Veterans, VSOs, OMB and OPM.

During the course of the assessment the team identified four main findings:

- VHACO has grown rapidly in the past few years and fails to coordinate, integrate, or prioritize the policies it directs the VISNs and VAMCs to follow.

- The VISNs' ability to manage and support their regions is heavily hampered by resourcing restrictions and direct VHACO control over VAMC operations.

- The VAMCs' operating model suffers from powerful silos, which prevent an effective end-to-end mission focus.

- VA's increasingly top-down management style, coupled with poor prioritization and the external political environment, result in a lack of clarity around strategic direction, reactivity to external headwinds, and flawed efforts to standardize.

Before elaborating on the findings, it is important to describe the current operating model and its origins.

13.1.1 Background and Context

VHA currently operates across three major organizational levels: Central Office (VHA and VA headquarters); regional headquarters (VISNs); and the Medical Centers (VAMCs). Under Dr. Ken Kizer's leadership, the VISNs were set up in the mid-1990s to create an organizational unit that was the right level to be patient-centered, facilitate collaboration across facilities, maintain long-standing relationships with local caregivers, and be small enough to be accountable for activities in that region. As Dr. Kizer explained in a recent article:

> *During the reforms of the 1990s, decentralization of operational decision-making was a core principle. Day-to-day responsibility for running the health care system was largely delegated to the local facility and regional-network managers within the context of clear performance goals, while Central Office staff focused on setting strategic direction and holding the "field" accountable for improving performance.* (Kizer and Jha, 2014)

Many leaders we spoke with referred back to the original intent behind the operating model design and described how each layer was intended to perform the following functions[19]:

- **Central Office.** Set strategy and policy, perform oversight, support the field, and be a high-level interface with Congress and other government agencies

- **VISN.** Integrate operations for the region. Specifically, the VISNs allocate resource/budget allocation across facilities; identify and capture network economies of scale; bring the voice of the field to Washington and liaise with headquarters; support innovation through targeted pilots; coordinate referrals to the private sector; act as the regional interface with state- and regional-level agencies; integrate actions with VBA and NCA in the region; support contracting; and conduct performance management and oversight across the VAMCs.

- **VAMC.** Deliver care – specifically, the Medical Centers and their associated CBOCs serve as the focal point for delivery and coordination (in or out of the Medical Center) for individual Veterans. This includes coordination and billing of care done by non-VHA entities (e.g., university-affiliated hospitals). The VAMCs report up through the 21 VISNs.

13.1.2 VHACO Has Grown Rapidly in the Past Few Years and Fails to Coordinate, Integrate, or Prioritize the Policies it Directs the VISNs and VAMCs to Follow

Over the past decade, VHACO has shifted from focusing on setting direction, crafting policy, and performing oversight and performance management to a much more centralized top-down model (Kizer and Jha, 2014). As described by a VHACO official, it became a management style of "You shall do this, you shall do that. All those 'thou shalts' – they're all piecemeal, just a bunch of disjointed tasks that don't make sense."

Currently, VHACO has a large number of Program Offices that create and monitor an array of policies, and these policies most often flow directly to the VISNs and VAMCs. The program

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[19] The following list is non-exhaustive and derived from VHA interviews, 2015.

offices, often under intense pressure from external stakeholders, create the policies and do not adequately coordinate or prioritize them with the other Program Offices. The number of program offices is over 100: an external website review accounts for 104 Program Offices, while an internal VHA report from earlier this spring shows 120 (VA website, va.gov). This organizational fragmentation is highlighted in the 2015 Governance Task Force Report:

> *For example, programs responsible for elements of patient care are now dispersed into Patient Care Services, Public Health, and the Assistant Deputy Under Secretary for Health for Clinical Operations. Another example is programs related to quality… VHA programs directed to each of [six aims for high-performance health care] are dispersed throughout the organization, with effectiveness, safety, and efficiency reporting to Quality; patient-centered care reporting directly to the DUSHOM; timeliness (i.e., clinic access) reporting to the ADUSHOM for Administrative Operations; and the Office of Equity reporting directly to the Principal Deputy Under Secretary for Health.* (VA, Task Force on Improving Effectiveness of VHA Governance, 2015)

The number of people staffed to Program Offices has grown dramatically over the past five years. VHACO Program Office FTE[20] growth has vastly outpaced growth of the total VHA employee population and Veterans served, more than doubling between 2009 and 2014 **[Figure 13-1]**.
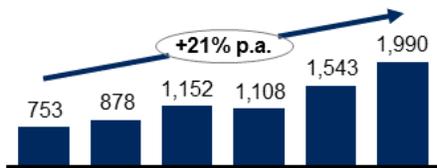
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[20] Full time equivalent

Figure 13-1. Program Office Growth

VHACO Program Office FTE growth has outpaced other VHA populations
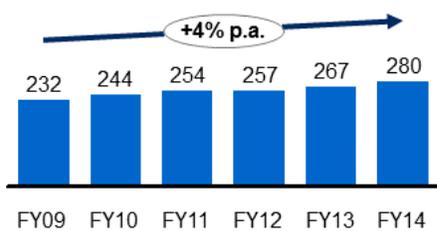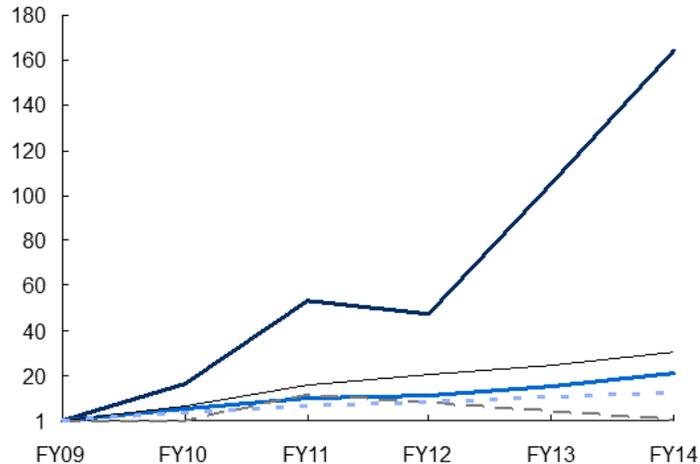
1 Station 101 only; excludes CMOP, CPAC, Business Office, and other similar direct service programs

SOURCE: VA, Task Force on Improving Effectiveness of VHA Governance, 2015

It is difficult to benchmark the size of VHACO to private sector comparables. While the growth of VHACO may have multiple drivers during the FY 2009–FY 2014 timeframe, the overall trend of a growing VHACO is clear even when including accounting realignments from the field to Central Office.

Despite Program Office growth, there is little systematic effort to coordinate or integrate efforts and initiatives. The deliberate organizational split between operations (10N)[21] and policy (10P)[22] exacerbates this. The team could not identify any other office performing the integrating role and only the Under Secretary for Health has the requisite organizational power. One senior VHACO leader explained: "We have policy and directives. But these are revered more in Central Office than in the Field. The directives are redundant and don't all add up. They're updated every five years, but more as a "check the box" exercise. We don't really focus on how they get updated, and they're not updated in concert with each other."

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[21] 10N is Operations and Management

[22] 10P is Policy and Services

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The resulting impact on Medical Centers is felt as a constant stream of changes being requested from afar, with little to no warning, context, or dialogue. These policies are not integrated into local operations and are rarely accompanied by resources or implementation support. The Medical Centers are required and held accountable to implement the various uncoordinated policy directives, often with no input provided by the individuals who will actually implement the policy. As one VHACO leader explained, "We have a bunch of policy development but no ownership for outcomes. People in the field have responsibility for execution, with no input into the strategy development." Additional perspectives from VHA leaders both in the field and at VHACO include:

- "New priorities result in new programs. And a new Program Office in Central Office leads to a new program person in the VISN (such as homelessness or mental health). This is how we've grown. I don't know that it's the best way to do things. Every time a new initiative gets stood up, a new Program Office gets stood up. None of them ever get stood down."
- "Every Program Office has great aspirations, but they operate in silos."
- "VA headquarters officials issue memos and directives, with little face-to-face conversation around expectations or implementation issues. Leaders should be out in the field to see if what they develop inside the Beltway [Washington, DC] resonates. Often it doesn't."
- "The farther you get away from the sharp end of the stick, the more people get caught up in the bureaucracy…. One of the reasons why the bureaucracy in Washington needs to be as lean as possible is to help keep the focus on what's important. There should be no bureaucracy beyond what's necessary for the front-lines to do what they're supposed to do."
- "In Central Office, when people have an idea, they stand up a committee, which then leads to the stand-up of an office that then operates in a silo and pummels the field."
- "Why so many [taskings and requests from Central Office]? I don't know. It's become a common mechanism. It comes from the VISN and every Program Office. It takes a ton of tracking. And we rarely get any feedback or follow-up on things we submit. We have a staff member who does nothing but receive action items, disburse them, and follow up. We look at the list every morning after rounds to assess what needs to be done immediately and whom we need to pressure."

While Congress mandates parallel efforts for various initiatives, it generally does not mandate separate program offices for each initiative. Nonetheless, setting up a new program office for a new directive can be a clear indication that VHA is taking specific steps in response to a new priority. Absent focused efforts to manage these priorities in a well-coordinated way, it is not surprising that program offices have grown so dramatically.

13.1.3 The VISNs' Ability to Manage and Support Their Regions Is Heavily Hampered by Resourcing Restrictions and Direct VHACO Control Over VAMC Operations

The role of the VISN has become increasingly variable and nebulous over the past two decades. Although we did not diagnose what transpired since the VISNs were formed in the mid-1990s, the role they serve today is quite different from the original concept envisioned when the VISNs were formed.

Currently, the role of the VISN is widely variable and ill-defined. Some VISNs play a heavy compliance role, others play a consultative or support role, and some are in-between. In some cases, the VISN role is primarily one of soliciting information from VAMCs and consolidating it to respond to requests from Central Office. It is often not clear when VHACO will work through the VISN or go straight to the facilities. As described by one former Network Director, "There are no rules of engagement at all – a big frustration of mine." There are some exceptions, where more clarity exists, such as VERA funding paths. Against this context, there is a need for clearer alignment between the VISN and Central Office, and a focus on what is the right role of the corporate center.

VISNs are responsible for performance of their respective Networks, but face significant restrictions on how they can allocate money and integrate, revise, or prioritize policies flowing from Central Office. This limits the ability of the VISN Directors (and the VAMC Directors who report to them) to rapidly correct unforeseen issues or allocate resources based on localized needs. The budgetary restrictions and their effects are described in the next finding. Interviews at all levels of the VHA organization indicated that the VISN rarely is able to effectively coordinate or influence the policies coming down from Central Office. Though they play some role in filtering and streamlining information coming from Central Office, they have limited ability to shape the message or participate in the dialogue.

13.1.4 The VAMCs' Operating Model Suffers From Powerful Silos, Which Prevent an Effective End-To-End Mission Focus

VAMC personnel face a daunting challenge in their mission to deliver care to the Veteran as they must work across a multitude of organizational silos, with each silo often seeking to optimize its outcomes (or minimize its risk exposure). Three major causes for the silos are the intense compliance focus, a narrowing use of funds, and a culture that does not reward collaboration across work groups.

Except for the VAMC Director, the VAMCs we visited often lacked roles or champions who focus their efforts across the silos in order to coordinate delivery of care, and when these champions do exist, they often cited limited authority and influence over other organizational units to collaborate. Examples of the impact include the hurdles that doctors and nurses face to procure basic necessities, the length of time it can take to get a maintenance request resolved, and the difficulty in coordinating care across multiple departments. Interviews indicated that support functions (i.e., human resources, IT, or contracting) viewed complete compliance with siloed rules as success without regard to the impact on overall care delivery. The result is a model that

is very difficult to operate and pushes employees to disengage out of frustration and risk-aversion.

13.1.5 VA's Increasingly Top-Down Management Style, Coupled With Poor Prioritization and the External Political Environment, Result in a Lack of Clarity Around Strategic Direction, Reactivity to External Headwinds, and Flawed Efforts to Standardize

This combination of increased centralization, expanded size, and lack of coordination and prioritization is further complicated by the political environment in which VA operates. This landscape contributes to a lack of clarity around strategic direction, confusion around leadership priorities, and fragmentation of management attention:

- **An expanding scope of VHA activities has led to confusion around leadership priorities.** The organization's focus has expanded and shifted over time, and it is unclear what the priorities are, and unclear when they will shift again. Many leaders in the field express a desire for more strategic clarity, coordination, and support from Central Office. One former VA official expressed the urgent need for "leaner programs, clear discussions between the program and operations side, clarity over what's most important and where the energy should be focused." Other leaders expressed:
  - "Is there a clear vision of the future, agreed-upon aspects, performance outcomes, clearly communicated? No."
  - "At VA, it becomes 'Here's the next initiative. Here's the next one.' It's never clear which one is about accountability and which one is a good idea."
  - "We're drowning in policies. GAO recently told us that our policies are unclear. When you create a structure like the one we have where people's jobs are to create policies, you get what we have."
- **The external political environment complicates an already complex organization trying to fulfill its strategic direction.** Lack of clarity of direction is further weakened by Central Office's reactivity to external headwinds. This reactive stance results in "Flavor-of-the-Month" policies and taskings, which do not send clear signals to the field about what is most important. Select perspectives include:
  - "At high levels of the organization, there are no priorities, and the winds shift and people get confused."
  - "Every time they had a finding, VA's only answer was to write a directive. But that's not the only answer."
  - "VA looks at a problem, they get a hearing, it becomes public, and all of a sudden there's an entire structure to make sure this never happens again."
  - "We have a defensive posture with policies – 'just in case.'"
  - "Central Office manages everything by crisis."

- o "We must react to the 'Flavor of the Year.' This extreme focus on a single issue takes time, attention, and resources away from the general purpose of the facility – to treat Veterans – when we still have a hospital to run."
  - o "I don't understand the role of Program Offices. Most were built in crisis. There's never an ROI afterward."
- **The increasingly top-down management approach has led to inconsistent and poorly implemented standardization efforts.** In some cases, the wrong things are standardized, while in others there is so much standardization and control that implementation proves difficult. And yet, many leaders recognize the value of standardization, and would like to see VHA standardize more, in the right way:
  - o "Centralization and standardization – we tend to standardize everything and nothing at the same time."
  - o "VA doesn't standardize the things it needs to at the Medical Center level and give them the authority to do those tasks and create a support model for them to do it. And so you end up with a lot of variability across hospitals. [The] same thing happens at Networks. Each Network comes up with its own set of solutions."
  - o "We need to identify key business processes that have to be standardized (like scheduling), and standardize those things ruthlessly. We need fidelity in the system to run the business. We can't figure out what to standardize."
  - o "We still do not have a national policy on scheduling/appointments, despite all the attention. We're coming up with our own anyway – but that is a place where Central Office could have been helpful. Where we need direction, we don't get it."

Leaders hold out hope that standardization can work well within this system, and Pharmacy Benefits Management (PBM) is one example of where it has worked quite well (see Assessment J for additional detail).

13.2 Budgeting and Resource Management

Throughout the course of our work and interviews, topics related to budget and resource allocation came up frequently. Our findings are as follows:

- Several challenges arise in how funding is allocated.
- Much of the support funding is outside of local control, which contributes to organizational silos and cumbersome or inefficient processes.
- Spending authorities are uneven.
- Management systems are not well integrated and data analytics capabilities are inadequate.
- The increasing share of Specific Purpose funding hinders leadership's ability to effectively allocate resources.

13.2.1 Several Challenges Arise in How Funding Is Allocated

A number of challenges are observed with the current system. They include:

- VERA does not keep up with shifting care priorities and patient loads.

  As care priorities and the Veteran population have changed, Medical Center leaders report that the Veterans Equitable Resource Allocation (VERA) model has not kept pace with changing on-the-ground needs, as VERA is based on historic figures and does not take into account forecasted changes (VA, Veterans Equitable Resource Allocation (VERA) 2014 Handbook). This is especially challenging for facilities that are seeing significant increases in patient load. Moreover, new priorities are funded with restrictive Specific Purpose funds, each designed for a very explicit, but not always comprehensive, goal. The compartmentalization of funding reduces flexibility in how to use the resources, and some believe it has gone too far: "Rather than hold people accountable for projects, they try to fence the funds. We have 27 different appropriations."

- Current system does not incentivize continuous efficiency improvement.

  After receiving General Purpose funds from VA through VERA, VISNs first allocate a portion of the money to VISN-specific initiatives and emergency reserves. VISN-initiative funds must be reported to VACO, and emergency reserves are not allowed to exceed 1.5 percent of the total allocation. The VISN then allocates the remainder of the money to the stations (VAMCs), making adjustments between stations as needed. Through this reallocation, stations that continually operate budget shortfalls are provided for out of the surplus of other stations in the network. While this does allow for necessary adjustments (such as, expensive care in rural regions dictated by access needs), it also removes the incentive for stations to pursue cost-efficiencies. Given the history of reallocation, station leadership knows that surpluses in their own budgets could be easily redirected to accommodate shortfalls elsewhere, rather than reinvested in their own station (GAO, 2011; VHA interviews, 2015).

- VERA allocation does not take into consideration additional operating costs that result from leasing, effectively imposing a long-term penalty on VISNs that rely more heavily on leased facilities.

  The allocation formula does not consider additional operating costs driven by the increased use of leased medical facilities. VERA is determined through a formula based primarily on patient volume and complexity of care. This is designed to increase responsiveness to workload changes, but also has the consequence of penalizing VISNs that rely heavily on leased facilities instead of owned properties. The operating costs, per patient, of a leased facility are higher than those of an owned facility, where capital costs are covered with an additional allocation of capital funds upfront. As VHA increasingly looks to leased properties to accommodate increases in workload, this mismatch in the VERA formula has the potential to strain the budgets of growing VISNs that are funding numerous leases out of their operating budgets (VERA 2014). (See Assessment K for additional detail.)

- Obligation targets (percent of funds allocated by certain quarter) cause projects to be prioritized based on ability to obligate/execute, rather than true need-based priority.

  A major focus of VHA is meeting obligation targets throughout the year – specifically for the non-recurring maintenance (NRM) program. Because NRM funds expire within one

year, VHA has internal targets by quarter for obligation of allocated funds – for example, some VISN must obligate 80 percent of funds by the third quarter of the fiscal year. This constraint drives selection and execution of projects depending on "preparedness" to execute (for example, an off-the-shelf design project) rather than needs-based priority. (See Assessment K for additional detail.)

13.2.2 Much of the Support Funding Is Outside of Local Control, Which Contributes to Organizational Silos and Cumbersome or Inefficient Processes

Local facilities have little authority over VA-wide functions like HR, IT, and contracting. Many of the tools of leadership – managing people through human resources, ensuring employees have access to resources, materials, and facilities needed to care for the Veteran, etc. – are outside of the direct control of local leaders who rely on these processes. Mechanisms are not in place to compensate for this, service-level agreements are not widely used, and the culture in general does not engender collaboration across organizational units.

13.2.3 Spending Authorities are Uneven

Spending authority is uneven, with many working hard to keep spend under certain dollar thresholds to avoid lengthy and uncertain approval processes.

By statute, minor projects and NRM projects cannot exceed $10 million. As a result, most projects are consistently developed to stay just below the threshold (see Assessment K for additional detail). **Figure 13-2** illustrates this behavior in recent strategic capital investment plan (SCIP) submissions.

Figure 13-2. Breakdown of Major and Minor Projects by Project Size

Volume of project submissions directly under $10 million Minor Construction threshold illustrates careful project packaging

Average size and number of FY16 SCIP Major and Minor Construction requests

$195 MM   Major construction avg. $
$8.5 MM   Minor construction avg. $

Avg. project size
$ Million

Major projects with direct oversight from CFM (Office of Construction & Facility Management)

43.8% of requests fall between $9-10 million, just under the minor limit managed by local VHA engineers

$10 million limit for Minor Construction

43.8%

Total projects
As % of requested projects
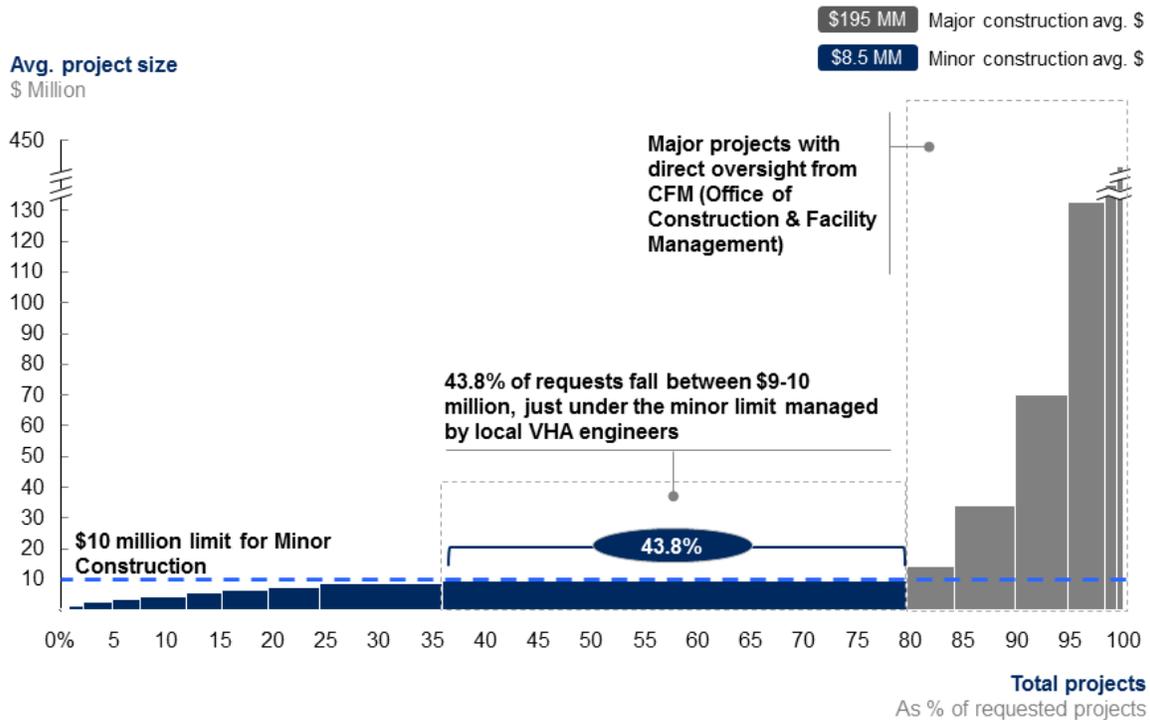
SOURCE: FY14-16 SCIP submissions; VHA interviews, 2015

Additionally, the limit is strictly governed for in-process projects. While there is a defined process to receive a cost limit increase, that process is extremely burdensome, such that stations avoid it if at all possible, reducing or even abandoning the project if necessary. (See Assessment K for additional detail.)

13.2.4 Management Systems Are Not Well-Integrated and Data Analytics Capabilities Are Inadequate

Managers must make many major decisions without the benefit of normal business analytics. The effects are most acute in procurement and staffing. The procurement system is not integrated with the financial management system, and there is limited built-in feedback. Systems are fragmented, for example, 145-item master files and purchasing databases exist. The inventory management system does not provide actionable and relevant metrics for performance management, and data related to medical supplies and devices are not standardized and is often missing. (See Assessment J for additional detail.)

In staffing decisions, current practices and tools do not allow VHA to know whether it is consistently setting staffing levels appropriately, affecting the ability to manage resources effectively. At the most basic level, models do not exist or are not easily accessible for how to

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staff a facility of a given size and complexity. One VHACO leader explained, "I don't know how many people should be staffed in a CBOC, or a Level 1a, or a Level 3 facility." Many service lines lack clear national staffing guidance, resulting in ad hoc methods of estimating FTE need. Resource management is often siloed by service line, resulting in inconsistent decision-making on staffing that does not always match needs. It should be noted that nursing staffing models are relatively well-developed for certain service lines, and the fact that they even exist is a great start – and there is an opportunity to take a more holistic look at staffing models to understand the skills and capabilities needed for the VHA workforce at large.

(See Assessments F, H, and J for additional detail.)

13.2.5 The Increasing Share of Specific Purpose Funding Hinders Leadership's Ability to Effectively Allocate Resources

An increase in Specific Purpose funding restricts the flexibility leadership has to meet mission needs **[Figure 13-3].** Specific Purpose funding has many restrictions placed by Congress on how it can be used, and it can be highly variable year-to-year: "There is no equitability in Special[23] Purpose programs – you never know when you're going to get it." In addition, once Specific Purpose is carved out first, VERA allocates the remaining General Purpose funding. VHA is required to fund Specific Purpose at the amount specified, so in a world of constrained resources it is most often General Purpose funding that comes up short. It is important to note that the definition of Specific Purpose has changed significantly in the last year, making it difficult to fully reconcile budget figures in an "apples to apples" way. Nonetheless, because of the difference in how Specific Purpose and General Purpose funding can be spent, this increase in Specific Purpose funding has a material impact on the field's ability to adjust funding allocations to account for local needs.

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[23] Special Purpose is sometimes used interchangeably with Specific Purpose.

Figure 13-3. General Purpose and Specific Purpose Funding

Evolution of General Purpose and Specific Purpose funding, FY2010-FY15
$ Billons
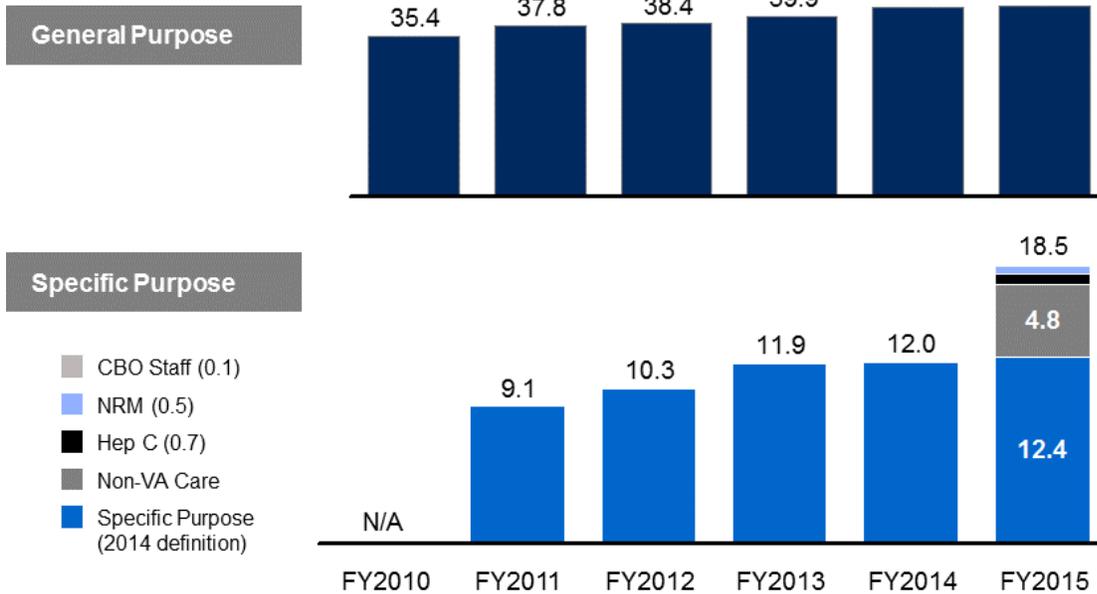
1 2011-15 for Specific Purpose
2 Specific Purpose numbers for every year include new programs and program offices (e.g., Office of Informatics and Analytics, National Center for Patient Safety, Employee Education Service Center)

SOURCE: VERA 2014 Handbook, FY2015 Draft VERA Budget

The growth in FY2015 Specific Purpose funding comes from two major sources. The addition of a $5 billion Non-VA Care line item (a provision in the Veterans Choice Act) effectively changed how that funding is managed. Before this, Non-VA Care funds were in General Purpose funding and allocated to the field through VERA. The Veterans Choice Act required that this money be allocated based on workload credits, but managed through the Central Business Office via Specific Purpose. The other major change was the addition of approximately $700 million in Hepatitis C Specific Purpose funding. The net effect is to fence off 30 percent from leadership's control, reducing their ability to effectively direct resources to areas of most need.

The fragmentation of Specific Purpose funding also poses a challenge for operators. Specific Purpose funding for FY2015 is spread across more than 450 line items (VHA Finance Office, 2015).

Specific Purpose funds typically flow directly to facilities, bypassing VISNs, which reduces the VISN's role in optimally managing the Network's total resources. **Figure 13-4** offers a high-level overview of how funding flows to the field.

Figure 13-4. Resource Allocation Across VAMCs
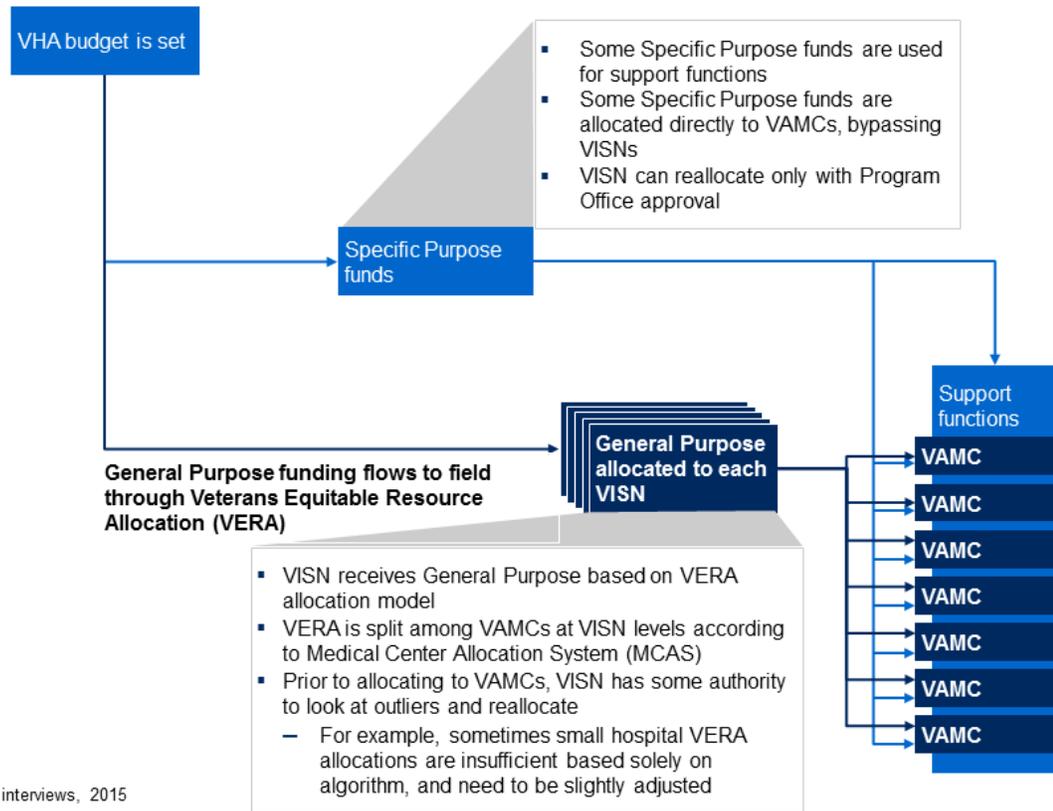
13.3 Human Resources – Recruiting

13.3.1 Human Resources Has Not Been Able to Meet the Recruiting Requirements of the VAMCs and VISNs

VHA has large hiring requirements, hiring tens of thousands employees annually – many with specialized clinical expertise. Although a comprehensive examination of the human resources function was not within scope of Assessment L, systematic HR challenges were identified through the course of our assessment. While each of the elements addresses some aspects of the VHA human resources function, one aspect that is not addressed specifically, but surfaced in many places as a critical challenge, is recruiting. Hiring is also cited in VHA's Blueprint for Excellence as a critical challenge that VHA is facing, and as of May 2015 "Reducing hiring barriers" status was rated as "potential risk (yellow)" (VHA, Blueprint for Excellence, 2014). This assessment did not conduct an end-to-end review of the hiring process, but our initial findings suggest significant challenges with the current system and indicate an end-to-end review could be worthwhile.

For many reasons, HR has not been able to meet the recruiting requirements of the VAMCs and VISNs. Recruiting is crippled due to the length of process and cumbersome systems that do not "talk" to each another and are not user-friendly. The length of time to hire priority positions stretches for months, and the process is not user-friendly to applicants. HR is expected to fill a position within 60 calendar days, 80 percent of the time, but process requirements, even if perfectly executed, take about 49 to 62 days **[Figure 13-5].**

Figure 13-5. Hiring Process

HR is expected to fill a position within 60 calendar days 80% of the time, but process requirements, even if perfectly executed, takes ~50-60 days

ILLUSTRATIVE

	Number of business days	Number of calendar days	Responsible
Job announcement	5-14 (14 if bargaining unit position)	7-20	Supervisor and HR Specialist
Qualification	5	7	
Review, interview, and selection	25	35	Service Chiefs
Offer made	2	--	HR
	37-45	49-62	

Insights from the field

- "Measures for recruiting / hiring are unrealistic when you consider the process requirements"

- "On a perfect day (with nothing going wrong), we're already at the 60 day target"

- "Yet most Medical Centers and VISNs will say that they're meeting their hiring targets of '60 calendar days, 80% of the time'"

- "But we know that things aren't that perfect, so this reporting is not accurate"

SOURCE: VHA interviews, 2015

Business leaders and HR personnel alike express frustration around recruiting.

Business leaders express:

- "You end up playing games, instead of 'hiring like the rest of the world' and selecting the best applicants."

- "We lose people in the process – it takes three months to onboard and they receive other offers in the meantime."

- "The last MD I hired in Mental Health took 200 days beginning to end. They're looking at other offers. We lost an NP and an MD because of the long wait."

- "The hiring process is completely broken."

And HR personnel concur:

- "We're supposed to fill 80 percent of positions within 60 days. If I follow all the rules and everything goes perfectly – we have the candidates, others do what they're supposed to do – it takes 58 days. It's nearly impossible to hit this because of all the hoops we have to jump through."
- "I don't know who is responsible for filling Quadrad roles."

Candidates also express dissatisfaction over the recruiting experience. For example, we spoke with multiple Quadrad leaders who had interviewed for Medical Center Director positions more than two months earlier, and had either not yet heard from anyone regarding the outcome, or had heard through other avenues (such as the local newspaper) that the position had been filled.

It should be noted that the HR recruiting function must operate in an incredibly complex environment, making a difficult task even harder. Federal rules and regulations create many distortions and make effective HR delivery much more challenging than the private sector (for example, OPM guidelines and Veterans' Preference). Operating multiple systems that do not interface seamlessly leads to inefficiency. One HR administrator observed: "We have 39 HRIS[24] systems, and they don't talk to each other. We don't all have to use all of them, but we all have to use 20 or more no matter what piece of the HR job we do." This systematic fragmentation and limited system interoperability exacerbate challenges associated with scale, structure, staffing, training, and process. VAMC, VISN, VHACO, VACO, and other federal entities (such as OPM) each "own" part of the HR process. Finally, Central Office, VISN, and VAMC policies are added to OPM policies, increasing the complexity.

Fixing recruiting, and thereby the hiring process, will not be simple; however, it is imperative to maintain the health of VHA's own workforce.

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[24] Human resource information systems

Appendix A   Detailed Methodology

To ensure a broad range of sources, our assessment draws upon national datasets, national surveys, expert interviews, and visits to selected VAMCs across the country at which we conducted interviews. These are listed in the bibliography.

A.1   Interviews

Upon defining each of the eight elements, the Assessment L team developed a set of key questions around each element that formed the backbone of our Assessment L interviews. The key questions for each element are laid out below in **Appendix Table A-1.**

Appendix Table A-1. Key Interview Questions

Element from Veterans Choice Act Legislation	Assessment L Interview Questions
Culture	▪ How would you define the culture here? ▪ How does leadership influence the culture?
Accountability	▪ How are leaders held accountable? ▪ How should leaders be held accountable? ▪ To what degree do you feel you have the authority to successfully perform your roles and responsibilities? ▪ How do Central Office directives or guidelines influence or impact leadership decisions and execution?
Reform Readiness	▪ How ready are your leaders to drive large-scale changes/ transformation efforts for your organization? ▪ What are the biggest barriers to change that you face as a leader?
Leadership Development	▪ Have you attended any leadership development programs? What has left an impression with you? How do you select participants for leadership development programs in general – both formal and informal? How do you measure the effectiveness of these programs – both formal and informal?
Physician Alignment	▪ Describe the relationship between physicians and the administration here. How are physicians involved in larger facility-wide decision-making? How about when a specific problem arises?
Employee Engagement	▪ Describe for us how engaged employees are right now? Has this changed over time? How are issues identified, raised, and resolved here?

Element from Veterans Choice Act Legislation	Assessment L Interview Questions
Succession Planning	▪ How are leaders identified at VHA? What are the leadership characteristics you tend to see in VHA's future leaders? Are there other characteristics that are needed but you don't see as often? ▪ What's the state of the leadership pipeline? ▪ Tell me about the last time a key staff member or colleague left the organization – how did you approach filling the position? How long did it take?
Performance Management	▪ How are the performance metrics captured at the facility level used to make management decisions? ▪ On individual performance management, what happens after the formal evaluation cycle is complete, with what frequency are leaders giving feedback to and reviewing important metrics with employees?

Appendix Table A-2 presents the distribution of the interviews conducted.

Appendix Table A-2. Distribution of Interviews

Location	Pentad / Non-Pentad	Number of Interviews
VAMC	Pentad	95
	Non-Pentad	129
VISN	Pentad	34
	Non-Pentad	12
VHACO, VACO		30
Other federal agencies and former VHA leaders		10
Total		**310**

A.2   VAMC Site Selection

To increase consistency and generalizability of findings, teams have coordinated our sampling methods to the extent possible while ensuring the sampling methodology reflected assessment-specific considerations. We selected a core set of VAMCs to visit, which are representative of the VAMC system as a whole across critical facility demographic and performance outcome metrics.

The VAMC site selection process followed the following steps:

1. **Stratification of facilities.** Stratified random sampling, with VISN as strata, was used to select an initial long-list of facilities. To reduce sample size, a subset of VISNs was randomly selected, from which one of the two initially selected sites was randomly de-selected.

2. **Review of distribution.** Chi-square testing was used on each of the key facility profile and performance variables to ensure the distribution of scores in the sample is representative of the population. Variables were chosen to reflect anticipated drivers of facility performance, and included: VISN, rurality, adjusted admissions, complexity level (on VHA rating scale), adjusted LOS, patient satisfaction, cumulative access score, and facility age.

3. **Refinement of facility selection.** Initial facility list was vetted with internal and external SMEs and augmented as needed, to include facilities that are considered critical for inclusion (for example, a Polytrauma Center, facilities with innovative tools/practice) and ensure that all selected facilities had the range of services being assessed.

This method resulted in a sample of 23 facilities and is representative across each of the criteria used in selection.

A.2.1   VAMC Site Selection Variables

Variables were selected based on criteria relevant to each assessment area and assumed impact on facility performance. Variable definitions are given below:

- **VISN.** Used VHA Support Center (VSSC) classification of VAMCs by VISN.

- **Rurality.** Used VSSC 2014 categorization of facilities as rural or urban.

- **Adjusted admissions.** Relied upon American Hospital Association (AHA) 2014 data. Adjusted admissions = Total admissions* (Admissions*[OP revenues/total revenues]) VHA reports revenue data (gross billed revenue) to AHA to calculate this metric. Adjusted admissions scores were divided into quartiles, with the middle quartiles grouped, to produce low (<2881.75), medium (2881.75-6081.00), and high (>6081.00) adjusted admissions categories.

- **Complexity level.** Used VSSC 2014 categorization of facility complexity. Level 1 facilities were grouped, to produce selection criteria of high complexity (Levels 1a, 1b, and 1c), medium complexity (Level 2), and low complexity (Level 3).

- **Adjusted LOS.** Used VA SAIL data. As only Q3 FY2014 was available to us at the time of selection, we were only able to use that quarter's results. Length of Stay (LOS) data were divided into quartiles, with the middle quartiles grouped, producing three variables: low LOS (<4.19), medium LOS (4.19-5.14), and high LOS (>5.14).

- **Patient satisfaction.** Used VA SAIL data. As noted above, as only Q3 FY2014 was available to us at the time of selection, only that quarter's results could be used. Patient satisfaction data were divided into quartiles, with the middle quartiles grouped, resulting in low (<249.83), medium (249.83- 264.02), and high (>264.02) satisfaction categories.

- **Cumulative access score.** Used VA SAIL data. As noted above, as only Q3 FY2014 was available to us at the time of selection, only that quarter's results could be used. The eight access scores included in the VA Q3 FY2014 SAIL report were assigned quartiles and added together to produce a single cumulative access score, which was then divided into quartiles. This process resulted in cumulative score quartile categories of low (<17), medium-low (17-20), medium-high (20-23), and high (>23) access.
- **Facility age.** Relied upon VSSC 2014 operational date data for each VAMC. Operational dates were divided into quartiles, with the middle two quartiles grouped, producing categories of early (prior to June 4, 1929), medium (June 4, 1929, to April 7, 1952), and recent (after April 7, 1952) establishments.

In several instances, variable data were not available for each VAMC. To ensure that these cases were not excluded from the sample, the team scored absences with -1 and included the -1 score as a category for each selection criterion where there were absences.

A.2.2 VAMC Core Site Selection Representativeness

Results for Fisher's Exact Test demonstrate that the sample is not significantly different from the population of VAMCs.

Appendix Table A-3. Fishers Exact Test Results

numerical_complexity_level_variable (p-value for Fisher's Exact Test: 0.80)					
	Population	% Pop	Selected	% Selected	Difference
-1	2	1%	0	0%	-1%
1	88	59%	16	70%	11%
2	32	21%	4	17%	-4%
3	28	19%	3	13%	-6%
Total	150	100%	23	100%	
rurality_numerical_variable (p-value for Fisher's Exact Test: 1.0)					
	Population	% Pop	Selected	% Selected	Difference
0	28	19%	4	17%	-1%
1	122	81%	19	83%	1%
Total	150	100%	23	100%	
adjusted_admissions_quartile (p-value for Fisher's Exact Test: 0.74)					
	Population	% Pop	Selected	% Selected	Difference
-1	22	15%	2	9%	-6%
1	32	21%	5	22%	0%
2	64	43%	9	39%	-4%

3	32	21%	7	30%	9%
Total	150	100%	23	100%	

adjusted_los_quartile (p-value for Fisher's Exact Test: 0.68)					
	Population	% Pop	Selected	% Selected	Difference
-1	39	26%	4	17%	-9%
1	28	19%	3	13%	-6%
2	55	37%	11	48%	11%
3	28	19%	5	22%	3%
Total	150	100%	23	100%	

adjusted_patient_satisfaction_quartile (p-value for Fisher's Exact Test: 0.83)					
	Population	% Pop	Selected	% Selected	Difference
-1	39	26%	4	17%	-9%
1	28	19%	5	22%	3%
2	55	37%	9	39%	2%
3	28	19%	5	22%	3%
Total	150	100%	23	100%	

cumulative_access_score_quartile (p-value for Fisher's Exact Test: 0.78)					
	Population	% Pop	Selected	% Selected	Difference
-1	32	21%	3	13%	-8%
1	33	22%	7	30%	8%
2	27	18%	4	17%	-1%
3	33	22%	4	17%	-5%
4	25	17%	5	22%	5%
Total	150	100%	23	100%	

operational_date_quartile (p-value for Fisher's Exact Test: 0.87)					
	Population	% Pop	Selected	% Selected	Difference
1	38	25%	5	22%	-4%
2	74	49%	11	48%	-2%
3	38	25%	7	30%	5%
Total	150	100%	23	100%	

A.3   VISN Site Selection

In addition to the VAMCs described above, the Assessment L team also selected sample VISN headquarters to visit, as well as three additional VAMCs. The VISN leadership is seen as an important part of the chain of command with distinct duties that significantly impact VAMC leadership. The Assessment L team visited 13 of the 21 VISNs. Given the relative homogeneity of the VISNs (in comparison to the VAMCs), the need to be as efficient with resources as possible, within limited time, we selected VISN sites that were in geographic proximity to the VAMCs selected. The VISN sites did not influence which VAMCs were selected.

A.4   Organizational Health Index Supporting Data

The OHI was one of the major instruments used to conduct the assessment of VHA leadership. The Methodology Section describes the basis of the OHI and the statistical tests used to validate its results. The OHI Survey was launched as a census survey on March 18, 2015 and stayed open through April 17, 2015. The communication effort included an initial memo from Dr. Clancy, Former Interim Under Secretary for Health, and additional communications from VISN and VAMC leadership. A detailed data cube has been provided to VHA.

The OHI results are based on a statistically valid sample. The participation was n=13,712, with a response rate of five percent. Select demographics are laid out in **Appendix Figure A-1**.

Appendix Figure A-1. Select VHA OHI Demographics

Select VHA OHI demographics
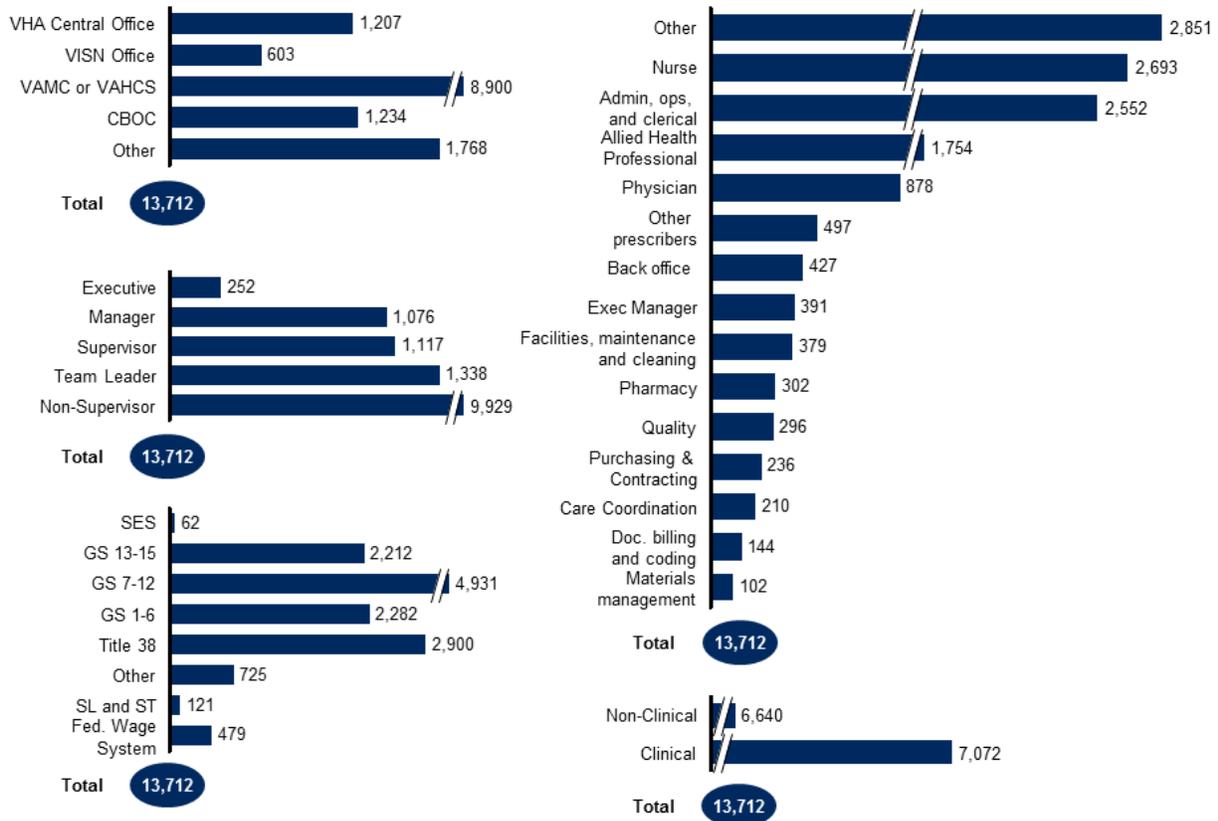
SOURCE: VHA OHI Survey 2015 (N=13,712)

The OHI standard calculates margin of error at the 95 percent confidence level, which means that there is a 95 percent probability that the results of the complete population are within the margins of error of the results obtained. It is a standard used across the industry. The average margin of error was VHA: +/- 0.82 percent.

These results were validated against the other instruments and techniques used during the assessment.

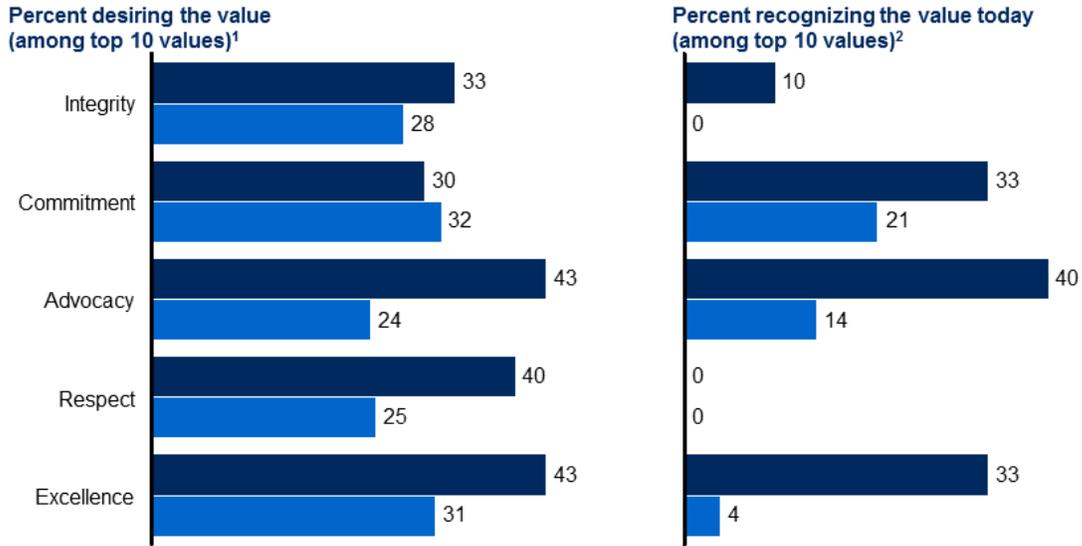Several additional analyses based on OHI data are presented below. **Appendix Figure A-2** below shows how the different levels in the organization rank order the ICARE values. SES felt that ICARE values were prevalent in today's organization at a much higher rate than all of the other grade categories, with Respect being the one value that all ranks felt was not among the top 10 values today.

Appendix Figure A-2. ICARE values

Current and desired ICARE value mapping on the OHI by grade

Employees at VAMCs and CBOCs (N = 9,199)

■ SES (N=30)
■ GS 1-15 & Title 38 (N=9,169)

Percent desiring the value (among top 10 values)[1]

Value	SES	GS 1-15 & Title 38
Integrity	33	28
Commitment	30	32
Advocacy	43	24
Respect	40	25
Excellence	43	31

Percent recognizing the value today (among top 10 values)[2]

Value	SES	GS 1-15 & Title 38
Integrity	10	0
Commitment	33	21
Advocacy	40	14
Respect	0	0
Excellence	33	4

1 Specific language of question reads: "Please select a minimum of 5 and a maximum of 10 statements from this list of values that best describe your views regarding what VHA's culture should be like in the future. Please also choose a minimum of 5 and a maximum of 10 statements that least describe your views regarding what VHA's culture should be like in the future"

2 Specific language of question reads: "Please select a minimum of 5 and a maximum of 10 statements from this list of values that best describe VHA currently. Please also choose a minimum of 5 and a maximum of 10 statements that least describe VHA currently"

SOURCE: VHA OHI Survey 2015 – VAMC & VAHcS & CBOC (N=9,199)

The views, opinions, and/or findings contained in this report are those of the assessment team and should not be construed as an official government position, policy, or decision.

Appendix Figure A-3 below shows the full set of values (not just ICARE) and how the different grades viewed their prevalence today. SES viewed Veteran focus as the most prevalent value, while GS 13-15 and Title 38 employees ranked bureaucracy as the most prevalent value. This same group also ranked slow-moving and silos much higher in prevalence than the SES employees.

Appendix Figure A-3. Value Mapping Varies by Demographics (1 of 3)

Today's values seen differently by level of employment
Value mapping on the OHI: Current
Percent employees recognizing the value today; VAMCs and CBOCs only

Legend:
- ■ 40%+ (Highest)
- ■ 20-39%
- ■ 10-19%
- □ 0-9% (Lowest)
- ◌ Point of interest

Respondents	SES N=30	GS 13-15 N=1,338	GS 7-12 N=3,792	GS 1-6 N=1,578	Title 38 N=2,461
Veteran focus	73	51	46	37	41
Bureaucracy	40	57	40	25	52
Being of service to others	33	36	34	34	31
Internal politics	17	30	29	19	36
Having a noble purpose	53	36	26	19	24
Slow-moving	10	34	26	15	32
Hierarchical	23	32	24	17	32
Caring	30	22	24	24	20
Commitment	33	25	22	22	18
Inconsistent	0	17	16	12	23
Silos	0	22	13	1	22
Advocacy	40	13	15	15	14
Making a difference	20	12	11	10	8
Contributing to the greater good	13	11	9	8	6
Conflict	0	7	8	6	17

- General agreement across grades on Veteran focus and bureaucracy

- More senior employees have slightly more positive view (e.g., a higher percent recognize having a noble purpose and advocacy)

SOURCE: 2015 VHA OHI; VAMC & VAHcS & CBOC (N=9,199)

Appendix Figure A-4 below shows the full set of values (not just ICARE) and how they differed in ranking between physicians and non-physicians. Physicians (leaders and non-leaders) felt bureaucracy was the most prevalent value today, while non-Physicians felt Veteran focus was the number one value, followed closely by bureaucracy.

Appendix Figure A-4. Value Mapping Varies by Demographics (2 of 3)

Today's values seen differently by VHA physicians, non-physician leaders, and physician leaders
Value mapping on the OHI: Current
Percent employees recognizing the value today

Legend:
- 40%+ (Highest)
- 20-39%
- 10-19%
- 0-9% (Lowest)
- Point of Interest

Respondents	Overall 13,712	Physician N=878	Non-physician leader[1] N=1,328	Physician leader[2] N=125
Veteran focus	43	43	50	42
Bureaucracy	40	61	48	61
Being of service to others	33	36	31	38
Internal politics	28	33	28	30
Having a noble purpose	26	32	37	36
Slow-moving	25	41	32	43
Hierarchical	24	38	26	36
Caring	23	20	24	20
Commitment	22	20	26	24
Inconsistent	16	21	13	18
Silos	14	23	26	33
Advocacy	14	13	21	16
Making a difference	11	9	8	7
Contributing to the greater good	9	12	10	13
Conflict	8	9	8	3

- Compared to the overall population, and non-physician leaders, physicians and physician leaders more frequently included bureaucracy, slow-moving, and hierarchical in current values

1 Executives or managers who do not identify as physicians
2 Respondents who identified as physician and executive or manager

SOURCE: VHA OHI Survey 2015 (N=13,712)

Appendix Figure A-5 below shows the full set of values (not just ICARE) and how the different grades viewed their desired level of prevalence. The results are roughly similar across
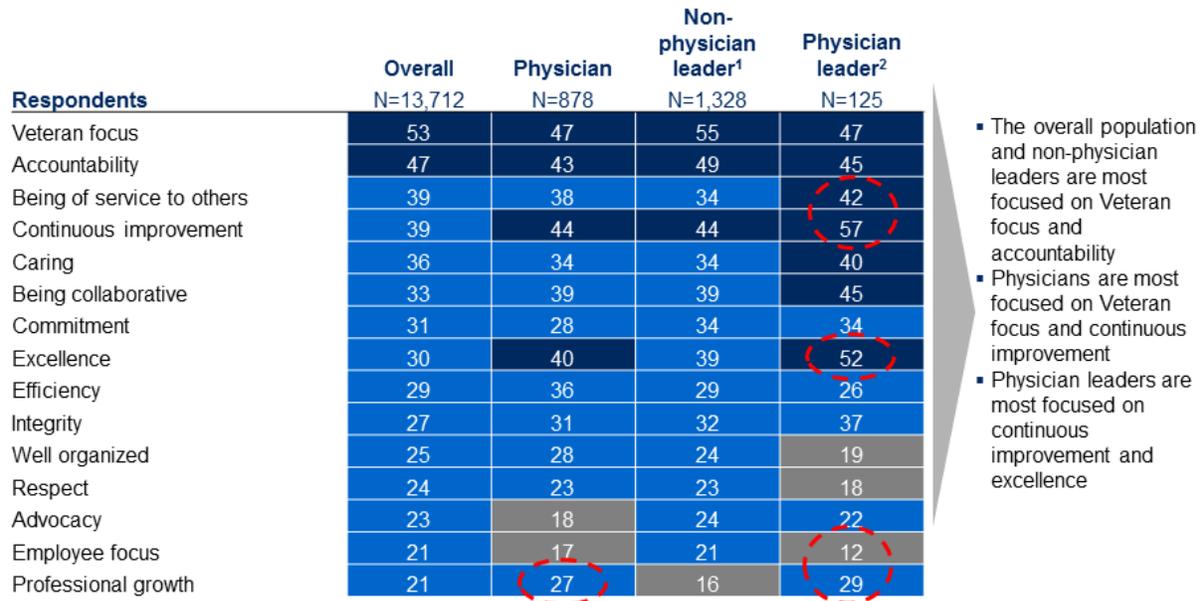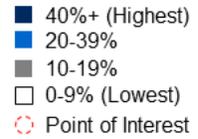
physicians and non-physicians, except for professional growth which was valued much higher by physicians.

Appendix Figure A-5. Value Mapping Varies by Demographics (3 of 3)

Desired values seen differently by VHA physicians, non-physician leaders, and physician leaders
Value mapping on the OHI: desired
Percent of employees desiring the value

Legend:
- 40%+ (Highest)
- 20-39%
- 10-19%
- 0-9% (Lowest)
- Point of Interest

Respondents	Overall N=13,712	Physician N=878	Non-physician leader[1] N=1,328	Physician leader[2] N=125
Veteran focus	53	47	55	47
Accountability	47	43	49	45
Being of service to others	39	38	34	42
Continuous improvement	39	44	44	57
Caring	36	34	34	40
Being collaborative	33	39	39	45
Commitment	31	28	34	34
Excellence	30	40	39	52
Efficiency	29	36	29	26
Integrity	27	31	32	37
Well organized	25	28	24	19
Respect	24	23	23	18
Advocacy	23	18	24	22
Employee focus	21	17	21	12
Professional growth	21	27	16	29

- The overall population and non-physician leaders are most focused on Veteran focus and accountability
- Physicians are most focused on Veteran focus and continuous improvement
- Physician leaders are most focused on continuous improvement and excellence

1 Executives or managers who do not identify as physicians
2 Respondents who identified as physician and executive or manager

SOURCE: VHA OHI Survey 2015 (N=13,712)

A.5 Approach to Recommendation Development

Assessment L's considerable breadth, combined with the sense of urgency presented by the current environment, present the context for our recommendations. Each element, and therefore each finding, is interrelated with others. It follows, then, that opportunities to improve VHA cannot be approached in isolation, but rather in thoughtful coordination; our recommendations draw upon findings and themes that cross multiple elements and were considered as a whole during development.

In considering the findings collectively, inspiration was found through private sector practices, pockets of existing practices within VHA, and past experience with companies facing similar difficulties. We undertook an iterative process combining two approaches – a bottom-up approach using each element to generate recommendations and identify several themes – followed by a top-down approach to spur additional ideas within these identified themes. Throughout this process, various drafts were also refined with internal experts with significant expertise in government innovation, hospital operations, and broader private sector

experience, and the Blue Ribbon Panel established by MITRE as part of this assessment. Recognizing that change efforts will be designed to both address and incorporate multiple elements (such as, culture, accountability, and performance management), the recommendations are presented across elements rather than element-by-element.

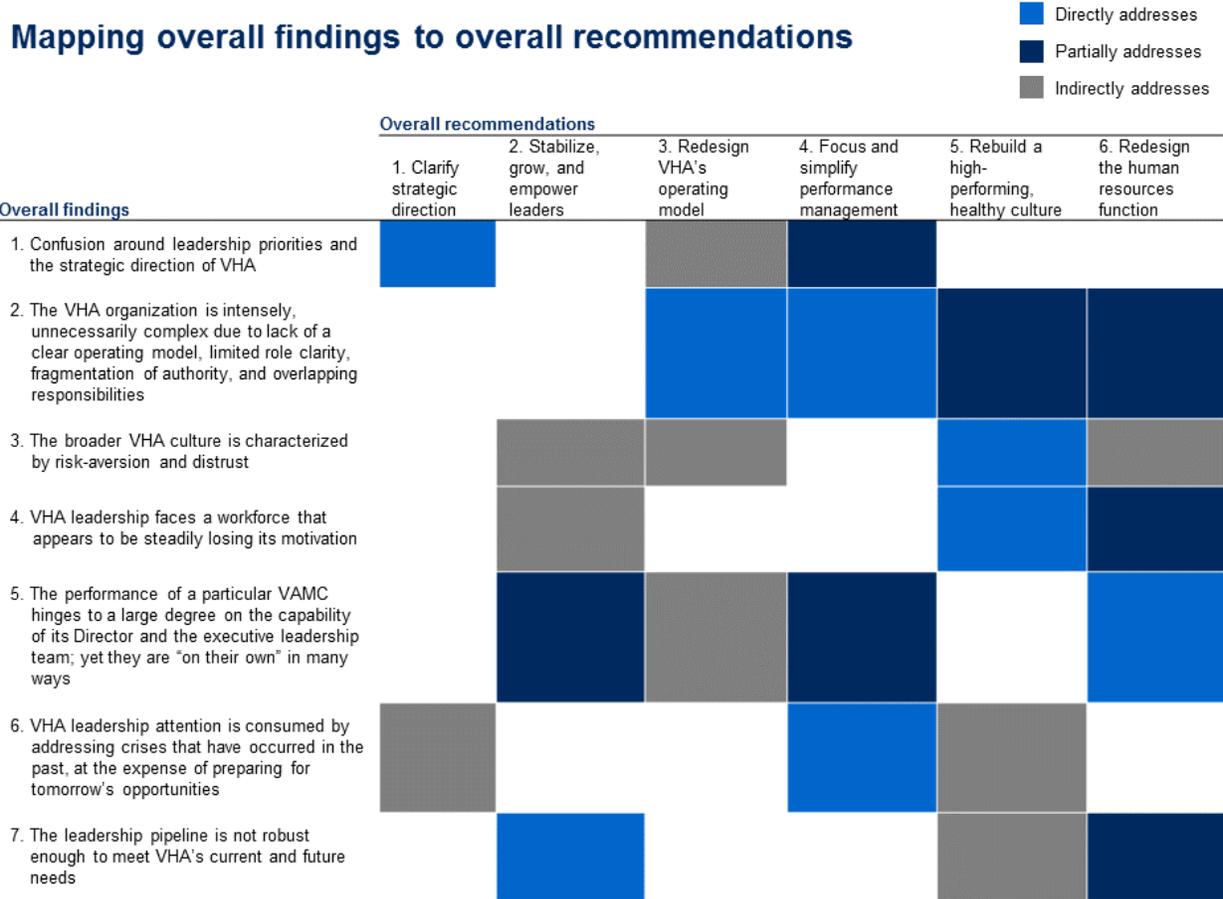Four guiding principles supported the development of these recommendations:

1. Bold. As detailed above, the scale of challenges requires bold action. Some of the recommendations laid out may be provocative: we offer them in the belief that they are necessary, and to do less will not be sufficient.

2. Feasible. The recommendations should strike a balance between boldness and practicality, recognizing the current operating environment in which this change needs to occur – a system that needs to be stabilized.

3. Clear. The recommendations themselves should be simple and easy to understand by a broad range of stakeholders. Given the complexity of the interdependencies between them, this simplicity is critical.

4. Detailed. The recommendations should be detailed enough to offer a sense of how they could become actionable. The team stops short of implementation-ready detail, however, as that is better developed by change leaders and owners. The recommendations also need to be detailed enough such that one can say "yes" or "no" to them.

A.6   Validation: Mapping Findings to Recommendations

As explained in Section 2.1 Validation and Testing, after analyzing and synthesizing data, we developed a set of detailed recommendations to address findings. We then analyzed these recommendations to determine their relevance and importance to the findings.

To ensure comprehensive coverage, we mapped the seven overall findings against the six overall recommendations to create a "heat map" of coverage. Overall recommendations were considered against each overall finding and assigned a score of relevance. All overall findings were, at minimum, directly addressed by one overall recommendation and indirectly addressed by another. This analysis is shown below in **Appendix Figure A-6.**

Appendix Figure A-6. Mapping Overall Findings to Overall Recommendations

Mapping overall findings to overall recommendations

Legend:
- Directly addresses (blue)
- Partially addresses (dark blue)
- Indirectly addresses (gray)

Overall recommendations

Overall findings	1. Clarify strategic direction	2. Stabilize, grow, and empower leaders	3. Redesign VHA's operating model	4. Focus and simplify performance management	5. Rebuild a high-performing, healthy culture	6. Redesign the human resources function
1. Confusion around leadership priorities and the strategic direction of VHA	Directly		Indirectly	Partially		
2. The VHA organization is intensely, unnecessarily complex due to lack of a clear operating model, limited role clarity, fragmentation of authority, and overlapping responsibilities			Directly	Directly	Partially	Partially
3. The broader VHA culture is characterized by risk-aversion and distrust		Indirectly	Indirectly		Directly	Indirectly
4. VHA leadership faces a workforce that appears to be steadily losing its motivation		Indirectly			Directly	Partially
5. The performance of a particular VAMC hinges to a large degree on the capability of its Director and the executive leadership team; yet they are "on their own" in many ways		Partially	Indirectly	Directly		Directly
6. VHA leadership attention is consumed by addressing crises that have occurred in the past, at the expense of preparing for tomorrow's opportunities	Indirectly			Directly	Indirectly	
7. The leadership pipeline is not robust enough to meet VHA's current and future needs		Directly			Indirectly	Partially

Through similar processes, we also conducted a detailed mapping exercise. A detailed findings by detailed recommendations map was created to determine the coverage. In this analysis, we grouped detailed findings by their corresponding category of assessment, as done in Sections 5 – 12. Section 13, Support Infrastructure, was also analyzed. Each detailed recommendation was then assigned a value of relevance corresponding to detailed findings. This check showed comprehensive coverage and relevance across all findings and recommendations, consistent with the analysis of the overall mapping shown above.

A.7   Review of Past Reports

The team conducted a literature review of past reports of VHA leadership and identified reports that directly addressed one or more of the eight elements within scope of Assessment L (e.g. OIG and GAO). Below is the list of reports reviewed as well as summaries of findings and recommendations from them **[Figure Appendix A-7 and A-8].** These reports were used to provide context for Assessment L; however, all analyses in this report are based on primary source data.

- Booz Allen Hamilton. (Jul. 2008). Final Report on the Patient Scheduling and Waiting Times Measurement Improvement Study.

- Northern Virginia Technology Council (NVTC). (Aug. 2014). Opportunities to Improve the Scheduling of Medical Exams for America's Veterans: A Report Based on a Review of VA's Scheduling Practices. Retrieved from: http://www.va.gov/opa/choiceact/documents/NVTCFinalReporttoVA-revised3.pdf

- U.S. Department of Veterans Affairs. Office of Inspector General. (Aug. 2012). Audit of ADVANCE and the Corporate Senior Executive Management Office Human Capital Programs. Retrieved from: http://www.va.gov/oig/pubs/VAOIG-11-02433-220.pdf

- U.S. Department of Veterans Affairs. Office of Inspector General. (Nov. 2011). Audit of Retention Incentives for Veterans Health Administration and VA Central Office Employees. Retrieved from: http://www.va.gov/oig/pubs/VAOIG-10-02887-30.pdf

- U.S. Department of Veterans Affairs. Office of the Inspector General. (May 2014). Interim Report - Review Patient Wait Times, and Scheduling Practices, and Alleged Patient Deaths at the Phoenix VA Health Care System. Retrieved from: http://www.va.gov/oig/pubs/VAOIG-14-02603-267.pdf

- U.S. Department of Veterans Affairs. Office of the Inspector General. (Aug. 2014). Review of Alleged Patient Deaths, Patient Wait Times, and Scheduling Practices at the Phoenix VA Health Care System. Retrieved from: http://www.va.gov/oig/pubs/VAOIG-14-02603-267.pdf

- U.S. Government Accountability Office. (Feb. 2015). GAO High Risk Series: An Update, 2015. Retrieved from: http://www.gao.gov/products/GAO-15-290

- U.S. Government Accountability Office. (2005). Human Capital: Selected Agencies Have Opportunities to Enhance Existing Succession Planning and Management Efforts, GAO-05-585. Retrieved from: http://www.gao.gov/assets/250/246964.pdf

Appendix Figure A-7. Recent Studies Correspond With Our Assessment

Recent studies in the last decade have identified many of the same issues identified in our assessment (1/2)

■ Identified in study

Category	Issues cited	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Leadership development and succession planning	The current approach to training and developing leaders is inadequate and should be fundamentally revamped												GAO[2]
	There are opportunities to coordinate and share training and development programs across federal agencies		GAO[5]										
	Program planning is limited									OIG[1]			
	VHA can report on program participation and cost, but could better develop identifying outcome-oriented measures		GAO[5]										
	VHA has identified gaps in occupations or competencies, and has undertaken strategies to address these gaps		GAO[5]										
	Succession planning has support and commitment from top leadership, and high-level positions are directly accountable		GAO[5]										
Culture and employee engagement	A culture of innovation is needed to move VHA forward					BAH[3]							
	Leadership plays a significant role in shaping culture					BAH[3]							
	The role and importance of leadership to health care performance and transformation is critical and overarching					BAH[3]							
	Inadequate documentation of retention incentives awards and lack of guidance, oversight, and training								OIG[1]				
Accountability	Leadership is not held accountable for results, even when they were aware of problems											OIG[1]	GAO[2]
	Inadequate oversight and accountability												GAO[2]
	Inconsistent compliance / implementation of policies, processes, procedures, and practices											OIG[1]	GAO[2]
	No timely resolution of problems and recommendations											OIG[1]	GAO[2]

1 VA Office of the Inspector General, "VHA: Review of Alleged Patient Deaths, Patient Wait Times, and Scheduling Practices at the Phoenix VA Health Care System," 2014
2 GAO High Risk Series: An Update, 2015
3 Booz Allen Hamilton: "VA: Final Report on Patient Scheduling and Waiting Times Measurement Improvement Study," 2008
4 NVTC, "Opportunities to Improve the Scheduling of Medical Exams for America's Veterans: A Report Based On a Review of VA's Scheduling Practices," 2014
5 GAO, GAO, "Human Capital: Selected Agencies Have Opportunities to Enhance Existing Succession Planning and Management Efforts (05-585)," 2005
6 VA OIG, "VA OIG Audit of Retention Incentives for Veterans Health Administration and Veterans Affairs Central Office," 2011
7 VA OIG, "VA OIG Audit of ADVANCE and the Corporate Senior Executive Management Office Human Capital Programs," 2012

Recent studies in the last decade have identified many of the same issues identified in our assessment (2/2)

■ Identified in study

Category	Issues cited	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Performance management	Self-assessments and self-reported data is inconsistent, inaccurate, and sometimes misleading											OIG[1]	
	Gaps in the availability of data required by VA to efficiently identify resource needs and to ensure that resources are effectively allocated												GAO[2]
	Incorrect processes impact validity of data, some of which are considered for awards and salary increases											OIG[1]	
	VHA can report on program participation and cost, but could better develop identifying outcome-oriented measures												
Reform readiness	Lack of clarity exists around strategic objectives, which makes setting and achieving goals difficult					BAH[3]							
	VA faces unique challenges in scaling change across an enterprise of its size											NVTC[4]	
Other: systems and processes	Systems are cumbersome and don't always "talk" to one another											OIG[1]	
	Lack of oversight in adherence to process and systems protocols											OIG[1]	
	Staff violated system protocol, and in some cases were instructed to do so											OIG[1]	
	Executives and senior staff were aware that staff were using inappropriate scheduling practices											OIG[1]	
	Leaders taught staff to use inappropriate scheduling practices and/or did not fully communicate about scheduling best practices												
Other: HR	Increasing availability and efficiency of human resources could have a high impact on timeliness of care					BAH[3]							GAO[2]

1 VA Office of the Inspector General, "VHA: Review of Alleged Patient Deaths, Patient Wait Times, and Scheduling Practices at the Phoenix VA Health Care System," 2014
2 GAO High Risk Series: An Update, 2015
3 Booz Allen Hamilton: "VA: Final Report on Patient Scheduling and Waiting Times Measurement Improvement Study," 2008
4 NVTC, "Opportunities to Improve the Scheduling of Medical Exams for America's Veterans: A Report Based On a Review of VA's Scheduling Practices," 2014
5 GAO, GAO, "Human Capital: Selected Agencies Have Opportunities to Enhance Existing Succession Planning and Management Efforts (05-585)," 2005
6 VA OIG, "VA OIG Audit of Retention Incentives for Veterans Health Administration and Veterans Affairs Central Office," 2011
7 VA OIG, "VA OIG Audit of ADVANCE and the Corporate Senior Executive Management Office Human Capital Programs," 2012

Appendix Figure A-8. Recommendations to Respond to Issues

Recent studies have laid out a suite of recommendations to respond to issues identified (1/2)

■ Identified in study

Category	Issues cited	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Leadership development and succession planning	Give leaders broad exposure to leaders in other realms					BAH[3]							
	VA should consider alternative but complementary approaches to assessing leaders					BAH[3]							
	Leaders should be rewarded for efforts that spur innovation					BAH[3]							
	Clearly define desired leadership competencies					BAH[3]							
	Improve training												GAO[2]
	Improve impact measures of programming									OIG[7]			
	Enhance financial incentive programs to attract and retain top talent					BAH[3]							
	VA should proactively analyze and prepare for changing demands and staffing needs (for example, specialty MDs)					BAH[3]							
	VHA should seek opportunities to coordinate succession planning and development programs with other agencies								OIG[6]				
	Conduct 100 percent reviews of retention incentives and stop unnecessary payments.								OIG[6]				
Culture and employee engagement	Build a culture of innovation and build leadership development model to support it					BAH[3]							
	Engage frontline staff in the change process					BAH[3]							
	Conduct reviews of internal and external best practices					BAH[3]							

1 VA Office of the Inspector General, "VHA: Review of Alleged Patient Deaths, Patient Wait Times, and Scheduling Practices at the Phoenix VA Health Care System," 2014
2 GAO High Risk Series: An Update, 2015
3 Booz Allen Hamilton: "VA: Final Report on Patient Scheduling and Waiting Times Measurement Improvement Study," 2008
4 NVTC, "Opportunities to Improve the Scheduling of Medical Exams for America's Veterans: A Report Based On a Review of VA's Scheduling Practices," 2014
5 GAO, GAO, "Human Capital: Selected Agencies Have Opportunities to Enhance Existing Succession Planning and Management Efforts (05-585)," 2005
6 VA OIG, "VA OIG Audit of Retention Incentives for Veterans Health Administration and Veterans Affairs Central Office," 2011
7 VA OIG, "VA OIG Audit of ADVANCE and the Corporate Senior Executive Management Office Human Capital Programs," 2012

Recent studies have laid out a suite of recommendations to respond to issues identified (2/2)

■ Identified in study

Category	Issues cited	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Accountability	Hold VHA leaders accountable for VHA action plans					BAH[3]						OIG[1]	
	Hold VHA leaders accountable for their individual assessment plans					BAH[3]							
	Clarify existing policies												GAO[2]
Performance management	Standardize management dashboards					BAH[3]							GAO[2]
	Management decisions should be made on reliable and complete data											NVTC[4]	
Reform readiness	VA should engage frontline staff in the process of change											OIG[1]	
Other: HR, systems and Processes	Establish internal mechanism to perform quality assurance reviews of scheduling accuracy											OIG[1]	
	Redesign the recruitment process and consider possibility of outsourcing it					BAH[3]							

1 VA Office of the Inspector General, "VHA: Review of Alleged Patient Deaths, Patient Wait Times, and Scheduling Practices at the Phoenix VA Health Care System," 2014
2 GAO High Risk Series: An Update, 2015
3 Booz Allen Hamilton: "VA: Final Report on Patient Scheduling and Waiting Times Measurement Improvement Study," 2008
4 NVTC, "Opportunities to Improve the Scheduling of Medical Exams for America's Veterans: A Report Based On a Review of VA's Scheduling Practices," 2014
5 GAO, GAO, "Human Capital: Selected Agencies Have Opportunities to Enhance Existing Succession Planning and Management Efforts (05-585)," 2005
6 VA OIG, "VA OIG Audit of Retention Incentives for Veterans Health Administration and Veterans Affairs Central Office," 2011
7 VA OIG, "VA OIG Audit of ADVANCE and the Corporate Senior Executive Management Office Human Capital Programs," 2012

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Appendix C   Acronyms

ADUSHOM	Assistant Deputy Under Secretary for Health of Operations and Management
AES	All Employee Survey
AHA	American Hospital Association
ALOS	Average Length of Stay
BLS	Bureau of Labor Statistics
CABG	Coronary Artery Bypass Surgery
CAMH	CMS Alliance to Modernize Healthcare
CBOC	Community-Based Outpatient Clinics
CFR	Code of Federal Regulations
CMS	Centers for Medicare & Medicaid Services
CPRS	Computer Patient Record System
CSEMO	Corporate Senior Executive Management Office
DUSHOM	Deputy Under Secretary for Health of Operations and Management
ECQ	Executive Core Qualification
EBITDA	Earnings before interest, taxes, depreciation, and amortization
EEO	Equal Employment Opportunity
FEVS	Federal Employee Viewpoint Survey
FFRDC	Federally Funded Research and Development Center
FFY	Federal Fiscal Year
FTE	Full Time Equivalent
FY	Fiscal Year
GAO	Government Accountability Office
GS	General Schedule
HCLDP	Health Care Leadership Development Program
HR	Human Resources
HRIS	Human Resource Information Systems
ICARE	VA's core values, including Integrity, Commitment, Advocacy, Respect, Excellence
IG	Inspector General

IOC	Independent Outpatient Clinic
IRS	Internal Revenue Service
IT	Information Technology
LOS	Length of Stay
MCAS	Medical Center Allocation System
MD	Medical Doctor
MRSA	Methicillin-Resistant Staphylococcus Aureus
MSPB	Merit System Principle Board
NCA	National Cemetery Administration
NExT	New Executive Training Program
NP	Nurse Practitioner
NRM	Non-Recurring Maintenance
OHI	Organizational Health Index
OIG	Office of Inspector General
OMB	Office of Management and Budget
OPM	Office of Personnel Management
P&T	Pharmacy & Therapeutics
PACT	Patient Aligned Care Team
PBM	Pharmacy Benefits Management
PMA CAP	President's Management Agenda Cross-Agency Priority
R&D	Research and Development
RIF	Reduction in Force
RN	Registered Nurse
ROI	Return on Investment
RRA	Reform and Restructuring Act
RVU	Relative Value Unit
SAIL	Strategic Analytics for Improvement and Learning
SCIP	Strategic Capital Investment Plan
SES	Senior Executive Service
SME	Subject Matter Expert
USC	U.S. Code

VA	Veterans Affairs
VACO	Veterans Affairs Central Office
VALU	VA Learning University
VAMC	Veterans Affairs Medical Center
VBA	Veterans Benefits Administration
VERA	Veterans Equitable Resource Allocation
VHA	Veterans Health Administration
VHACO	Veterans Health Administration Central Office
VISN	Veterans Integrated Service Network
VSSC	VHA Support Service Center

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